Chapter III

EVOLUTION OF EXCHANGE RATE REGIME IN NEPAL

This chapter, in its first part reviews the evolution of the exchange rate regime in Nepal. The second part focuses on the use of exchange rate for managing country's foreign exchange. The third part dwells on the specific factors affecting the choice of exchange rate regime in different periods of time. This part also provides an evaluation of the sustainability of the pegged exchange rate regime with India and variable exchange rate regime with the rest of the world. The chapter concludes with some policy issues pertaining to exchange rate regimes.

3.1 The Evolution

The underlying principle of exchange rate regime is that the economic fundamentals underpin the external value of the domestic currency. Following the breakdown of Bretton Woods Agreement in 1970s, most of the advanced countries began to adopt the floating exchange rate system in place of a fixed exchange rate system.

In contrast to this, Nepal adopted pegged (but adjustable) exchange rate regime in place of a flexible exchange rate system with the INR in 1960. Since then to date, Nepal has adjusted the peg rate eight times. The NRB started to buy and sell the convertible currencies from 1960, four years after its establishment. Nepal, after 1960, had more or less a fixed exchange rate system with all other countries till India had the fixed exchange rate system. Following the BOP crisis in early 1990s, India switched its exchange rate system from fixed to flexible. India's switch to a flexible exchange rate regime created a policy problem for Nepal. This required Nepal to make some changes in her exchange rate regime. Nepal had an option of following the Indian path to the flexible exchange rate system.

However, for a variety of reasons, Nepal chose to continue the currency peg with the INR and allowed her currency to move with other currencies as per the movement of INR with other currencies. This was the best way to retain the fixed exchange rate system and avoid administrative difficulties associated with it in the context of India's switch to the flexible exchange rate regime.

Initially, the GON used to fix the exchange rate of the convertible currencies in INR terms on the basis of exchange rates prevailing in India. The official rates and the market rates of INR in Nepal used to be different. The multiple exchange rates system came to an end after providing free and unlimited convertibility to the INR on 13th April 1960. Nepal started to quote the exchange rates of convertible currencies in terms of NPR itself effective since 14th May 1960. At first, the exchange rates of only three currencies, namely, USD, GBP and Swiss Franc, used to be quoted by the NRB. The Japanese Yen [JPY] was included in the list since August 1961 (NRB, 1996, p.98). It is to be noted that some of other non-convertible currencies, besides INR, namely Burmese Kyat, Malaysian Ringgit and Pakistani Rupee also used to be quoted. The list kept on increasing and reached 20 by the end of FY 2014/15.

The exchange rate system with rest of the currencies has been, by and large, in line with the international practice. Along with other countries in the world, Nepal was following the system of fixed parity prior to the collapse of the Breton Woods System. The system was brought to end in accordance with the Smithsonian agreement. Subsequent to this, all the important currencies were realigned under a floating system. Nepal also opted for the system, but it could not be effective because of the pegging of the NPR to the USD. The NPR-USD exchange rate did not witness any change until and unless it was devalued or revalued by a Government decision. The dual exchange rate with USD was introduced in 1978 and existed till 1981. Nepal also announced the currency basket system of exchange rate regime for a few years from 1986 to 1993; however, it was not practiced. Finally, in 1993, Nepal adopted a special type of

exchange rate arrangement in which NPR has been pegged to INR and floated to other currencies which are in its exchange list.

3.1.1 Flexible Exchange Rate Arrangement with INR before 1960

The INR was almost legal tender in Nepal prior to the establishment of the Central Bank in 1956. There used to be widespread circulation of the INR in Nepal. Nepalese people used to happily accept INR for exchange of goods and services as well as a store of wealth. Demetiades and Luitel (1964) describe this situation as "… Nepalese foreign exchange reserves used to be held in India. In exchange, Nepal used to receive INR which, despite its inconvertibility with other currencies, was fully acceptable in Nepal. Though Nepal had her own currency, the INR was in wide circulation and … people had more confidence in the Indian currency. This is vindicated by the fact that in 1957, 72.9 percent of total deposits and 81.1 percent of total credits in Nepal Bank Limited (the only commercial bank of the country at the time) were denominated in INR" (Maskay & Thapa, 2000, pp. 48-49)

This period of dual currency system (i.e., having both the NPR and INR circulating in Nepal) had occurred from the start of the twentieth century (Ibid., 2000, p.48). They state that the open border between Nepal and India, the geographical, socio-cultural and economic proximity between the two countries and lack of legal provisions regarding currency circulations were the factors responsible for creating such a situation.

