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**Real Exchange Rate Appreciation,
Resource Boom, and Policy Reform in
Myanmar**

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Abstract

In the five-year period from 2006 to 2011, the real exchange rate of the Myanmar kyat appreciated 200 percent, signifying that the value of the US dollar in Myanmar diminished to one third of its previous level. While the resource boom is suspected as a source of the real exchange rate appreciation, its aggravation is related to administrative controls on foreign exchange and imports. First, foreign exchange controls prevented replacement of the negotiated transactions of foreign exchange with the bank intermediation. This hampered government interventions in the market. Second, import controls repressed imports, aggravating excess supply of foreign exchange. Relaxation of administrative controls is necessary for moderating currency appreciation.

Keywords: Myanmar, real exchange rate, resource boom, import controls

JEL classification: F31, O24, Q33

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Real Exchange Rate Appreciation, Resource Boom, and Policy Reform in Myanmar

1. Introduction

During the period from September 1988 through 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; there were an official exchange rate in the public sector, and a parallel market exchange rate in the private sector. The official exchange rate was pegged at 8.50847 kyat per special drawing right (SDR) of the International Monetary Fund (IMF) in 1977, and thus had been fixed for more than 30 years. It was approximately 5.5 kyat per US dollar as of March 2012. In contrast, the parallel market rate depreciated chronically in the past due to unstable macroeconomic conditions. It once, in September 2007, reached 1,369 kyat per US dollar.

Since 2006, the parallel market exchange rate has exhibited a sharp appreciation trend against the US dollar. In nominal terms, the exchange rate of the Myanmar 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 United States, 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 percent. According to Gelb (1988), which 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 in 11 years was 187 percent. The comparison implies that the real exchange rate appreciation in Myanmar is extraordinarily high.

Currency appreciation damages traditional export sectors such as the garment industry. For Myanmar exporters, export revenues *ceteris paribus* diminished to one third relative to the local cost of production. For potential foreign investors, the costs of production in Myanmar in terms of the US dollar rose three times. On the presumption that the tradable sector is the driving force of long term economic growth through learning-by-doing, the real exchange rate appreciation dampens the prospect for economic growth as it causes the tradable sector to shrink (Wijnbergen, 1984; Krugman, 1987). From the viewpoint of sustainable economic growth, such an extraordinary appreciation calls for urgent countermeasures.

Two questions arise regarding such an extraordinary currency appreciation of the Myanmar kyat. First, what exacerbated the real exchange rate appreciation? In the late 2000s, Myanmar faced a surge in inflows of foreign exchange through resources exports and foreign direct investment (FDI) in the resources sector. It is often observed that a resource boom is accompanied by real exchange rate appreciation. However, the extent of the real exchange rate appreciation in Myanmar is extraordinary. This paper investigates how administrative controls on imports and foreign exchange are related to the currency appreciation.

Second, what remedies are possible for alleviating this currency appreciation? The new government, established in March 2011, has implemented a series of reforms on the foreign exchange and trade regime. This paper summarizes the achievements of the reforms so far, as well as the remaining challenges for alleviation of the currency appreciation.

A number of empirical studies in the literature on exchange rate found that unstable exchange rates hamper growth in trade (Arize *et al.*, 2000; Chowdhury, 1993; Cottani *et al.*, 1990; De Grauwe, 1988; McKenzie, 1999). In this regard, it is worthwhile analyzing the background to the currency appreciation and discussing remedies to alleviate it. On the other hand, the existing studies on Myanmar, including Hori and Wong (2008), Myat Thein (2004), and Turnell (2011), focused on the distortion of the dual exchange rate system. The contribution of this paper will be to draw policy prescriptions for moderating the real exchange rate appreciation in Myanmar, taking into consideration various administrative controls.

This paper is structured as follows. Section 2 offers a framework for analyzing the movement of the real exchange rate, with a brief summary on the trend of the real exchange rate in the parallel market. Section 3 reviews the structure of the foreign exchange market that would affect the movement of the parallel market exchange rate. Section 4 examines the relationship between the real exchange rate appreciation and the resource boom, taking into account the administrative controls. The resource boom includes the exploration of natural gas and a surge in foreign direct investment in the resources sector. Section 5 offers policy prescriptions for alleviating the real exchange rate appreciation. Section 6 summarizes the analysis and offers some concluding remarks.

2. Determinants of Real Exchange Rate

2.1 Analytical Framework

This section provides an analytical framework for examining the trend of the real exchange rate of the Myanmar kyat. First, the real exchange rate, Q , is defined as follows;

$$Q \equiv E \cdot P^* / P, \quad (1)$$

where E refers to the nominal parallel exchange rate, measured in kyat per US dollar. P stands for the price level in Myanmar, and P^* for that of the United States. A rise in Q indicates a depreciation of the kyat against the US dollar, and a fall indicates an appreciation. For instance, if P rises while E and P^* are unchanged, Q decreases, which indicates an appreciation of the real exchange rate.

Equation (1) can be rewritten in logarithmic form, as follows;

$$q = e + p^* - p, \quad (1')$$

where lower-case letters refer to the logarithm of the corresponding capital letters. Each of the price levels in Myanmar and the United States can be defined in terms of the weighted average of the price levels of the tradable and non-tradable goods;

$$p \equiv \alpha p_T + (1 - \alpha) p_N, \quad (2)$$

$$p^* \equiv \beta p_T^* + (1 - \beta) p_N^*, \quad (3)$$

where p_T and p_N stand for the price levels of tradable goods and non-tradable goods in Myanmar, respectively. p_T^* and p_N^* are for those in the United States. Tradable goods include agricultural products and manufactured commodities which can be exported or imported. Non-tradable goods include goods and services, such as house rental, that cannot be exported or imported. α and β denote the weights of the tradable goods in the consumption bundles in Myanmar and the United States, respectively. Substituting (2) and (3) into Equation (1') yields

$$q = (e + p_T^* - p_T) + (1 - \alpha)(p_T - p_N) - (1 - \beta)(p_T^* - p_N^*). \quad (4)$$

Equation (4) allows us to divide determinants of real exchange rate into four channels.

