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Financial Markets and Their Implications for Monetary Policy: A Critical Review in the Context of SAARC Nations

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Abstract—*Monetary policy has a stabilizing role in influencing economic growth of a country through number of channels. However, the scope of such a role may be limited by the concurrent pursuit of other primary objectives of monetary policy, nature of monetary policy transmission mechanism, and by other factors.*

This paper presents a comparative analysis of the role of Financial Markets in transmitting the effects of monetary policy to the financial decisions of economic agents in SAARC countries. The structure of financial markets generally refers to the overall size of financial system, its composition, depth, and efficiency. Undoubtedly, with developed and efficient financial markets, the monetary policy actions become more effective in achieving its desired outcomes.

The nature and role of Monetary Policies may vary across nations depending on their structure and level of development. SAARC countries have heterogeneity in terms of monetary policy practices and none of them fully conform to the international best practices of monetary policy. Thus, they have varied strength and weaknesses which lead to lack of stability. However, there are areas of conformation where SAARC countries can improve the effectiveness of their monetary policy by the filling the gaps that their current practices have. This research endeavors to identify the creation of a feasible platform to facilitate exchange of financial expertise between SAARC countries on the basis of established research done by World Bank through its different indicators of financial system like number of bank branches, number of different financial institutions, interest rate, spread of banking system etc.

Thus, the objective of this study is to apply goal programming technique to select a team of Two SAARC nations, to form a team for collaboration such that a lower Ranked nation may be complimented by a higher Ranked nation and vice versa leading to improved team cohesion.

Keywords*: SAARC, Goal Programming, Monetary policy, Financial Market, World Bank*

1. INTRODUCTION

The Global Financial Crisis has both underscored the challenges of monetary policy in a financial system and highlighted the importance of liquidity and credit channels as additional conduits of external shocks. Domestic financial conditions appear to have become increasingly vulnerable to a vast range of external shocks [10]. This has not only complicated the task of making appropriate monetary policy decisions but has also highlighted the importance of cross border channels for the transfer of liquidity and credit shocks.

The enthusiasm for adopting guiding principles of monetary policy in the form of targeting inflation and increasing operational reliance on interest rates seems to be cooling down. Nevertheless, establishing legal and institutional structures that ensure independence of central bank, transparency and accountability have emerged as key areas of policy concerns. Furthermore, effective macroeconomic management in this era of increased financial linkages has made it necessary for economies to cooperate and coordinate in policy making.

The credit markets of small economies like some of the SAARC members display various kind of imperfections, some of which arise naturally, as a result of private information. Others are policy-induced; deriving from government interventions in the financial system.

This paper analyzes the impact of operation of international financial markets on SAARC economies and provides a comprehensive analysis of the existing monetary policy frameworks in the SAARC nations setting the stage for further research and cooperation. This study of comparative monetary policy frameworks in SAARC member nations provide an interesting starting point in having an overview of where we, as a group, stand today and what are the gaps or deficiencies from international best practices that we need to fill.

The diversity in the formulation and implementation of monetary policy practices among SAARC economies provides an opportunity to learn from each other‘s experiences and for increased cooperation in mutually beneficial areas.

2. ECONOMIC INTEGRATION IN SAARC ECONOMIES

SAARC was formed in 1985 with the vision of enhancing welfare and opportunity to realize the full potential of the region. Afghanistan joined the seven SAARC member countries of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka in the Dhaka Declaration of 13th summit, November 2005. Bandara and Yu [2] have highlighted the fact that it was only after the initiation of Bangladesh for a regional co-operation that the other seven member countries formed the regional bloc to accelerate economic and social development. Through a concept of collective self- reliance, SAARC members have been gradually expanding their co-operation and harmony in certain areas of development like education, environment, agriculture, health and population.

Sri Lanka proposed the further strengthening of intra regional economic co-operation and thus, SAPTA (South Asian Preferential Trade Agreement) was launched by SAARC in April 1995. SAPTA's major focus was on intra regional preferential trade arrangements in terms of greater product coverage and deeper tariff relaxations.

Apart from India, all the SAARC countries lack, to varying degrees, a democratic tradition [3]. Similarly, studies done by Jain and Singh [8] have shown that Sri Lanka is the only exception in SAARC economies with higher level of human development indicators.

