

Balance-of-Payments Disequilibria and Monetary Policy Autonomy

An Examination of Open-Economy Policy Constraints

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Abstract

This paper examines the monetary policy constraints facing economies on a fixed peg or managed float regime, contrasting the Mundell-Fleming Trilemma view against the Compensation view commonly found at central banks. While the former holds that balance-of-payments disequilibria directly affect domestic monetary policy under non-floating regimes, causing a loss of autonomy unless capital controls are adopted, the latter purports that endogenous sterilization of financial flows invalidates this trade-off, making the balance-of-payments position a more binding constraint on an economy's autonomy than its choice of exchange rate regime. The predictions of both theories are empirically evaluated for five East Asian economies using central bank balance sheets, vector error correction models and impulse response functions. The findings indicate that the dynamics for the economies studied correspond more closely to the Compensation view than the Trilemma view, suggesting that non-floating regimes may be less costly in autonomy terms than traditionally assumed.

Keywords: balance of payments; central banking; monetary policy; exchange rates; trilemma

JEL Classifications: E51; E58; F41

1 Introduction

Thought about the international monetary system and its working mechanisms has traditionally been guided by various notions of an “impossible trinity”, according to which it is impossible for an economy to simultaneously achieve stable exchange rates, free capital movement and monetary policy independence. The theory goes that policy-makers are forced to choose a combination of any two of these goals, but cannot realize all three of them at the same time.

The most popular and arguably most influential representation of this *Trilemma view* is the Mundell-Fleming IS-LM-BP model, which holds that financial inflows and outflows directly affect the domestic money base under a fixed peg or managed float regime, making it impossible for an economy to pursue an independent monetary policy unless capital controls are adopted. While this view has been questioned from a variety of perspectives, with several studies arguing that the empirical effectiveness of sterilized foreign exchange market intervention (cf. Löffler et al., 2012; Ito, 2003) or the dominance of global financial cycles render the choice of the exchange rate regime irrelevant (cf. Rey, 2015), the idea that an economy loses its autonomy when adopting a peg is still widely held on to in the literature, irrespective of theoretical orientation.

This paper argues that the application of the principles underlying modern interest rate-targeting central bank systems to the open-economy dimension largely invalidates the Trilemma trade-off, suggesting that the balance-of-payments position is a more binding constraint on an economy’s autonomy than its choice of exchange rate regime. The paper builds to this argument through three sections: First, the Mundell-Fleming Trilemma is theoretically contrasted against the so-called *Compensation view*, a perspective commonly found in the writings of central bank practitioners (cf. Le Bourva, 1959, 1962; Berger, 1972; Goodhart, 1984, pp. 291–292) which holds that *endogenous* sterilization of foreign financial flows offsets possible effects on domestic monetary policy. Second, the predictions of both theories are examined on the basis of central bank balance sheet data and evidence is provided showing that empirical dynamics correspond more closely to the Compensation view than the Trilemma view. Finally, several important consequences of these findings pertaining on an economy’s political autonomy and sovereignty are identified and analysed. The main implication is that currency pegs may be less costly in autonomy terms than has been traditionally assumed, whereas the gains from floating or monetary union may not be as high as generally expected.

2 Theoretical background

Consider an economy with a fixed exchange rate and an open capital account, where the central bank stands ready to convert foreign currency to local currency at some pre-announced parity. Suppose further that the central bank of said economy decides to adopt a contractionary monetary policy stance, raising domestic interest rates above world levels. In the Trilemma view, this policy would lead to financial inflows and reduced imports, driving the balance-of-payments (BOP) into a surplus position. The exchange rate peg then obliges the central bank to issue domestic currency in an amount corresponding to that of the financial inflow, leading to an equivalent increase of the positions “net foreign exchange reserves” and “money base” ($ALFR \uparrow LMB \uparrow$, where $\Delta ALFR = \Delta LMB$) on the central bank’s balance sheet (as shown in figure 1) causing domestic interest rates to fall back to their original level.

Figure 1: Stylized Central Bank Balance Sheet

Assets		Liabilities	
$ALFR$	Net foreign exchange reserves	Money base	LMB
AGS	Government securities	Central bank securities	LCS
APR	Claims on private sector	Government deposits	LGD
		Other liabilities to private sector	LPR

In the Trilemma view, this one-to-one link between foreign exchange reserves and the domestic money base causes a loss of monetary policy autonomy, understood here as the central bank’s ability to control the domestic money supply (cf. Ethier, 1995, p. 442; Obstfeld and Rogoff, 1995, p. 75). Since BOP disequilibria are assumed to directly affect domestic monetary policy under non-floating regimes, the Trilemma view regards the choice of exchange rate regime as the determinant of policy autonomy, given free financial flows.

The Compensation view, on the other hand, holds that a deviation of the money base in response to foreign financial inflows would be prevented by movement in other balance sheet items, as said inflows would be offset by a decrease of other central bank assets (e.g. $ALFR \uparrow AGS \downarrow$) or an increase of other central bank liabilities (e.g. $ALFR \uparrow LCS \uparrow$). Such a *compensating* response could, contingent upon institutional factors and banks’ liquidity preference, instantaneously absorb up to the full amount of the financial inflow (e.g. $\Delta ALFR = \Delta LCS$, where $\Delta LMB = 0$), preventing interest rate-distorting

effects on the money base. Transitory or minor residual effects on the money base would then merely reflect changes in the demand for reserves or national variations in reserve requirements and their associated maintenance periods, with no bearing on the domestic interest rate.