The first channel is a change in e in the first term of the right hand side (RHS) of the equation. For example, when e rises (nominal depreciation) without simultaneous changes in other variables, q will rise as well (real depreciation).

The causes of a change in e can be broadly divided into two factors, nominal and real. Nominal factors include a change in money supply. An increase in money supply brings about a rise in inflation, which results in a rise not only in e , but also in p_T and p_N .

These changes cancel each other out, pushing back q to the previous level. This is the tendency which was observed in Myanmar before 2006. According to Kubo (2007), the impact of high inflation on q was at most temporary.¹ This suggests that nominal factors do not affect the real exchange rate in the long run.

The real factors include changes in the supply and demand of foreign exchange. If Myanmar could borrow foreign exchange from foreign countries without limits, changes in the supply and demand of foreign exchange would not affect the exchange rate. In reality, capital mobility is imperfect, and Myanmar faces a borrowing constraint; changes in the supply and demand of foreign exchange would matter. For example, growth in export industries would expand the supply of foreign exchange, which, in turn, would *ceteris paribus* induce an appreciation of the kyat.

The second channel is the whole first term, $e + p_T^* - p_T$. This is the ratio of the price of imported goods converted to kyat to the price of locally produced tradable goods. On condition that there is no trade restriction and that transportation costs are negligible, arbitrage by profit-seeking traders would equate these two prices. This is the so-called 'law of one price.' As far as the law of one price holds, this term is reduced to zero.

In reality, the law of one price does not always hold for developing countries such as Myanmar, where administrative controls on imports and exports are pervasive. Import restrictions give rise to a price gap between the foreign and Myanmar markets, which keeps $e + p_T^* - p_T$ above zero. Export restrictions, including the ban on rice exports, repress the domestic price of Myanmar tradable goods, which also maintains this term above zero. Thus, relaxing restrictions on imports and exports are both expected to reduce the deviation from the law of one price, and would lead to a fall in q .

The third and fourth channels correspond to the relative price of tradable goods to non-tradable goods in Myanmar and the United States. These are depicted as the second and third terms in the RHS of the equation, respectively. If the relative price of tradable goods to non-tradable goods falls in Myanmar, this will lead to an appreciation of kyat.

The Balassa-Samuelson hypothesis is often examined in the literature of exchange rates. This hypothesis is related to the tendency for technological progress to take place faster in the tradable goods sector than in the non-tradable goods sector in the medium to long term. Technological progress allows the tradable goods sector to supply goods at lower prices, which reduces the relative price of tradable goods to non-tradable goods. Faster technological progress in the tradable goods sector in Myanmar than in the

¹ A time series data analysis by Kubo (2007) found a co-integration relationship between the money supply, the price level and the nominal parallel exchange rate for the period from 1996 through 2006.

United States would lead to an appreciation of the home currency (a fall in q). However, such technological progress in the tradable goods sector is unlikely to have materialized in Myanmar in the five-year period from 2006 through 2011.

With this setting, let us consider how a resource boom might affect the real exchange rate. In terms of Equation (4), a resource boom has two channels through which to affect the real exchange rate. One is through e in the first term by changing the balance of supply and demand of foreign exchange. As a resource boom brings in large inflows of foreign exchange to the home economy, it leads to a drop in the price of foreign exchange (a decline in e) which *ceteris paribus* results in a decline in q .

The other is the income effect. A resource boom signifies a rise in income for the nation as a whole. A rise in income is expected to expand the consumption of both tradable and non-tradable goods. In the face of a rise in consumption, while the supply of tradable goods would be easily adjusted by imports, it would be difficult to increase the supply of non-tradable goods instantly. This would result in a rise in the price of non-tradable goods. In the second term of Equation (4), an increase in the relative price of non-tradable to tradable goods signifies a decline in q .

Thus, a resource boom would be associated with an appreciation of the real exchange rate through these two channels. Named after the experience in the Netherlands, the real exchange rate appreciation and the resulting decline in traditional export industries due to a resource boom is called ‘Dutch disease,’ and is often experienced in resource rich economies.²

2.2 Real Exchange Rate Trends

Figure 1 depicts the trends in 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 consumer price index to the Myanmar consumer price index, and its twelve-month average is set at 100 for the base year of 1997. The figure shows that the nominal exchange rate depreciated chronically until mid 2006. While unstable, the real exchange rate had been mean-reverting for the period prior to mid 2006.

Figure 1

² Dutch disease refers to the decline of the traditional export sector through real exchange rate appreciation due to a resource boom (Corden, 1984). For a recent literature survey on Dutch disease, see Magud and Sosa (2010), and Ploeg (2011).

However, an extraordinary appreciation trend has been demonstrated since 2006. In this figure, the real exchange rate was around 120 in 2006, and appreciated to approximately 40 in December 2011. This indicates that the value of the US dollar in terms of the Myanmar consumption bundle diminished to one third in this five-year period.

The weakening of the US dollar against major currencies might partially account for the appreciation of the kyat. To see the extent to which the global trend of the weakening US dollar explains the change in the kyat exchange rate, it is worthwhile comparing the real exchange rate of the Myanmar kyat with those of other Southeast Asian currencies. Figure 2 illustrates the trends 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. This figure confirms that all currencies have appreciated against the US dollar in real terms from around 2005. At the same time, the extent of the appreciation is sharpest for the Myanmar kyat. This indicates that the Myanmar kyat has also appreciated against other Southeast Asian currencies. The weakening US dollar in the global market does not fully explain the sharp appreciation of the Myanmar kyat.

Figure 2

To investigate the sources of real appreciation, Figure 3 depicts year-on-year changes in the nominal exchange rate and the Myanmar consumer price index. While there are some time lags, the nominal exchange rate and the consumer price index moved closely with each other until around 2006. Since 2007, while the inflation rate has remained positive, the nominal exchange rate has fallen continuously. The decline in inflation rate in 2009 and 2010 suggests that the income effect of the resource boom is not the main cause of the real appreciation. The dominant factor in the real appreciation is change in the nominal exchange rate, which is likely to have stemmed from changes in the supply and demand of foreign exchange.

