

Inflation targeting in Singapore. Lessons for Ukraine

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Abstract

Russian aggression in Ukraine posed a difficult task for Ukrainian monetary authorities. In order to keep stability of national currency exchange rate the National Bank of Ukraine (NBU) fixed the U.S. dollar exchange rate immediately after the start of the conflict. However, NBU acknowledged that it considers fixed exchange rate as an impediment to inflation targeting, which NBU has chosen as its policy for money and credit since 2014. The main aim of this article is to show that inflation targeting is possible under fixed exchange rate regime. Thus, the problem of policy choice for NBU is not so dramatic. Price stability is compatible with management of exchange rate in both practical and theoretical perspectives. In order to prove this thesis, we will look into Singapore's experience of targeting inflation with fixed exchange rate.

Singaporean experience of managing its exchange rate proves that greater flexibility is possible in the context of monetary policy choice. Depending on a situation Singaporean central bank is able to "lean against the wind" and shift swiftly between the corners of "Impossible Trinity" allowing greater control over exchange rate and interest rate in a short-term time horizon. Furthermore, management of exchange rate is compatible with inflation targeting paradigm which is strongly advised for a small-open economy by international financial organizations such as IMF. Singaporean experience also proves that the reaction function of MAS is compatible with the Taylor rule. Eventually, Singaporean economy maintains price stability without committing its monetary policy to interest rate targeting exclusively.

Keywords: inflation targeting, "Impossible Trinity", management of exchange rate, interest rate control, the Taylor rule Singapore dollar nominal effective exchange rate (S\$NEER).

Introduction

Russian aggression in Ukraine posed a difficult task for Ukrainian monetary authorities. In order to keep stability of national currency exchange rate the National Bank of Ukraine (NBU) fixed the U.S. dollar exchange rate immediately after the start of the conflict. It stated that this is a temporary measure which will last till the end of an active phase of military standoff. However, NBU acknowledged that it considers fixed exchange rate as an impediment to inflation targeting, which NBU has chosen as its policy for money and credit since 2014. Once the economic hardships of war are relieved, NBU is committed to return to interest rate

targeting as the main instrument for maintaining price stability. The problem for Ukrainian authorities is that nobody knows when these conditions will allow the monetary authority to make it real.

The main aim of this article is to show that inflation targeting is possible under fixed exchange rate regime. Thus, the problem of policy choice for NBU is not so dramatic. Price stability is compatible with management of exchange rate in both practical and theoretical perspectives. In order to prove this thesis, we will look into Singapore's experience of targeting inflation with fixed exchange rate.

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Material and methods

In the world of monetary economics Singapore monetary system clearly stands out from the rest. Despite being classified by mainstream economists as a small-open economy, it doesn't follow the inflation targeting paradigm, which is strongly recommended for such type of economies by major international financial organizations such as International Monetary Fund (IMF). Nevertheless, it proved to be extremely successful in supporting economic growth in Singapore on par with "first-world" economies.

Unlike central banks of most countries, the Monetary Authority of Singapore (MAS) neither is concentrated on interest rates, nor peg its currency exclusively to the U.S. dollar. Since 1975 Singapore's monetary policy has been centered on the exchange rate (Claassen, 1992). The MAS operates a managed float regime for the Singapore dollar. The MAS manages its currency against a trade-weighted basket of currencies of Singapore's major trading partners and competitors, and maintains it broadly within an undisclosed target band. When necessary, MAS intervenes in the foreign exchange market to maintain the trade-weighted Singapore dollar exchange rate, also known as the Singapore dollar nominal effective exchange rate (S\$NEER), within the policy band (MAS, 2013).

Singapore of all countries has come closest to adopting key features of John Williamson's "basket, band and crawl" (BBC) approach (Williamson, *Crawling Bands or Monitoring Bands: How to Manage Exchange Rates in a World of Capital Mobility*, 1998). The basket feature refers to the fact that MAS manages the exchange rate against a trade-weighted basket