Known as *sterilization*, the Trilemma view sees neutralizing transactions of this kind as a secondary and discretionary measure that is largely ineffective (cf. McCallum, 1996, p. 138) or even detrimental to the integrity of a fixed exchange rate system (cf. Mundell, 1963, p. 485). In the Compensation view, by contrast, sterilization is the logical consequence of the operation of an interest rate-targeting central bank system and is non-discretionary, as described by the former governor of the Bank of Japan, Shirakawa (2008, pp. 291–292):

“It does not make [theoretical] sense to distinguish between ‘sterilized intervention’ and ‘unsterilized intervention’. Moreover, based upon our understanding of the modern practices for monetary policy operations and foreign exchange market intervention, it is difficult to imagine an operation which would end up being an ‘unsterilized intervention’. Consider the case of intervening by buying foreign currency, for example. In such a case, domestic currency [...] is paid to the market, so that the balance of central bank reserves increases. ‘Unsterilized intervention’ means that the central bank then leaves things as they are, but in this case the short-term interest rate would fall. Since the central bank has a target level for the short-term interest rate, however, [...] it will be necessary to conduct a funds absorption operation equal in size to the foreign exchange market intervention in order to realize the decided interest rate level. In other words, as long as a target level for the short-term interest rate has been set, foreign exchange market intervention will always be ‘sterilized’. [...]” (Translation, annotation and emphases by the author of this paper)¹

Shirakawa goes on to outline how the purchase of foreign currency by Japanese authorities involves the simultaneous issuance of “Short-Term Financing Bills”, which automatically sterilize the transaction. Even when this is not the case, offsetting transactions may nevertheless occur automatically at the initiative of the private sector, as argued by Goodhart (1984, pp. 191–192), former member of the Bank of England’s Monetary Policy Committee:

¹The author thanks Tomohiro Kinoshita for helpful comments on the translation of this paragraph.

“In order to achieve the desired level of [high-powered money], [...] the authorities have to try to offset movements, which may on occasions be very large, in all these other flows by inducing people to purchase, or if needs be to sell, marketable government debt. [Continued in footnote] *There is, however, some tendency towards negative covariation in these flows, i.e. they seem to interact in a way that produces some partial compensation, which alleviates certain of the difficulties facing the authorities.* A large foreign exchange inflow usually encourages sales of gilts [i.e. government bonds] and also reduces company demand for bank credit.” (Annotations and emphasis by the author of this paper)

When commercial banks find themselves holding excess reserves that pay little or no interest, and without recourse to inter-bank lending in a situation where the system-wide demand for reserves is satisfied at the prevailing interest rate level, they will attempt to substitute said reserves for interest-earning assets while minimizing credit risk and liquidity risk, purchasing government securities or central bank securities from the central bank. Such transactions would be most common in economies where monetary policy primarily assumes the form of open-market operations, as in Anglo-American systems (cf. Mehrling, 2011). In economies where monetary policy typically relies on standing facilities and loans, as has historically been the case in the bank-dominated financial systems of Europe and East Asia (cf. Yoshino, 2012), banks may instead wish to repay part of their debt to the central bank and thereby reduce their debt servicing costs. Both responses would lead the money base to fall back to its original level without any explicit action on the part of the authorities, whereas in the Trilemma view it would remain at its new higher level, since an increase of commercial bank reserves is assumed to set into motion a multiplier process leading to a manifold expansion of the total money supply. Again, while sterilization is recognized within the Trilemma view, it is seen as a fundamentally ineffective operation which should remain the exception, since frequent application would lead to a breakdown of the peg.

Under the Compensation view, sterilization is an *endogenous* operation: In order to prevent interest rate movement away from its target level, a central bank must either accommodate private demand for reserves through credit facilities or open market operations, or find other ways to induce commercial banks to hold on to excess reserve balances. Whereas the sale of securities involves a “dual decision” by the central bank and the private sector, sterilizing transactions may also be initiated autonomously by the private sector alone through drawings on central bank credit lines,² extending equal-

²The author thanks Marc Lavoie for pointing out this distinction.

ent arrangements between commercial banks and firms (cf. Kaldor and Trevithick, 1981; Robinson, 1956, pp. 225–244).

It is the latter principle of demand-driven sterilization in particular that Le Bourva (1959; 1962) and Berger (1972) of the Banque de France, the originators of the theory, stress within an open economy setting, termed the “Compensation thesis” by Lavoie (1992).³ Within this framework, an economy remains autonomous so long as it maintains a positive BOP position, as its central bank faces no balance sheet constraint with respect to assets and liabilities denominated in its own currency and consequently no technical limitations to its ability to sterilize foreign exchange inflows (cf. Buiters, 2008). By contrast, an economy in a sustained deficit position is limited by its stock of foreign exchange reserves.⁴ Only the latter would find its autonomy constrained, understood here as the ability to achieve its domestic interest rate target (cf. Lavoie, 2001).

3 Empirical analysis

3.1 Methodology

To determine which theory provides a better description of the workings of modern central bank systems, their predictions are compared on the basis of central bank balance sheets for five East Asian economies running BOP surpluses. If foreign reserve accumulation is primarily associated with a dominating, positive, significant and lasting increase of the money base, the Trilemma view would apply. If dominating, significant and lasting offsetting movement in other balance sheet items (negative in the case of assets and positive in the case of liabilities) is the observed response, the Compensation view would apply. To explore this question, vector error correction (VEC) models, a multi-variate time-series framework which accounts for the presence of long-run stationary relationships among a group of variables (cointegration), are estimated and impulse response functions are calculated. This approach is somewhat similar to that followed by Lavoie and Wang (2011), who analyse the balance sheet of the People’s Bank of China for the period from 1999 to 2007 and test restrictions on the long-run relations in the VEC model.

In order to retrieve that part of the movement in balance sheet items that is due to an inflow of foreign exchange reserves, a standard Cholesky ordering is used to identify the orthogonalized impulse responses. Effects are assumed to run successively from net foreign exchange reserves to the money base before affecting other balance sheet items,

³Ehnts and Barbaroux (2015) give an account of the historical development of the Compensation thesis.

