

Conducting Monetary Policy under a Fully-Fledged Islamic Financial System

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Abstract

This paper outlines recent developments in Islamic monetary policy instruments that central bank can use to manage monetary policy. It provides details on Islamic monetary policy instruments suggested by researchers and practically adopted by central bank of Sudan (CBS). In addition, the paper assesses the contribution of Islamic monetary policy instruments adopted by CBS in achieving the goal of price stability.

Keywords: Monetary Policy, Islamic Monetary Policy, Islamic Monetary Policy Instruments

JEL Classifications: E4, E5, E6

1. Introduction

Islamic-compliant finance is governed by Islamic *Shariah* (or Islamic Law) originated from the *Holy Quran*, the revealed word of Allah, and *Sunnah*, Prophet Mohammed's sayings and practices as interpreted by the consensus of Islamic jurists.

Islamic *Shariah* prohibits both *riba* (interest payments or receipts on debt) and *gharar* (ambiguous contracts)¹. The prohibition of *riba* encompasses any interests

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¹Iqbal and Mirakhor (1999) think of *Gharar* as it is close to the notion of asymmetric information and moral hazard of contract theory. Operationally, *Gharar* exists if one or both of contracting parties have some information regarding the subject of contract and withhold that information from the other party.

(benefits) linked to the loan (e.g. presents). In addition, the prohibition of *riba* incorporates any payment or receipt of interest even among commercial banks or between central bank and commercial banks (Fahmy, 2006)².

Besides avoiding *riba* and *gharar*, Islamic-compliant finance incorporates the following characteristics (Zin Mohd, et al., 2011, Mohieldin, 2012): (i) it substitutes the predetermined interest rate by the rate of return earned ex-post on contracts based on risk sharing; (ii) it substitutes government debt securities based on predetermined interest rate by *Sukuk* or Islamic bonds (certificate of ownership) based on the rate of return on assets earned ex-post; and (iii) it substitutes the predetermined interest rate on deposits or loans by the rate of return earned ex-post on contracts based on profit/loss sharing principle³.

Islamic-compliant finance has attracted greater attention in the last few years particularly in the aftermath of the 2008 economic crisis and the resilience of Islamic finance to absorb the shock and avoid the first round effects. Mohieldin (2012) accounted for the resilience of Islamic finance by the dependence of Shariah-compliant financial instruments on sharing risks between financial institutions and their clients. Such resilience, along with some other features, explains the consecutive growth of Islamic financial industry.

²Iqbal and Mirakhor (1999) indicated that there is a general consensus among Muslim religious scholars that the prohibition of *Riba* extends to the payment or the receipt of interest for the following reasons: (i) it is *ex-ante*; (ii) it is tied to a time period and the amount of the principle; (iii) its payment is guaranteed by the borrower regardless of the outcomes of the business for which the money is borrowed; and (iv) the borrower is obliged to pay it. Controversy occurs concerning the explanation of the Arabic word *riba* especially for some of those who are not native Arabic speakers. The word *riba* is commonly translated as *usury* which is defined by New Webster's Dictionary as 'an excessive or unlawfully high rate of interest'. Under this meaning a positive interest rate is permissible (Noorzy, 1982).

³In addition, Islamic-compliant finance ensures a close link between financial sector and real economy. Farahani, and Dastan (2013), and Abd.Majid and Hasin (2014) found a close relationship between Islamic banks' financing and growth in real economy. Moreover, Islamic-compliant finance emphasizes principles of morality and ethics in business practice through discouraging investment in activities or products forbidden by Islamic law. Because of the ethical dimension revealed by the latest global economic crisis, some economists argue that the conventional global financial system needs to adjust its laws to accommodate Islamic ethical principles (Adebayo and Hassan, 2013).

According to Islamic Financial Stability Report 2013⁴, Islamic financial service industry whose assets reached \$ 1.6 trillion at end-2012 incorporated a rate of growth of 20.4% since end-2011. During the period 2004-2011, the compound annual growth rate of Islamic banking industry reached 38.5%. Sukuk market, the Islamic capital market, expanded during the same period by 44%.

The spread of the Islamic finance industry in more than 70 countries has been asymmetric regarding scale. Some countries have implemented a full-fledged Islamic financial system in which the banking system follows Islamic rules and monetary policy is fully conducted by Shariah-compliant instruments, e.g. Iran and Sudan. Some other countries have implemented a dual-financial system in which Islamic banks (IBs) exist alongside conventional (non-Islamic) banks where monetary policy is supposed to be managed by both *Shariah*-compliant instruments and conventional instruments, e.g. Malaysia⁵. Many other countries have issued financial legislations to regulate the establishment of either Islamic banks or Islamic windows inside conventional banks where monetary policy is fully conducted by conventional instruments, e.g. Egypt, Turkey, and UK (Temaa, 2011).

Central banks (CBs) working under Islamic financial system face a problematic situation in conducting monetary policy because conventional indirect instruments of monetary policy including discount rate, open market operations, and the role of central bank as lender of last resort are linked to nominal interest rate which itself is prohibited under Islamic *Shariah*. The prohibition of nominal interest rate by Islamic *Shariah* raises the questions of what monetary policy instruments are available to Islamic CB, and could Islamic monetary policy instruments achieve the goal of price stability?

