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Real exchange rate appreciation, resource boom, and policy reform in Myanmar

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Over the six-year period 2006-11, the real exchange rate of the Myanmar kyat appreciated 200 per cent, resulting in the value of the US dollar in Myanmar falling to one-third of its pre-2006 level. While the resource boom is suspected to be the source of the real exchange rate appreciation, administrative controls on foreign exchange and imports had much more impact. Foreign exchange controls limited the convertibility of the kyat to foreign currencies and spurred negotiated transactions of foreign exchange outside the banking sector, hampering the foreign exchange market interventions of the government and Central Bank. Import controls repressed imports, aggravating excess supplies of foreign exchange. Relaxation of administrative controls is necessary for moderating currency appreciation.

Introduction

During the period from September 1988 to March 2011, the former military government of Myanmar implemented various administrative controls on foreign exchange and foreign trade, which resulted in a peculiar dual exchange rate system: an official exchange rate in the public sector and a market exchange rate in the private sector. In 1977, the official exchange rate was pegged at 8.50847 kyat per special drawing right (SDR) of the International Monetary Fund (IMF), and thus had been fixed for more than 30 years. It was approximately 5.5 kyat per US dollar as of March 2012, just before its abolishment. In contrast, the parallel market rate has depreciated chronically in the past due to unstable macroeconomic conditions. At one time, in September 2007, it reached 1,369 kyat per US dollar.

Since 2006, the market exchange rate has appreciated sharply against the US dollar in real terms. In nominal terms, the exchange rate of the kyat *vis-à-vis* the US dollar appreciated to 740 kyat in August 2011. Taking into account the fact that Myanmar experienced much higher inflation than the USA, the fall in the value of the US dollar in terms of the Myanmar consumption bundle is much steeper. The real exchange rate has appreciated 200 per cent. According to Gelb (1988), who studied the impact of oil price shocks on six oil-exporting developing countries, the most severe real appreciation between 1973 and 1984 was in Nigeria; its real appreciation over 11 years was 187 per cent. The comparison implies that the real exchange rate appreciation experienced in Myanmar has been extraordinarily high.

Empirical studies on exchange rates have found that unstable exchange rates hamper growth in trade (De Grauwe 1988; Cottani et al.

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1990; Chowdhury 1993; McKenzie 1999; Arize et al. 2000). On the presumption that the tradable sector is the driving force of long-term economic growth through learning-by-doing, real exchange rate appreciation dampens the prospects for economic growth as it causes the tradable sector, such as the garment industry in Myanmar, to shrink (Wijnbergen 1984; Krugman 1987). Export revenues fell to one-third relative to the local cost of production in the past six-year period. Of relevance to foreign investors, the costs of production in Myanmar, in terms of US dollars, rose threefold. From the viewpoint of sustainable economic growth, such an extraordinary appreciation calls for urgent counter-measures.

Two questions arise regarding such an extraordinary currency appreciation. First, what exacerbated the real exchange rate appreciation? In the late 2000s, Myanmar faced a surge in inflows of foreign exchange through natural resource exports. It is often observed in developed and developing countries that a resource boom is accompanied by real exchange rate appreciation. However, the extent of the real exchange rate appreciation in Myanmar is extraordinary. So this paper investigates how administrative controls on imports and foreign exchange may have been related to the currency appreciation.

Second, what remedies are possible to alleviate this currency appreciation? The new government, established in March 2011, has implemented a series of reforms of the foreign exchange and trade regimes, including the shift to a managed float of the exchange rate in April 2012. The paper summarises the achievements of the reforms so far, as well as the remaining challenges for alleviation of the currency appreciation.

Studies on Myanmar, including Hori and Wong (2008), Myat Thein (2004), and Turnell (2011), have focused on the distortion of the exchange rate system.[1] The contribution of this paper is to identify policies for moderating the real exchange rate appreciation, taking into consideration various administrative controls.

There is a concern about the credibility of data for Myanmar.[2] Except for the data on the parallel market exchange rate, this paper relies on the official statistics of the Government of Myanmar and of the IMF's *International Financial Statistics*, which is also mostly based on the government's statistics. As for the CPI, in April 2009, the Central Statistical Organization of the Government of Myanmar switched the base year from 1997 to 2006, which coincided with a double-digit to a single-digit fall in the annual inflation rate. Thus, the CPI data may not be consistent for the period of analysis in this paper, which is from January 1997 through April 2012. It is a limitation of the paper that the analysis mostly relies on the official data.

The paper is structured as follows. The next section summarises the behaviour of the real exchange rate in the parallel market, and discusses the relationship of the real exchange rate with an excess supply of money and the resource boom. The third section reviews the structure of the foreign exchange market and how it might affect the movement of the parallel market exchange rate. The fourth section examines the relationship between the real exchange rate appreciation and the resource boom, taking into account the administrative controls. The resource boom followed the exploration for natural gas and a surge in foreign direct investment (FDI) in the resources sector. The fifth section offers policy prescriptions for alleviating the real exchange rate appreciation. The last section summarises the analysis and offers some concluding remarks.