The NPR-INR exchange rate was stable up to 1934 due to NPR and INR having predominantly metallic money. The NPR-INR exchange rate was thus based on the metallic content.[12] After 1934 large fluctuations were observed in the NPR-INR exchange rate, mainly attributed to the Great Earthquake of that year,

[12] Since it was not practical to fix the rate in terms of NPR in a situation of multiple exchange rate system, the government used to fix the rate in INR.

changes in the consumption patterns in Nepal with preference to Indian goods and the commencement of the hostilities between Japan and Great Britain with the outbreak of World War II. The most significant shock to the NPR-INR exchange rate system was observed in 1951, with the shifting of the political regime towards a democratic system, ending the 104 year long *Rana* rule (Ibid., p. 48). The new Nepalese government had expenditures outstripping revenues which resulted in inflation. As the NPR-INR exchange rate was market determined, there were sharp swings in the NPR-INR market determined exchange rate. There was also increasing participation of currency speculators with uncertainty in the NPR-INR exchange market (Pant, 1964). Thus, the period of dual currency circulation i.e., circulation of both NPR and INR concurrently was highly unstable.

The NPR-INR exchange rate used to be determined mainly by a limited number of Kathmandu based limited number of *Sharafis*, a business community of goldsmiths involved in money exchange, by consulting each other, mainly on the basis of demand and supply. Anyone could enter into INR exchange business as there was no license required to operate money exchange business (Adhikary, 2005). A flexible, market determined exchange rate, free of government control, existed between NPR and INR which was operated by private individuals until 1960. This foreign currency exchange market reflected the expected relative value of the two currencies, which was determined by the supply of and demand for each currency created by money changers, popularly also known at that time as *Tankadharis*. These money changers were located mainly in Kathmandu, the capital of Nepal, and in some major trading areas. The exchange of currency between NPR and INR (or vice versa) was thus a reflection of market sentiments (Maskay, 2007).

The Nepalese government recognized the danger of this dual currency system and the instability that the floating exchange rate regime brought about. Government, therefore, attempted to eliminate the circulation of the INR in the country. With the establishment of NRB in 1956, the NPR was declared the sole legal tender in Nepal. However, the establishment of the NRB alone did not eliminate use of the INR in Nepal (Maskay & Thapa, 2000). At the time of NRB's establishment in 1956, the exchange rate fixed by the GON was NPR 1.545 per unit of INR which was applicable for importing certain specified priority goods only. For rest of the transactions, the INR was to be acquired from the free market at market determined rates (NRB, 1996, p. 95).

Hence, during the period of 1956-1960, there existed two exchange rates of NPR with INR: one fixed by the Government and the other determined by market forces. However, the exchange rate determined by the open market used to be of more importance than that fixed by the government. The open market rate during that period used to be extremely volatile with wide fluctuations even in a single day. This was one of the reasons for the holding of INR by the Nepalese people and high circulation in the Nepalese market (NRB, 1981). Table 3.1 and Figure 3.1 present the exchange rate of NPR vis-à-vis INR prevailing in the Kathmandu market during the flexible exchange rate regime i.e., before the peg system came into being.

Table 3.1

Market Determined Exchange Rate of INR at Kathmandu Market (1942-1959)