Thus, despite a number of substantial reforms undertaken in SAARC economies in recent period, the region has remained one of the poorest and significantly lags behind in working of the institutional set-up. However, there are some common elements between the economies of this region. For example, all the SAARC member countries rely heavily on foreign aid and external assistance and poverty is pervasive throughout.

Thus there is a need for SAARC countries to implement policies which increase investment in order to keep pace with the economic expansion [7].

3. STRUCTURE OF FINANCIAL MARKET ACROSS SAARC MEMBERS

The implications of financial market on monetary policy of SAARC nations are studied using the data for financial indicators provided by World Bank. It is an extensive dataset of financial system characteristics which includes measures of (1) size of financial institutions and markets (financial depth), (2) degree to which individuals can and do use financial services (access), (3) efficiency of financial intermediaries and markets in intermediating resources and facilitating financial transactions (efficiency), and (4) stability of financial institutions and markets (stability). Each of these characteristics captures both (1) financial institutions (banks, insurance companies, and so on), and (2) financial markets (such as stock markets and bond markets). It also provides other useful indicators, such as measures of concentration and competition in the banking sector.

Data for 8 Financial Indicators for all the 8 SAARC member countries have been compiled and analyzed using Goal-programming Model. On the basis of which the model shows a path to enhance cooperation among central banks of member states.

These Eight financial Indicators selected for our study are:

1. Depth Of Credit Information Index:

The depth of credit information index measures rules and practices affecting the coverage, scope and accessibility of credit information available through either a public credit registry or a private credit bureau. Credit information sharing significantly decreases default rates as lenders become more aware of borrower's capacity and ability to repay their loans [9]. Thus credit information registries lower the perceived risk of lending and cost of capital and lead to greater inclusiveness of low income borrowers due to efficiency gains on the part of the lenders via the lowered default rate.

This index takes into account several features of public and private credit registry such as:

- Positive credit information (for example, pattern of on-time repayments and outstanding loan amounts) and negative information (for example, number and amount of defaults and bankruptcies, late payments,)
- Does the credit information system provide credit score and make it available to all service subscribers?
- Can banks and other financial institutions access the credit information online?

The index ranges from 0 to 8, with higher values indicating the availability of more credit information, from either a public credit registry or a private credit bureau, to facilitate lending decisions. If the credit registry or bureau is not operational or has coverage of less than 0.1% of the adult population, the score on the depth of credit information index is 0.

2. Strength Of Legal Rights:

This Financial indicator measures the extent to which bankruptcy and collateral laws protect the rights of lenders and borrowers to facilitate lending. Collateral laws that permit a broad definition of collateral can help to eliminate "dead capital," which can help in reducing interest rates and encourage greater volumes of loan [4]. It contains various aspects related to legal rights in collateral law or bankruptcy law such as:

- Does the economy have a unified/integrated legal framework for secured transactions?

- Is the collateral registry a notice based registry? Does the collateral registry count with modern features such as an online search?

The strength of legal rights index ranges from 0 to 12, with higher scores indicating that bankruptcy and collateral laws are better designed to expand access to credit.

3. Foreign Direct Investment

World Bank defines, foreign direct investment as direct investment equity flows in the reporting economy, where direct investment is a category of cross-border investment associated with a resident in one country having control or a significant degree of influence on the management of an enterprise that is resident in another country.

Knowledge spillovers from FDI play an important role in contributing to economic growth of the host country. As Mc Kinnon [12] stated, the development of capital markets is "necessary and sufficient" to foster the "adoption of best-practice technologies and learning by doing."

However, to fully realize the positive effects offered by FDI, it is important for the host economy to have a sufficiently developed local financial market [1]. Thus, better developed financial market increases an economy's ability of taking advantage of potential FDI spillovers.

4. Total Reserves

Total reserves comprise holdings of monetary gold, reserves of IMF members held by the IMF, special drawing rights, and holdings of foreign exchange under the control of monetary authorities. "International reserve holdings provide a country with unconditional liquidity in case of necessity [13]." This need could arise as a result of various factors like banking system illiquidity, problems of sovereign borrowing, pressure of depreciation on exchange rate or a sudden stop in private capital inflows. In light of this, many low income countries have developed a self-insurance system through accumulation of substantial international reserves, majorly US Dollar and Euros.