Figure 3

3. Structure of the Foreign Exchange Market

As Myanmar has implemented various administrative controls on foreign exchange that potentially affect the movement of exchange rates, an analysis of the real exchange rate should be based on a solid 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 proceeds to summarize how the recent reforms have affected the structure of the foreign exchange market.

3.1 The Segmented Foreign Exchange Market before the April 2012 Reform

Myanmar has practiced a multiple exchange rate system, where the government imposed different controls on the public and private sectors. In the public sector, foreign exchange transactions were centrally 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 even for their own imports. On the other hand, SEE imports were controlled by the foreign exchange budget of the central government; every foreign exchange expenditure required permission from the Ministry of Finance and Revenue.

Turning to the private sector, importers have had no allocation of foreign exchange at the official exchange rate. Exporters were, in principle, permitted to retain 100 percent of their export earnings since 1990.³ Instead, the government imposed an export tax on them.⁴ 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 state banks.

How, then, were the parallel market exchange rate in the private sector determined? As to the disposal of FCDs, the regulation did not allow the private sector to withdraw them in foreign currency; it prohibited Myanmar citizens from holding foreign currency. Instead, FCDs can be withdrawn only in foreign exchange certificates (FECs).⁵ Apart

³ 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.

⁴ The export tax consists of an 8 percent commercial tax and a 2 percent income tax.

⁵ The government introduced FECs in February 1993, and established an authorized FEC exchange center in December 1995. While import permission was obtainable with FECs until July 1997, FECs were traded at a competitive price at the authorized exchange center. This indicates that the government officially recognized competitive exchange rates. However, the government ordered the exchange center to fix the price of

from that, account transfers of FCDs between private exporters and importers were tolerated by the government. With account transfers, FCDs were traded through negotiated transactions between buyers and sellers. This allowed exporters to convert their FCDs into kyat at a competitive price, and 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 in other countries (Biswas and Marjit, 2005), this was not applicable to Myanmar's private sector.⁶

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). This market structure can be depicted as in Figure 4. 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 the supply and demand in the private sector.

Figure 4

The private sector had been subject to significant control, the so-called 'export first and import later' policy from 1997. All imports and exports by the private sector had been required to obtain licenses. On top of that, since July 1997, the government has conditioned the issuance of import licenses on the premise that license applicants have sufficient export-tax-deducted 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 had been virtually impossible.

The impact of the 'export first' policy can be observed in trade statistics. As Myanmar's trade statistics reports the disaggregated trade balance for the private and public sectors, the trade balance of the private sector can be shown in Table 1. Private sector trade has been more or less in balance from 2002 through 2009.⁷ This implies

FECs at 450 kyat per FEC, after which transactions at the center vanished and FECs were traded in the parallel market usually with some discount compared with the price of greenbacks.

⁶ In their survey article of dual exchange rate systems, Kiguel and O'Connell (1995) argue that the tighter the restrictions on foreign exchange allocation are, the less the official exchange rate functions as a price signal for resource allocation. The dual exchange rate system in Myanmar can be considered as an extreme case where the official exchange rate had scarce impacts on the private sector.

⁷ It should be noted that there might be unrecorded imports and exports in the private

that imports have been constrained by exports under the ‘export first’ policy.⁸

Table 1

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

Since FCDs were eligible for import licenses, they were often traded with a degree of mark-up over the informally held foreign exchange. However, FCDs were also illiquid assets; unless exporters can find buyers for FCDs, they can only be withdrawn in FECs, which are usually traded with a discount compared to greenbacks. In fact, the mark-up of the export earnings above the informally held foreign exchange fluctuated between 12.8 percent and -8.6 percent for the period from August 2007 through October 2011.⁹ A negative mark-up implies the low liquidity of FCDs.

3.2 Reforms under the New Government

Under the new government inaugurated in March 2011, there have been a series of reforms on foreign exchange policy. In October 2011, the Central Bank permitted some private commercial banks to run authorized 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. More 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.¹⁰ On top of these, since transactions at the foreign

sector (Kubo, 2012).

⁸ A notable development in this table is that the private sector trade balance recorded large deficits in 2010 and 2011. This will be discussed in Section 4.2.

⁹ This is retrieved from the unpublished data of the Japan External Trade Organization (JETRO) Yangon branch.

¹⁰ The limits and the document requirements have been changed from time to time.

exchange counters involve cash of US dollars and kyats, the amounts of transactions are inevitably constrained by the availability of cash of the counters.

In April 2012, the Central Bank began announcing the reference exchange rate to the public on the one hand, and the auction of foreign exchange with private commercial banks on the other. The reference exchange rate is used to explicitly guide the selling and buying rates at the authorized foreign exchange counters; these rates have to be within a prescribed band from the reference rate.

However, it is not certain to date how the Central Bank determines the reference rate. It is not the case that the reference rate is the simple average of the closing prices in the open market on the previous day as in Vietnam. Rather, the current system seems to allow the Central Bank to set the reference rate discretionarily. There remain discrepancies, though small, between the reference rate and parallel market exchange rates.

As for the auction, the Central Bank receives bids and offers from participating private commercial banks, and reserves the right of discretion in setting the buying and selling rates. The Central Bank reference rate is also used as the cut-off rate for the auction. The auction is only between the Central Bank and private commercial banks, and there is no trade among private commercial banks.

Another important development as of July 2012 is that the Central Bank plans to give private banks the license to accept foreign currency deposits (FCDs) and to conduct foreign exchange operations such as remittances and settlements of foreign trade. Previously, foreign exchange operations were monopolized by state banks. This policy change is expected to facilitate the trade of the private sector.