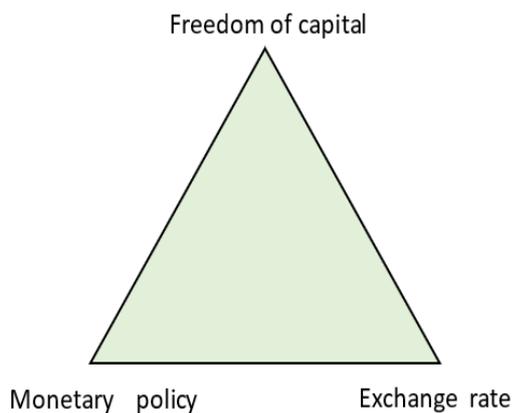
of currencies of Singapore's major trading partners and competitors. The basket weights are updated regularly, so the basket itself acts as a more stable reference point for managing Singapore dollar's nominal effective exchange rate (S\$NEER) than a peg to a single currency, namely the U.S. dollar. In contrast to a floating exchange rate regime, S\$NEER floats only within a policy band determined by MAS. On the other hand, unlike in a pegged exchange rate regime, which requires domestic currency to be tightly fixed to its foreign vis-à-vis, authorities normally intervene to prevent the exchange rate from straying far from either lower or higher boundaries of the band. The level and width of the band is set by MAS periodically with a reference to the basket. The width of the band is relatively wide in order to allow market forces interplay. The width also permits MAS to adjust the center of the band (the parity) in line with the macroeconomic fundamentals (thus, giving some scope for an independent monetary policy). Finally, the crawl feature reflects differences in inflation and productivity trends between the domestic and foreign economies, circumventing significant external misalignment of the domestic currency and, thus, discouraging speculative attacks against it. The crawl also refers to the slope of the S\$NEER policy band: except for adversity, the crawl is set on an upward (i.e., appreciating) or flat path (i.e., a slope of 0%). (McCallum, 2006; Khor, Lee, Robinson, & Supaat, 2007; Wilson, 2009; Chow, *Domestic Liquidity Conditions and Monetary Policy in Singapore*, 2017; MAS, *Monetary Policy and the Economy*, 2018).

Results and discussion

The justification for such uncommon monetary policy appears to be aligned with the core of mainstream economics argumentation. Conventionally, Singapore's monetary regime is explained in terms of Mundell-Fleming "Impossible Trinity" – also known as the "Open-Economy Trilemma" (Krugman & Obstfeld,

2003), according to which an open free market economy cannot simultaneously have free capital mobility, fixed exchange rate system and independent monetary policy (Graph 1.). In fact, this rule dictates an either/or choice between exchange rate and monetary (money supply or interest rate) targeting. That is, if an economy

chooses to target its money supply or interest rate, the market force will determine the exchange rate. On the other hand, if an economy committed to free capital movement chooses to target its exchange rate, it has to let the market force determine the money supply and interest rate.



Graph 1. “Impossible Trilemma” in Neoclassical Economic Theory

Many economists believe that the latter is the case for Singapore (Wilson, 2009; Chow, Domestic Liquidity Conditions and Monetary Policy in Singapore, 2017). This is also the official explanation within MAS “Monetary Policy Operations” monograph:

“... a country that maintains an open capital account cannot simultaneously manage its foreign exchange rate and domestic interest rates. Thus, Singapore’s open capital account and exchange rate-based monetary policy imply that domestic interest rates and money supply are necessarily endogenous. MAS’ liquidity management framework therefore does not target any level of interest rate or money supply” (MAS, 2013, p. 8).

However, a number of economists pointed out that “Impossible Trinity” appears to be extremely ambiguous as an epistemological device for defining Singapore’s monetary regime. Evidence shows that its “corner” solutions are not straight-forward trade-offs and, contrary to its rules, Singapore is able to stay extremely open to capital flows and run its

own independent monetary policy at the same time:

- Singapore intentionally and successfully runs a rate in inflation different from (in most cases lower than) the rest-of-the-world (Grenville, 2011);

- Singapore-US 3-months interbank interest rate differential could be quite far away from zero, reflecting that Singapore can choose an interest rate substantially different from that of the US, unlike, for example, Hong Kong, which HK-US rate differential is close to zero except for the crisis periods (Yip, 2005);

- During adverse periods such as the speculative attack on Singapore dollar in 1985-1986 the MAS was able to defend its currency via interest rate hikes (Kapur, 2005)

- Policy for discouraging banks from internationalization of Singapore dollar (a system of direct and indirect controls for lending in Singapore dollar), which is aimed at preventing currency speculations, can significantly limit the freedom of capital flows and, hence, needs to be “liberalized” (Chan & Ngiam, 1996).

In order to avoid trilemma’s ambiguity, the MAS prefer referencing to those economists who support the view that inflation targeting does not necessarily require either/or choice between exchange rate and interest rate only as once-at-a-time nominal anchor (MAS, 2016). Contrary to strict trilemma definition, they argue that MAS is able to pursue both inflation targeting (or an independent monetary policy in general) and a soft peg, in particular:

- Assessment of MAS reaction function proves to be compatible with Taylor rule (Parrado, 2004);

- For the MAS the exchange rate is important primarily in its role as an intermediate information or instrument variable that is involved in the procedures used to achieve the objective of low inflation, augmented by output gap considerations (McCallum, 2006);