5. Domestic Credit Provided By The Financial Sector

Domestic credit provided by the financial sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The financial sector includes deposit money banks and monetary authorities as well as other financial institutions where data are available (including corporations that incur liabilities like time and savings deposits but do not accept transferable deposits). Examples of other financial corporations are money lenders, finance and leasing companies, foreign exchange companies, pension funds and, insurance companies.

Domestic Credit growth can be influenced through multiple channels with the opening up of financial systems and the increase in cross-border financial flows [11].

6. Money And Quasi Money Growth

Money and quasi money includes demand deposits other than those of the central government, the sum of currency outside the banks, and the savings, time, and foreign currency deposits of resident sectors other than the central government. The rationale for using money growth to guide monetary policy is that, under the appropriate conditions, doing so provides a coherent way of taking into account unforeseen developments. The opportunity to exploit money for this purpose arises because the actions taken by central banks and their economic consequences are separated by time as well as by behavioral process: A change in the interest rate or for that matter, the quantity of reserves effects a difference in economic activity later on, and the economic behavior that gives rise to that difference involves actions that are observable along the way [5]. In standard principle, money growth is an observable element of that intermediate behavior standing between central bank actions and their final economic consequences.

7. Services, Value Added

Services include value added in wholesale and retail trade (including restaurants and hotels), transport, and financial, government, personal and, professional, services such as real estate services, education and, health care services. Also included are import duties, imputed bank service charges, and any statistical discrepancies entered by national compilers as well as errors arising from rescaling. Value added is the net output of a sector after summing up all outputs and deducting intermediate inputs. It is calculated without making any deductions for depreciation of fabricated assets or depletion and degradation of natural resources.

Gordon and Gupta [6] have analyzed the way an economy matures with the consistent increase in the share of services in output. This increase occurs along with an increase in the share of industry. Thereafter, the service share grows more rapidly, followed by a stagnant or decreasing share of the industrial sector. Experiences from cross-country have suggested that the first stage occurs until the economy reaches lower middle income status, while the second stage begins once it becomes an upper middle income economy.

8. Personal Remittances Received

Personal remittances comprise compensation of employees and personal transfers. Compensation of employees refers to the income of border, seasonal, and other short-term workers who are employed in an economy where they are not resident and of residents employed by nonresident entities. They have become a major source of external development finance. Personal transfers consist of all current transfers in cash or in kind made or received by resident households to or from nonresident households. Thus, personal transfers include all current transfers between resident and nonresident individuals. Large and stable remittance flows undoubtedly improve economy's creditworthiness and thereby creditworthiness of

sub sovereign entities as well [14]. Personal remittances have a positive effect on growth of a country by augmenting incomes and serving as insurance policies against risk associated with new production activities [15].

The structure of financial markets generally refers to the overall size of financial system, its efficiency composition and, depth. Thus, it has crucial importance in transferring the effects of monetary policy to the financial decisions of economic agents. The monetary policy actions become more effective in achieving its desired outcomes if the financial markets are efficient and well developed. The analysis of available data of different financial indicators across SAARC countries presents a diverse picture.

4. DATA PREPARATION FOR ANALYSIS

Having identifying the above eight financial indicators of importance, we move forward to compile data for our analysis. The compiled data is as tabulated below:

TABLE-1 ECONOMIC INDICATORS FOR SAARC NATIONS, 2014-15 (SOURCE: http://data.worldbank.org/indicator)