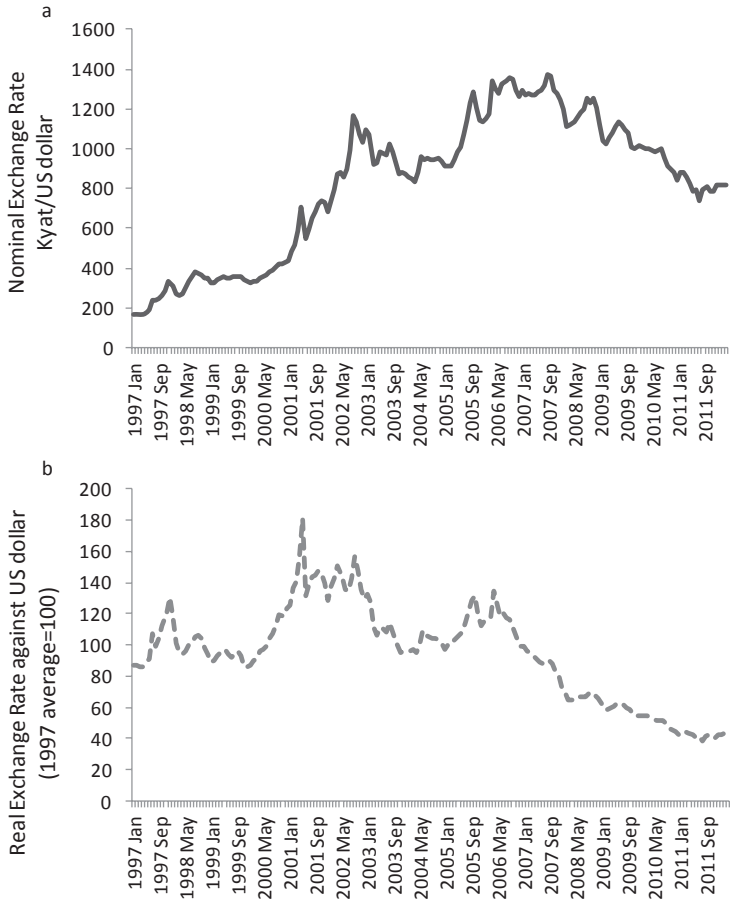
Determinants of the real exchange rate

Real exchange rate trends

Myanmar has suffered unstable macroeconomic conditions for over a decade. The government has monetised fiscal deficits routinely and an excess supply of base money can be one

1 An exception is Myint (2011), who made an attempt similar to the present paper, although in a less rigorous manner.
2 Mya Than and Myat Thein (2007) argued that Myanmar's production data for the 2000s might be over-stated.

Figure 1
Trends in parallel market exchange rates, January 1997–April 2012



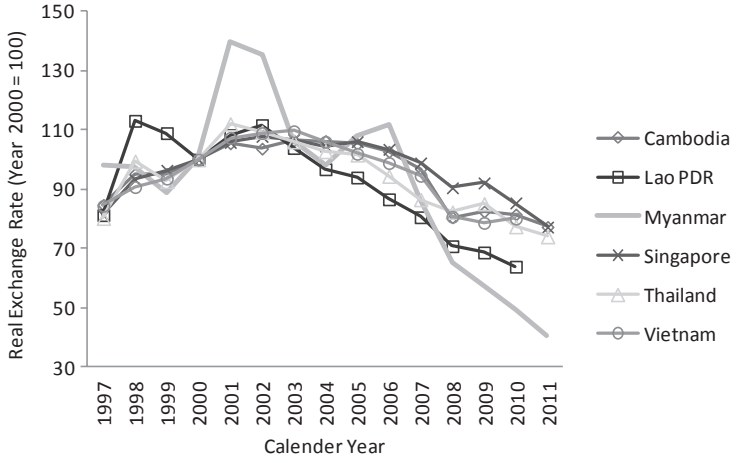
Note: (a) Nominal exchange rate of Myanmar kyat *vis-à-vis* US dollar. (b) Real exchange rate of Myanmar kyat *vis-à-vis* US dollar.
Sources: *Selected Monthly Economic Indicators*, Central Statistical Organization, Myanmar; *International Financial Statistics* CD-ROM, International Monetary Fund; Survey on the parallel foreign exchange market.

of the causes of high inflation (Turnell 2011). While the inflation rate has fluctuated, the inflation rate and the growth rate of currency in circulation have been at a similar level; for the period January 1998 through December 2008, the average growth rate for currency in circulation was 31.9 per cent per annum while the inflation rate was 24.7 per cent.

The unstable parallel market exchange rates might be a reflection of unstable macroeconomic conditions. Figure 1 depicts the behaviour of the parallel exchange rate of the Myanmar kyat *vis-à-vis* the US dollar in real and nominal terms. The real parallel exchange rate is calculated as the product of the nominal parallel exchange rate (the kyat *vis-à-vis* the US dollar) and the ratio of the US CPI to the Myanmar CPI; its 12-month average is set at 100 for the base year of 1997. A decline represents a real appreciation.

Figure 1 shows that the nominal exchange rate depreciated chronically until mid-2006.

Figure 2
Real exchange rates of selected Southeast Asian currencies to the US Dollar, 1997–2011 (base year 2000 = 100)



Source: As for Figure 1.

The sustained nominal exchange rate depreciation was mostly accompanied by inflation. Time series analysis by Kubo (2007) found a co-integrating relationship among the money supply, the CPI, and the nominal parallel exchange rate for the period from 1996 through mid-2006. This finding implies that the real exchange rate had been mean-reverting for the period prior to mid-2006.

However, an extraordinary real appreciation has occurred since 2006. The real exchange rate was 134 in April 2006 and appreciated to 41 in December 2011. Thus, the value of the US dollar in terms of the Myanmar consumption bundle fell to one-third in less than six years.

This real appreciation can be broken up into two sub-periods: April 2006 to December 2008, and January 2009 to December 2011. In the first sub-period, the real exchange rate appreciated from 134 to 66; while the nominal exchange rate appreciated slightly from 1,293 kyat per US dollar to 1,207, and the Myanmar CPI jumped from 109 to 208. In the second sub-period, the real exchange rate appreciated further to 41; the Myanmar CPI rose modestly to 234, whereas the nominal exchange rate appreciated sharply to 786 kyat per US dollar.[3] Given the concern over data quality, the modest inflation rate in the later period might be related to the change of the base year of the CPI. Nonetheless, a higher inflation rate, if any, should have resulted in more acute appreciation of the real exchange rate. The causes of real appreciation might be different between two sub-periods.

The weakening of the US dollar against major currencies might account partially for the appreciation of the kyat. To see the extent to which the global weakening of the US dollar might explain the change in the kyat exchange rate, the real exchange rate of the Myanmar kyat can be compared with those of other Southeast Asian currencies. Figure 2 illustrates the behaviour in the real exchange rates against the US dollar for the currencies of four ASEAN latecomers (Cambodia, Lao PDR, Myanmar, and Vietnam), as well as for Singapore and Thailand. The figure confirms that all currencies have appreciated against the US dollar in real terms from around 2005. However, the

3 For the whole period, US CPI inflation was quite modest, rising from 103 in April 2006 to 116 in December 2011.

extent of the appreciation is sharpest for the Myanmar kyat, which indicates that the weakening US dollar does not fully explain the sharp appreciation of the Myanmar kyat.