- In terms of overall inflation volatility, the exchange rate rule has a comparative advantage over the Taylor rule, when export-price shocks

were the major sources of real volatility; it also dominated the Taylor rule for reducing inflation persistence (Chow, Lim, & McNeils, Monetary regime choice in Singapore: Would a Taylor rule outperform exchange-rate management?, 2014);

The exchange rate rule also outperforms a standard Taylor rule in terms of welfare, at the same time the uncovered interest parity (UIP) has not failed (The UIP condition, which is a logical consequence of mathematical formulation of trilemma, is not rejected in Singapore (Khor, Lee, Robinson, & Supaat, 2007). However, empirical evidence clearly shows that it is rejected in almost every economy, which is committed to free capital movement. The phenomenon of UIP violation remains unexplained and is widely referred by mainstream economists as “the uncovered interest puzzle”. The inclusion of UIP in orthodox models is not based on empirical evidence rather it is based on an “instrumentalist philosophy according to which it is better to be precisely wrong than vaguely right” (Lavoie, 2014)). In fact, MAS goes “beyond a simple adjustment towards equilibrium” and uses the exchange rate to stabilize the business cycle (The latter is very important as it requires from MAS to react at business cycle speed, i.e. manage the currency “on a daily basis” (MAS, 2013, p. 5)) via reacting to changes in inflation and the output gap (Heipertz, Mihov, & Santacreu, 2017).

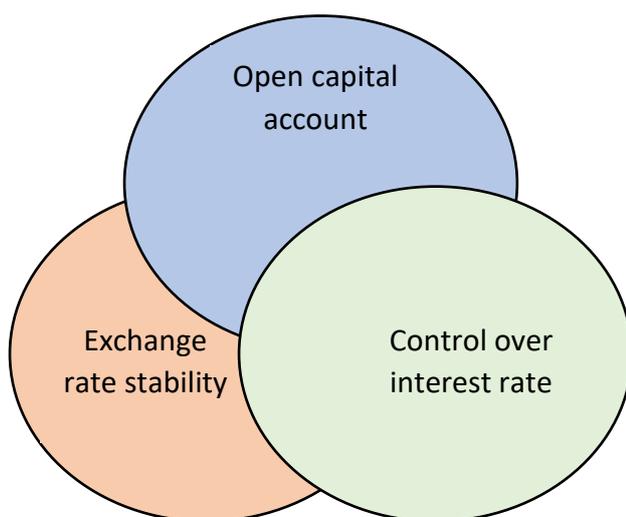
These “anomalies” (looking from the trilemma’s standpoint) makes Singapore truly unique, because having two nominal anchors – exchange rate and rate of inflation – in an economy committed to free mobility of capital is widely regarded as problematic and undesirable by the most of mainstream economists (Caldentey & Vernengo, 2020). Apparently, that is why MAS as well as its staff economists (McCallum, 2006; Khor, Lee, Robinson, & Supaat, 2007) see John Williamson’s intermediate monetary regime (Williamson, *Crawling Bands or Monitoring Bands: How to Manage Exchange Rates in a*

World of Capital Mobility, 1998) as an exclusive analytical foundation for assessing Singapore’s monetary regime. Williamson asserts that his approach “should not be viewed as an alternative to inflation targeting, but as a complement to it” (Williamson, *The Case for a Basket, Band and Crawl (BBC) Regime for East Asia*, 2001).

Since the MAS has practiced the mentioned above monetary regime for almost two decades before it was formulated by Williamson as BBC monetary system in the late 1990s (John Williamson has advocated for crawling peg since as early as 1965, which is adopted as the crawling feature of the BBC approach in his later works (Williamson, *The crawling peg*, 1965)), both approaches are not identical and have some very important differences. Unlike Williamson’s original proposal, Singapore’s BBC system is fundamentally informational asymmetric as the MAS disclose only general direction of its actions (Monetary policy formulation takes place twice a year. In its semiannual monetary policy formulation cycle, the MAS announces the exchange rate policy stance through a Monetary Policy Statement. Appropriate changes are made to the level, slope and width of the policy band if these are deemed necessary through an assessment of the prevailing economic and market conditions as well as their outlook. For instance, the MAS widened its policy bands with heightened volatility in the foreign exchange markets during the Asian crisis and subsequently narrowed them when a degree of calm had returned to the regional markets. In response to the global financial crisis (the direct effect of which was less severe), the MAS flattened its policy band and re-centred it at a lower level). Along with non-disclosure of the exact weights of each currency in its S\$NEER basket, MAS does not mention the exact parity and width of the exchange rate band. Furthermore, it has no obligation to defend the boundaries of S\$NEER band. Instead, the MAS will just indicate that Singapore dollar will on average appreciate, or be stable, in the near or medium future (without

mentioning the exact numbers); and there is an exchange rate band within which the Singapore dollar is allowed to fluctuate (again without any specific details). However, despite the non-disclosure of the band width and weights in the NEER basket as well as the minimum commitments announced, the MAS managed to obtain sufficient market confidence on its exchange rate policy, possibly because Singapore dollar was in general moderately appreciating for almost two decades since the late 1970s (Yip, 2005).

