Factors affecting choice of Monetary Policy Frameworks: Evidences from Emerging and Advanced Countries.

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ABSTRACT: The practice and theory of conduct of monetary policy has evolved in last decades in response to several critical and complex macroeconomic events and advancements in macroeconomic thought. In the due course of its evolution, the monetary policy frameworks that contextualize the conduct of monetary policy have also undergone changes and the choice of framework globally is determined by multiple economic, technological, institutional and political factors. The paper seeks to assess the current understanding of the factors that affect the choice of monetary policy framework. This is done by conducting systematic review of the available single country and multi- country scientific and empirical evidences. The literature points out different factors: technological, economic, political and institutional conditioning the framework choice for advanced and emerging economies.

Keywords: Monetary Policy Frameworks, Monetary Policy, Monetary Targeting, Inflation Targeting.

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I. INTRODUCTION

Monetary Policy has been called upon to work in an increasingly complex and unpredictabledomestic and international economic and geo –political environment that has presented a conundrum for the central bankers across the world. In the last decades, there has been a radical transformation of perspectives on monetary policy: the challenges and opportunities. Traditionally, monetary policy, as an arm of public policy broadly serves the key mandate of maintaining price stability and channelizing credit for the productive sectors. However, it is difficult to maintain a perfect balance between the two which keeps on shifting depending upon the evolving macroeconomic environment. For the smooth conduct of monetary policy, it is desirable that monetary policy must work within well- defined framework.

Cobham (2015) defines Monetary Policy Framework as 'the objectives and the context that condition monetary policy decisions: primarily the objectives pursued by the monetary authorities, and also the constraints and conventions within which monetary policy decisions are taken'. According to Adam (2008), most monetary frameworks are built around three pillars: **a**. Institutional structure and mandate of central bank which defines its relationship as a regulator of the financial sector and as a banker to the government. **b**. Monetary policy objectives, instruments and operating procedures employed to meet these objectives. **c**. Central bank's role in regulation of financial sector, precautionary risk management, promotion of innovation and financial market development. Extending beyond the central banking, Monetary Policy Frameworks globally have evolved in last decades conditioned by varied macroeconomic events and risks under considerations., emergence of new complex challenges and traditional challenges becoming more complex and equally by non-economic factors like form of government, its financial and legal sector.

The framework chosen by each central bank is conditioned by the unique context and circumstances of each country. The frameworks and operational processes tailored to each country's circumstances enhance the effectiveness of central banks policies (IMF, 2019). The frameworks can vary on several aspects like whether central banks follow some specific target or exercise discretion; and in case of former, the choice of target : exchange rate, monetary aggregate and inflation, whether the target are specific points or a band and how well defined is the framework. Each monetary policy framework is based on a choice of unique nominal anchor. (Krugman, 2003)defines nominal anchor for monetary policy as a single variable or device which central bank can use to articulate the expectations of private agents about nominal price level, the path to it and the probable actions taken by central banks. International Monetary Fund (2015) puts forth that certain aspects of central banking have been asserted globally and are common principles for all central banks: transparency, accountability, predictability and clarity.

Monetary Policy Frameworks And Conceptual Underpinnings

While each country decides, conducts and implements its monetary policy differently given its own unique institutional features and macroeconomic circumstances. But, broadly following monetary policy

frameworks can be identified which have been adopted by advanced and emerging countries alike.

a. Framework based on Managed Exchange Rate:

Exchange Rate as a nominal anchor is significantly helpful for the countries with lower levels of financial and institutional development and where central banks lack credibility. The rationale for adopting the exchange rate as a nominal anchor and managing it to the different degrees is that for the emerging markets that have high trade openness , volatile nominal exchange rate system can complicate the macroeconomic management and adversely impact investment, employment and economic growth. Exchange rate management can be very strict or of intermediate versions. A highly strict version of Managed Exchange Rate is 'Hard Peg' which involves pegging the domestic currency to the currency of the country whose central banks hold the credibility in maintaining lower and stable inflation. While this may help keep the domestic inflation low, but on the other hand, it involves the loss of monetary autonomy and 'import' of monetary policy. A form of hard peg is the monetary union which involves linking monetary policy among a group of countries so as to enunciate common response to common shocks.