Determinants of the real exchange rate

Here, the relationship of the real exchange rate with (1) an excess supply of base money and (2) a resource boom are considered. The discussion is in the general context of how an excess supply of money and a resource boom may affect the real exchange rate through impacts on individual components of the real exchange rate. First, it is questioned whether an excess supply of base money would lead to an appreciation of the real exchange rate. Besides increasing import prices and raising the domestic CPI, it would cause a depreciation of the nominal exchange rate when the exchange rate regime is flexible. The parallel foreign exchange market is a *de facto* flexible exchange rate. So far, as these two changes cancel each other out, an excess supply of base money does not lead to an appreciation of the real exchange rate.

However, such neutrality of money supply changes on the real exchange rate often does not hold continuously. Price controls exist in many economies and prices often exhibit stickiness. Differences in responses of the CPI and the nominal exchange rate to monetary shocks result in fluctuations in the real exchange rate, at least in the short run.[4] In the real exchange rate literature, the neutrality of money supply on the real exchange rate, or the constancy of the real exchange rate, is at odds (Sarno and Taylor 2002). As far as Myanmar is concerned, Kubo (2007) presented evidence that the real exchange rate was mean-reverting until around 2006, and the impact of excess money supply on the real exchange rate was at most temporary.

Second, a resource boom, such as through discovery of resources or a jump in prices, increases the supply of foreign exchange to the exporting countries. When the increase in foreign exchange is spent on imports, it does not exert any impacts on the nominal or real exchange rate.[5] However, its conversion into domestic currency means an increase in the demand for domestic currency, raising its price in terms of foreign currency, that is a nominal exchange rate appreciation, and *ceteris paribus*, a real exchange rate appreciation.

If the increase in domestic currency from the increased supply of foreign exchange is spent on non-tradable goods, their prices will also increase. Corden (1984) called this the spending effect of a resource boom. Such rises in the prices of non-tradable goods reinforce the real exchange rate appreciation.

Thus, a resource boom could be associated with an appreciation of the real exchange rate through these two channels. Named after the experience in the Netherlands following its oil discoveries, the real exchange rate appreciation and the resulting decline in traditional export industries due to the resource boom is called 'Dutch disease', and is often experienced in resource-rich economies.[6]

In the face of a surge in foreign exchange, the Central Bank may resist appreciation of the local currency by intervening in the foreign exchange market. However, such market intervention would mean an excess supply of base money. Unless sterilised, the intervention would push up domestic prices. While the nominal exchange rate would be stabilised, the accompanying higher inflation would eventually counteract the effect of the market intervention and result in real exchange rate appreciation.

Structure of the foreign exchange market

As Myanmar has implemented various administrative controls over foreign exchange that potentially affect the movements of exchange rates, an analysis of the real exchange rate

4 Apart from this, the neutral effect of increases in the money on the real exchange rate does not hold without full employment and the constant velocity of money.
5 When there are import controls, this relationship does not hold. Here, it is assumed that there are no import controls.
6 For a recent literature survey on Dutch disease, see Magud and Sosa (2010), and van der Ploeg (2011).

should be based on full comprehension of the foreign exchange market structure under such controls. This section first illustrates the structure of the foreign exchange market before the reforms by the new government inaugurated in March 2011. It then examines how the recent reforms have affected the structure of the foreign exchange market.

The segmented foreign exchange market before the April 2012 reform

Myanmar has practised a multiple exchange rate system, whereby the government imposed different controls on the public and private sectors. In the public sector, foreign exchange transactions were controlled by the government and were conducted at the official exchange rate, which grossly overvalued the Myanmar kyat against foreign currencies. State economic enterprises (SEEs) were obliged to surrender all of their export revenues to the state budget at the official exchange rate; they were not allowed to retain foreign exchange revenue, even for their own imports. On the other hand, SEE imports were rationed by the foreign exchange budget of the central government; every foreign exchange expenditure required permission from the Ministry of Finance and Revenue.

Private sector importers had no allocation of foreign exchange at the official exchange rate; whereas exporters were, in principle, permitted to retain 100 per cent of their export earnings since 1990.[7] Instead, the government imposed an explicit export tax on them.[8] Exporters were forced to remit export earnings to Myanmar state banks and maintain them in the form of foreign currency deposits (FCDs). The export tax was collected in foreign currency when export earnings were deposited at the state banks.

How, then, were the parallel market exchange rates in the private sector determined? As to the disposal of FCDs, transfers between private exporters and importers were tolerated by the government. FCDs were traded through negotiated transactions between buyers and sellers. This allowed exporters to convert their FCDs into kyat at a competitive price and allowed importers to raise foreign exchange. Although a dual exchange rate system is usually regarded as an implicit tax on exporters and an implicit subsidy on importers (Biswas and Marjit 2005), this was not applicable to Myanmar's private sector.[9] Apart from account transfers, the government did not allow the private sector to withdraw FCDs in foreign currency, and it prohibited Myanmar citizens from holding foreign currency. Instead, FCDs could be used for own imports or could be withdrawn in foreign exchange certificates (FECs).[10]

As described above, the foreign exchange market was segmented between the private and public sectors (World Bank 1995:18; Hori and Wong 2008; IMF 2012). The market structure can be depicted as in Figure 3. Public sector foreign exchange did not flow to the private sector, whereas the public sector could temporarily divert private sector FCDs to its budget; this might have provided the government with the incentive to impose import controls on the private sector. The segmented structure of the foreign exchange market implies that the parallel market exchange rate was determined mostly by supply and demand in the private sector.