⁴ IFSB, Islamic Financial Stability Report 2013. Available at:

[http://www.ifsb.org/docs/IFSB%20%20IFSI%20Stability%20Report%202013%20\(Final\).pdf](http://www.ifsb.org/docs/IFSB%20%20IFSI%20Stability%20Report%202013%20(Final).pdf)

⁵ The Shariah Advisory Council of Bank Negara Malaysia was established in 1997 and it has been given the mandate to ascertain the Islamic law of Islamic financial institutions (see; http://www.bnm.gov.my/microsites/financial/pdf/resolutions/04_sac.pdf). Nevertheless, Islamic financial institutions are not spared from statutory reserve ratio, liquidity ratio and other monetary conditions in Malaysia. Islamic banks' financing, however, could channel monetary policy effects to real economy (Abd.Majid and Hasin, 2014).

During the last ten years, both practical experience of some countries under Islamic banking systems, and academic research, have produced a verity of monetary policy instruments that don't contradict Islamic *Shariah*. This paper follows a descriptive methodology to answer the above mentioned questions through exploring *Shariah*-compliant monetary policy instruments suggested by researchers and practically adopted by the Central Bank of Sudan (CBS). In addition, the study assesses the contribution of *Shariah*-compliant monetary policy instruments that have been adopted by CBS in realizing the goal of price stability.

This paper is structured as follows: section 2 addresses Islamic monetary policy instruments suggested by researchers; section 3 highlights the experience of CBS under Islamic banking system; and section 4 offers concluding remarks.

2. Islamic Monetary Policy Instruments Suggested By Researchers

In achieving monetary policy goals CBs may intervene directly into the money market through the use of their discretionary and regulatory powers, or indirectly through influencing market powers. Direct instruments that CBs mostly use are: interest rate control; credit ceiling; selective interest rates; and liquidity ratio. Indirect instruments incorporate: statutory reserve ratio; rediscount rate; Lombard rate; credit auctions; foreign exchange swaps; and open market operations including primary market sales of CB papers, primary market sales of government securities, and secondary market operations)⁶. Practically, indirect instruments are extensively used by most CBs especially under the basis of free market economy⁷.

Although the introduction of Islamic Banking System (IBS) renders the use of interest-based instruments obsolete, other conventional monetary policy instruments

⁶ For more details on the advantages and disadvantages of direct and indirect instruments of monetary policy, see Choudhry and Mirakhor (1997).

⁷ Researchers do not use a standard measurement to sort out monetary policy tools. Monetary policy tools are categorized into qualitative and quantitative tools, statutory and based market tools, and direct and indirect tools. Choudhry and Mirakhor (1997) distinguish direct and indirect instruments in two ways: (i) direct instruments set prices or quantities through regulation, while indirect instruments influence underlying demand and supply conditions; (ii) direct instruments are mainly aimed at the balance sheets of the commercial banks, while indirect instruments are aimed at the balance sheet of the central bank.

are valid. In addition, the CB can practice open market operations using asset-based instruments instead of interest-based instruments. Researchers in the field of Islamic economics have suggested a number of monetary policy instruments that do not contradict Islamic *Shariah* and hence it can be used under a full-fledged IBS.

Chapra (1996) argues that the non-availability of some traditional instruments of monetary policy because of the adoption of IBS will not preclude the implementation of Islamic monetary policy providing that the CB will regulate the high powered money at source. He proposed a number of monetary policy instruments that can be used by Islamic CB, they are:

(i) Targeting the rate of growth of high-powered money (M_0). Where CB determines the annually desired or targeted growth in money supply, say, M_2 and regulate M_0 , on the basis of the value of monetary multiplier, to hit the desired monetary target. The monetary target should be in accordance with the general economic goals including the stability of domestic currency⁸. The resources derived from the creation of money by CB (*seigniorage*) should be used for financing budget deficit through *Qard Hasan* (interest-free loans), providing credit to commercial banks under *Mudarabah* (trust finance) investment contract⁹, and providing specialized financial

⁸ In contrast to Chapra (1996), the author argues that the demand for money function under an Islamic banking system is similar to the Keynesian formula after substituting nominal interest rate by profit-sharing ratio. Thus, interest rate mechanism under conventional monetary policy regime can be substituted by profit-sharing ratio mechanism under Islamic monetary policy regime.

⁹ A *Mudarabah* contract meets short-run businesses where funds are provided by the Islamic bank to an investor in return for a predetermined ratio of profits. If a loss is incurred, Islamic bank bears it exclusively and the investor loses the reward for his/her time and effort. In contrast to a *Mudarabah* contract, a *Musharakah* (joint venture finance) contract meets long-run businesses where Islamic bank is engaged in a contractual relationship with equal or variable share in an investment project. The distribution of profits is determined either upon agreement or upon the ratio of contribution of each part in the principle whereas the losses are distributed upon the ratio of contribution of each part in the principle. It is important to distinguish between a *Mudarabah* investor who is considered an important stakeholder and a *Musharakah* investor who is considered a shareholder. In case of bankruptcy, the *Mudarabah* investors will have a priority claim on the remaining assets whereas the *Musharakah* investors may lose their investments. Also, it is important to distinguish between *Musharakah* investors and equity investors where the former receive dividends limited to a predetermined time period

institutions with credit under *Mudarabah* investment contract to finance productive activities and self-employed persons. Profits realized by CB from *Mudarabah* investment contracts should be partly made available to the government to finance projects designed for eliminating poverty and reducing income inequalities, and partly retained by CB to cover its expenses¹⁰.