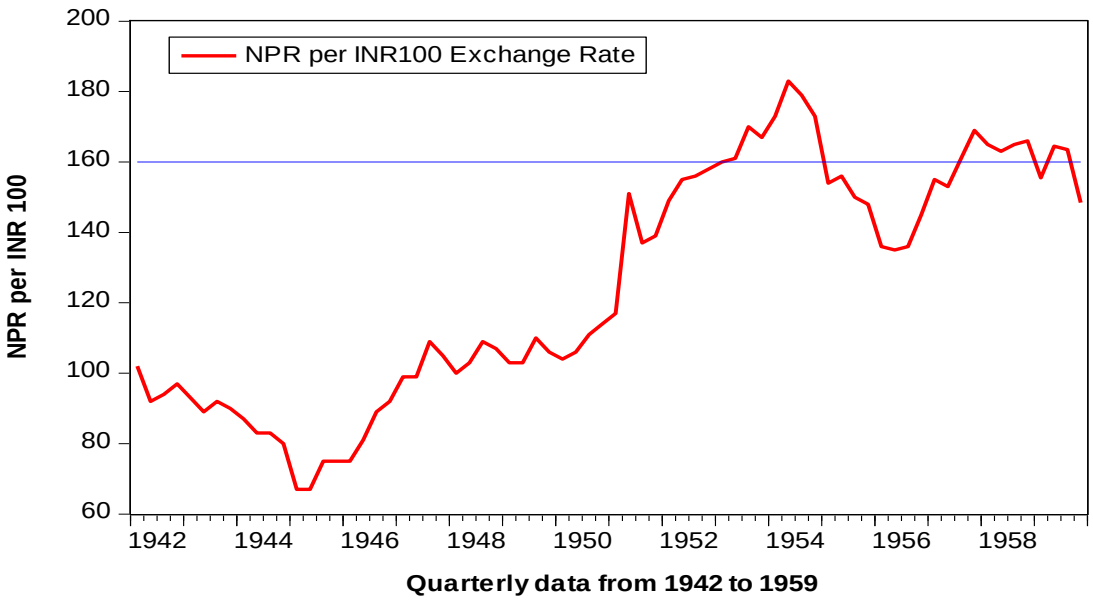
Average NPR per 100 INR

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Annual Average
1942	102	92	94	97	96
1943	93	89	92	90	91
1944	87	83	83	80	83
1945	67	67	75	75	71
1946	75	81	89	92	84
1947	99	99	109	105	103
1948	00	103	109	107	105
1949	103	103	110	106	106
1950	104	106	111	114	109
1951	117	151	137	139	131
1952	149	155	156	158	155
1953	160	161	170	167	165
1954	173	183	179	173	177
1955	154	156	150	148	152
1956	136	135	136	145	138
1957	155	153	161	169	160
1958	165	163	165	166	165
1959	155.5	164.5	163.5	148.5	158

Source: Nepal Rastra Bank (1971), NRB in 25 Years. Kathmandu: NRB.

Figure 3.1

Market Determined Exchange Rate of INR (1942-1959, Kathmandu Market)



The preceding graph (Figure 3.1) clearly shows the heavy fluctuations in the market determined exchange rate of the INR. During most of the period of the floating rate system, the exchange rate was below NPR 160 for INR 100. Interestingly, NPR was stronger than INR vis-à-vis the official rate till second quarter of 1947. It can be observed that, while fixing the parity with INR in 1960 the rate was simply equivalent to the market determined rate and slightly incentivized to hold NPR.

3.1.2 Pegged Exchange Rate Arrangement with INR after 1960

During the flexible exchange rate regime with the INR, Nepal had observed wide fluctuations in the exchange rates, undermining the use of NPR even in the domestic markets. Therefore, in order to increase the public confidence in NPR and expand its circulation across the country, the GON through NRB took a major decision on the exchange rate system of the country on 13th April 1960. As decided, the exchange rate of NPR vis-a viz INR was not only fixed at NPR 1.60 for a unit of INR but also provided free and unlimited convertibility to INR (NRB, 1996, p. 94). The then prevailing system of multiple exchange rates of INR was scrapped from the aforesaid date and the INR was made available at the fixed exchange rate to everyone regardless of the purposes. Since 1960, there have been eight changes in the NPR/INR nominal exchange rate, ranging from the highest rate of NPR per 1 INR 1.0155 effected on June 6, 1966 to the lowest rate of NPR 1.70 per 1 INR effected on 30th November 1985 (Table 3.2).

On 6 June 1966, INR was devalued by 36.5 percent, but Nepal did not follow the Indian path of devaluation. As a result, NPR appreciated by 36.87 percent and the NPR vis-à-vis INR was fixed at NPR 1.01 per unit of INR, the highest in the history. The then favourable trade balance with India, comfortable reserve of INR with the NRB, increased confidence of general public to hold NPR and the effort to immunize the Nepalese economy from the then inflationary phenomena of the

Indian economy were the major foundations attributed to this decision (Ibid, p. 96). However, the decision was later considered as a very short-sighted one.

