

Monetary Policy and Exchange Rate in Emerging Market Economies: A Literature Survey

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Abstract— After the 2008 Great Financial Crisis (GFC), Central Banks main tools tagged as unconventional and still, there is a debate on how effective they were. The Federal Reserve (FED) has committed itself to adapt its monetary policy framework and has begun the most extensive currency printing action in the world. Other major central banks did slightly the same interventions. The Unconventional Monetary Policies (UMPs) that central bankers in Advanced Economies (AEs) have initiated over the last several years have generated unprecedented excess of liquidity in the international financial system, partially channelled to Emerging Market Economies (EMEs). They confronted massive spillovers from AEs central banks explosion of balance sheet and raised worries about possible adverse cross-border effects of such unprecedented accommodative policy. The vast majority of EMEs adopted inflation targeting, combined with controlled floating- as opposed to developed economies that have opted for free-floating regimes. The effect of EMEs monetary authority's management of these capital flows was made with the cost of the exchange rate, subjecting it to significant variations, and increased volatility. The importance of the exchange rate in carrying out monetary policy of EMEs is also reflected by the evolution of the foreign exchange reserves during the last two decades. Remedying the effects of the crisis and managing capital flows have supplemented EMEs monetary frameworks with macroprudential measures. The two elections also outline the high sensitivity of EMEs to capital flows and exchange rate fluctuations, giving rise to possible policy compromises. It may burden growth and inflation stabilization or long-term macroeconomic stability. The article main aim is to perform a literature review regarding the effectiveness of unconventional monetary policy (UMP) for both AEs and EMEs. We conclude that interest rates, FX interventions, macroprudential and regulatory measures, communication are part of the toolkit of the central bankers in the future, complemented by structural reforms, and international policy coordination.

Keywords— unconventional monetary policy, exchange rates, Emerging Market Economies, Advance Economies, spillovers

I. INTRODUCTION

The worldwide return to growth from the GFC is partly due to the very accommodative monetary conditions - quantitative easing (QE). The Advance economies (AE)s major central banks have deployed UMP to confront deflation

and depress output during GFC when achieved Zero Lower Bound (ZLB)¹. The issue is that economies are developing at different rates. We are seeing the US economic growth and the rest of the world slowing, generating an unstable and fragile global economic development. Moreover, the ongoing trade war and a possible currency war raise a lot of uncertainty and concerns which places monetary policy authorities in uncharted waters. These policies initiated over more than the last ten years have created unintended consequences for domestic financial stability and distorting cross-border spillover in EMEs, materialized in the exchange rate and capital flows volatility. Therefore, UMP has generated active debate about its domestic and global efficiency. The primary concern remains the potentials adverse spillover risks in EMEs.

UMPs have been mainly effective in achieving internal goals by reducing long term real rates and stimulating aggregate demand and growth. QE performed using a robust signalling device (communication) that showed successfully in diminishing tail risks of market breakdown, and bringing back the investors' appetite for risk, coming after with increased capital inflows to EMEs. The critical concern for EMEs is capital flows and exchange rate volatility, high asset prices, and misallocation of resources. Furthermore, a potentially sharp increase in long term interest rate associated with UMP exit could generate dramatic consequences in EMEs. International policy coordination and effective communication on exit strategies would provide a Pareto superior outcome. Furthermore, sustainable economic growth and macroeconomic stability ask a more stabilized policies mix sustained by the credible fiscal commitment and competitive and stable exchange rates.

The article main aim is to make, firstly a literature review regarding the effectiveness of unconventional UMPs used by

¹ Bernanke and Reinhart [1] early work, identify three policy options that central banks could apply facing zero lower bound (ZLB). (i) Forward guidance for interest rate (ii) Modifying the central bank balance sheet structure (iii) increase in the size of central bank balance sheet or quantitative easing (QE).

the major Central Banks² to achieve the macroeconomic objectives (inside and outside own country) in an environment of global uncertainty. Secondly, we expanded our survey in the literature regarding communication of monetary policy handled by central banks, and we conclude that it is also part of the toolkit of the central bankers. Additionally, an analytical approach of the monetary policy subject in direct connection with the exchange rate regime as part of financial stability goal is essential for the future quantitative research studies.

II. EFFECTIVENESS OF UMP IN AEs

There is less academic consensus on the impact of balance sheet policies since the GFC, partially because the literature is so recent. Since their adoption in 2008, UMPs have undergone a vast scientific debate and have led extensive empirical research into their effectiveness. UMP was designed to intervene when interest rate achieved zero lower bound (ZLB) situation, and conventional policy is ineffective to reduce the risk of future dramatic declines in asset price. It could stimulate the actual increase of assets price, eventually to exert powerful effects on the domestic economy by igniting aggregate demand. Bank for International Settlements (BIS) [2], among others, emphasize two transmission channels of UMP. The first: signalling channel - the effect of current interest rate policy largely depends on clear communication of the rate's level that central bank wishes to see. The second channel - takes into consideration the effects of central bank operations on the composition of private sector portfolios.