(ii) In addition to the amount diverted to the government by CB from expanding M0, up to 25% of commercial bank demand deposit should be diverted to the government budget to finance socially beneficial projects in which profit sharing is not desirable. As commercial banks do not pay any return on demand deposits, the government should not bear any cost for these loans except for the service charge and the cost of insuring demand deposits.

(iii) Statutory Reserve Ratio (SRR). Two alternatives have been suggested by Chapra (1996) and both of them are concerned with Islamic redistribution justice (Arrif, 1996). The first alternative is to impose a 100% SRR on demand deposits. Under this option, CB can entirely control the amount of credit or money creation by commercial banks. The second option is to permit a partial SRR of 10-20% of demand deposits and hence allow commercial banks to create money. The reason why SRR should not be extended to investment deposits including *Mudarabah* deposits is that investment deposits represent a part of IB equity which basically is not a subject to SRR requirement as the case of conventional banks¹¹. Under the second option, the redistributive justice will be taken care of by forcing commercial banks to transfer the net income arising from derivative deposits or money creation to the state budget after deducting the *Mudarabah* share of commercial banks.

and profit ratio. In addition, *Musharakah* investment is less liquid than equity investment since there is no trading in *Musharakah* investment (Rodney, 2008).

¹⁰ As indicated by Fahmy (2006), Al-Jarhy (1981) proposed a similar alternative to Chapra (1996), where CB will establish investment deposit in the commercial banks. A part of monetary base, M0, created by CB can be diverted to these accounts. The CB will, then, issue what's called 'deposits certificates' with face values equal to the balance of the investment deposit. Hence, CB can control money supply through practicing OMO on these certificates.

¹¹ Arrif (1996) argues that the SRR ratio should be extended to *Mudarabah* deposits to enable CB to make control of the amount of credit created by commercial banks. Whatsoever justifications that can be mention in this regard, *Mudarabah* deposits are still a part of IB equity and hence it should not be a subject of SRR requirement.

(iv) Credit ceilings can be used to maintain the monetary targets. Because the relationship between commercial bank reserves and credit expansion is not accurate it will be necessary for the CB to use credit ceilings to control credit creation and make it consistent with the monetary targets.

(v) Credit allocation can be used to support and promote small businesses and reduce deviations among sectors and areas. The risk arises because small businesses finance can be reduced by introducing a loan guarantee scheme underwritten by both government and commercial banks.

(vi) In addition to the above mentioned instruments, other conventional monetary policy instruments are valid. These are liquidity ratio, selective controls, specific directives, and moral suasion.

Arrif (1996) added a number of interest-free monetary policy instruments that can be used by CB to control money supply. These are: (1) refinance ratio, i.e. the CB's refinancing of a part of interest-free loans provided by commercial banks; (2) *Qard-Hasan* ratio, i.e. the percentage of demand deposits that commercial banks are obliged to lend as an interest-free loans; (3) profit-sharing ratio, i.e. the ratio through which *Mudarabah* and *Musharakah* (Joint venture finance) investments will take place between commercial bank and its clients¹²; and (4) the ratio of interest-free government securities in the advances portfolios of commercial banks.

Fahmy (2006) supports the proposition of a 100% SRR on the current accounts. That is, the current accounts of commercial banks should be under the control of CB. As a result, current account should be redefined on the basis of Islamic *Shariah* as a deposit at both commercial banks and CB, fully guaranteed by the CB, and only the CB is allowed to manage it.

In addition, the CB or government may establish 'social banks' which take the form of a holding company that has a variety of specialized investment funds with separated and independent balance sheets. The resources of these investment funds

¹² Movements in profit-sharing ratio by CB on *Mudarabah* and *Musharakah* investments that take place between CB and commercial banks do not necessarily lead to movements in profit-sharing ratio between commercial banks and their clients. As indicated by Fahmy (2006), profit-sharing ratio does not represent a cost of funds like the case of nominal interest rate which reflects the marginal cost of raising funds. As a consequence, an increase in profit-sharing ratio by CB will not affect the marginal cost of funds and hence will not necessarily affect the supply of credit by commercial banks.

come partly from current account funds and partly from monetary base created annually by CB. The uses of funds are: (i) *Mudarabah* and *Musharakah*-based investment in different economic sectors; (ii) holding shares in existing businesses in different economic sectors; (iii) offering finance to small producers, e.g. farmers, craftsmen, and new graduates; (iv) *Qard-Hasan*, to finance the working capital of small businesses; and (v) financing budget deficit through interest-free loans.

According to Fahmy's (2006) suggestion, CB will control money supply as follows:

(i) Under a 100% SRR commercial banks are unable to create money through derivative deposits. Hence, CB will have greater power to change money supply at suitable time in such a way to achieve monetary policy objectives.

(ii) Profit-sharing ratio can be used effectively in such a case because a change in profit-sharing ratio on *Mudarabah* and *Musharakah* investments will be linked directly to investors through investment funds affiliated to social banks. In addition, commercial banks are expected to follow CB strategy, especially when CB cuts profit-sharing ratio on *Mudarabah* and *Musharakah*-based investments to encourage the economy during recession¹³.

(iii) For open market operations (OMO) to be practiced, the CB may issue investment certificates or *sukuk* backed by both equities and shares of different investment funds. Since these certificates are allowed to be traded in the secondary market, the CB can directly practice OMO on these certificates through social banks, providing that CB does not commit itself to repurchasing it with specific dates to be consistent with Islamic *Shariah*. The advantages of this suggestion are twofold. Firstly, the risk is low because investment certificates are backed by assets of a large number of diversified business firms. Secondly, the rate of return on these certificates can be used as a standard for opportunity cost of capital in new investment projects.