Also, adoption of nominal exchange rate as a nominal anchor requires an array of capital controls since large volumes of capital inflows can make the management of exchange rate very difficult, specifically for the developing countries that have weak policies and underdeveloped financial markets.

b. Monetary Targeting Framework:

This framework was adopted by developed countries in mid 1970s after the collapse of Bretton Woods System such as U.K, Australia, U.S.A and Canada and in 1980s was adopted by developing countries such as Brazil, China, Indonesia, Korea, Malaysia, Peru, Russia and Venezuala. Monetary Targeting involves three elements: i.) Reliance on information conveyed by monetary aggregates to conduct monetary policy. ii.) Announcement of targets for monetary aggregates. iii.) Some accountability mechanism to preclude large and systematic deviation from monetary targets (Mishkin, 1997).

An advantage of monetary targeting over exchange targeting is that it enables central bank to cope up with domestic considerations

Monetary Targeting was adopted by India in 1985 on recommendations of SukhamoyChakrabarty Report (1985), despite its abandonment by central bankers across the world in favour of focus on final target of inflation control. The reason for abandonment is breakdown of relationship between monetary aggregates and inflation rates and demand function becoming unstable. In economies where the rate of productivity growth is highly volatile, there is no stable relationship of monetary aggregates with economic growth and inflation. **Monetary Targeting may also be adopted along with Managed Floating Exchange Rate System.** This usually involves management of Floating Exchange Rate System within a relatively tight band, although the size of the band may vary for countries.

c. Inflation Targeting Framework:

Financial innovations that have happened over the years specifically since early 1990s have made monetary targeting ineffective and steered the shift towards inflation targeting (IT) approach. Inflation Targeting is a monetary policy strategy used by central banks for maintaining inflation at a certain level or within a specified range. The policy was initially adopted by New Zealand in 1990, followed by growing number of developing countries. The core proposition of inflation targeting is that when inflationary expectations are anchored, actual inflation tends to remain moderated too.

Inflation Targeting comprises five main elements: i. public announcement of medium term numerical targets for inflation, ii. An institutional commitment to price stability as primary goal of monetary policy to which other goals are subordinate. iii. An information inclusive strategy in which many instruments and not just monetary aggregates and exchange rates are used for setting policy instruments. ; iv. Increased transparency of monetary policy strategy through communication.

Inflation Targeting maybe fixed or Flexible. Flexible Inflation Targeting (FIT) implies a monetary policy that aims at stabilization of inflation around inflation target and real economy. In contrast, strict inflation targeting aims at stabilizing inflation only, without any consideration to stabilizing real economy.

Adoption of inflation targeting requires the essential institutional framework as well, that involves a clear mandate and functional autonomy of central bank to be able to steer the monetary policy. The framework should also guide central banks towards transparency, accountability and policy rule that minimizes the societal losses.(Bean, Paustian, Penalver, & Taylor, 2010) put forth that since FIT (explicit or implicit) allows monetary authority some constrained discretion in accommodating temporary price shocks in articulating its stance. This is believed to be a suitable framework for conduct of monetary policy and that globally existing policy frameworks have aligned towards price level targeting.

A limitation of Inflation Targeting Framework is that it is an insufficient guide for Monetary Policy in view of today's environment of deregulated, liberalized and globally integrated financial markets, given their ability to generate credit and asset price liabilities. It can be argued that Monetary Policy pays little attention during the upswing but are compelled to protect the asset values during the downturn, which complicates the adoption of FIT.

A challenge for FIT is that post the Global Financial Crisis, central banks are also called upon to maintain the price stability along with financial stability by providing sufficient liquidity so that financial system can function uninterruptedly. Thus, safeguarding financial stability has become an increasingly significantly objective of monetary policy.

The countries that have adopted inflation targeting, may also manage the 'short term exchange rate volatilities' through appropriate interventions in the exchange rate market. These countries are classified as 'Inflation Targeters with managed float' and include Colombia, Ghana, Thailand, Romania and Indonesia. India has explicitly adopted this approach since 2015.

However, even prior to the adoption of Inflation Targeting Approach by several countries, a range of inflation was informally accepted as desirable range to anchor inflationary expectations alongside managing exchange rate volatilities Adoption of **Inflation Target may also be adopted with full exchange rate flexibility.** Many countries view this as the final step in the evolution of their frameworks. This is because the increasing openness of capital accounts, irrespective of the capital control regime makes the management of exchange rates over a sustained time period increasingly difficult. Thus, this approach defines a clear anchor for monetary policy, while fully floating exchange rate systems facilitates independent monetary policy.