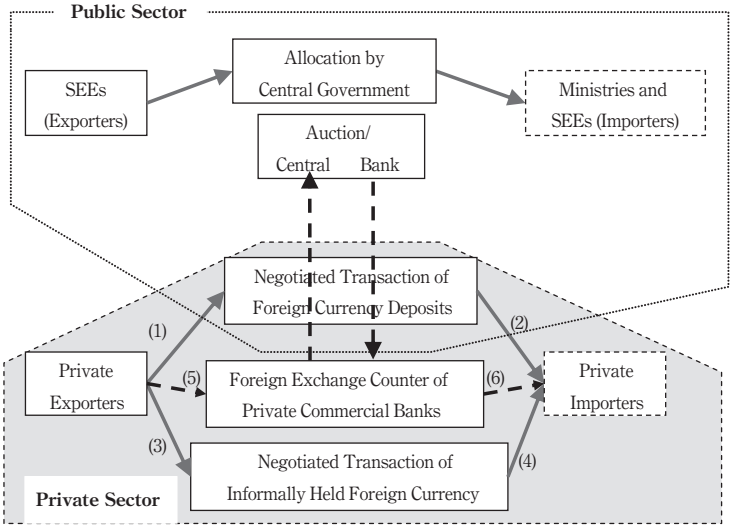
7 As stated below, however, export earnings were subject to an export tax. Furthermore, there were two exceptional cases where exporters had to surrender foreign exchange at a disadvantageous rate.

8 The export tax consisted of an 8 per cent commercial tax and a 2 per cent income tax.

9 In their survey of dual exchange rate systems, Kiguel and O'Connell (1995) argue that the tighter the restrictions on foreign exchange allocation, the less the official exchange rate functions as a price signal for resource allocation. The dual exchange rate system in Myanmar can be considered an extreme case where the official exchange rate had little impact on the private sector.

10 The government introduced FECs in February 1993 and established an FEC exchange centre in December 1995. While import permission was obtainable with FECs until July 1997, FECs were traded on a competitive basis at the authorised exchange centre. This indicates that the government officially recognised competitive exchange rates. However, the government ordered the exchange centre to fix the price of FECs at 450 kyat per FEC, after which transactions at the centre vanished and FECs were traded in the parallel market, usually at some discount compared with the price of US dollars.

Figure 3
Flows of foreign exchange: Before and after the reforms of April 2012



Notes: The broken lines refer to additional transactions after the April 2012 reform.
Source: Author.
SEEs = state economic enterprises.

The private sector was subject to significant import controls, the so-called export first and import later policy from 1997. Licences were required for all private sector imports and exports. On top of that, in July 1997, the government conditioned the issuance of import licenses on the premise that licence applicants had sufficient export-taxed export earnings (in other words, FCDs) to cover the import bill. Since the strict implementation of the 'export first' policy in 2002, imports without FCDs were virtually impossible.

The 'export first' policy arrested import growth, which can be observed in the trade statistics. As Myanmar's trade statistics report disaggregated trade balances for the private and public sectors, the trade balance of the private sector can be shown (see Table 1). Private sector trade was more or less in balance from 2002 through to 2009. This implies that imports have been constrained by exports under the 'export first' policy.[11]

However, it was not always the case that the private sector complied with the controls; smuggling of goods into and from Myanmar has been pervasive (Kubo 2012). As a result, there were two distinctive types of foreign exchange in the parallel market. One was the flow of export earnings in the form of FCDs with proof of export tax payment [(1) and (2) in Figure 3]. The other was informally held foreign exchange [(3) and (4) in Figure 4]. The sources of the latter include smuggling export revenues and informal remittances. These funds could not be used for imports through the formal channel but could be used for smuggled imports.

Since FCDs were eligible for import licenses, they were often traded with a mark-up over the informally held foreign

11 A notable development in this table is that the private sector trade balance recorded large deficits in 2010 and 2011. This is discussed in the Likely Sources of Currency Appreciation subsection.

Table 1
Trade by ownership, fiscal years 1995–2011

	Private sector		Public sector			Total	
Fiscal year	Imports	Exports	Imports	Exports		Imports	Exports
of which natural gas							
Unit: US dollar, million							
1995	1,236	477	596	418	0	1,832	895
1996	1,559	605	434	323	0	1,993	928
1997	1,645	770	663	266	0	2,309	1,036
1998	1,820	745	882	337	1	2,702	1,082
1999	1,833	1,109	773	325	5	2,605	1,433
2000	1,857	1,380	463	581	171	2,321	1,961
2001	1,777	1,333	958	1,216	632	2,734	2,549
2002	1,786	1,653	511	1,422	912	2,297	3,075
2003	1,532	1,308	703	1,048	580	2,235	2,356
2004	1,354	1,262	626	1,653	1,015	1,979	2,915
2005	1,368	1,603	614	1,951	1,073	1,982	3,554
2006	1,804	2,068	1,125	3,155	2,031	2,928	5,223
2007	2,443	2,369	903	4,044	2,532	3,347	6,413
2008	2,592	2,480	1,971	4,313	2,384	4,563	6,793
2009	2,806	3,087	1,381	4,443	2,906	4,186	7,530
2010	4,623	3,502	1,781	5,354	2,515	6,404	8,856
2011	6,611	4,073	2,421	5,056	3,493	9,032	9,129

Note: *Selected Monthly Economic Indicators* reports the trade value in kyat. This is converted into US dollars using the official exchange rate.
Source: *Selected Monthly Economic Indicators*, Central Statistical Office, Myanmar.

exchange. However, FCDs were also illiquid assets; unless exporters could find buyers for FCDs, they could only be withdrawn in FECs, which were usually traded with a discount compared with greenbacks. In fact, the mark-up of export earnings above the informally held foreign exchange fluctuated between 12.8 per cent and –8.6 per cent for the period from August 2007 through October 2011.[12] A negative mark-up implies low liquidity of FCDs.

Reforms under the new government

Under the new government, inaugurated in March 2011, there have been a series of reforms of foreign exchange policy. In October 2011, the Central Bank permitted some private commercial banks to run authorised foreign exchange counters where retail customers could sell and buy foreign exchange with these licensed banks. However, there were some caveats on the foreign exchange counters. The selling and buying rates were implicitly controlled by the Central Bank. Importantly, the Central Bank imposed limits on the amount of foreign exchange that a customer could buy and sell at the counters; above the limits, a customer has to produce a document proving the source of foreign exchange in the case of selling foreign exchange or the intended use in the case of buying foreign exchange.[13] On top of these, since transactions at the foreign exchange counters involve US dollars and kyats, the

12 This is retrieved from unpublished data of the Japan External Trade Organization (JETRO), Yangon branch.
13 The limits and the document requirements have been changed from time to time.

amounts of transactions are inevitably constrained by the availability of cash at the foreign exchange counters.