⁴Large-scale sterilization is nevertheless said to incur ‘quasi-fiscal cost’ due to a possible negative interest rate differential between low-yielding foreign assets and high-yielding domestic liabilities.

arranged in order of decreasing importance as suggested by their outstanding positions. While this approach primarily corresponds to the causality predicted by the Trilemma view, it does allow for the possibility of transitory or minor liquidity effects on the money base, e.g. rising private reserve positions in anticipation of increased payment commitments during an economic expansion or precautionary reserve holdings during periods of stress in the financial system.

The economies of South Korea, Taiwan, Malaysia, China and Hong Kong were selected for study here on the grounds that they are geographically close, institutionally well developed, and rather heterogeneous in their central bank set-ups and use of capital controls. Less developed economies typically are not good candidates for analysis of this kind since necessary structures such as inter-bank markets or domestic bond markets are often absent or insufficient (cf. Yoshino et al., 2006). In more advanced economies, on the other hand, unconventional monetary policies and interest payments on excess commercial bank reserves turn reserves into near-perfect substitutes for treasury paper, causing their opportunity cost to disappear or even become negative, which invalidates the negative relationship with interest rates that is central to both theories under consideration here (Bindseil, 2014, pp. 93–95).

Monthly balance sheet data for the five economies analysed here was obtained from the International Monetary Fund’s (IMF) International Financial Statistics and from those economies’ monetary authorities.⁵ Raw data was aggregated to obtain the series shown in figure 1, with equity capital excluded. The specific time frames were chosen so that the sample periods would coincide with significant foreign exchange reserve accumulation in the target economies while avoiding structural breaks within their balance sheets, i.e. instances where the outstanding position of any item becomes zero.

In order to eliminate cases where economies increase foreign reserve holdings by incurring foreign liabilities and reduce variation stemming from changes in the exchange rate, foreign liabilities are subtracted from reserves to obtain net figures (*ALFR* in figure 1) and subsequently converted to US dollars (*ALFRU*). Finally, to ensure coherent treatment of balance sheet items across all five economies, the money base is adjusted in the cases of China and Hong Kong to maintain correspondence with its conventional definition, i.e. currency in circulation plus commercial bank reserves, which requires subtraction of components with a maturity larger than zero, including less liquid items and those kept in a non-discretionary fashion.

⁵All statistics for Taiwan were obtained from the Central Bank of the Republic of China (Taiwan). Data on required reserves in China was obtained from the People’s Bank of China. Data on Exchange Fund Bills and Notes in Hong Kong were obtained from the Hong Kong Monetary Authority.

3.2 Data

The balance sheets of the five monetary authorities under study are shown in figures 2 to 6, with assets stacked in positive territory and liabilities stacked in negative territory.⁶ All balance sheets indicate significant foreign exchange reserve accumulation in the period after the Asian Financial Crisis that, on the basis of a first-look visual observation, does not show any obvious association with the money base, which merely seems to increase linearly over time. Indeed, in several instances changes in the money base appear to correlate negatively with changes in net foreign exchange reserves in US dollars.

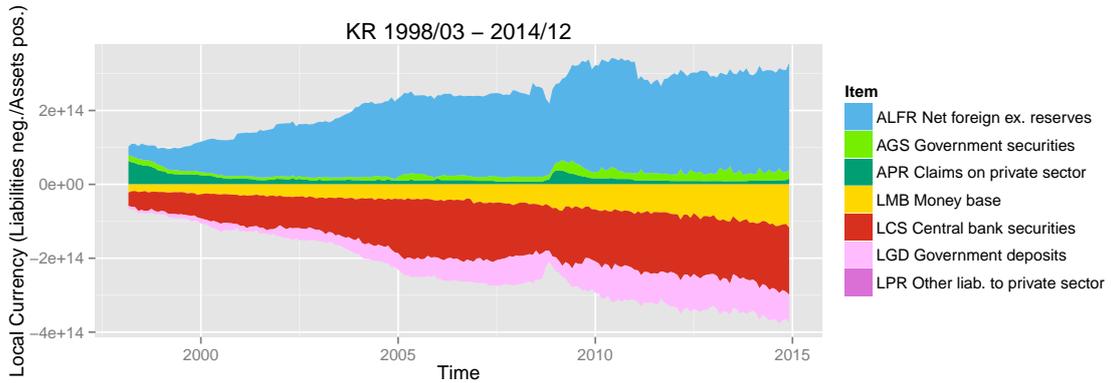
Several institutional observations are in order. While monetary policy in East Asia used to rely primarily on standing credit facilities, the accumulation of foreign exchange reserves within the last several years has shifted the focus towards the liability side of central bank balance sheets. All of the economies under consideration issued central bank securities in large amounts (*LCS*), which, in Taiwan's case, were complemented by so-called "re-deposits", reserves financial institutions are obliged to hold with the central bank (Yang and Shea, 2006). In China, central bank bills played an important role up to 2009 (Lavoie and Wang, 2011; Körner and Ehnts, 2013), when emphasis shifted towards required reserves (*LRR*), the ratios of which are substantially higher and more frequently adjusted than in other economies (Ma et al., 2013). Also, government deposits (*LGD*) have been a prominent item on the balance sheet of the Bank of Korea for several years and, most importantly, as a counterbalancing item to foreign financial inflows in Hong Kong, which is a feature of many currency boards (cf. Dobrev, 1999).

Taiwan and Malaysia both stabilize exchange rates to a greater degree than Korea, albeit at lower frequencies than China or Hong Kong. In addition, Malaysia and China rely on various types of capital controls, although those seem to be weakening somewhat in recent years due to some cautious stepwise official liberalization of the capital account and, especially in the latter's case, unofficial circumvention via over-invoicing and under-invoicing of current account transactions.