Objective of the study.

quantitative and qualitative.

The paper seeks to examine the current understanding on factors playing a key role in choice of monetary policy frameworks in advanced and emerging markets by reviewing key scientific literature. The paper is organized in three sections:

Section I presents the search strategy and methodology to locate the literature and evidences, Section II presents the literature and evidences on factors affecting choice of monetary policy frameworks. Section III concludes the paper by highlighting the key inferences.

Section I: Search Strategy for Systematic Literature Review

Systematic literature review in its methodology and representativeness is different from traditional literature review. Rousseau, Manning, & Denyer (2008) put forth that while systematic literature review aims to provide full, systematic overview of research conducted on a specific field over time till latest, the traditional reviews tend to 'cherrypick studies'. The literature review is based on journal articles primarily. However, to widen the understanding and make the review more comprehensive, the grey literature has also been considered. The term grey literature refers to the unpublished literature or the literature that has been published in non-commercial form viz. government reports, conference proceedings, and research reports. The inclusion of grey literature is generally considered to be important so as to develop a comprehensive view of the research topic even though inclusion of grey literature has been considered for the review of literature given that it can be difficult to locate and the fact that it can be abundant. The section includes literature that is both India specific and international. And the international studies include both single country and multi country focussed studies. The database Google Scholar and Repec were referred. Searches are limited to English articles published between January 1, 1993 – December 30, 2018 were searched and referred to.Search results were assessed for relevance in a three step process of comparing title, abstract and keywords. The literature included has been

Section II: A survey of empirical evidences: single and multi-country studies.

The factors that have conditioned the choice and evolution of frameworks globally can be understood by assessing multi country and country specific evidences. Quite a few central banks of Switzerland, Japan, Germany, France and United Kingdom adopted monetary targeting in 1970s. In 1980s, however, financial innovation imparted much volatility to behaviour of monetary aggregates. Hence, the weakening of stable relationship among money, output and prices led to some countries moving away from monetary targeting towards signalling monetary policy stance through setting of interest rates. However, some European countries like Germany, France and Switzerland continued monetary targeting in spirit by redefining monetary aggregates.

analysed for its spatial and temporal scope. The studies reviewed include: single and multi-country case studies,

Simultaneously, as monetary targeting spread to developing countries, monetary targeting proved less effective. A search for new monetary framework led to adoption of Inflation targeting in 1990s by both

developed and developing countries. More recently Adam(2008) makes an analysis of alternative monetary policy frameworks and provides background evidence on factors guiding choice of monetary policy frameworks. The study puts forth that virtually all contemporary monetary policy frameworks can be thought of as 'inflation targeting' in the strict sense that a central, if not a dominant, the objective of monetary policy is to establish a credible nominal anchor for domestic prices. Thus, different regimes are characterized in terms of choice of nominal anchor, which shapes the entire monetary framework and states that choice of nominal anchor is a much constrained and tricky one since other economic concerns compete for attention. The degree of discretion over choice of anchor and degree of commitment to chosen anchor would be central to choice of monetary policy framework. Previously, Masson, Savastano & Sharma (1997) analyzed the wider applicability of IT to developing countries and identify two major prerequisites for adopting IT framework: a degree of independence of monetary policy (free of fiscal dominance or commitment to any other nominal anchor, like the exchange rate) and a quantitative framework linking policy instruments to inflation. They argued that a country satisfying these two factors could choose to conduct its monetary policy in a manner consistent with IT, defined as a framework containing an explicit target for inflation, a commitment to that target as an overriding objective, a model for predicting inflation and an operating procedure for adjusting monetary instruments in case forecasted inflation differs from its target. In many developing countries, however, these requirements for effective IT strategy are not present, either because seigniorage is an important source of financing or because there is no consensus on low inflation as an overriding objective, or both. In industrial countries, IT has only been adopted from a starting point of low inflation, considerable exchange rate flexibility and substantial operational independence of central bank- conditions rarely found.Building upon argument that the monetary policy framework depends upon the choice of nominal anchor, Bhattacharya & Patnaik, (2014) present a model for policy analysis in India that provides an insight in the setting of an IT framework to anchor inflationary expectations. The model offers an understanding of the extent to which accommodative monetary policy, among other factors, explain growth and inflation in India. Forecasting and Policy system (FPAS) is used to evaluate the monetary policy stance appropriate to the expected inflation in India. The underlying framework of FPAS model is a standard new Keynesian model with rational expectations, nominal and real variables with aggregate demand having a role in output determination. It does not model micro-foundations in detail in contrast to Dynamic Stochastic General Equilibrium (DSGE) Models. The benefit of this is that simulation or estimation models are independent of deep parameters of an economy, reliable estimates of which are often not available due to lack of good quality data. Their analysis point out that high positive domestic demand following post global crisis fiscal stimulus coupled with accommodative monetary policy and negative supply shocks kept inflation above acceptable range of 5-5.5% for last period 2009-14 in India. The lack of a nominal anchor has contributed to inflationary expectations and state that anchoring inflationary expectations is one of the major challenges of central bank.