In April 2012, the Central Bank abolished the peg of the kyat to the SDR and moved to a managed-float exchange rate regime; it then began announcements of the reference exchange rate to the public and the auction of foreign exchange with commercial banks. The reference exchange rate guides the selling and buying rates at the authorised foreign exchange counters; these rates have to be within a prescribed band from the reference rate.

As for the auction, the Central Bank receives bids and offers from participating private banks, but reserves its discretion in choosing the buying and selling rates. The cut-off rate of the auction has been announced as the Central Bank reference rate. The auction is only between the Central Bank and commercial banks; there is no trade among commercial banks.

The Central Bank reference rate has not necessarily been a market clearing exchange rate. It is not the case that the reference rate is the simple average of closing prices in the open market on the previous day, as in Vietnam. Rather, the Central Bank reference rate has been following the parallel market rate instead of guiding it. There remain small discrepancies between the reference rate and the parallel market exchange rate.

In another important development in July 2012, the Central Bank granted private banks licences to accept FCDs and to conduct foreign exchange operations, such as remittances and settlements of foreign trade. Previously, foreign exchange operations were monopolised by state banks. This policy change is expected to facilitate the trade of the private sector.

Finally, since 2010, the government has implemented a step-wise alleviation of the restrictions on imports. Imports of buses and other commercial vehicles were deregulated in January 2010, and passenger vehicles in September 2011. Further, the 'export first' policy was arguably abolished in April 2012; import licences are obtainable with non-export earnings raised at the foreign exchange counters or with informally held foreign exchange, by depositing them to FCD accounts at state banks.[14]

It would be useful to clarify what has changed and what has not changed following the series of policy reforms. First, the official exchange rate in the public sector is considered to have been devalued to the Central Bank reference rate.[15] The official exchange rate was formerly used to mask the economic performance of SEEs; the performance of SEE exporters was, therefore, grossly undervalued, while that of SEE importers was grossly overvalued. Use of the Central Bank reference rate would help reveal the economic viability of SEEs.

Second, exporters and importers now have an additional channel for trading foreign exchange [(5) and (6) in Figure 3]. However, the new channel is not used actively for a couple of reasons. There are *de facto* limits at the foreign exchange counters due to the limited availability of cash and *de jure* limits on large transactions in order to restrict money laundering. As a result, for the holders of legal export earnings, negotiated transactions through account transfers are more convenient and preferred. As for informally held foreign exchange, only a small amount can be channelled into the banking sector.

As for what has not changed, convertibility of kyat to foreign currencies is still limited, and negotiated transactions of foreign exchange between exporters and importers outside the banking sector remain pervasive. Importers mostly purchase foreign exchange from exporters as exporters maintain their export earnings as FCDs. Although the banks accept FCDs from exporters, they cannot sell foreign exchange to the Central Bank since it creates a

14 However, since there are *de facto* and *de jure* limits on the purchase of US dollars at the foreign exchange counters and on depositing of informally held foreign exchange, it would be heroic to say that the 'export first' policy has been abolished.

15 There has been a push in the parliament for the replacement of the overvalued official exchange rate by the new Central Bank reference rate for the formulation of the state budget for fiscal year 2012. However, whether this change has been implemented is uncertain.

short position in foreign exchange for them. Hence, the Central Bank cannot absorb foreign exchange from the banks. The Central Bank auction and the private sector foreign exchange open market remain disconnected.

The segmentation of the foreign exchange market between the public and private sectors is still intact. Reform of the SEE budget system is yet to be formulated; foreign exchange budgets are still centrally rationed; and SEEs are not allowed to buy and sell foreign exchange in the open market. Therefore, the foreign exchange transactions of the public sector do not exert an influence on the parallel market exchange rate.

Sources of real exchange rate appreciation

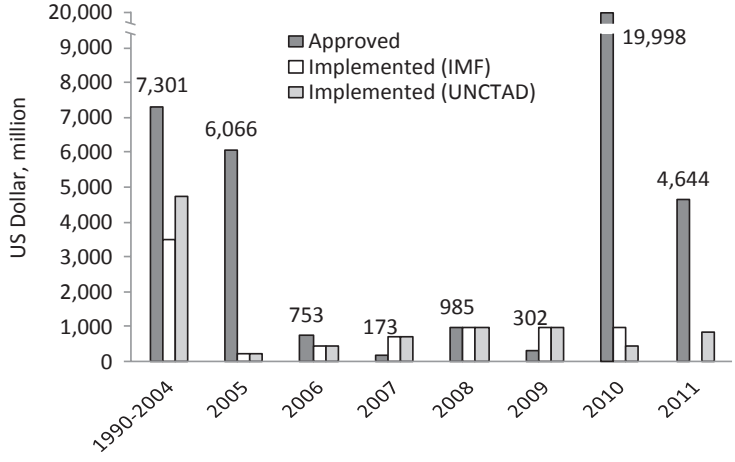
This section investigates the sources of the real exchange rate appreciation and whether there are other factors that have aggravated the appreciation.

Linkages between the resource boom and currency appreciation?

Two notable developments in the balance of payments in the late 2000s were the sharp increases in approved FDI and in the exports of natural gas. How are these two developments related to the real exchange rate appreciation?