Finally, the Government of Myanmar has implemented a stepwise alleviation of the restrictions on imports since 2010. The import of buses and commercial vehicles were deregulated in January 2010, and passenger vehicles in September 2011. Furthermore, the 'export-first' policy is arguably abolished in April 2012; import licenses are obtainable with non-export earning US dollar raised at the foreign exchange counters or with the informally held foreign exchange, by depositing them to FCD accounts at state banks.¹¹

It is useful to clarify what has changed and what has not changed after the series of policy reforms. Regarding what has changed, firstly, the official exchange rate in the public sector is considered to have been devalued to the Central Bank reference rate.¹²

¹¹ 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 is difficult to judge that the 'export-first' policy is completely abolished.

¹² There has been an argument in the parliament for the replacement of the overvalued

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 to reveal the economic viability of individual SEEs.

Second, exporters and importers now perfunctorily have an additional channel for trading foreign exchange ((5) and (6) in Figure 4). However, the new channel is not actively used for a couple of reasons. There are *de facto* limit at the foreign exchange counters due to the availability of cash at the counters, and *de jure* limit on the transactions of large amount from the consideration of anti-money laundering. As a result, for proper export earnings, negotiated transactions through account transfer are more convenient and preferred. For informally held foreign exchange, only little amount can be channeled into the banking sector.

Regarding what has not changed, the bulk of the foreign exchange transactions in the private sector are still negotiated transactions between buyers and sellers, and they are yet to be replaced with bank intermediation. Export earnings mostly remain as the assets of exporters; they are not sold to the banks. Therefore, even if the banks accept FCDs from exporters, they cannot sell foreign exchange to the Central Bank since it creates the short position of foreign exchange for them. Accordingly, the Central Bank cannot absorb foreign exchange from the banks. The Central Bank auction and the open market of the private sector are still disconnected.

The segmentation of the foreign exchange market between the public and private sectors is still intact. SEE budget system reform is yet to be formulated; foreign exchange budgets are still centrally controlled, 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.

4. Sources of Real Exchange Rate Appreciation

On the basis of the structure of the foreign exchange market as illustrated in Section 3, this section investigates sources of the real exchange rate appreciation as well as the factors that have aggravated the appreciation.

official exchange rate with the new Central Bank reference rate for the formulation of the state budget for fiscal year 2012. However, whether it has been implemented or not is uncertain.

4.1 Linkage between Resource Boom and Currency Appreciation?

In terms of the balance of payments, two notable developments in the late 2000s are the sharp rise in the foreign direct investment (FDI) inflows and the exports of natural gas. Let us examine how these two developments can be related to the real exchange rate appreciation.

Regarding FDI, Figure 5 summarizes the trend of permitted FDI since 1989.¹³ The cumulative permitted FDI as of 2004 was USD7.75 billion. The sum of the permitted FDI reached USD6.07 billion for a single year in 2005, and USD20 billion in 2010. The sum of the permitted FDI in 2010 is approximately twice as much as the total exports in the same year, USD9.98 billion. Permitted 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 percent in 2005 and 99 percent in 2010.

Figure 5

Regarding the exploration of natural gas, full-scale production and exports were achieved by 2002. Table 1 in Section 3 includes the trend of natural gas exports, along with the 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 USD1 billion in 2004, and to USD2.9 billion in 2009; equivalent to 34 percent and 38 percent of the total exports in the respective years.

Both FDI in the resources sector and natural gas exports contributed to a significant improvement in the balance of payments. Figure 6 summarizes selected indices of the balance of payments. The current account balance was in deficit until 2001, and it has been in surplus since 2002. The capital account balance has been in large surplus since 2007, which is mostly attributable to FDI. Compared with the size of permitted FDI from 2006, however, the size of the capital account surplus is small, implying that the disbursed amount is smaller than the permitted amount. Finally, the overall balance has improved significantly since 2006, whereas the surplus has been smaller compared with the size of the current and capital account surpluses. In fact, net errors and omissions rose sharply in 2004 and after.

Figure 6

Although FDI in the resources sector and the natural gas exports significantly

¹³ The Foreign Investment Law was promulgated in November 1988.

improved the balance of payments, their impact on the parallel market exchange rate is not straightforward. Most of the foreign exchange revenues from the resources sector flow to the public sector. At the same time, the foreign exchange market has been segmented between the private and public sector 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 would not flow to the parallel market, they should not be directly relevant to the kyat appreciation in the parallel market.

Neither should the income effect of the resource boom have materialized towards a real exchange rate appreciation. It is true that the natural gas exports have augmented public sector income. Nevertheless, the government had valued the foreign currency revenues at the official exchange rate. For instance, when the official and parallel market exchange rates were 5.5 kyat and 800 kyat per US dollar, respectively, this practice undervalued the foreign currency surplus by less than one to a hundred (1/100). Thus, the natural gas exports hardly contributed at all to the state budget in terms of the nominal local currency.

From another point of view, the dual exchange rate system in terms of the use of an overvalued official exchange rate and the segmentation of the market has functioned to prevent the resource revenues from aggravating real appreciation. On the contrary, integrating the segmented market would cause deterioration in real appreciation as it would increase the supply of foreign exchange to the private sector.

4.2 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 sources of increase in the supply of foreign exchange in the parallel market.

First, an important development in this regard is 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 organizer is a state economic enterprise, sellers are mostly private gem dealers with close ties to the former military government. The government has labeled the sales of emporiums as 'export earnings' after deduction of taxes. Unlike the proceeds from smuggling exports, the revenues from the gem emporiums can be deposited as FCDs even before the change in regulations by the new government. While the sales data for the emporiums are not available, estimated sales given in the local media are tremendous; the estimated sales in fiscal year 2010 were USD4.24 billion, which overwhelms the natural gas exports for the same year. The estimated sales of gem emporiums are summarized in Figure 7.

Figure 7

While the sales of the gem emporiums are labeled as ‘export earnings,’ it is not certain how such sales are treated in the balance of payments statistics. In fact, against the estimate of the gem emporium sales of USD4.24 billion in 2010, the total export of the private sector is USD3.50 billion. Thus, the trade statistics do not seem to fully include the sales of gem emporiums. Such discrepancies might account for the trade deficit of the private sector for 2010 and 2011 in Table 1; although the ‘export first’ policy squeezed total imports of the private sector into the available ‘export earnings’, the ‘export earnings’ from gem emporiums helped the growth of imports in excess of the regular exports.