To ensure coherent treatment of balance sheet items across different economies, the "money base" as defined in China and Hong Kong is modified to correspond to the same concept as in other economies, as mentioned earlier. Whereas reserve requirements are either absent or negligible in other economies, large positions of required reserves as found in China essentially function like central bank securities (cf. Bindseil, 2014, pp. 93–95).

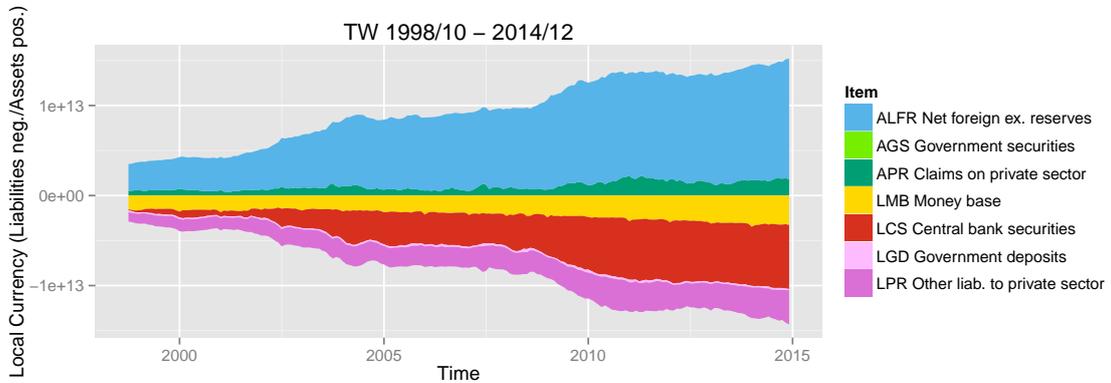
⁶Liabilities are plotted on a negative scale only for exhibition. The actual data series are positive.

Figure 2: Balance sheet of Bank of Korea



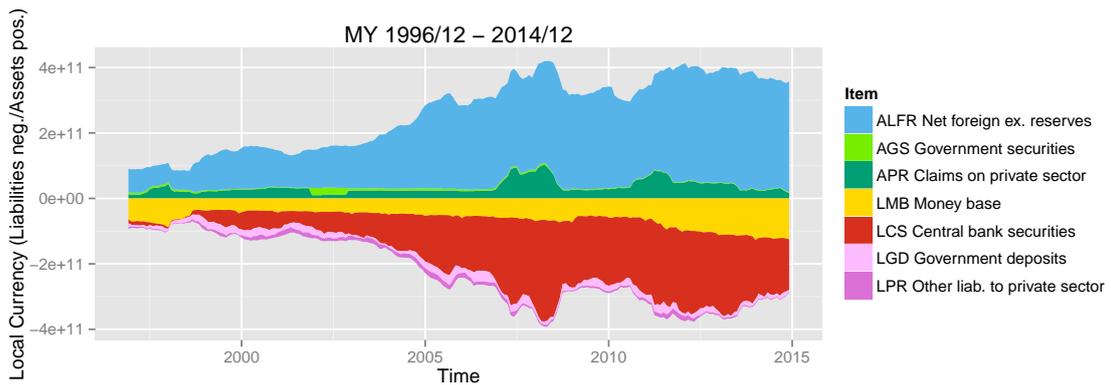
Source: IMF International Financial Statistics

Figure 3: Balance sheet of Central Bank of the Republic of China (Taiwan)



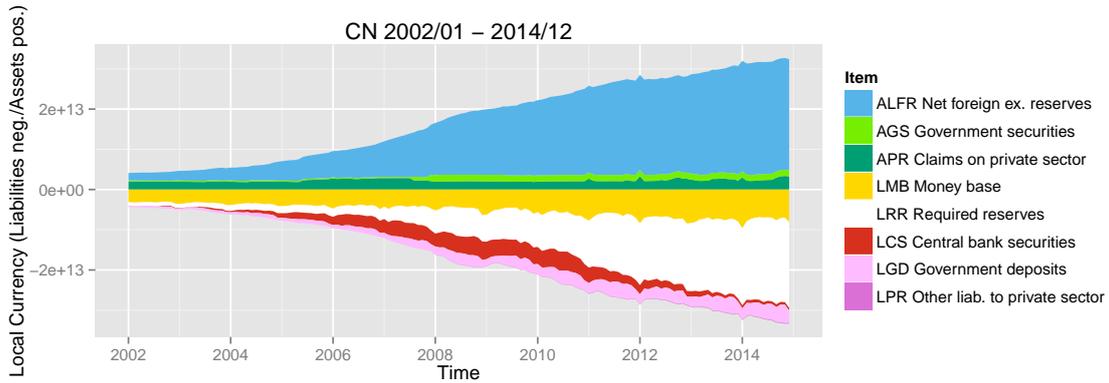
Source: Central Bank of the Republic of China (Taiwan)