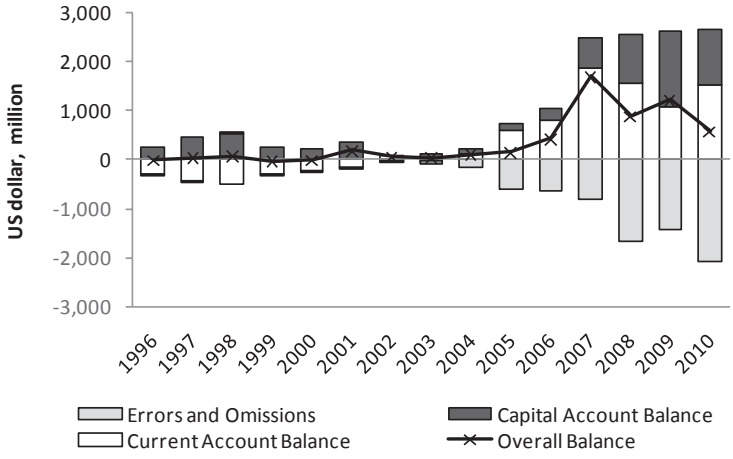
Figure 4 presents statistics on approved and implemented FDI since 1990. The cumulative approved FDI as of 2004 was US$7.75 billion. Approved FDI was US$6.07 billion in 2005 and US$20 billion in 2010. Approved FDI in 2010 was approximately twice as much as total exports in that year, US$9.98 billion. Approved FDI in 2005 and 2010 was concentrated in the resources sector; the share of the resources sector (mining, oil and gas, and power) in total FDI was 100 per cent in 2005 and 99 per cent in 2010.

Figure 4
Trends of approved and implemented foreign direct investment to Myanmar, 1990–2011



Notes: Approved FDI data are from *Selected Monthly Economic Indicators*, whereas implemented FDI data are from *International Financial Statistics* and *UNCTADstat database*. Approved FDI data and implemented FDI data (IMF) are compiled by fiscal year, whereas implemented FDI data (UNCTAD) are by calendar year. Implemented FDI data of *International Financial Statistics* for 2011 is a missing value.
Sources: *Selected Monthly Economic Indicators*, Central Statistical Organization, Myanmar; *International Financial Statistics*, International Monetary Fund; *UNCTADstat database*, United Nations Conference on Trade and Development (http://unctadstat.unctad.org/).
FDI = foreign direct investment, IMF = International Monetary Fund, UNCTAD = UN Conference on Trade and Development.

Figure 5
Selected balance of payments indices, 1996–2010



Source: *International Financial Statistics* CD-ROM, International Monetary Fund.

Compared with approved FDI since 2006, however, implemented FDI has been much smaller. The annual inflow of FDI has been below US$ 1 billion from 2006 through 2011.

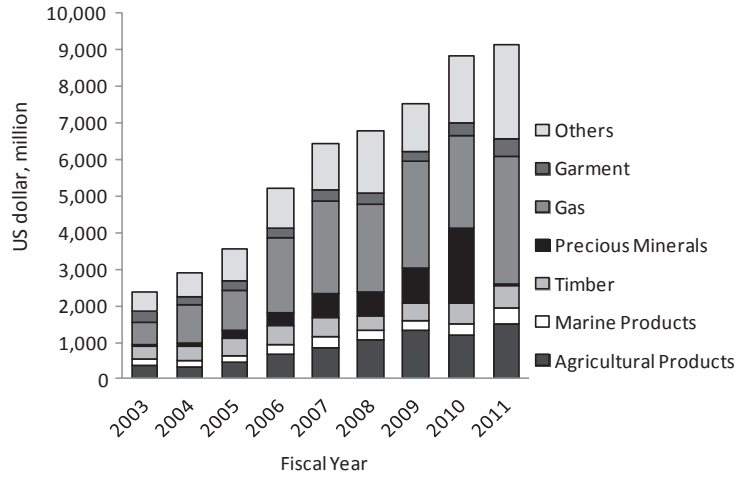
Full-scale production and export of natural gas were achieved by 2002. Table 1 includes data on natural gas exports, along with total exports and imports by sectors. Natural gas exports are wholly registered as public sector exports. Natural gas exports were nil until 1997, but rose to US$1 billion in 2004 and to US$2.9 billion in 2009; which was equivalent to 34 per cent and 38 per cent of total exports in those years.

FDI in the resources sector and natural gas exports both contributed to an improvement in the balance of payments (see Figure 5). The current account balance was in deficit until 2001 and has been in surplus since 2002. However, a large part of the natural gas export revenues has been paid to foreign stakeholders. In 2010, for example, while the trade surplus was US$3.5 billion, there was US$1.9 billion of income (debit); as a result, the current account surplus was US$1.5 billion, which was much lower than the trade surplus. The capital account has been in surplus since 2007, which has been mostly due to FDI. Finally, the overall balance of payments has improved significantly since 2006, although the surplus has been small compared with the size of the current and capital account surpluses. In fact, net errors and omissions rose sharply in 2004 and thereafter.

Although FDI in the resources sector and the natural gas exports improved the balance of payments, their impact on the parallel market exchange rate is not straightforward. Most of the foreign exchange revenue from the resources sector has gone to the public sector. At the same time, the foreign exchange market has been segmented between the private and public sectors under the dual exchange rate system—and it is still so even after the reforms by the new government. Thus, since foreign exchange revenues from the resources sector have not flowed to the parallel market, they should not be directly relevant to the kyat appreciation in the parallel market.

Neither should the spending effect of the resource boom have led to a real exchange rate appreciation. The natural gas exports have augmented public sector income. Nevertheless, the government valued the foreign currency revenues at the official exchange rate. For instance, when the official and parallel market

Figure 6
Exports of principal commodities, 2003–11



Note: The values of 'precious minerals' exports for 2010 and 2011 were obtained through personal communication with the Myanmar CSO on 28 August 2012.
Sources: *Statistical Yearbook*, and *Selected Monthly Economic Indicators*, Central Statistical Organization (CSO), Myanmar.

exchange rates were 5.5 kyat and 800 kyat per US dollar, respectively, this practice hugely undervalued the foreign currency surplus in terms of the kyat. Thus, natural gas exports hardly contributed to the state budget in terms of nominal local currency.

From another point of view, the dual exchange rate system with its overvalued official exchange rate and the segmentation of the market has prevented the resource revenues from aggravating real appreciation. On the contrary, integrating the segmented markets would cause a real appreciation as it would increase the supply of foreign exchange to the private sector.