¹³ Profit-sharing ratio might not be effective when the economy faces inflation. If we envisaged the monetary market as an oligopoly market of two parties, private commercial banks and social banks that follow CB, Nash-equilibrium in such a case is to keep profit-sharing ratio at lower limits. Thus, commercial banks might not follow CB when the latter raises its profit-sharing ratio on new investment contracts to fight inflation. In addition, most Islamic commercial banks do prefer *Murabahah* over *Musharakah* and *Mudarabah*-based investments to avoid liquidity risk (Ben Jedidia, and Hamza, 2014, and Kayed, 2012). However, profit-sharing ratio as a monetary policy instrument can effectively be used to fight inflation and recession when social banks dominate the monetary market.

Ismal (2011) proposes two categories of asset-backed securities that can be used by CB as monetary policy instruments¹⁴.

The first category incorporates instruments with routine payment of return, they are: (i) *Wakalah wa Ijarah* certificate (agency and leasing), and (ii) *Wakalah wa Ijarah Muntahia Bitamlik* certificate (agency and leasing-sale). In both forms of certificates, the CB receives a predetermined amount from depositors (they can be commercial banks, business firms, etc.) and then purchases leasable assets to be leased to a third party with a certain rental rate in an agreed period. The holders of certificates (depositors) get a regular amount of returns. In the first form the returns come from leasing assets, whereas in the second form the returns come from leasing assets and the installments of the principal. At the end of the leasing period, the holder of *Wakalah wa Ijarah* certificate will receive the principal of certificate based on the market value of the asset when it is sold by the bank.

The second category incorporates instruments to possess/securitize assets, they are: (i) *Musharakah mutanaqisah wa Ijarah certificate* (diminishing Joint venture finance and leasing); and (ii) *Islamic securitization wa Ijarah certificate*. Under to the first form, both CB and investors contribute some funds to share the ownership of an asset or project which will then be leased to a third party for a specific period of time. The investors capture the whole possession of the project at the end of leasing period by transferring their rental returns shares during the leasing period to the CB. In the second form, the CB (or government) securitizes a part of his assets by selling it to the investors then the asset is leased to a third party for a certain period of time. Unlike to the first form, the CB repossesses the asset after the end of the leasing period by transferring its share of rental returns during the leasing period to the investors.

How can CB use these instruments to make control of money supply? Since the creation of new money is strictly closed to developments of real economy, these instruments can be used to activate idle liquidity within the economy. The first category of these instruments involves a monetary contraction when the CB withdraws money in exchange for *Wakalah wa Ijarah* and *Wakalah wa Ijarah*

¹⁴ Ismal (2011) assumes that the CB operates under a dual banking system in which monetary policy is mainly conducted by nominal interest rate. Nonetheless, asset-backed securities proposed in his study can be used under a full-fledged Islamic banking system.

Muntahia Bitamlik certificates. A monetary expansion, however, occurs because of purchasing of assets and other payments to the investors by CB. Ismal (2011) argues that the varying of timing between withdrawing and reinjection of funds gives the CB the opportunity to handle the short-term liquidity spikes within the economy. Concerning the second category of instruments, a monetary contraction occurs when investors participate in projects under either *Musharakah mutanaqisah wa Ijarah certificate* or *Islamic securitization wa Ijarah certificate*. The level of monetary contraction depends on how much *Musharakah* rate in the former contract, and how much securitization ratio of the asset the CB will offer in the latter contract. However, monetary expansion occurs in both contracts during the stage of setting up the project. Nevertheless, monetary expansion in the latter contract is higher because CB will transfer its regular incomes from *Ijarah* to the investors in order to repossess the asset.

In addition to the above mentioned instruments, Bidabad, Bijan, et al. (2011) suggest the use of interest-free bonds, or Islamic bonds (*sukuk*), as a CB's monetary policy instrument¹⁵. The use of Islamic bonds, issued in domestic and/or foreign currency, as a monetary policy instrument can be operated under conventional and Islamic banking systems. It can be issued by CB, commercial and specialized banks, government treasury, and private or corporate entities with special guarantees. Since interest-free bonds represent ownership of an asset and can be traded in the secondary market, the return and market value of it will be affected by the performance of the underlying asset or project.

The innovation in this proposition is: (i) the use of interest-free bonds as a monetary policy instrument is based upon 'loan equal to future debt', or, 'debt equal to future loan' with time-drawing right, and (ii) the use of interest-free bonds issued in foreign

¹⁵ Islamic bonds, or *sukuk*, represent an asset-backed paper with ownership claims on assets linked to investment. The face value of *sukuk* is based upon the market value of the underlying asset where each *sukuk* represents a share in the asset. *Sukuk* holder receives a proportionate share in profits (or bears a proportionate share in losses). In contrast to conventional bonds, *sukuk* holder may not get back the face value of *sukuk* at maturity date because the market value of *sukuk* at maturity date depends on the performance of the existing project. Most *Shariah* scholars believe that a promise by the issuer to repurchase *sukuk* with the face value at maturity date does contradict the Islamic law.

currency can be managed by the CB to maintain stability in the foreign exchange market.