Figure 4: Balance sheet of the Bank Negara Malaysia



Source: IMF International Financial Statistics

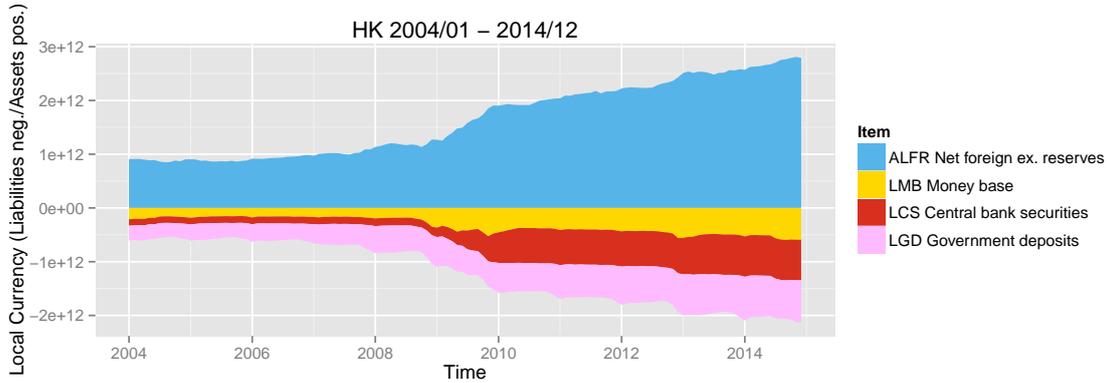
Figure 5: Balance sheet of the People’s Bank of China



Source: IMF International Financial Statistics, People’s Bank of China

Note: The area *LRR* represents the share of the money base which is held as required reserves. The remaining area *LMB* thus represents excess reserves.

Figure 6: Balance sheet of the Hong Kong Monetary Authority



Source: IMF International Financial Statistics, Hong Kong Monetary Authority

Note: Exchange Fund Bills and Notes (*LCS*) are by definition part of the money base in Hong Kong but analysed separately here for reasons of consistency.

Consequently, their outstanding amount is approximated (as *LRR*)⁷, taken out of the money base and then summed up with central bank securities into a pseudo-instrument “required reserves plus central bank bills” (*LRRCs*) to compensate for the structural shift between these two items. Similarly, the money base in Hong Kong includes securities issued by the Hong Kong Monetary Authority (HKMA) which require separate treatment

⁷Since the actual calculation of required reserves is complex, differing according to both type of deposits and size of the institution in question, the outstanding amount of required reserves is approximated on the basis of the average reserve requirement rate for small and large banks and total demand and savings deposits in the banking system.

(as *LCS*). While the HKMA goes to great lengths to demonstrate that its securities are fully backed by US dollar reserves, are issued in a non-discretionary manner and have the same standing as other components of the money base with respect to its convertibility undertakings (HKMA, 2011), other currency boards make an explicit distinction here, a structurally very similar case being its immediate neighbour Macao. The situation is complicated somewhat by the fact that a money base as such did not exist in Hong Kong until the late 1990s, as inter-bank settlement and clearing was conducted through balances with the HSBC, formerly the “Hong Kong and Shanghai Banking Corporation” (cf. Latter, 2009). Even after this function was taken over by the HKMA, variation on the liability side remained extremely small until the first decade of the new millennium.

3.3 Estimations

In preparation for the estimations, all series were converted to natural logarithms and subjected to unit root tests to ensure that non-stationary series were present in all data sets, which was the case in each of the economies analysed. Furthermore, in each economy’s data set, the presence of deterministic trends could not be ruled out for one or more balance sheet items. This is accounted for by including unrestricted constants and restricted trend terms in the specification of the subsequent VEC models, in line with Doornik (1998):

$$\Delta y_t = \mu_0 + \mu_1 t + \Pi y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i \Delta y_{t-i} + \epsilon_t \quad \text{with } \alpha' \perp \mu_1 = 0 \quad (1)$$

where Π can be represented by a loading matrix α and a cointegration matrix β , which determine the speed of adjustment and the cointegration space respectively

$$\Pi = \alpha\beta'$$

Using a lag order suggested by the Hanna-Quinn information criterion, the number of long-run stationary relations was determined using Johansen cointegration tests and specified in the final models that were used to obtain the orthogonalized impulse responses, on the basis of which the reactions of balance sheet items to a one-standard error increase in the natural log of net foreign exchange reserves in US dollars (*lnALFRU*) were analysed. Finally, since interest primarily lies in the absolute size and direction of responses, the logged impulse responses are converted to mean responses in local currency terms, averaged over short and long horizons and presented in figure 7.

Figure 7: Mean impulse responses in levels

Mean responses to a 1% increase in net foreign exchange reserves, averaged over short-run (horizon 0 to 5) and long-run (6 to 47), in millions of local currency units

	Horizon	<i>AGS</i>	<i>APR</i>	<i>LMB</i>	<i>LRR</i>	<i>LCS</i>	<i>LGD</i>	<i>LPR</i>
KR	Short	-57 040	-44 811	31 700	-	85 169	385 774	-194
	Long	-44 042	-64 327	23 003	-	-103 000	72 146	-149
TW	Short	-33	7 651	42	-	70 865	507	2 334
	Long	-52	15 501	280	-	61 874	396	2 402
MY	Short	-12	-110	-254	-	3 225	11	106
	Long	-9	-83	-252	-	4 087	111	110
CN	Short	4 042	-22 635	-23 709	108 702		38 242	-2 482
	Long	59 596	-55 669	5 589	474 457		80 557	33 413
HK	Short	-	-	1 637	-	685	5 152	-
	Long	-	-	2 667	-	6 707	1 283	-

Shaded cells: response different from zero given 68% confidence bands for majority of horizons within range

Mean response in levels obtained by scaling shock to 1% and multiplying the response of each item in log terms by its mean in levels

3.4 Results

No strong endogenous relation was found between the money base (*LMB*) and the BOP of each economy analysed. The response of the money base to foreign financial inflows is typically quantitatively small, mostly indeterminate and statistically insignificant given the 68% confidence bands used in the calculation of impulse responses. Instead, it appears that there exists an endogenous link between the BOP and other balance sheet items, since one or several items generally dominate the effect on the money base, with the direction of large responses largely corresponding to the predictions of the Compensation view for most significant and even most insignificant items.