Likely sources of currency appreciation

Given the segmentation of the foreign exchange market, the extraordinary real appreciation in the parallel market suggests that there were other sources of increase in the supply of foreign exchange in the parallel market. First, an important development was the sales at gem emporiums, that is international trade fairs for gems and jade. The emporium is held two or three times a year, attracting foreign buyers to Myanmar. While the organiser is an SEE, sellers are mostly private gem dealers with close ties to the former military government. The government has labelled the sales at emporiums as 'export earnings' after deduction of taxes.

Statistics on exports by commodities in Figure 6 show that the exports of gems and jade, labelled 'precious minerals', jumped from US$234 million in 2005 to US$647 million in 2007, and to US$2.03 billion in 2010. The share of gems and jade exports in total exports reached 23 per cent in 2010. The bulk of the gems and jade exports were designated as sales to China. In 2011, China imposed special duties on imports of gems and jade, and Myanmar exports plunged to USD$41 million according to official figures.

Second, in January 2010, the government extended the definition of 'export earnings' eligible for import licences; workers' remittances and foreign currency incomes from services, including hotel revenues, began to be labelled as 'export earnings'. This policy change might account for the private sector trade deficit for 2010 and 2011 shown in Table 1; although the 'export first' policy squeezed total imports of

the private sector into the available 'export earnings', the incremental 'export earnings' due to the extended definition helped the growth of imports in excess of the traditional exports. The recorded trade deficit of the private sector reached US$1.1 billion in 2010 and US$2.5 billion in 2011.

Third, the swelling errors and omissions in the balance of payments statistics (Figure 5) are also noteworthy. Negative errors and omissions indicate that a part of recorded foreign exchange inflows disappear. Recorded private sector capital account transactions were minimal, and their recorded foreign exchange income was mostly 'export earnings'. Because 'export earnings' were maintained as FCDs at state banks, there was little room for unrecorded disposal. Instead, there is an implied leakage of foreign exchange from the public sector. If the leakage was channelled to the private sector, it would add to the appreciation of the parallel exchange rate of informally held foreign exchange.

Finally, there was an increase in demand for the kyat due to massive sales of state assets in February 2011, which was just before the change of government. It is regarded as the transfer of state assets by the former military government to its allies. The scale of the sales was unprecedented. The settlement of asset purchases had to be done in kyat. The deadline for the settlements was August 2011, which coincided with a sharp fall in the nominal exchange rate; at that time, the nominal exchange rate was 740 kyat per US dollar, which was the lowest since February 2002. It is conjectured that the foreign currency-denominated assets were sold in exchange for kyat liquidity, which resulted in nominal exchange rate appreciation. However, if kyat liquidity is channelled to the asset market, it does not mean inflation of domestic prices. Such a conjecture is supported by the behaviour of the CPI and the nominal exchange rate.

Administrative controls on imports and foreign exchange

Since the export of gems and jade through the emporiums increased sharply in 2010, it is unsurprising that the kyat appreciated against the US dollar. However, the extent of the real exchange rate appreciation was extraordinary. One reason for the extraordinary appreciation may be the administrative controls on imports. Without such regulations, a real exchange rate appreciation would have stimulated imports, since the appreciation would make imported goods cheaper. A rise in imports would have alleviated the real appreciation. Usually, a foreign exchange market has such self-stabilising behaviour, thus preventing the real exchange rate from moving in one direction for a sustained period. However, administrative controls on Myanmar imports appear to have impeded imports from reacting to the appreciation, which resulted in a prolonged appreciation.

Another administrative reason for the sharp appreciation may have been the absence of foreign exchange market intervention by the government or the Central Bank. In countries experiencing a resource boom, governments often intervene in the foreign exchange market. Such interventions have alleviated, at least for a short period, real appreciation in some countries, including Indonesia (Usui 1996) and Vietnam (Nguyen and Kalirajan 2006). In Myanmar, the Central Bank had no effective means of intervening in the parallel market since the negotiated, transaction-based parallel market had been segmented from the formal banking sector; moreover, the situation is almost the same even after the reforms by the new government.

Policy measures to combat real exchange rate appreciation

Role of the Central Bank

Alleviating real exchange rate appreciation is indispensable for the recovery of the competitiveness of export-oriented, labour-intensive manufacturing, such as the garment industry in Myanmar. The growth of labour-intensive industry has a favourable impact on poverty alleviation as well as on income distribution.

The foreign exchange policy reform thus far in Myanmar is not sufficient to allow the

Central Bank to guide the market exchange rate towards depreciation. To enable the Central Bank to intervene in the foreign exchange open market, convertibility of kyat to foreign currencies for current account transactions should be established. That is, negotiated transactions of export earnings must be replaced with bank intermediation. To achieve that, quantitative restrictions and documentation requirements on foreign exchange transactions at licensed banks should be alleviated. Then, a Central Bank reference rate above the parallel market rate would stimulate exporters to sell foreign exchange to foreign exchange dealer banks. The Central Bank, in turn, could absorb the foreign exchange from these banks through auctions.

Bank intermediation of exporters and importers is more efficient than transactions at foreign exchange counters. Transactions at foreign exchange counters require foreign currency cash or FECs. This would foster the use of foreign currencies outside the banking sector. Moreover, handling of cash, both kyat and foreign currencies, imposes high transaction costs. Therefore, foreign exchange counters should not be regarded as a means of establishing convertibility of kyat with foreign currencies; bank intermediation of foreign exchange would be necessary.

However, it should be recognised that Central Bank intervention is a treatment of a symptom, and that it does not affect the causes of the real appreciation. Bahmani-Oskooee et al. (2008), among others, show empirically that the effect of such interventions on the real exchange rate is short-lived. When the Central Bank absorbs foreign exchange from the market, it releases kyat liquidity to the market, which exerts inflationary pressure.[16] Myanmar's under-developed financial sector limits the scope of sterilisation by the Central Bank. Unsterilised kyat issues for foreign exchange would be inflationary, as is the case in the monetisation of fiscal deficits. The nominal exchange rate devaluation would then be offset by inflation, subsequently pushing up the real exchange. In general, foreign exchange market intervention is considered to be ineffective in influencing the real exchange rate over the long run.