Under this proposition, holding interest-free bonds (either in domestic or in foreign currency) by investors will give them the right to obtain interest-free loan equal to the face value of their holding bonds. For instance, by buying \$A bonds with maturity of N months, the buyer will have the right to obtain \$A/K interest-free loan for a period of KxN months from the issuer of the bonds. The parameter K (= 1, 2, 3... m) can be determined by agreement between the issuer and the investor so that the resulting amount of money multiplied by time is fixed and equal to AxN. Obviously, these bonds have two time periods (or two stages) with two maturity dates. The first maturity date occurs at the end of N months for a period begins from the selling time of the bond to the investor. The second maturity date occurs at the end of (KxN) months for a period begins from the end of first maturity date. Thus, the time horizon of the whole contract is N + KxN months.

Bidabad, Bijan, et al. (2011) argue that the use of interest-free bonds can help CB to manage monetary policy in two ways: (i) since the issuing of interest-free bonds will affect the high powered money through changes in the free balances of banks and hence will create contractionary effects in the first period and expansionary effects in the second period, CB may define A, N, and K according to monetary policy goals and the expectations about the trend of economic business cycle, and (ii) issuing interest-free bonds by CB, commercial banks, government treasury, and private entities is likely to deepen both money market and financial market and hence would improve the effectiveness of monetary policy instruments.

3. Experience Of Sudan Under Islamic Banking System

3.1. Monetary policy instruments adopted by Central Bank of Sudan (CBS)

As indicated by CBS (2006), the existing banking system in Sudan during the period of 1979-1989 was a dual banking system in which traditional commercial banks existed side by side with Islamic banks. Islamic banks during this period were exempted from the dictates of traditional monetary policy used by the CBS against traditional commercial banks, where Islamic banks were allowed to conduct their transactions according to Islamic *Shariah* principles.

Under the new investment law issued in 1976 and the open-door policy beginning from 1979, the number of Islamic banks has gradually increased. In September 1983, the government of Sudan has announced the implementation of Islamic *Shariah*. According to the civil transactions law, promulgated in 1984, the payment and the receipt of interest have been abolished. Since then, domestic transactions between commercial banks and their clients have been established upon the basis of Islamic *Shariah*. External transactions, however, were regarded to be implemented upon traditional basis until a suitable formula is invented.

Monetary policy instruments adopted by CBS during the period of 1979-1989 were: discount rate policy, SRR, OMO (before 1984), credit ceilings, credit margins covered by bonds, and credit allocations. In 1987, the CBS defined what's called 'compensatory yields' on different categories of both credits and debits accounts of commercial banks to be used as an alternative to nominal interest rates.

With the advent of the 1990's, the Islamization process of banking sector in Sudan was deepened (CBS, 2006, and, Hussien, 2010). In 1992 Sharia Supervisory Board was established to maintain consistency of banking transactions with Islamic principles. CBS switched gradually to indirect monetary policy instruments, especially from the second half of the decade¹⁶.

Monetary policy tools used by CBS beginning from the 1990s were as follows:

(i) Qualitative instruments were used to affect the directions and quantities of credits in some specific sectors or activities. Quantity of credit, maturity, and cost of finance were differentiated to be in favor of sectors and activities that had the most priority in the general economic policy of the state e.g., agricultural and exporting sectors. Comprehensive credit ceilings used in the past periods (since 1983) were substituted by sectorial credit ceilings. However, sectorial credit ceiling policy were cancelled in 2001 when the government adopted a new strategy of liberalizing banking sector.

¹⁶After the peace agreement between North and South Sudan in 2005, the CBS Act issued in 2002 was amended in 2006. According to the new legislation, the banking system in Sudan is a dual banking system, Islamic in the North and conventional in the South. Central Bank of Southern Sudan was established as a branch of CBS to provide conventional banking services in the Southern Sudan according to the rules and regulations issued by the board of CBS. After independence of Southern Sudan in 2011, CBS no longer uses conventional instruments of monetary policy.

(ii) Statutory reserve ratio (SRR), which is defined to incorporate all kinds of deposits accounts except for investment deposits. Since July 1997, CBS defined two separated SRRs for both domestic and foreign currencies. The two ratios were differentiated during the years 1997 (4% for foreign currency and 26% for domestic currency) and 1999 (6% for foreign currency and 28% for domestic currency). Starting from 2001, SRRs has been unified¹⁷.

(iii) Domestic liquidity ratio; firstly used in 1994 and determined by 10% of current and saving deposits to meet daily withdrawals of clients. In 2000, the denominator of the ratio was adjusted to include all kinds of deposits, including investment deposits. In 2001, the commitment of 10% liquidity ratio was relaxed, except for banks that have inadequate liquidity management policies.

(iv) Profit margins, profit-sharing ratios, and administrative compensations were used extensively from the second half of the 1990's. The CBS uses Profit margins on *Murabahah* investments¹⁸, profit-sharing ratios on *Mudarabah* and *Musharakah* investments, and administrative compensations on *Mudarabah* and *Musharakah* investments offered by commercial banks to control the amount of credit. To tighten monetary policy the CBS increases the limits of profit margins, increases profit-sharing ratios, and regulate management compensations, *vice versa*.

(v) Liquidity and investment windows. To play the role of lender of last resort and to encourage the implementation of development projects, CBS invented two windows for liquidity and investment. The liquidity window intends to support commercial banks whenever they experience a temporarily shortages of liquidity, whereas the investment window is designed to maintain the targeted level of liquidity within the

¹⁷ During the years 2012, 2013, and 2014 SRRs on both domestic and foreign currency deposits have been determined to be 13%, 15%, and 18%, successively (Economic Bulletin, CBS's policy report, different years, available at: <http://www.cbos.gov.sd/>).