Our research identified three main avenues of literature that focused on UMP effectiveness: the effectiveness of UMP on own country; the effectiveness of policy outside the country especially the positive impact on EMEs recovery after the crisis, and (3) the unintended consequences, such as beggar thy neighbour or adverse spillover effects on EMEs.

From the first two avenues of literature that assess the effectiveness of UMP both inside and outside the own country, we identified another two strands of studies based on the channels that it operates: the first focused on the signalling channels, and the latter on the results observed after the implementation of QE.

The first strand of literature based on the communications³ of QE has stressed mainly the signalling channel. Early from the beginning, the primary approach to looking at the impact of UMP policies was to examine the impact of announcements on AEs and the potentially unplanned

consequences beyond the own country and the spillovers into EMEs. The researchers analysed the market reaction to the QE announcements, using events studies and foreign asset prices at high frequencies (e.g., daily or less). For example, Glick and Leduc [3] use intraday data and observe the effects of announcements on the futures market and FX market, and they find that it significantly lowers the value of the dollar. The size of the effect is much the same as a conventional monetary policy announcement. In the same way, Neely [4] pay attention to the announcements of QE1 to reveal that news about QE decreased worldwide bond prices and the exchange rate of USD against several AEs currency. Bauer and Neely [5] identify the signalling and the portfolio balance channel of monetary transmission and determine a term structure model on the dynamics of the international interest rate. Rogers, Scotti and Wright [6] using high-frequency asset prices observe the causal effects between UMP surprises and high-frequency asset prices for major central banks. Even if it successfully captures the effect of communication, this approach has inevitable limitations - can only look at the effect of initial announcements and does not measure the entire process deployment.

International Monetary Fund (IMF) [7] evaluates the effects of UMP announcements made by leading central banks using weekly data⁴. The paper provides new evidence on the dynamics of capital flows in bond and equity asset class (both in and outside the country), as well as their impact on bond yields and equity prices [1]. Using a number of advanced techniques, the IMF [7] provides a relatively holistic picture of the likely effects of UMP, including: analysis of global, regional and country factors in managing weekly flows; regressions to see how purchases of assets relates to the US Federal Reserve, Bank of England (BoE), European Central Bank (ECB) and Bank of Japan (BoJ) asset purchases program; regressions when analysing the extent to which weekly portfolio flows affect asset prices; and event studies on daily asset prices to assess whether forward guidance announcements have had an additional impact on asset prices, independent of active purchase announcements. The results emphasize that the announcements of UMP influence only part of the overall impact of these policies; capital flows generally respond to assets purchasing operations. It seems that forward guidance announcement had a completely different impact compare with asset purchases announcements. The surprise effect of forwarding guidance announcements is a substantial impact on foreign currencies and stock prices (e.g [7], [8]).

Among studies that assess the effects of UMP deployment on own country (domestic country), the literature identified another three directions: (i) effects on financial variables, (ii) impact on macroeconomic variables and thirdly (iii) underling the crucial role of UMP in restoring intermediation and financial market functioning.

² There are notable differences between the major Central banks QE. The BOE and FED QE was designed to influence prices (yield) on a large number of assets (mainly bonds) to stimulate credit activity for firms and households. Instead, ECB QE main objective was to solve funding difficulties in some of the peripheral countries as in [3].

³ The impact of UMP will depend on announcements of future operations. In this case, influence public expectations about critical factors for asset's market valuation. Those factors contain expectations regarding the future route of policy, the insufficiency of different assets, or their liquidity and risk.

⁴ For example, the ECB speech "whatever it takes" is not followed by a purchases action

Regarding the effects on financial variables (industrial production, inflation, GDP), there is strong evidence that UMP has prevented deflation and boosted growth. The empirical findings show that both: inflation stabilization and the GDP growth, sustained through the purchase of the bond. The literature considers that the growth of the internal GDP is about two percentage points in the USA. Also, the UK (although the range is very high, between 0.1 and eight percentage points). The effects on inflation are quantified up to 3.6 percentage points. The researchers also analysed the positive gains of the global production (between 0-2,2% depending on the AE country); UMP caused around 100 bps decrease of the long-term interest rates generated by the bond purchases (e.g. [9]–[19], as well as [20]–[24]). Other valuable contributions stress the UMP capacity to reduce unemployment and strengthen the global economy (e.g. [25], [26]). A significant bulk of literature asserts that both: conventional and unconventional monetary policy play was instrumental in stabilizing inflation expectations (e.g. [29]–[33]).