Second, the swelling errors and omissions in the balance of payments statistics (Figure 4) are also noteworthy. Negative errors and omissions indicate that a part of recorded foreign exchange inflows disappear. As for the private sector, recorded capital account transactions are minimal, and their recorded foreign exchange income is mostly ‘export earnings.’ Because ‘export earnings’ are maintained as FCDs at state banks, there is little room for unrecorded disposal of them. Instead, this implies leakage of foreign exchange from the public sector. If the leakage channels to the private sector, it would add to the appreciation of the parallel exchange rate of informally held foreign exchange.

4.3 Administrative Controls on Imports and Foreign Exchange

It is often observed that resource rich countries experience a currency appreciation. Since the exports of gems and jade through the emporiums increased sharply in 2010, it is not strange that the kyat appreciated against the US dollar. However, the extent of the real exchange rate appreciation is extraordinary.

One reason for the extraordinary appreciation is 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 then have alleviated the real appreciation. Usually, a foreign exchange market has such a self-stabilizing characteristic, thus inhibiting the real exchange rate from changing in one direction for a sustained period. However, in the case of Myanmar, administrative controls on imports appear to have impeded imports from reacting to the appreciation, which results in a prolonged appreciation.

Another reason is the absence of the foreign exchange market intervention by the

government or the Central Bank. For countries in the midst of a resource boom, governments often intervene in the foreign exchange market. Such interventions 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 has no effective means of intervening in the parallel market since the negotiated transaction-based parallel market had been disconnected from the formal banking sector, and the situation is mostly the same even after the reforms by the new government.

5. Policy Measures to Combat Real Exchange Rate Appreciation

5.1 Role of the Central Bank

Alleviating real exchange rate appreciation is indispensable for the recovery of the competitiveness of export-oriented labor-intensive manufacturing such as the garment industry. The growth of labor-intensive industry has a favorable effect towards poverty alleviation, as well as equitable income distribution.

The foreign exchange policy reform thus far is not sufficient to allow the Central Bank to guide the market exchange rate toward depreciation. To enable the Central Bank to intervene in the foreign exchange open market, the possession of export earnings should be shifted from exporters to the banking sector. That is, negotiated transactions of export earnings must be replaced with bank intermediation. Then, a Central Bank reference rate above the parallel market rates would stimulate exporters to sell foreign exchange to foreign exchange dealer banks.¹⁴ The Central Bank, in turn, can absorb the foreign exchange from these banks through auctions.

Furthermore, 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 to establish convertibility of kyat with foreign currencies; bank intermediation of foreign exchange would be necessary.

Central Bank intervention is a symptomatic treatment, and it does not work on the causes of the real appreciation. Bahmani-Oskooee *et al.* (2008), among others, show

¹⁴ From the viewpoint of anti-money laundering, it is difficult to bring informally held foreign currencies to the banking sector.

empirically that the effect of such interventions on the real exchange rate would be short lived. When the Central Bank absorbs foreign exchange from the market, it releases kyat liquidity to the market, which exerts an inflationary pressure on the price level.¹⁵ The nominal exchange rate depreciation would then be offset by inflation, subsequently pushing the real exchange rate back. In general, foreign exchange market intervention is considered to be ineffective in adjusting the real exchange rate in the long run.

Instead, alleviating real appreciation in the long run requires a structural policy that works on the supply and demand of foreign exchange. Facilitating imports would be effective in this regard. Facilitation of imports is not only relaxation of import controls or abolition of the 'export-first' policy. It also includes licensing of foreign currency deposits and foreign exchange operations to private commercial banks and terminating the state bank monopoly of foreign exchange operations. While impacts are not yet clearly observed, the new government has implemented favorable policy changes for moderating real appreciation.

Private sector imports have been repressed considerably. For example, total imports by Myanmar in 2010 were USD8.95 billion, which is of a similar level to Cambodia, USD9.50 billion.¹⁶ However, the population of Cambodia is approximately one third that of Myanmar. Thus, the per capita imports of Myanmar are approximately one third those of Cambodia, although two countries have a similar per capita income in terms of US dollars. There is room for growth in imports in Myanmar, in particular those of vehicles and consumer durable goods.

5.2 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 unification of the segmented foreign exchange market must entail SEEs buying and selling foreign exchange from the market. Such a unification of the market would improve the efficiency of the allocation of foreign exchange for the whole economy in the long run.

¹⁵ The Central Bank can partially contain inflation with an accompanying sterilization policy to absorb the kyat liquidity. However, the effectiveness of the sterilization policy is another matter of debate (Aizenman and Glick, 2008).

¹⁶ These figures are from the United Nations Commodity Trade Statistics (UN Comtrade) database. From a consideration for the accuracy of trade statistics in Myanmar and Cambodia, the figures are calculated by summing up the trade partner countries' exports to Myanmar and Cambodia.

In the short run, however, unification of the segmented market might result in the excess supply 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 6). 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 alleviates the appreciation of the kyat. The unification of the foreign exchange market should be suspended as long as the appreciation problem remains.

6. Conclusion

The parallel market exchange rate under the dual exchange rate system in Myanmar has exhibited an extraordinary appreciation since 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 five-year period 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 attempted to examine the background to the currency appreciation and remedies to alleviate it.

An analysis of the movement of the parallel exchange rate should take into account the peculiar structure of the foreign exchange market in Myanmar. This 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, nor have they had been granted foreign exchange allocation 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 reform by the new government inaugurated in March 2011, 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 legitimately buy and sell foreign exchange, though within limits. In April 2012, the Central Bank began to announce a reference rate that explicitly guides the prices of foreign exchange at the exchange counters. In addition, the Central Bank initiated auctions of foreign exchange with private commercial banks. Although this series of

reforms offers a new linkage for foreign exchange transactions between the public and private sectors, its usage is inactive due to *de facto* and *de jure* limits at the foreign exchange counters. Moreover, state economic enterprises are still separated from the private sector foreign exchange market.