Earlier, Ireland (1998) explored the choice for various alternative nominal targets in developed countries by using a model to judge each alternative on its welfare effects. The analysis is conducted in a context that allows both money demand and moneys supply shocks to influence aggregate output as well as price level. In the model, aggregate shocks to a firm's production function – the technology shocks represent an additional source of business fluctuations which implies that monetary authority face the additional challenge of selecting a nominal anchor that provides the best response to both money shocks and technology shocks. His results show that nominal income targeting is preferable to money supply targeting, since it provides an appropriate response to money demand shocks. Price level targeting also dominates nominal income targeting, since it also provides an appropriate response to technology shocks. His results conclude that price level targeting represents the optimal monetary policy. (Keller & Richardson, 2003)explore the underlying choice of nominal anchors in Commonwealth of Independent States (CIS). They put forth the argument that while fiscal dominance has subsided in most countries, and monetary policy has begun to play a critical role, However, financial markets remain seriously underdeveloped, interest rates or more sophisticated policy instruments play at best a secondary role, confidence in banking system is slow, and there is political pressure on the authorities to lend or to politicize banking supervision. While all CIS countries target price stability- at times in conjunction with other objectives, but now since the inflation is at low levels, the choice of an appropriate nominal anchor in the face of the persistence of constraints make the choice of nominal anchor quite a critical one.Gould (1999)examines whether choice of nominal anchors, by itself, matters in affecting a nation's short run growth, the primary concern being whether choice of nominal anchor alters the path of real output in periods following stabilizations (Does the nominal anchor really matters?). He points out that the choice of nominal anchor may be endogenously determined by state of the economy. The countries with ample international reserves, higher credibility and better prospects for economic growth can pursue exchange rate based stabilizations. Countries with fewer international reserves, diminished credibility and weaker prospects for future may have the option of only monetary based stabilizations.Fry. Et.al (2000)put forth that monetary framework except in few countries where they are exclusively determined by central bank, are politically determined and may well depend on