There is evidence of asset-side sterilization through claims on the private sector (*APR*) in South Korea and China, indicating potentially automatic demand-side sterilization at the initiative of the private sector, as predicted by the Compensation view, even within the highly regulated financial system of China. While the corresponding item for Taiwan appears to be positive and significant, this association quickly turns insignificant when confidence bands or lag order are increased. Central bank securities (*LCS*), in contrast, seem to play a more important role in Taiwan and Malaysia. They are also used in China

in combination with required reserves (*LRRCs*), representing a case of non-market-based sterilization.

Interestingly, central bank securities do not seem to be directly related to foreign exchange inflows in South Korea, where they are issued at regular intervals and not exclusively for the purpose of sterilization (cf. BOK, 2013, pp. 84–88). Rising government deposits (*LGD*) can further be observed to offset the inflow of liquidity in South Korea, Hong Kong and China, although this effect was not as present in the case of Korea when experimenting with alternative time frames.

A small reaction of the money base, where present at all, can be attributed to transitory or liquidity effects. The only case where the money base shows a significant increase over several horizons which is also somewhat relevant in local currency terms is Hong Kong. The HKMA appears to follow a more passive strategy of maintaining financial market integrity within its convertibility undertaking arrangement, allowing for more variation of the money base. It should be noted that the response observed here is most likely at least partly the result of large liquidity injections undertaken in response to stress in the financial system in 2008, however (cf. HKMA, 2010). Sterilization plays an overriding role in Hong Kong similar to other economies under consideration, suggesting that there is no inherent incompatibility between sterilization and exchange rate stabilization, as demonstrated by the remarkable stability of Hong Kong's peg.

In summary, these findings suggest that sterilization is in fact the norm rather than the exception in all of the economies under consideration. Although the means of achieving sterilization are distinct, relying on different items, varying in timing and scope, and encompassing non-market-based approaches, transactions initiated on the demand side, and operations involving a dual decision by the central bank and the private sector, they all aim at maintaining policy conditions in line with official objectives. Sterilization isolates the money base from external impacts and thus occurs systematically, as held by the Compensation view. While this does not present an unassailable conclusion, the dynamics found are fairly robust across a wide variety of specifications. Variations in the estimation procedure, such as changing of the Cholesky ordering of the variables, increases in the lag order or the size of confidence bands, removal of trends in borderline cases, and strong restriction of sample periods to the most recent decade, all merely reinforce the above findings.

4 Interpretation and implications

Transactions of the kind empirically observed here occur precisely because interest rates act as a price signal mediating private and public sector balance sheets. Since quantities are simply the result of these transactions, foreign inflows and outflows do not affect the domestic money base or the domestic interest rate level. In terms of the dichotomy between *balance sheet policy* and *interest rate policy* as given by Borio and Disyatat (2010), foreign exchange transactions represent an instance of the former, whereas autonomy is exercised through the latter.

As a consequence, adoption of a non-floating exchange rate regime does not necessarily lead to a loss of policy autonomy, but it may merely reduce the scope within which monetary policy can operate (cf. Moore, 1988, p. 274). As long as an economy is running a BOP surplus, its central bank can set a short-term interest rate target in line with domestic policy objectives, thus restricting interest rate arbitrage (along the lines of the interest rate parity condition) to those rates further removed from official control, i.e. rates at the long end of the yield curve, yields on private sector securities, or rates on offshore markets. The relevant constraint on domestic monetary policy comes in the form of a sustained BOP deficit, since no central bank can compensate indefinitely for a decline in foreign exchange reserves. Thus, rather than having to choose between monetary policy autonomy and pegging, economies with an open capital account face a trade-off between monetary policy autonomy and a BOP deficit, only one of which can be maintained in the long run.

This shift in perspective has important consequences for traditional political economy and international relations theory on national sovereignty in international markets (such as Realism, Intergovernmentalism or Neofunctionalism). Small European economies, for example, were effectively pegging to the German mark prior to the introduction of the euro, which, according to the Trilemma view, led to a loss of monetary policy autonomy. Joining the monetary union may have seemed like an attractive proposition, since policy-makers could at least increase their de-facto autonomy as a result of gaining the ability to influence policy-making on supranational levels. The results presented here, however, point strongly to a reconsideration of that conclusion, as it has been shown that economies adopting non-floating regimes do not automatically lose their autonomy, whereas recent European experience has demonstrated that an imperfect monetary union has the potential to restrict members' autonomy in matters far beyond the monetary. Consequently, the adoption of a peg in itself cannot be interpreted as a change in the "power" relationship between two economies.

East Asian economies found themselves in a similar situation following the 1997–98 Asian Financial Crisis, when dissatisfaction with the IMF’s crisis response led to calls for monetary integration as a form of protection from the negative externalities associated with dollar-pegging. The political reality in the region made institutionalisation of the process difficult, however, and it seems that acceptance of this fact has served East Asian economies rather well. The post-crisis strategy of adopting similarly structured currency baskets has kept intra-regional exchange rates relatively stable while providing more flexibility than would monetary union (cf. Williamson, 1996; Yoshino et al., 2004). In short, putting pragmatism ahead of higher, possibly unattainable goals may be a more effective strategy for achieving regional stability and prosperity.

5 Conclusion

This study examined the predictions of the Trilemma view and the Compensation view with regard to the relationship between an economy’s balance-of-payments position and its domestic money base, in an effort to ascertain whether a link exists between the two which constrains monetary policy independence under a fixed peg or a managed float regime. Analysis of five East Asian surplus economies could not confirm the prediction of the Trilemma view that foreign reserve accumulation primarily leads to a large, significant and lasting increase of the money base. Rather, the results indicate that sterilization offsets foreign exchange inflows systematically and endogenously, with the direction, size and significance of the movement in central bank balance sheet items corresponding more closely to the Compensation view.