¹⁸ *Murabahah* (Markup) contract is one of the Islamic finance forms used by Islamic Bank (IB). It covers all kinds of goods produced either inside or outside the country. Upon this contract, IB purchases the commodity ordered and described by their clients with a promise to resell it to them with a higher predetermined price, i.e. *Murabahah* price equals to commodity price paid by the bank plus markup. The markup which represents the profit margin earned by the bank is set upon agreement between IB and their clients. *Murabahah* price can be paid upon installments during an agreed time horizon.

economy. To do so, CBS uses auctions to offer liquidity to commercial banks. Under investment window, funds take the form of investment deposit with unrestricted *Mudarabah* contract.

(vi) Open market operations. Instead of interest-based papers, CBS introduced a number of asset-based papers to be used in the open market. These papers are: (1) central bank *Musharakah* certificate, known as *Shamam*. This certificate is issued in 1998 with undetermined date of maturity and a pre-determined profit-sharing ratio. It is backed by shares of both CBS and ministry of finance in public commercial banks. The investors have claims on profits of corresponding shares of CBS and government in these banks and CBS accept it with face value whenever investors decide to sell it. *Shamam* certificates were liquidated in 2004 after the implementation of privatization program and the selling of a number of public commercial banks to private sector. (2) Government *Musharakah* certificate, known as *Shahamah*. This certificate was issued in 1999 under *Musharakah* formula with a pre-determined profit-sharing ratio and maturities of three to twelve months. It is backed by an investment fund which incorporates assets of a selective variety of the most successful institutions owned partly or totally by the government. The investment fund is managed by CBS, and the investors have claims on pooled profits. The CBS is not committed to purchase it before maturities but investors have the option to trade it in the secondary market. (3) Central bank *Ijarah* certificate, known as *Shihab*. This certificate was issued in 2005 by CBS to be an alternative to *Shamam*¹⁹. *Shihab* certificate is issued under *Ijarah* formula for a ten-year maturity and offers a fixed monthly return to investors. The issuing of this certificate requires that CBS will securitize a part of the assets and then offer it to investors with a commitment of CBS, firstly, to lease the asset and pay the rent during the contract period and secondly, to buy *shihab* certificate with the face value at maturity date. It is nearly the same process mentioned earlier by Ismal (2011) under *Islamic securitization wa Ijarah certificate*²⁰. (4) Government investment

¹⁹ CBS (2008), Annual Report, P.47, and CBS webpage, available at; <http://www.cbos.gov.sd/node/86>

²⁰ Taking into account that CBS has operated this certificate since 2005, CBS has the antecedence to invent it.

certificate, known as *Sarh*. This certificate is similar to *Shahamah*, but it is issued under both *Ijarah* and *Mudarabah* formulas for maturity dates of two to six years and distributes profits quarterly or semi-annually. (5) *Ijarah* certificate of Sudan Electricity Company, known as *Nour*. This certificate was issued in 2012 backed by a three-year investment fund of 758 million dollars with face value \$100 for each certificate and an expected rate of return of 7% to be paid every six months. Funds were raised under a restricted *Mudarabah* formula and have been invested in assets of Sudan Electricity Company which have been rented to the ministry of finance. At the end of contract period, assets will be offered with a competitive market price.

In addition to the aforementioned instruments, the CBS (2006) reported some other instruments for open market operations to be used in the near future. These instruments are: Islamic *Ijarah* certificate, Islamic development certificate, and short-term *Bai' Salam* (purchase with differed delivery) certificate. The first two instruments are similar to those mentioned earlier by Ismal (2011) under *Wakalah wa Ijarah Muntahia Bitamlik* certificate and *Musharakah mutanaqisah wa Ijarah certificate*.

The issuance of *Bai' Salam* certificate begins with an invitation by CBS to commercial banks, corporations, and individuals to participate in an investment fund managed by CBS under restricted *Mudarabah* formula. CBS uses funds to purchase a specified and a described commodity (e.g., oil) with advance payment of price to the producer who is committed to deliver it to the CBS at a future determined date. By reselling the commodity at a higher price, the CBS attains profits which in turn will be distributed to investors upon their shares²¹.

²¹ Under *Bai' Salam* (Purchase with differed delivery), it is valid that the producer who is committed to deliver the commodity to the IB at a predetermined future date may himself sign a parallel contract with another producer to deliver the commodity at the future agreed time. In addition, *Bai' Salam* contract can be used to sell *Sukuk* securities to finance government deficits as an alternative to conventional treasury bills. As indicated by Rodney (2008), IB or investors can pay in advance to the treasury for the purchase of state owned assets. At the maturity date the asset is duly transferred to IB, but immediately the treasury purchases it at a higher price. The mark-up represents the return to IB. This extension of *Salam* contract is widely used in the recent years by many Islamic countries, e.g. Bahrain, Qatar, Saudi Arabia, Iran, Sudan, Pakistan and Malaysia.

3.2. Evaluation the experience of Sudan under Islamic Banking system

Among other objectives designated to CBS under the CBS Act 2002 and its amendments in 2006, is the responsibility of CBS for formulating and implementing monetary policy in cooperation with the Ministry of Finance in such a way that achieves internal and external stability of domestic currency within the context of Islamic *Shariah* principles. Recently, the objective of internal stability is defined to be a single inflation digit²².