The studies that assess the effects on macroeconomic variables (exchange rate, stock, and bond market) show, as expected, that UMP significantly decreased long-term bond rates, remarkably diminished collapse risk and stimulated demand. In the U.S., researchers' asses drop between 90 and 200 bps of 10-year bond yields, between 45 to 160 bps in the U.K. and around 30 bps in Japan, e.g. ([23], [27]–[32]); Furthermore, UMP stabilize the stock market (through massive acquisitions of Long Term (LT) government bonds and securities) and guidance announcements on stock prices, commodities prices, exchange rate, and Forward LIBOR Rate (e.g. [7], [33]–[35]).

Our research identify a growing literature studying the UMP crucial role in restoring intermediation and financial market functioning (euro area peripheral sovereign bonds, repo, interbank) (e.g. [36]–[38]). The following papers, underline that UMP avoided a disaster (e.g. [39]–[46]). The focus on many articles stressed that UMP was efficient in reducing credit cost (drop-in long term interest rates)(e.g.: [22],[43],[47]–[49]), especially for private sector as in [50] when there is no room for conventional monetary policy. Furthermore, Kozicki, Santor, and Suchanek [51] investigated the relationship between the long forward interest rate dynamics and the size of balance sheet operations. However, the literature identifies that intermediation was not uniformly,⁵ as in [1]. In the U.S., the mortgage yields did not substantially decrease as in [52]. In the euro area and the U.K., the credit as percent of GDP dramatically decreased, lending rates remained high, but definitively the situation would have been worse without UMP measures (e.g. [7], [23]).

⁵ Liquidity was provided during GFC at a fixed price and without limits. Accepted counterparties included securities firms, money market mutual funds and foreign central banks through swap arrangements. Measures such to support ABS in the U.S., and sovereign bonds in the euro area was made through the securities market and the announcement.

A few studies criticized the impact of UMP in the domestic country (e.g. [53], [54]), some others were more skeptical about the effectiveness of policy in own country (e.g. [55], [56]). From the vast number of studies, the effects of UMP accepted conclusions have emerged: UMP was very efficient in its own country. However, there is no clear evidence that marginal costs of UMPs are higher than marginal benefits.

III. EFFECTIVENESS OF UMP IN EMES

The monetary authorities of EMEs suffered from the shock waves (spillover) coming from the big economies and took care of the post-crisis remediations. From the related literature that focuses on external effects of UMP, a consistent bulk of literature assess the impact on (i) macroeconomic stability (positive or negative) and another (ii) assess the potential negative spillovers to EMEs.

Relating the literature strand that focuses on policy effectiveness outside the own country, some key findings are notable: (i) Capital flows to EMEs are strongly influenced by growth gap with AE; (ii) spillovers are more severe in countries with more developed financial system (e.g. [35], [57]–[60]) and high degree of financial integration (capital flows are weaker in countries with significant risk of default). The literature suggests that even strong fundamentals (budget deficit, public debts, level of reserve, the rate of growth) did not provide insulation of negative spillover, as in [61]; (iii) Investors risk appetite is the driven for capital flows; (iv) UMP have positive influence on macroeconomic stability by reducing market uncertainty (e.g. [20], [62]–[67]). There is evidence about substantial positive impact of UMP on EMEs recovery after the GFC: EMEs registered high growth rates, boosted confidence, recorded positive effects in equity prices and better recovery after the GFC (e.g. [7], [20], [68]);

The worries on UMP concentrated over the period that is applied and the exit as in [68]. Markets could overreact to the first phase of UMP, leading to the rise of risk premia and sharply increased of long-term interest rate, adverse global spillover or financial market volatility (e.g. [20], [61]). Moreover, the exit from UMP was associated with, contractions in the nominal equity market, exchange rate depreciation, change in investors sentiment (e.g. [60], [69]). IMF [20] concluded that risks associated with a prolonged period of unprecedented low-interest rates in AEs might affect financial stability.

The last section of our research focused on the massive negative cross-border effects of UMP deployed by major central banks in AEs. The macroeconomic model's simulations argue that EMEs with open capital accounts confronted with loosen monetary conditions and increased current account deficit. Open current account financed mainly by capital inflow from AEs exposed EMEs to negative spillovers. Through potential channels for spillovers, e.g., cheaper global financing, higher external demand, increased EMEs exports resulted in raised EMEs domestic demand (positive spillovers) but also in accumulating external vulnerabilities.