As expected, Nepal could not sustain the currency overvaluation for long in the face of subsequent deterioration in the trade balance with India, resulting in a substantial fall in INR reserve with the NRB. The decline in the reserve of INR was exerting pressure on GON and the devaluation of GBP on 19th November 1967 by 10 percent compounded the pressure to take immediate action on the existing peg (Adhikary, 2005, p. 312). At the same time, Nepal was trying to expand the international trade for which such an overvalued peg was definitely a barrier.

Consequently, on 8th December 1967, Nepal devalued its currency by 24.8 percent to NPR 135 per INR 100. Following the realignment of currency on 17th December 1971, the exchange rate of NPR-INR was also revised to NPR 139 per INR 100 along with GBP, Deutsche Mark and JPY effective since 22nd December 1971 (Ibid., p. 313). A similar devaluation was made on 22nd March 1978 which put NPR vis-à-vis INR at NPR 145 per INR 100. A 14.7 percent devaluation of NPR against foreign convertible currencies, by default, resulted in a further devaluation of the pegged rate at NPR 170 per INR 100 effective 30th November 1985, the record low after the adoption of peg system in 1960. A brief note on the changes in the pegged rate together with the specific circumstances for the same is given below in Table 3.2:

Table 3.2
Changes in the Exchange Rate of the NPR vis-à-vis INR

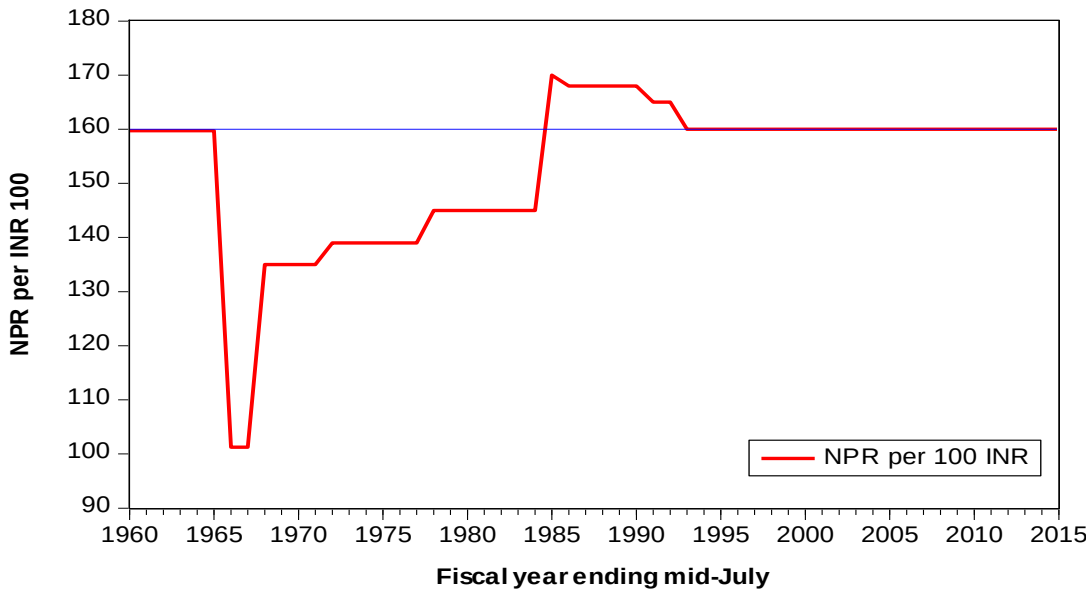
NPR Per 100 INR

S. No.	Date	NPR/INR Rate		Remarks
		Buying	Selling	
1	13th Apr., 1960	159.75	160.00	After four years of the establishment of the Central Bank, the exchange rate regime was changed from market determined to peg. The facility of free and unlimited convertibility of INR was officially introduced.
2	6th Jun., 1966	101.25	101.60	A marked appreciation of 36.875 percent of NPR due to an audacious decision taken by the GON, not to follow the Indian path of sharp devaluation of INR. This decision temporarily contributed to increased confidence of general public to hold NPR across the country.
3	8th Nov., 1967	135.00	135.15	Devaluation of NPR as per the government decision. It was taken as a correction of the 6th June 1966 decision.
4	22nd Dec., 1971	139.00	139.15	Following the realignment of currency on 17th December 1971, the exchange rate of NPR-INR was also revised along with GBP, Deutsche Mark and JPY effective from 22nd December 1971.
5	22nd Mar., 1978	145.00	145.15	Further devaluation of NPR
6	30th Nov., 1985	170.00	170.15	As per the GON decision, NPR was devalued by 14.7 percent against foreign currencies.
7	31st May 1986	168.00	168.15	It was decided to include the INR in the existing currency basket system effective from 1st June 1983. The previous practice of setting the buying and selling rate of INR on the basis of parity fixed by the government was done away. NRB started to quote the buying and selling rate of INR also on a daily basis as in the case of other currencies. But, the NPR/INR rate was never changed on a daily basis.
8	1st Jul., 1991	165.00	165.15	Revaluation of NPR
9	12th Feb., 1993	160.00	160.15	Adjustment due to change in India

Sources: (i) Various Issues of Quarterly Economic Bulletin, NRB
(ii) Adhikary (2005), p. 313

Figure 3.2

NPR/INR Exchange Rate (1960-2015)



As Figure 3.2 shows, there were changes even in the peg rate from time to time. Out of eight discretionary changes made in the pegged rate, four changes were towards appreciation and four towards depreciation of the NPR. As seen in the graph, the sharp appreciation of NPR by 36.88 percent in 1966 is the strongest position of NPR against INR. This decision of revaluation caused adverse consequences in the economy and was reversed after 17 months. However, this decision was fruitful in abolishing the dual currency system prevailing that time. Those who used to hold INR started exchanging with NPR, after this step.