Considering the experience of CBS under Islamic banking system, the goal of internal and external stability of domestic currency is far reaching in most periods. Table 1 shows some macroeconomic indicators covering the period 1970-2012. Domestic currency depreciation was dominant during the whole period, particularly with the comprehensive implementation of Islamic monetary policy regime during the 1990's, particularly 1991-1998, and also after the secession of Southern Sudan in 2011. Similarly, the rate of inflation during the periods 1991-1998 and 2011-2012 is higher than other periods. High growth rate of money supply, M_2 , during the periods 1991-1998 and 2011-2012 in conjunction with a slacked real GDP growth may explain both external and internal instability of domestic currency.

Table 1: Some macroeconomic indicators on the period 1970-2012

Years	1970-1990	1991-1998	1999-2002	2008-2010	2011-2012
Local currency depreciation %	56	177	-	16.7	65
Inflation %	26	90.13	9.75	12.9	31.65*
Growth in money supply (M_2) %	31	73	29	21.4	29
Growth in real GDP %	2.2**	4.5	6.7	5.83	1.5
Budget deficit(BD)/GDP %	-	1.8	1	3.1	4***

*End of the year inflation, ** Current GDP average growth for periods 1979-1989, *** Does not include grants

Source: Periods 2008-2010 and 2011-2012 are collected and calculated from CBS annual report and CBS webpage, available at; <http://www.cbos.gov.sd/node/252>

Other periods are calculated from; Central Bank of Sudan (2006). 'Experience of Sudan under Islamic Banking and Financial Institutions: Management Plan of Monetary and Financial Policy (in Arabic)', ISBN; 99942-831-9-7.

²² Available at: <http://www.cbos.gov.sd/en/node/413>

Table 2 sheds some light on the factors behind high growth in money supply during the period 2005-2012. Gradual increase in budget deficit, as indicated by Table 1, and the reliance mainly on domestic sources to finance it, especially with the issuance of new money by CBS as indicated by Table 2, can be regarded as the major reasons of domestic currency instability. For instance, the targeted rates of both inflation and real GDP in 2012 are 17% and 2%, whereas actual rates are 44.4% and 1.1%, respectively. With 70.4% domestic finance to budget deficit and a contribution of CBS in financing budget deficit reached to 26.2%, growth in the monetary base jumped from 27.8% to 46.7% and hence money supply increased by 40.2%. In addition, gradual decline in circulation of money during the periods 2005-2012, as shown in Table 2, can be explained by high growth in money supply along with the escalation of inflation rate and the recede in real GDP growth.

Table 2: Budgetary and monetary indicators on the period 2005-2012

Years	2005	2006	2007	2008	2009	2010	2011	2012
Domestic finance to budget deficit%	71	70	31	69.5	81.4	90.3	99.4	70.4
CBS contribution in financing budget deficit %	-	-	-	-	48.9	4.15	15.9	26.2
Growth in money supply (M2) %	46	27.3	10.3	19.7	23.5	25.4	17.9	40.2
Annual Growth in monetary base %	35	27.7	12.7	22.1	28	17.2	27.8	46.7
Monetary multiplier	2.29	2.28	2.23	2.13	2.05	2.2	2.02	1.93
Circulation of money	5.93	5.4	5.4	5.43	4.8	4.5	4.45	4.14
Inflation	8.4	15.7	8.8	14.9	13.4	15.4	18.9	44.4
Real GDP annual growth	5.6	9.9	8.1	7.8	6.1	2.7	1.9	1.1

Source: CBS, annual report, different years

According to the CBS, deviations between targeted and actual rates of both inflation and real GDP during 2011 and 2012 are referred to the secession of Southern Sudan which deprived central government from influential resources coming from oil producing sector (CBS, annual reports, 2011 and 2012).

Indeed, the failure of CBS in achieving the goal of domestic currency stability on both levels, internally and externally can be referred to the way the CBS conducts

monetary policy. In most periods, the CBS did not act independently so that Islamic monetary policy instruments have been geared to serve the dictates of fiscal policy. In other words, it is the fiscal dominance, not a default in Islamic monetary policy instruments, which might explain the failure of CBS in achieving the goal of domestic currency stability.

However, the structure of Islamic finance practiced by commercial banks during the whole period from 1990 until 2012 has revealed a serious weakness in the financial policy managed by CBS.

Table 3 mirrors the structure of bank credit based on different Islamic financial forms during the period 2002-2012. It shows that *Murabahah* is the most favoured contract by commercial banks. The average ratio of *Murabahah* credit reached to 49% during the period 2002-2012²³. Sometimes, Islamic commercial banks do not comply with CBS instructions to either lessen *Murabahah* credit or to decrease *Murabahah* profit margins, especially with the escalating of inflation rate (CBS, 2006). The reasons why Islamic commercial banks do prefer *Murabahah* over other Islamic financial forms are low risk, low management cost, and ease process of implementation.

Table 3: Structure of bank credit according to different Islamic finance forms during the period 2002-2012

Years	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<i>Murabahah</i>	36	44.6	38.5	43.2	53.4	58.1	46.9	52.3	54.7	61.4	49.9
<i>Musharakah</i>	27.8	23.2	32	30.8	20.4	13	12.1	10.5	9.4	6.6	10.9
<i>Mudarabah</i>	4.6	5.7	5.7	4.2	5.2	4	6	6.1	7.1	6.1	5.4
<i>Bai' Salam</i>	3.3	4.8	2.9	2	1.2	0.6	2	2.2	1.2	0.7	1.9
<i>Mukawalah</i>	-	-	-	-	-	-	7.7	6.4	10.8	8.4	8.9
<i>Ijarah</i>	-	-	-	-	-	-	0.2	0.2	0.3	0.2	0.4
<i>Istesnaa</i>	-	-	-	-	-	-	-	-	-	-	0.1
<i>Qard-Hassan</i>	-	-	-	-	-	-	-	-	-	-	0.5
Others	28.3	21.7	20.9	19.6	19.8	24.3	25.1	22.3	16.4	16.6	22.6

Source: CBS, annual report, different years, and CBS, economic and financial statistical review, different years.