In such informational asymmetry environment, the MAS is able to unnoticeably pursue both the exchange rate and interest rate targeting, which is deemed impossible by the notion of the “Impossible Trinity”. Obviously, the MAS does not treat its corner-solutions as strict trade-offs, but rather as “overlaps”, inside which MAS is able to change its modus operandi between exchange rate targeting and monetary independence. In particular, it is worthy to note that MAS graphically portray the “Impossible Trinity” not as a triangle but as three Euler circles (Graph 2.), indicating the areas of overlap between “Exchange Rate Stability”, “Control over Interest Rates”, “Open Capital Account” (MAS, Monetary Policy and the Economy, 2018, p. 7).



**Graph 2. “Impossible Trilemma”
According to MAS**

Edward Surendran Robinson, Deputy Managing Director of the Economic Policy Group/Chief Economist of the MAS, in his discussion with John Williamson defines the relationship between a BBC regime and inflation targeting as follows:

“When the exchange rate is inside the band, monetary policy can be independent, and can pursue an inflation target. However, when the exchange rate comes near the edge of the band (either the floor or the ceiling), monetary policy gives way to exchange rate policy. In other words, intervention will be employed with monetary policy being conducted with more weight on exchange rate management. This view may be slightly different from the view Williamson had in mind” (Robinson & Ito, 2001).

The mentioned above information asymmetry puts a Rawlsian “veil of ignorance” on the actual MAS policies to the extent that from the external point it is impossible to tell with a certain degree of surety whether monetary independence was employed or not for a certain period of time. Thus, the “Impossible Trinity” explanations of Singapore monetary system raises more questions than it answers. Apparently, that is why Robinson put more emphasis not on the epistemological potential of the trilemma, but on institutional setting of the Singapore’s economy:

“The exchange rate system may therefore be viewed as a ‘monetary overlay’ on the real economy foundations. In this sense, exchange rate policy has moved beyond the confines of the traditional parameters of instruments, targets, transmission mechanisms and inflation–output trade-off issues” (Robinson & Ito, 2001).

The latter view is also supported by Barry Eichengreen, who states that Singapore’s monetary policy should not be viewed solely through the lenses of BBC monetary regime, because it is based not on the design of the

exchange rate band but rather on the specific institutional setting of the economy as well as normative practices (Eichengreen, 2001). Unfortunately, neither Robinson nor Eichengreen, nor the MAS itself, doesn't

elaborate much on the institutional foundations of the Singapore's monetary model. The latter is the aim of my further research in this field as the scope of this article is limited to neoclassical foundations of Singapore monetary policy.

Conclusions

Neoclassical economics theory sets theoretical ground for the choice of monetary policy. The notion of "Impossible Trinity" implies that in an economy committed to free capital mobility a monetary authority is able to choose between two options: interest rates control or management of exchange rate. If the authority chooses to target one of the available options, the market force will determine the other and vice versa. Thus, in theory exchange rate management is not compatible with setting the interest rate. However, as shown above, Singaporean experience of managing its exchange rate proves that greater flexibility is possible in the context of monetary policy choice. Depending on a situation Singaporean central bank is able to "lean against the wind" and shift swiftly between the corners of "Impossible Trinity" allowing greater control over exchange rate and interest rate in a short-term time horizon.

Furthermore, management of exchange rate is compatible with inflation targeting paradigm which is strongly advised for a small-open economy by international financial organizations such as IMF. Singaporean experience also proves that the reaction function of MAS is compatible with the Taylor rule. Eventually, Singaporean economy

maintains price stability without committing its monetary policy to interest rate targeting exclusively. Both theoretical and practical considerations prove that thesis.

In the context of recent decision of Ukrainian central bank to fix its exchange rate Singaporean experience can guide further NBU's judgment on monetary policy. There is no need to juxtapose fixed exchange rate and inflation targeting paradigm. The example of Singapore proves that management of exchange rate can provide price stability which is the main rationale for opting in favor of interest rate control. As long as this practice is compatible with the Taylor rule it can support low and stable rate of inflation without raising interest rates and, thus, escaping undesirable consequences for shrinking demand.

It is strongly advised for Ukrainian monetary authorities to investigate the experience of Singapore in this context and update its knowledge about theoretical and practical possibilities of inflation targeting without concentrating solely on interest rate control. The latter can provide Ukrainian economy with greater flexibility and control over exogenous variables of its monetary system in the context of challenges posed by military conflict.

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