The Currency Basket System, 1983-1992

The global economy was marked by volatility in the early 1980s. Meanwhile, India de-linked its currency from the fixed parity with GBP and floated its currency. As a result, the INR/USD exchange rate started to change almost on a daily basis. As the NPR was having fixed parity with both the USD and the INR, the broken cross

rate started to emerge between the USD/INR and the NPR. Sometimes, the magnitude of the broken cross rate used to be too large. To rectify this, there was no alternative other than taking discretionary measures of devaluation or revaluation of the NPR vis-à-vis USD exchange rate. Still, the decision of this nature by the government normally took its own time. So it was felt that this sort of procedure was not adequate to meet the challenge of the day and it was decided to leave the matter of the exchange rate to the NRB (NRB, 1996). Consequently, Nepal adopted a trade-weighted basket of currency system effective since 1st June 1983. However, the name of the countries and weightings of the respective currencies assigned in the basket were never disclosed. It can be said that the trading partners including India must have been included. In view of the higher share of the country's trade with India, the INR might also have been given higher weight (Adhikary, 2005).

Evidences proved that the INR was included in the basket since 31st May 1986 because the NRB started to quote its buying and selling rate on a daily basis as in the case of other currencies since that date. Theoretically, the inclusion of any currency in the basket implies that the exchange rate of the respective currency could also change on daily basis, if required (Ibid.). Practically, USD started to float, breaking the then existing peg system with the NPR. However, in the case of INR, the frequent revision in its exchange rate was almost ruled out, suggesting the continuation of the pegged exchange rate regime with the INR. "Although Nepal introduced currency basket system in the early 1980s to allow flexibility in the exchange rate of Nepalese currency, the exchange rate vis-à-vis the INR, in practice, has been administered by the government. As the USD was given the status of the intervention currency, the exchange rates of all other convertible currencies continued as usual, i.e., they all still depended upon the international cross rate with the USD" (Khatiwada, 1994).

NRB scrapped the currency basket system and adopted a dual exchange rate system as part of partial current account convertibility effective since March,

1992. Since the introduction of the basket system on 1st June 1983 to its formal burial on 4th March 1992, "the exchange rate of the USD moved to NPR 43.10 from NPR 14.20, a decrease of NPR 28.90 per USD. But not all the decrease took place under the garb of the basket system. Nepal had devalued its currency thrice within this period." (NRB, 2005, p. 314).

3.2 Use of Exchange Rate for Managing Foreign Exchange

Since 1960s, Nepal has used exchange rate in various forms in managing the country's foreign exchange. Bonus system, dual exchange rate with USD, forward exchange rate policy, import license auction system, partial convertibility in current account and full convertibility in current account are some of them.