These findings suggest that there is no strong endogenous relation between an economy’s balance-of-payments position and domestic monetary policy autonomy operating via the domestic money base, so long as that economy is running an external surplus or incurs only temporary deficits. The absence of such a mechanical relation implies that economies can maintain a degree of policy autonomy even if they choose to stabilize exchange rates. In that light, pegging one’s exchange rate may not be as costly in autonomy terms as traditionally assumed, whereas the gains from floating or monetary union may not be as high as assumed.

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7 Abbreviated statistical appendix

*The following gives only the parameters and main results of the empirical estimations. Detailed results are available from the author upon request.

7.1 Vector error correction model for South Korea

VECM system, lag order 1

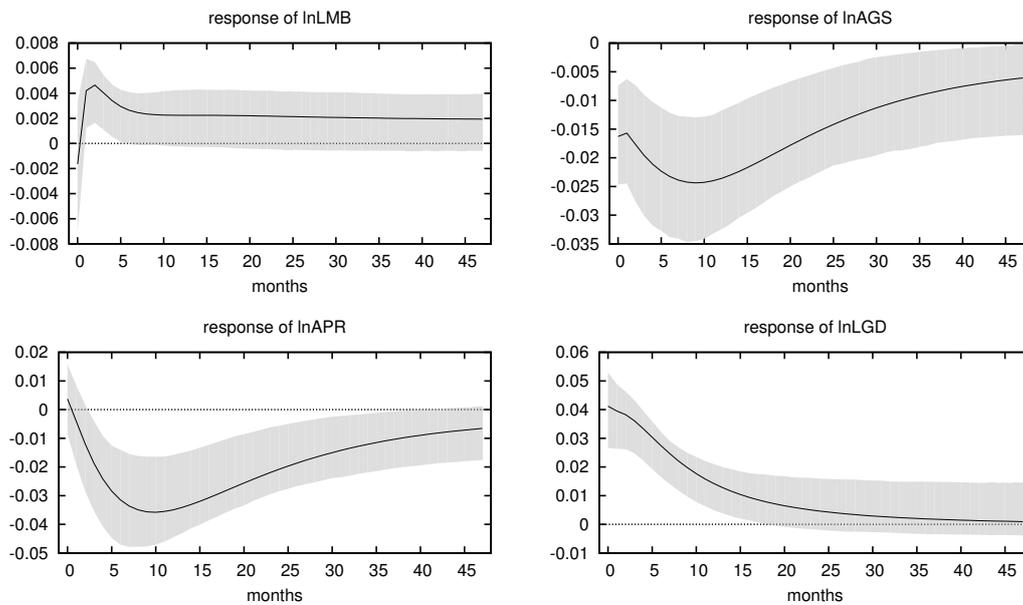
Maximum likelihood estimates, observations 1998:04–2014:12 ($T = 201$)

Cointegration rank = 5

Case 4: Restricted trend, unrestricted constant

Cholesky ordering: $\ln ALFRU$, $\ln LMB$, $\ln LCS$, $\ln LGD$, $\ln AGS$, $\ln APR$, $\ln LPR$

Impulse responses to one SE shock in $\ln ALFRU$
48 period forecast, 68% bootstrapped confidence band



7.2 Vector error correction model for Taiwan

VECM system, lag order 1

Maximum likelihood estimates, observations 1998:11–2014:12 ($T = 194$)

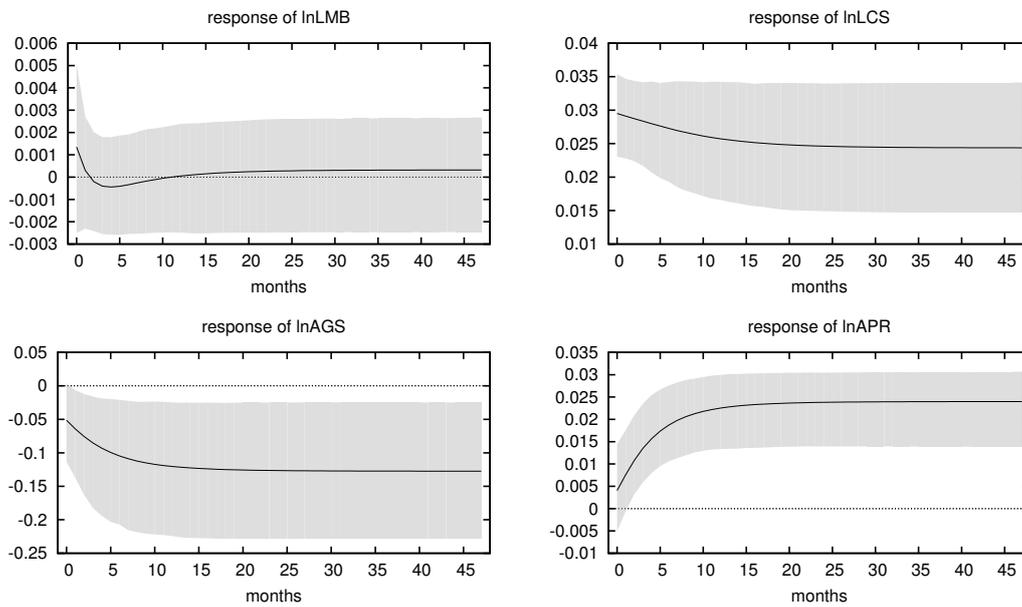
Cointegration rank = 4

Case 4: Restricted trend, unrestricted constant

Cholesky ordering: $\ln ALFRU$, $\ln LMB$, $\ln LCS$, $\ln LPR$, $\ln APR$, $\ln LGD$, $\ln AGS$