Regarding the kyat appreciation, 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 parallel market exchange rate is not straightforward. Such foreign exchange inflows concentrate in the public sector, and remain in the public sector, so that they cannot be the cause of the appreciation in the parallel market. On the contrary, there should be other sources that have sharply increased the supply of foreign exchange to the parallel market; sales at gem emporiums, which seem to be unrecorded in the balance of payments statistics, are a suspected source.

Intervention in the open market of foreign exchange is an immediate countermeasure against the real appreciation. To enable the Central Bank to intervene in the open market, bank intermediation of foreign exchange with exporters and importers should replace negotiated transactions between them. Whenever they like, exporters and importers should 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 rates, the Central Bank can stimulate exporters to sell foreign exchange to the banks, and can absorb the foreign exchange from the banks through auctions.

However, foreign exchange market intervention is not a complete solution. When the Central Bank absorbs foreign exchange from the open market, it releases kyat liquidity, which brings about inflation. Inflation then more or less offsets the nominal exchange rate depreciation, pushing back the real exchange rate to the previous level. Thus, Central Bank intervention cannot adjust the real exchange rate in the long run.

Alleviation of the real exchange rate appreciation in the long run requires structural policies. The tight controls on imports and the 'export first' policy constrained the growth in imports and repressed the demand for foreign exchange, which aggravated the appreciation. Per capita imports of Myanmar are the lowest among Southeast Asian countries, and about one third of those of Cambodia. There is ample room for growth in imports. Facilitation of imports would expand the demand for foreign exchange, and alleviate the appreciation.

Finally, it must be reminded that the introduction of the Central Bank reference exchange rate and the unification of the segmented foreign exchange market are two different things. The allocation of foreign exchange to the public sector is still centrally

controlled. The unification of the segmented foreign exchange market must entail SEEs buying and selling foreign exchange from the market. Such a unification of the market will improve the efficiency of the allocation of foreign exchange for the whole economy in the long run. 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. The unification of the foreign exchange market should be suspended as long as the appreciation problem remains.

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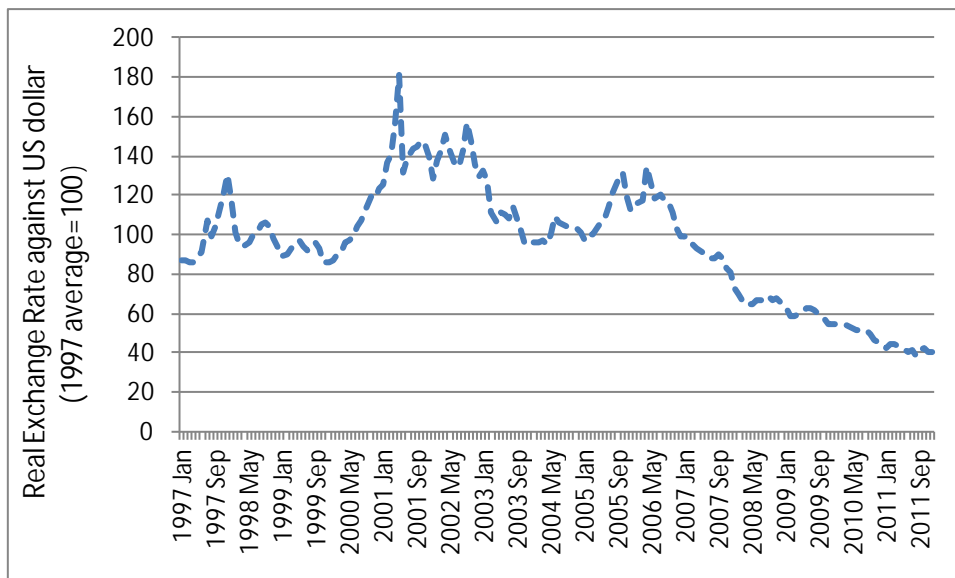
Figure 1