3.2.1 Bonus System, 1963-1977

Under this system, exporters who were exporting goods to third countries, i.e., other than India, and earning convertible foreign currency were issued useable bonus certificates. The certificates could be used for the purpose of importing goods from those countries. Thus, in order to import from third countries one had to export first and get a bonus certificate. This arrangement, which contributed significantly to the diversification of Nepal's exports to third countries, lasted for 15 years. However, some problems like uncertainty in bonus premium value and price instability could not motivate exporters to undertake strong and sustained export efforts. Besides, it was not sufficient to create an environment for adequate supply of essential and development-related goods. Therefore, this system was scrapped and the dual exchange rate system was adopted.

3.2.2 Dual Exchange Rate with USD, 1978 to 1981

The dual exchange rate system with the USD was introduced in 1978 with a view to providing effective incentives to Nepalese exports. Two types of exchange

rates for the USD were fixed. Initially, the buying and the selling rate of the first category, which was known as the basic rate, was fixed at NPR 11.90 and NPR 12.10 respectively and the buying and selling rate for the other category (the second rate) was fixed at NPR 15.90 and NPR 16.10 respectively. The basic exchange rate remained the same throughout the period of the existence of this system, i.e., from 30th March 1978 to 19th September 1981. However, the second rate was adjusted upward by NPR 2.00 on 20th February 1980, thus setting the buying and selling rate at NPR 13.90 and NPR 14.10 respectively (Adhikary, 2005, p. 316). The basic rate was for the transactions falling under the government and services sector, while the second rate was for all the convertible foreign exchange earnings through export. In case of import from third countries, the basic exchange rate was prescribed for a list of some specified goods only; for the rest of the imports one had to obtain the USD paying the second rate.

The import license for all the commodities excepting the banned items and commodities under quantitative restriction was started to be provided automatically. Together with import, Nepal's export to third countries also recorded a significant rise which was the main motive behind this scheme. Viewed from this angle only, the scheme could be rated as fully successful. However, there emerged some adverse effects. The first one was the shift of import trade towards India which was against the trade diversification policy of the country. The second was the detection of some instances of over-invoicing of export and under-invoicing of import due to the second higher rate. Consequently, the dual exchange rate system was scrapped from 19th September 1981 by devaluing the Nepali rupee vis-à-vis the USD by 9.1 percent, with the new buying and the selling rate of USD 1 set at NPR 13.10 and NPR 13.30 respectively, which was revalued by NPR 0.80 in comparison to the second rate (Ibid, p. 316).

3.2.3 Forward Exchange Rate Facility, 1983-1992

After discontinuing the fixed exchange rate system applicable for convertible currencies, some uncertainties were observed in the exchange rate. The importers expected an increase in the exchange rate and the exporters' expectation was just the opposite. The importers could adjust the value of depreciated currency on their selling price and share with the consumers, but exporters had to compete in the global market. Thus, the forward exchange facility was introduced only to provide protection to the exporters and was made available only in USD through the commercial banks. The rate quoted by the Central Bank used to be always in concessive because it was intended to save exporters from possible exchange loss. But, throughout the period from 1983 to 1992, the NPR vis-à-vis USD exchange rate underwent constant depreciation. Therefore, the exporters seldom used this facility (Ibid., p. 316). With the adoption of partial convertibility in the current account in 1992, the forward exchange rate facility was discontinued.

3.2.4 Import License Auction System, 1986-1992

The officially determined exchange rate was generally kept at appreciated rates which, therefore, became favourable for importers and provided disincentives to exporters. This was reflected in the existence of a substantial premium on the exchange rate of the USD in the informal market. As a first move towards introducing transparent and market-based trading arrangement, the import license auction system was introduced in July 1986. At the beginning, the import of 88 classes of commercial goods was introduced dividing these goods into three groups in 1986, which was further refined and reclassified into five groups in 1990 (viz., Group A: essential raw materials, Group B: basic consumer goods, Group C: luxury goods, Group D: goods highly vulnerable to diversion to India, and, Group E: consumer goods designed for small traders lacking minimum required amount as for other categories). The maximum allocation of licenses

was determined on the basis of estimated demand of the goods to be imported (NRB, 2005).