Divergences in the current account have reduced by the cost of real exchange rates (e.g. [35], [60], [70]). Another essential point in EMEs analysis is that the stock of both foreign currency debts and local currency lending has substantially increased after GFC, exposing them to currency mismatches, debt intolerance and greater external exposure (e.g. [71]–[73]). In total, capital flows are lower, but volatile, causing political challenges for beneficiary countries, and the phenomenon will continue in the next years at less magnitude, even after the UMP exit (e.g. [20], [70]). Further reduction of global imbalances needs to be done but carefully calibrated to reflect growth prospects and different debt levels to reduce EMEs exposure. EMEs main concerned remain the possible "sudden stop" or reversal of capital flows, as in [3], the open current account exposure and external vulnerabilities (e.g. [20], [74]).

An important strand of literature concentrates over the disturbances, that many EMEs have recorded, such as: foreign capital inflows, as in [1], a real appreciation of currencies, an increase in equity prices, a decrease in sovereign debt yields, volatility on credit default spreads (e.g. [20], [35], [55],[69],[75]–[80]). A few studies associate UMP with beggar-thy-neighbour (e.g. [2], [57], [70], [61]).

IMF [20] provide an exhaustive report about EMEs taking shock profile. They identified two-sided spillovers. By the one hand, as most AEs and EMEs face leaks in macroprudential measure implementation, as in [81]. By the other hand, exposing EMEs to global financial shocks such as a change in the monetary policy of the AE or a change in investor sentiment, carries significant risks of serious negative spillovers down the road. A few studies stressed the fact that there is a significant difference in magnitude and nature of spillovers generated by AEs (e.g. [57], [58], [75], [78], [82]).

Another literature strand recognized that negative spillovers have been much decreased, but the broad portfolio flows modified the traditional role of floating exchange rate (shock absorbent). The exchange rate became instead a transmitter and amplifier of financial shocks (e.g. [70], [83], [84]). The cost reflected on the exchange rate variations tested the EMEs ability to manage massive flows of capital and vast stocks of external resources. Capital inflows have generated policy challenges to EMEs, particularly those of sudden stop or overheating. At the same time, EMEs took advantage of favourable external conditions and issued more bonds in national currency or contracted new foreign loans at low-interest rates.

Authorities in EMEs first best reaction confronting with overwhelming capital inflows from AEs should be fiscal contraction and international policy coordination for best outcomes. In reality, to combat undesirables' spillovers, they used the second-best option. Restrictions on trade (to stimulate internal producers), tighter prudential regulation (restricted external loans), lower domestic interest rate (opposed to policy objectives), FX interventions (to avoid currency appreciation), currency sterilization (to depress

inflation) and most controversial, capital controls was the most used answers.

The main conclusion of studies is that international monetary policy coordination, international cooperation are imperative for macroeconomic stability. There was generally agreed that what is suitable for AEs is good for EMEs too (and vice versa). But positive spillovers sometimes came with negative side effects.

IV. CONCLUSIONS

Minimizing negative side effects of UMP, required countries to rebalance their policy mix (including macroprudential and regulatory policies), perform structural reforms, adopt measures that not solve only the problem at home but help others deal with the problem they cause. In the U.S. ending policy uncertainty, repairing bank balance sheets and fiscal sustainability of monetary policies, in Europe - structural reforms, banking union finalized, decreased differentials between sovereign bonds, are some main objectives that will offer superior policy outcome. The reforms should be included in EMEs agenda, too. A temporary slowdown of the growth in AEs might generate robust fundamentals and sustainable growth worldwide. It is also needed to fully use macroprudential and macroeconomic measures asking reciprocity of fiscal policies and international collaboration.

When the central bank is unable to further cut the interest rate, what it communicates about how the interest it is likely to be set in the future remains a compelling alternative. Highly accommodative monetary policy was, no doubt, effective for global recovery after the GFC but more can be done to reduce world imbalances. EMEs growth rates are higher than AE (attracts capital flows), but the spillovers of UMPs affect the exchange rates and contribute to achieving financial vulnerabilities. Given the globalization of economies and financial markets, the spillovers, positive or negative are inexorable. Reducing the adverse side effects requires countries: effective collaboration, rethinking policies mix, (including both cash flow management on inflows and outflows), reduced external and domestic vulnerabilities, build buffers, continued structural reforms. Macroeconomic stability could be affected if UMP goes too far, increasing the market sensibility to a reassessment of risk premia and the sudden rise of the long-term interest rate. Therefore, an effective prior communication about exit strategies and the international policy coordination is imperative. Also, a prolong UMP could undermine the central bank's authority, and the policy could be seen as monetary finance of government debts. A position of economic strength and financial sector resilience sustained by credible fiscal commitment is the framework for the imminent monetary policy normalization.

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