country's financial institutions, degree of expertise in monetary policy and institutional factors. On the basis of data collected through a questionnaire from central banks of 94 countries to draw inter country comparisons, monetary policy frameworks are found to be depending on structural differences (structure of financial sector, financial discipline, openness to trade etc.), transmission mechanism (factors affecting nature and pace of transmission);institutional arrangements and analytical constraints.(Vasudevan, 2002)Analyses the conduct of monetary policy from 1992 till 2002 against the background of issues concerning objectives, institutional and operational changes and concludes that the stance of RBI focuses on interest and exchange rates to pursue allocative efficiency of resources over medium term. It is argued that the institutional arrangements put in place since 1992 have facilitated reduction of information asymmetry and enhance technical analyses.Gokarn and Singh (2011) seek to identify and explore the sensitivity of monetary policy to external factors. It is argued that financial linkages and globalization have led to faster transmission shocks. It has been put forth that globalization has manifested itself in monetary policy by making it increasingly challenging to maintain price stability given the global supply shocks as the global commodity prices that have a significant causal effect on domestic prices which is evident from the trend in imported inflation remaining above domestic inflation. Thus, the significant impact of global developments on domestic prices calls for monetary policy to take into account international price shocks to maintain domestic price stability. Similar factors have been highlighted by (Mihaljek, 2011) who states that monetary policy frameworks have been influenced by Economic and financial integration as the global economic linkages have become stronger. This has led to greater synchronization of business cycles across emerging market economies. It has been argued that globalization has led to opening up of number of transmission channels and has multiplied the associated risks through which external factors influence domestic macroeconomic conditions which complicates the assessment of inflationary and stabilityrisks. Kwakye (2012) analyses Monetary Policy Frameworks for Ghana for which the frameworks have evolved from monetary targeting to inflation targeting but inflation management has been challenged by supply constrained economy, fiscal dominance and underdeveloped financial sector. The paper also asserts the importance of complementary fiscal policy, allowing sufficient flexibility in exchange rate so as to allow it to absorb exchange rate, pursuing financial sector development and deepening. However, it states that exchange rate and monetary aggregates continue to be an important determinants of inflation in Ghana and must be considered in whatever framework is adopted. Wong & Chong (2014) assess the monetary policy regimes for post Bretton Woods period from 1974-2009 for 228 countries and attempt to put all the observations into two clearly defined categories i.e. exchange rate targeting and inflation targeting explore the factors affecting the choice of monetary policy regime. They put forth that choice of monetary policy regime is endogeneous and is determined by economic structures. The size of the economy as represented by the real GDP, trade openness and concentration and capital openness (measured by total flows of portfolio investment as a share of GDP). Finally,Cobham (2015)addresses the recurring question since 2007-08 about the monetary policy notably which variables the central bank should target and how. He puts forth the argument that monetary policy faces an unresolved question about the inadequacy of monetary instruments available and hence states that monetary targeting was made infeasible not so much by money demand instability as by the lack of precise instruments for control of money supply. Hence, unfolding of the Global Financial Crisis of 2008 have pointed towards the inadequacies in monetary policy frameworks. (Wilkins, 2018) puts forth that choice of monetary policy framework should be such which allows clear focus on objectives of monetary policy and should also be determined by the fact that how it affects people via distributional effects and financial stability. The framework should also allow use of supporting policy tools and measures available for extraordinary circumstances.

Section IV Summarizing the evidences.

There has been emergence of cross country and country specific literature that tracks the evolution of monetary frameworks in many developed countries and some developing countries and explore the circumstances that have conditioned the choice and evolution of frameworks. Over the years, a consensus has been attained on fact that there has to be a systematic conduct of monetary policy so as to understand its affects, which allows economic analysis to shed light on potential effects of alternative monetary policy strategies in supplying a nominal anchor. The choice of framework and hence that of nominal anchor is a much constrained and tricky one since other economic concerns compete for attention. The degree of discretion over choice of anchor and degree of commitment to chosen anchor would be central to choice of monetary policy frameworks. Ireland (1998) and Gould (1999) argue that demand-supply side shocks, technology and endogenous shocks play a key role; Keller and Richardson (2003) assign a key role to extent of development of financial sector; Adams (2008) argues that it is the degree of commitment to nominal anchor that determines the monetary policy framework and according to Gokarn and Singh (2011), monetary policy framework is heavily influenced by financial linkages and globalization.

The various factors that affect choice of frameworks have been highlighted in table 2.1

Table 2.1		
Factors affecting choice of frameworks in developed countries	Factors affecting choice of framework in developing countries	Factors common to both developed and developing countries.
• Technology Shocks to business cycles (Ireland, 1999)	 Degree of independence of monetary policy, commitment to any other nominal anchor, fiscal dominance (Masson et.al, 1997) Development of financial sector, Political Pressure on authorities (Keller and Richardson, 2003) Institutional Factors; degree of expertise and analytical constraints; financial discipline, openness to trade and nature ; pace of transmission mechanism (Fry et.al 2006) 	 Quantum of international reserves, credibility and prospects of economic growth (Gould, 1999) Degree of discretion and degree of commitment to nominal anchor (Adam, 2008) Sensitivity to external factor : financial linkages and globalization (Gokarn and Singh, 2011) Size of the economy, trade openness and concentration and capital openness (Wong and Chong, 2014).

It can be concluded that given that monetary policy frameworks vary across the country and is influenced by varied factors given the differences in institutional, financial and technological context. The diversity in the policy conduct and factors affecting conduct is manifested in the research conducted globally on the theme which arises from the fact that 'one size does not fit all' in terms of monetary policy frameworks and approaches. It can also be inferred that central banks need to possess dexterity to take into account multitude of shocks and factors while defining their monetary policy framework and monetary policy.

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