Because of the large premium rate on goods associated with luxury and comfort, the import license auction system led to the proliferation of trading firms rather than the industries. The development of import-substituting industries and persons involved in establishing such industries were unfavourably treated. When the rate was kept favourable for importers, it would mean that imports were artificially made cheaper; in that case, it was natural that import-substituting industries were discouraged. Nepal achieved some degree of success with regard to trade diversification, but the policy adopted was not effective for the overall export promotion. This policy was phased out with the implementation of current account convertibility.

3.2.5 Partial Convertibility in the Current Account, 1992-1993

The auction system was gradually replaced with the introduction of the partial convertibility in the current account from 4th March 1992. As a process of implementing the policy of OGL system in a full-fledged manner, it was decided to gradually reduce the list of goods under the auction system. Accordingly, convertible foreign exchange earners were required to surrender 35 percent of their foreign exchange at the official exchange rate while the rest 65 percent was to be converted at the market rate. The official exchange rate was kept appreciated vis-à-vis the market-determined exchange rate. The proportion of 35:65 was changed to 25:75 on 10th July 1992 (NRB, 1993). The NPR-INR rate remained pegged while the exchange rate with convertible currencies was floated under the supervision of NRB.

3.2.6 Full Convertibility in the Current Account/OGL System, 1993 to Date

Nepal implemented full convertibility of the NPR on current account transactions from 12th February 1993. This meant that there would be no restrictions on the

availability of foreign exchange for all eligible current account payments. The dual exchange rate system (official and market rate for USD) was also scrapped from that day. NRB had its final revision in the NPR-INR rate, revalued to NPR 160 from NPR 165 for INR 100. This rate has remained static since 12th February 1993 till date. The fixing of NPR-INR pegged exchange rate implies that the exchange rate of the convertible currencies vis-à-vis NPR is to follow the exchange rate of the convertible currencies vis-à-vis INR (Ibid.).

After the introduction of partial convertibility on 4th March 1992, all other goods were placed under OGL, except the 43 goods that were still kept under the auction system. The budget for FY 2002/03 reduced such number to 12 by placing the remaining items under OGL. At the time of making full convertibility in the current account on 12th February 1993, the number under the auction system was reduced to 6. Finally, from 15th July 1993, the six items were also brought under the OGL. Excepting items like gold, silver, precious stones, armaments and narcotic drugs, all other items were placed under the OGL which any registered company or firm could import through LC. With the facility of OGL, both imports and exports accelerated, trade diversification took place significantly and the full foreign currency proceeds were permitted to be converted at market rates.

3.3 Evaluation of the Sustainability of Pegged Exchange Rate Regime with INR

3.3.1 Factors Affecting the Choice of Exchange Rate Regime in Nepal

The choice of exchange rate regime in Nepal depends on a number of considerations, like policy credibility and discipline, prospects for improving growth through economic and financial integration, and risks and response to different types of shocks.

Policy Credibility and Discipline

Pegging with India implies accepting the policy discipline imposed by India. So to maintain the exchange rate peg, Nepal's financial policies should be consistent with those of India. To the extent that India follows sound economic policies and the public believes that the exchange rate peg is sustainable, the economy benefits as its inflation rate converges to that of India. Thus, the credibility of domestic policies is enhanced by a fixed exchange rate regime.

Trade Promotion and Financial Market Integration

The peg reduces uncertainty and transaction costs in the short-term; over a period of time, if the unofficial rate begins to diverge from the pegged rate, then uncertainty and doubts about the sustainability of the peg can increase. That can affect new investment in export-oriented enterprises and also FDI inflow, unless the peg is quickly re-set. Thus, the choice of exchange rate policy in Nepal should address the trade promotion and financial market integration issues for the economic growth through developing strategies for market penetration, increasing the market share as well as specialized product lines, improving competitive position and encouraging FDI.

Exposure to Shocks

With a fixed exchange rate, the real economy is largely insulated from domestic financial shocks. For example, shifts in the demand for the currency are absorbed by changes in reserves that bring the supply of money in line with its demand, leaving domestic prices and activity levels unaffected. Besides, the economy may become more vulnerable to real shocks under a pegged exchange rate regime, e. g. there may be a loss in external demand for exports, Indian financial shocks could be transmitted directly to the Nepalese economy, change in the terms of

trade could hurt Nepal, etc. Similarly, shifts in the exchange value of the INR are immediately passed through to NPR.[13]

Other Factors

The size of the economy, factor mobility, trade concentration, geography, labour mobility, financial sector development and structure of the economy also affect the choice of exchange rate regime.