Table 4 reveals another piece of information concerning about *Murabahah* average profit margins collected by Islamic commercial banks and clients *Musharakah* average shares. The high *Murabahah* average profit margins can be justified by high inflation rates during most periods as mentioned above, but receding *Musharakah* average share of clients (Table 4) in conjunction with declining *Musharakah* credit

²³ *Murabahah* ratio reached to 55% in average during the period 1990-2004 (CBS, 2006).

ratio (Table 3) after 2006 reflects conservative stance of commercial banks to engage in new businesses.

Table 4: *Murabahah* average profit margins and *Musharakah* average shares during the period 2003-2012

End year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
<i>Murabahah</i> average profit margin %	17	10.7	11.2	10.4	11.4	11.5	10.2	9.7	19.7	11.3
<i>Musharakah</i> average share %*	55.7	43.9	46	43.8	31.1	32.3	27.7	33.7	28.6	28.2

*Clients contributions

Source: CBS, *annual report*, different years, and CBS, *economic and financial statistical review*, different years.

4. Conclusion

This paper sets out to answer the following questions: “What *Shariah*-compliant instruments of monetary policy are available to Islamic CB?” and, considering the experience of the Central Bank of Sudan (CBS), “Did *Shariah*-compliant instruments of monetary policy contribute to the goal of price stability?”

The discussions on conducting monetary policy under Islamic financial system assume that the monetary policy regime to be adopted by an Islamic CB is the monetary targeting regime where monetary base, M_0 , is served as an intermediate target and profit-sharing ratio on *Mudarabah* and *Musharakah* investments is the operational target.

Some researchers argue that a system with 100% SRR on current accounts of commercial banks would maximize the power of central bank to control money supply and hence realize the goal of price stability. Since no Islamic central bank has adjusted financial system to work upon a 100% SRR, monetary policy instruments proposed by Al-Jarhy (1981), Chapra (1996), and Fahmy (2006) that are linked to such a proposition lack empirical evidence.

Other *Shariah*-compliant instruments of monetary policy available to Islamic CB can be categorized as follows:

1. Conventional monetary policy instruments that do not incorporate interest payments and can be used for direct intervention into the money market are: (i) statutory reserve ratio; (ii) credit ceilings; (iii) credit allocations; (iv) liquidity ratio; (v) Specific directives, and (vi) moral suasion.
2. Islamic monetary policy instruments that can be used for direct intervention in the money market are: (i) interest-free loans (*Qard-Hasan*) ratio on credit

offered by commercial banks; (ii) CB refinance ratio of interest-free loans provided by commercial banks; (iii) Profit margins on *Murabahah* investments, profit-sharing ratios on *Mudarabah* and *Musharakah* investments, and administrative compensations on *Mudarabah* and *Musharakah* investments offered by commercial banks; (iv) the ratio of interest-free government securities in the advances portfolios of commercial banks, and (v) investment deposit with unrestricted *Mudarabah* contract offered by CB to commercial banks whenever they experience liquidity shortages.

3. To manage money supply in the short-run through OMO, CB can issue investment certificates backed by equities and shares of a variety of investment funds established by government and CB. Profit sharing ratios, maturities, and other specifications of these certificates are determined by CB. From the experience of CBS, there are varieties of investment certificates that can be used to manage money supply in the short-run, e.g. CB *Musharakah* certificate, and Government *Musharakah* certificate.
4. Non-inflationary Islamic monetary policy instrument to finance budget deficit and to manage money supply. These instruments are based on Ismal (2011)'s proposition. They are; (i) *Wakalah wa Ijarah* certificate (agency and leasing), (ii) *Wakalah wa Ijarah Muntahia Bitamlik* certificate (agency and leasing-sale), (iii) *Musharakah mutanaqisah wa Ijarah certificate* (diminishing Joint venture finance and leasing), and (iv) *Islamic securitization wa Ijarah certificate*. Practically, some of the aforementioned instruments primarily have been adopted by CBS, i.e. Central bank *Ijarah* certificate, Islamic *Ijarah* certificate, and Islamic development certificate. (v) *Bai' Salam* certificate that has been invented by CBS.
5. Interest-free bonds proposed by Bidabad, Bijan, et al. (2011) can be employed to serve two purposes: as a monetary policy tool through direct intervention by CB into the money market, and as a budgetary tool to finance seasonal budget deficit.

The second question of the study considers the realization of the goal of price stability by CBS during the periods after adopting a fully-fledged Islamic financial system. During most periods the goal of price stability is far reaching. High growth rate of money supply triggered by budget deficit financed by issuing new money is regarded as the main reason of domestic price instability. In addition, financial policy managed by CBS incorporated number of defects, i.e., the dominance of *Murabahah* on bank credit, and the less response of commercial banks to CBS instructions.

Issues still open for future research: the composition and the stability of Islamic demand for money function; Islamic monetary policy transmission mechanisms in a fully-fledged Islamic banking system; the level of money supply that corresponds with NAIRU; and conducting Islamic monetary policy under other monetary policy regimes, e.g. inflation targeting regime.

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