Trends in Parallel Market Exchange Rates, January 1997 to December 2011

(A) Nominal Exchange Rate of Myanmar kyat vis-à-vis US dollar

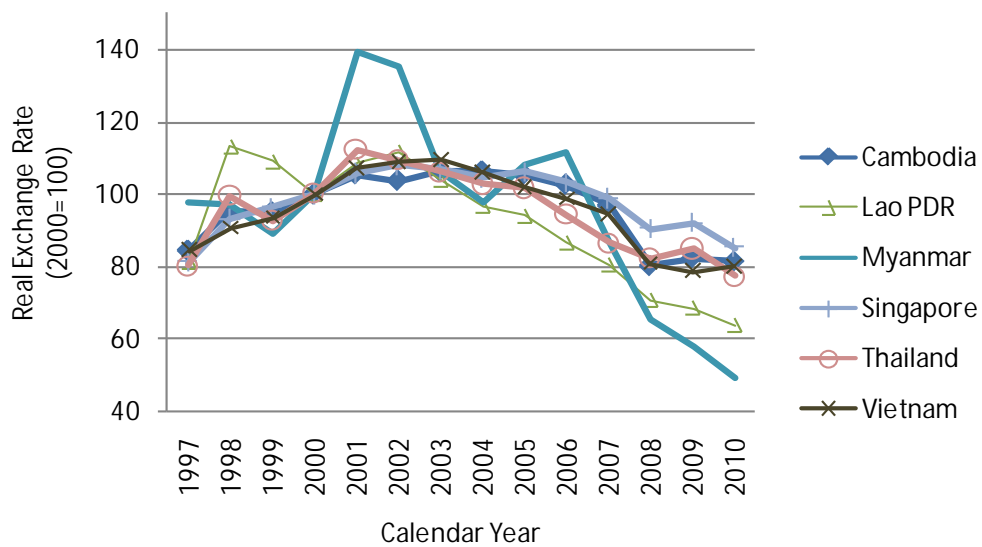


(B) Real Exchange Rate of Myanmar kyat vis-à-vis US dollar



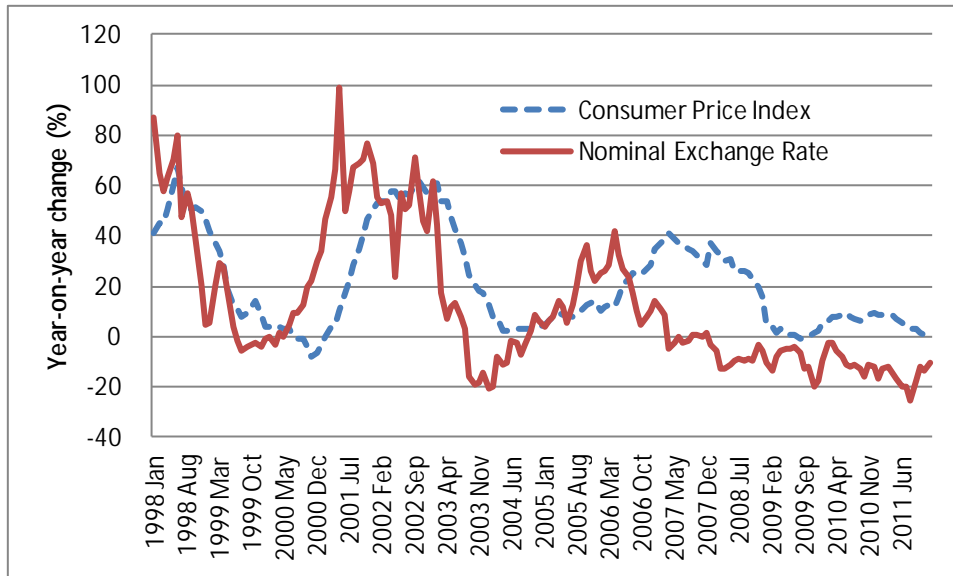
Sources: *Selected Monthly Economic Indicators*, Central Statistical Organization (CSO), Myanmar; *International Financial Statistics* CD-ROM, International Monetary Fund (IMF); Survey on the parallel foreign exchange market.

Figure 2
 Real Exchange Rates of Selected Southeast Asian Currencies to the US Dollar,
 1997-2010 (Base Year 2000=100)



Sources: As in Figure 1.

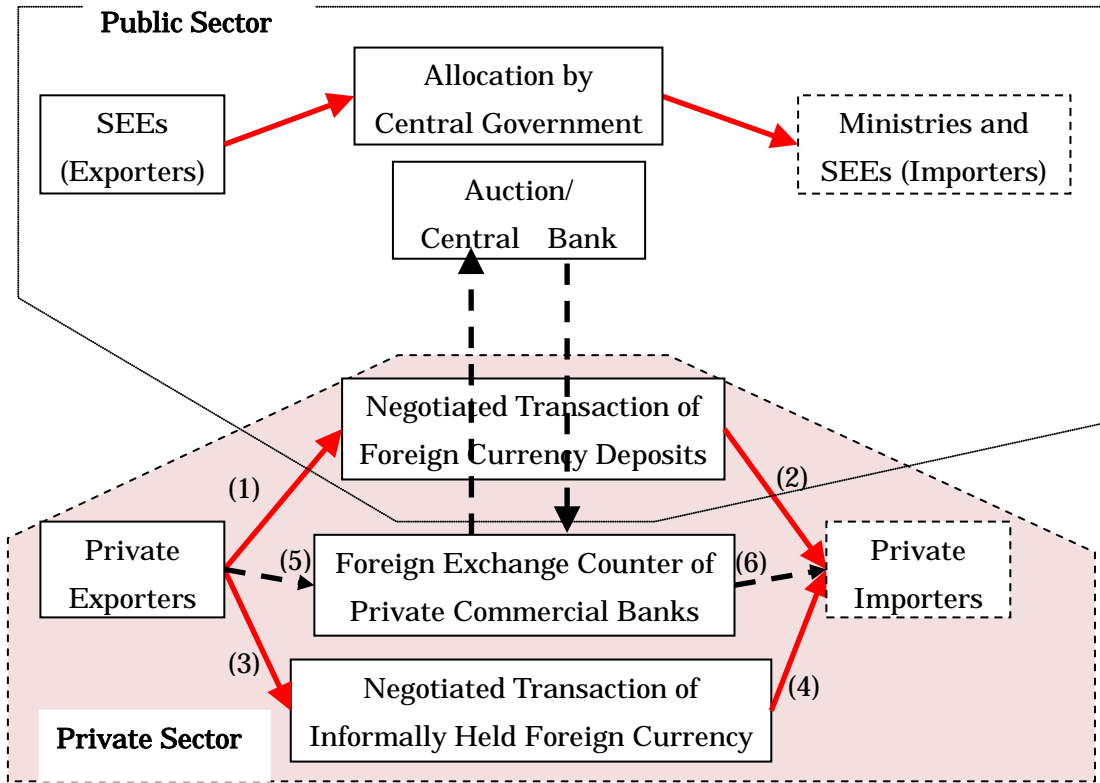
Figure 3
 Changes in Nominal Exchange Rate and Consumer Price Index,
 January 1998 to December 2011



Source: As in Figure 1.