S. N.	ECONOMIC INDICATORS	SAARC NATIONS							
		Afghanistan	Bangladesh	Bhutan	India	Maldives	Nepal	Pak	Sri lanka
1	Depth of credit information index (0=low to 8=high)	0	0	6	7	5	0	3	6
2	Domestic credit provided by financial sector (% of GDP)	-2.3	58.6	47.3	75.5	70.7	71.5	47.5	43
3	Foreign direct investment, net inflows (BoP, current US$)	48,756,005	2,496,935,633	8,379,987	33,871,408,468	363,269,189	5,830,069	1,778,000,000	944,246,587
4	Money and quasi money growth (annual %)	8.3	15.4	25.9	10.6	14.7	16.1	10.6	13.4
5	Strength of legal rights index (0=weak to 12=strong)	9	6	4	6	2	6	3	3
6	Personal remittances, received (current US$)	268,060,745	14,982,837,635	14,292,343	70,388,642,797	3,470,026	5,769,654,336	17,066,000,000	7,036,326,551
7	Total reserves (includes gold, current US$)	7,528,550,402	27,023,378,488	1,245,086,704	325,081,060,906	575,636,617	6,216,255,232	17,829,731,112	8,210,750,397
8	Services, etc., value added (% of GDP)	54.2	56.3	39.4	52.1	77.1	50.7	54.1	61.7

The table above shows comparative table of values of various economic indicators in respect of SAARC nations. The higher is the value means occupying the higher slot in that field. Now we wish to find out the overall best nation among various SAARC nations so that collaboration by any other SAARC nations can be envisaged. Since it is impossible to find a nation having best ranking in every parameter (field), we take the help of Goal Programming so that desired result with minimum deviations from our individual Goal is achieved.

5. RESEARCH METHODOLOGY

The objective of goal programming is to minimize the achievement of each actual goal level, i.e. since simultaneous occurrence of both over achievement or underachievement is not possible, it will be written as,

Minimize under or overachievement of target (Minimize d– or d+ as the case may be)

To understand it more clearly,

Say, X1=1, X2=1 Then obviously, X1 + X2 = 2

However, if the Goal is to make X1 + X2 =1, we add a negative quantity d- (called deviation variable d-), with a value of -1, and re-write the equation as, X1 + X2 + d- = 1 then the equation is satisfied.

Now suppose X1, X2 and X3 are 3 nations holding 1st, 2nd and 3rd rank respectively in one of the fields, AREA-1. Then it is easy to select X1 as the top most nation. But, say, if these nations X1, X2 and X3 hold 3rd, 1st and 2nd rank in another field AREA-2, then it will be difficult to judge the overall 1st (Best) nation. Fortunately, application of principle of Goal Programming can show us a path ahead as has been tried in this paper.

6. FORMULATION OF GOAL PROGRAMMING MODEL

A model is a simplified representation of a real system and phenomenon. It is a formal description of a real system.

There are 8 SAARC nations in our model. Thus, *m=8* variables in our model.

Selecting the best (or Optimum) 1 nation out of 8 nations, ON OVERALL, becomes our 1st goal.

Selecting the best (or Optimum) 1 nation out of 8 nations, on 1st economic indicator, becomes our 2nd goal.

Finally, the best (or Optimum) 1 nation out of 8 nations, on 8th economic indicator, becomes our 9th goal (n=9 constraints).

The general goal programming formulation considered for *n*=8 nations (variables) and *m=8 parameters* (constraints). Selecting best 1 nation out of 8 SAARC nations becomes another constraint (Goal) so finally we have *n=9.*

It is Assumed that every Goal is of equal importance i.e. they have the same priorities and equal weightage also. The overall optimized best nation will have a value equals to 1 and all rest should have values of zero.

Since every best nation on every 8 indicators can not be selected simultaneously (as only 1 has to be selected), the finally selected nation will generate some deviational value for

other 7 indicators. Thus, the General Goal Programming model attemps for Minimization of Deviations in every Goal values. This will yield our desired result.

The Model is run using Excel Solver. is used to solve the Model. However, in 10000 iterations, SOLVER could not yield a feasible solution, yet nit gave some indications of how the nations are overall performing. At the end, the Model generates the following values:-

Afghanistan	-0.078
Bangladesh	-0.640
Bhutan	0.287
India	1.062
Maldives	-1.125
Nepal	1.264
Pak	-0.362
Sri lanka	0.593

The 4 nations Afghanistan, Bangladesh, Maldives and Pakistan with negative (less than zero) values have fared badly whereas, Nepal, India and Bhutan are showing signs of occupying 1st, 2nd and 3rd positions. Accordingly, collaboration strategies among these 3 nations can be envisaged. The poor performing 4 nations may like to strengthen their economies so that in future they could compete effectively with others.

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