Impulse responses to one SE shock in $\ln ALFRU$

48 period forecast, 68% bootstrapped confidence band



7.3 Vector error correction model for Malaysia

VECM system, lag order 1

Maximum likelihood estimates, observations 1997:01–2014:12 ($T = 216$)

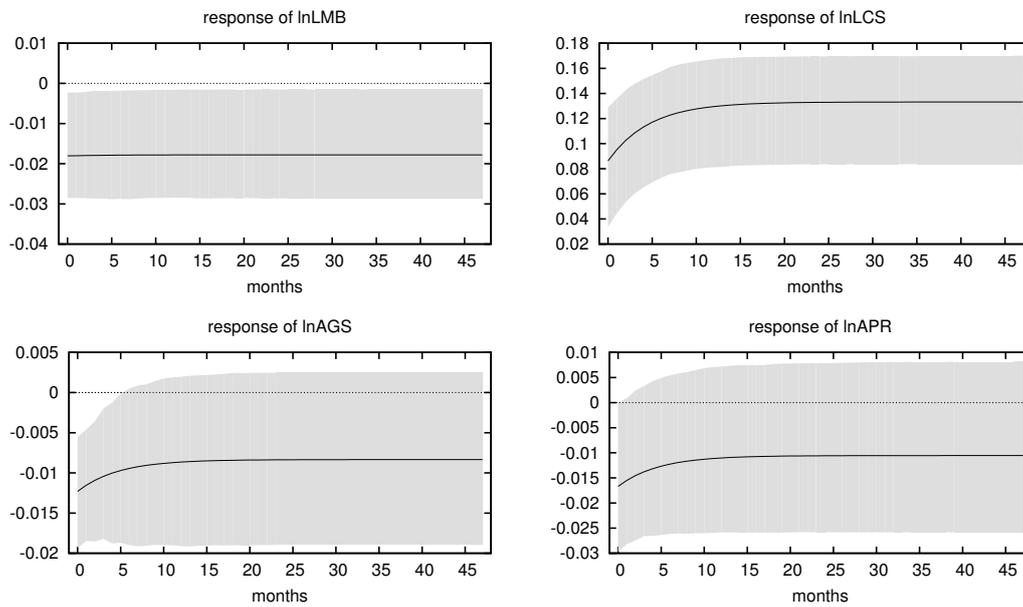
Cointegration rank = 1

Case 4: Restricted trend, unrestricted constant

Cholesky ordering: $\ln ALFRU$, $\ln LMB$, $\ln LCS$, $\ln APR$, $\ln LGD$, $\ln LPR$, $\ln AGS$

Impulse responses to one SE shock in $\ln ALFRU$

48 period forecast, 68% bootstrapped confidence band



7.4 Vector error correction model for China

VECM system, lag order 6

Maximum likelihood estimates, observations 2002:07–2014:12 ($T = 150$)

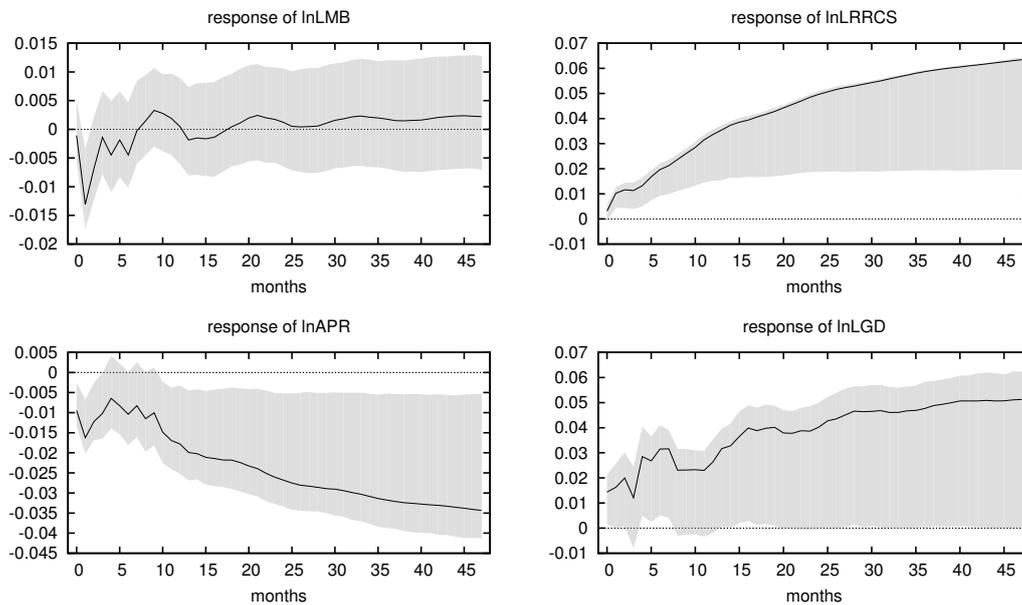
Cointegration rank = 1

Case 4: Restricted trend, unrestricted constant

Cholesky ordering: $\ln ALFRU$, $\ln LMB$, $\ln LRRCS$, $\ln LGD$, $\ln APR$, $\ln AGS$, $\ln LPR$

Impulse responses to one SE shock in $\ln ALFRU$

48 period forecast, 68% bootstrapped confidence band



7.5 Vector error correction model for Hong Kong

VECM system, lag order 5

Maximum likelihood estimates, observations 2004:06–2014:12 ($T = 127$)

Cointegration rank = 3

Case 4: Restricted trend, unrestricted constant

Cholesky ordering: $\ln ALFRU$, $\ln LMB$, $\ln LGD$, $\ln LCS$

Impulse responses to one SE shock in $\ln ALFRU$

48 period forecast, 68% bootstrapped confidence band