Instead, alleviating real appreciation over the long run requires a structural policy that affects the supply and demand of foreign exchange. Facilitating imports would be effective in this regard. Facilitation of imports would not be limited to the relaxation of import controls or abolition of the 'export first' policy. It could also include licensing of FCDs and foreign exchange operations to private commercial banks, terminating the state bank monopoly of foreign exchange operations. While the impacts are not yet clear, the new government has implemented appropriate policy changes for import facilitation.

There is ample room for growth in imports since private sector imports have been considerably repressed. For example, total imports by Myanmar in 2010 were US$8.95 billion, which is of a similar level to Cambodia, US$9.50 billion.[17] However, the Cambodian population is approximately one-third that of Myanmar. Thus, the per capita imports of Myanmar are approximately one-third those of Cambodia, although the two countries have a similar per capita income in terms of US dollars. There is substantial room for growth in Myanmar imports, in particular vehicles and consumer durables.

Unification of the foreign exchange market

The introduction of the Central Bank reference exchange rate and the unification of the segmented foreign exchange market are two different things. The introduction of the reference rate into the public sector signifies the devaluation of the official exchange rate. However, the allocation of foreign exchange in the public sector is still centrally controlled. The unifica-

16 The Central Bank can partially contain inflation with an accompanying sterilisation policy to absorb the kyat liquidity. However, the effectiveness of sterilisation policy is another debatable issue (Aizenman and Glick 2008).

17 These figures are from the UN Commodity Trade Statistics (UN Comtrade) database. Given concerns about the accuracy of trade statistics in Myanmar and Cambodia, the figures were calculated by summing up the trade partner countries' exports to Myanmar and Cambodia.

tion of the segmented foreign exchange market must entail SEEs buying and selling foreign exchange in the market. Such a unification would improve the efficiency of the allocation of foreign exchange.

In the short run, however, unification of the segmented market might result in the excess supplies of foreign exchange from the public sector piling up in the open market, thus aggravating the appreciation. The accumulation of foreign reserves suggests that public sector foreign exchange is in surplus (see Figure 5). The current segmentation of the foreign exchange market allows the government to put aside foreign reserves so that they do not reach the private sector, which moderates the appreciation of the kyat. The unification of the foreign exchange market should be suspended as long as the appreciation problem remains.

Conclusion

The parallel market exchange rate under the dual exchange rate system in Myanmar has exhibited an extraordinary appreciation since late 2006. The value of the US dollar in terms of the Myanmar consumption bundle has diminished to one-third of its previous level in the six-year period from 2006 to 2011. There is concern that the appreciating kyat is dampening the growth of traditional export sectors, such as the garment industry. This paper has examined the background to the currency appreciation and the remedies to alleviate it.

The paper offers an analysis of the movement of the parallel exchange rate, taking into account the peculiar structure of the foreign exchange market in Myanmar. The foreign exchange market is segmented between the public and private sectors. The allocation of foreign exchange in the public sector has been centrally controlled by the government. On the other hand, the private sector has not been required to surrender export earnings, but nor has it been granted foreign exchange allocations for imports at the official rate. The government has tolerated the private sector trading foreign exchange in negotiated transactions. As a result, the parallel market exchange rate has been determined mostly in accordance with the supply and demand of foreign exchange in the private sector.

Despite the reforms by the new government, the structure of the foreign exchange market is mostly intact. Since October 2011, the Central Bank has permitted private banks to open foreign exchange counters where the private sector can buy and sell foreign exchange, within limits. In April 2012, the Central Bank abolished the peg of the kyat to the SDR, moved to a managed-float exchange rate regime, and began to announce a reference rate that guides the price of foreign exchange at the exchange counters. In addition, the Central Bank initiated auctions of foreign exchange with commercial banks. Nonetheless, due to *de facto* and *de jure* limits at the foreign exchange counters, convertibility of kyat to foreign currencies remains limited, whereas negotiated transactions of foreign exchange between exporters and importers outside the banking sector are still prevalent. Moreover, SEEs are still kept from the private sector foreign exchange market.

Given the segmentation of the foreign exchange market, the impact of the large inflows of foreign exchange from natural gas exports and FDI on the appreciation of the parallel market exchange rate is not straightforward. Such foreign exchange inflows are concentrated in the public sector and remain in the public sector, so that they could not be the cause of the appreciation in the parallel market. In contrast, there are other sources that sharply increased the supply of foreign exchange to the parallel market; suspected sources include sales at gem emporiums from 2006 through 2010, and the extension of the definition of 'export earnings' in 2010.

Intervention in the open market for foreign exchange is an immediate counter-measure that could be taken against the real appreciation. To enable the Central Bank to intervene in the open market, full convertibility of kyat to foreign currencies for current account transactions must be established. Exporters and importers should also be permitted to buy and

sell export earnings with foreign exchange dealer banks so that the possession of export earnings would shift from exporters to the banking sector. Then, by setting the reference rate above the parallel market rate, the Central Bank could stimulate exporters to sell foreign exchange to the banks and absorb the foreign exchange from the banks through auctions.

However, foreign exchange market intervention is not a complete solution unless its impact on the money supply is sterilised; instead, alleviation of real exchange rate appreciation over the long run requires structural policies. Structural policies include facilitation of imports, which would expand the demand for foreign exchange. The tight controls on imports, such as the 'export first' policy, have constrained the growth in imports and repressed the demand for foreign exchange. Myanmar's per capita imports are the lowest among Southeast Asian countries, at about one-third those of Cambodia. Therefore, there is ample room for growth in imports. The abolition of the 'export first' policy in April 2012 and the relaxation of car imports are policy changes in a good direction.

Finally, it must be remembered that the introduction of the Central Bank reference exchange rate and the unification of the segmented foreign exchange market are two different things. The unification must entail abolition of centrally controlled allocation of foreign exchange to the public sector. Such unification will improve the efficiency of the allocation of foreign exchange for the whole economy. Nonetheless, as long as public sector foreign exchange is in surplus, the unification of the segmented market would channel more foreign exchange to the open market, which would aggravate currency appreciation. Hence, the unification of the foreign exchange market should be suspended so long as the appreciation problem remains.

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