Figure 4

Flows of Foreign Exchange: Before and After the Reform of April 2012

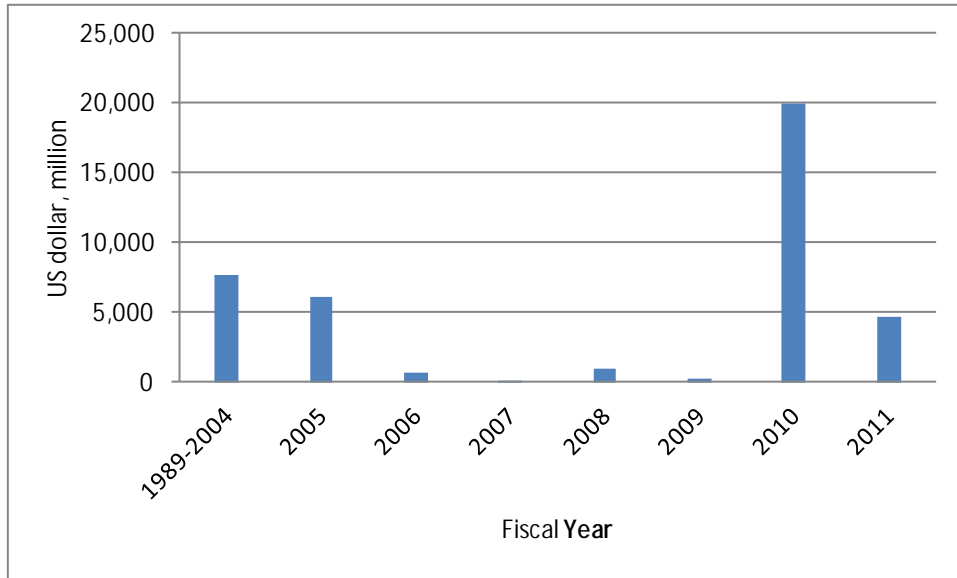


Notes: The broken lines refer to an additional flow of transactions after the April 2012 reform.

Source: Author.

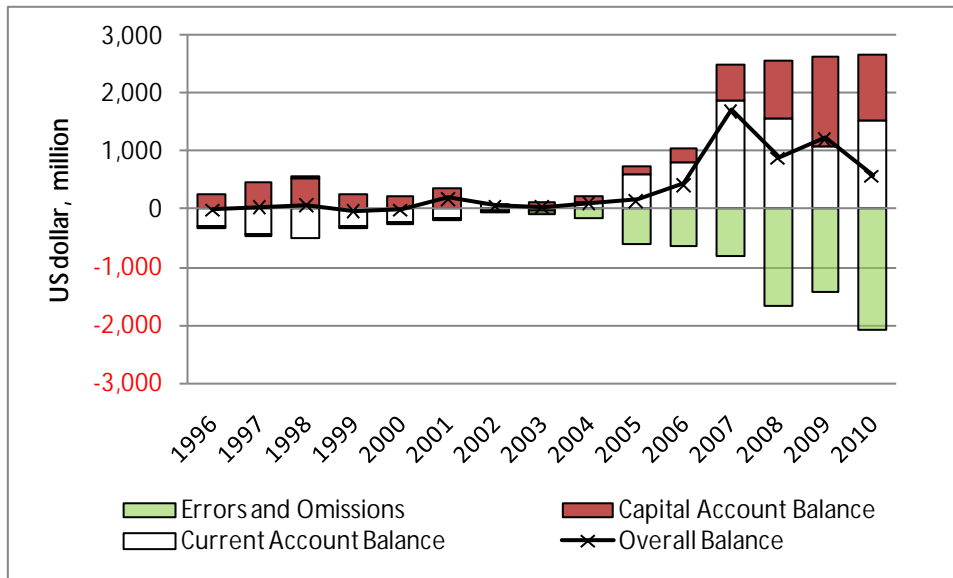
Figure 5

Trend of Permitted Foreign Direct Investment to Myanmar, Fiscal Years 1989 to 2011



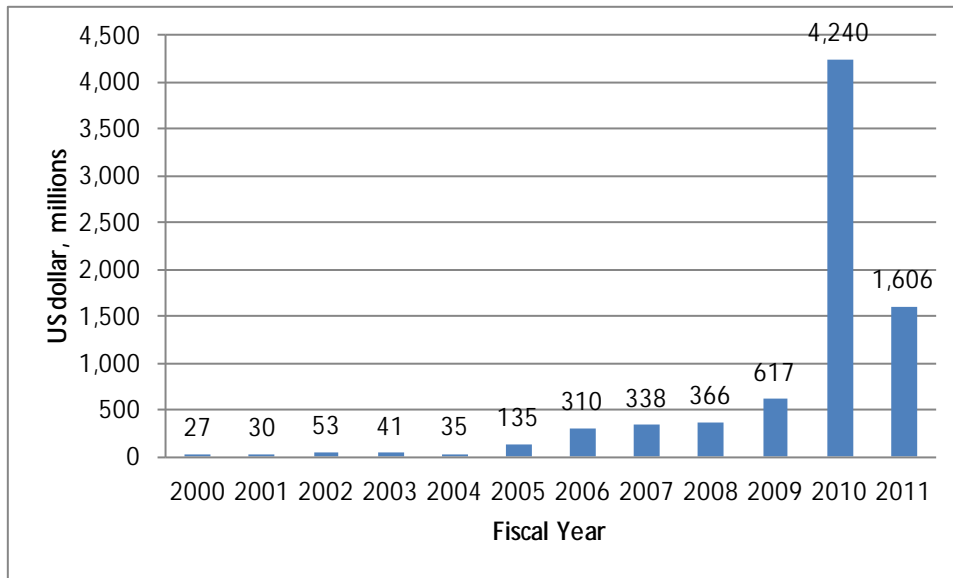
Source: *Selected Monthly Economic Indicators*, CSO, Myanmar.

Figure 6
Selected Balance of Payments Indices, 1996 to 2010



Source: *International Financial Statistics* CD-ROM, IMF.

Figure 7
Gem Emporium Sales Estimates, 2000-2011



Source: Palagems.com http://www.palagems.com/gem_news_burma_stats.php
Accessed on May 30, 2012.

Table 1
Trade by Ownership, Fiscal Years 1995 to 2011

Fiscal Year	Private Sector		Public Sector			Total	
	Imports	Exports	Imports	Exports	of which Natural Gas	Imports	Exports
<i>Unit: US dollar, million</i>							
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

Source: *Selected Monthly Economic Indicators*, CSO, Myanmar.

Note: *Selected Monthly Economic Indicators* report the trade value in kyat. This is converted into US dollars using the official exchange rate.