3.3.2 Reasons for Pegging with INR

The pegged exchange rate regime has, in the past, facilitated trade with India. Trade with India increased because of the stability of the NPR-INR exchange rate during an extended period which gave traders some certainty of the future value of transactions. This positive trade effect is seen in the continuously increasing trade with India. Another reason for pegging with INR is the avoidance of the risk of currency substitution as a flexible exchange rate regime with INR might result in the substitution of the weaker currency (NPR) by the relatively stronger currency (INR). This was experienced in Nepal in the period between 1934 and 1960, as there was widespread prevalence of INR circulation in Nepal. Speculators whose activities led to currency substitution and instability in the exchange rate between NPR and INR were active in that period. "It was estimated that the prevalence of INR in the overall business transactions in Nepal stood at 40.72 percent before 1960" (Sharma, 1998). In other words, during the pre-1960 period with a flexible exchange rate regime with INR, there were numerous episodes of exchange rate volatility observed.

The pegged exchange rate facilitated the NRB to achieve the goal of establishing the NPR as the national currency and to increase the confidence of the people in

[13] based on a write-up on Choice of Exchange Rate Regime of Nepal, IMF, 1996

it especially when the INR depreciated drastically. “Thus by the year 1966, that is one decade after the Central Bank came into existence, the dual currency system was completely abolished and the NPR became the sole legal tender in Nepal" (NRB, 1996, p.38). Consequently, there was a significant increase in the supply of NPR and the NPR/INR exchange rate served as the evidence of stability. When peg system is adopted, Nepal has to accept the automatic spillover effects such as limitations on the exchange rate determination of NPR with other foreign currencies, Indian inflation, liquidity, foreign exchange reserves, current account balance and BOP balance on the economy by default. Other reasons for pegging include:

- Volume of Nepal’s trade with India is significantly large, i.e., around 60 percent of total international trade
- Open border--- free entry and exit of the people
- Socio-cultural relations promoting the movement of people
- INR is a relatively stable and stronger currency in the South Asia region.

3.3.3 Sustainability of the Peg

The exchange rate peg with INR has served as a framework for maintaining disciplined financial policies and an anchor for inflation in Nepal. India's macroeconomic policies have mostly remained disciplined and inflation has been kept in single digits. On the expectation that India’s policy makers will continue to follow sound macroeconomic policies, given the changed monetary policy framework by RBI, inflation in India will remain stable. In this context, pegged exchange rate with INR helps maintain stable inflation in Nepal. In another context, the benefits of integrating the Nepalese market with India are likely to increase in the future, which is all the more important given Nepal’s small domestic market, for which also, policymakers recommend to adopt pegged exchange rate with INR .

Pegging the exchange rate does not mean that it cannot be adjusted when it is deemed necessary. However, Nepal has been maintaining an unchanged peg level since 1993, which was also the same rate when NPR was first time pegged with the INR in 1960. This level of peg can be sustainable so long as there is enough foreign exchange reserves to supplement growing trade deficit with India. In the initial phase, the pegged level could be changed depending on the situation of Nepalese economy, but pegged system as such may not be necessary to be changed. But, in the long run, Nepal has to review the sustainability of the existing peg system and should be prepared to adopt a more flexible regime.

3.3.4 Possibility of a Floating Exchange Rate Regime with INR

There is a suggestion from some quarters that the volatility of the NPR against convertible foreign currencies could be reduced by adopting a floating exchange rate regime with INR. This suggestion seems to be theoretically sound and viable, but in practical grounds it is quite difficult especially in the short-term. Under a floating exchange rate regime, the NPR could be subject to quite volatile movements due to the possibility of severe and destabilizing speculative attacks emanating from political and economic uncertainties. Instead, the pegged exchange rate regime would serve to anchor expectations about economic stability in the face of political fluidity and intermittent changes in governments. Thus, the pegged exchange rate has served Nepal well and is expected to remain so in the future short and medium-term. Therefore, the free floating of NPR against INR would add more risk and cost compared to the benefits that could be derived from such arrangement for the time being.

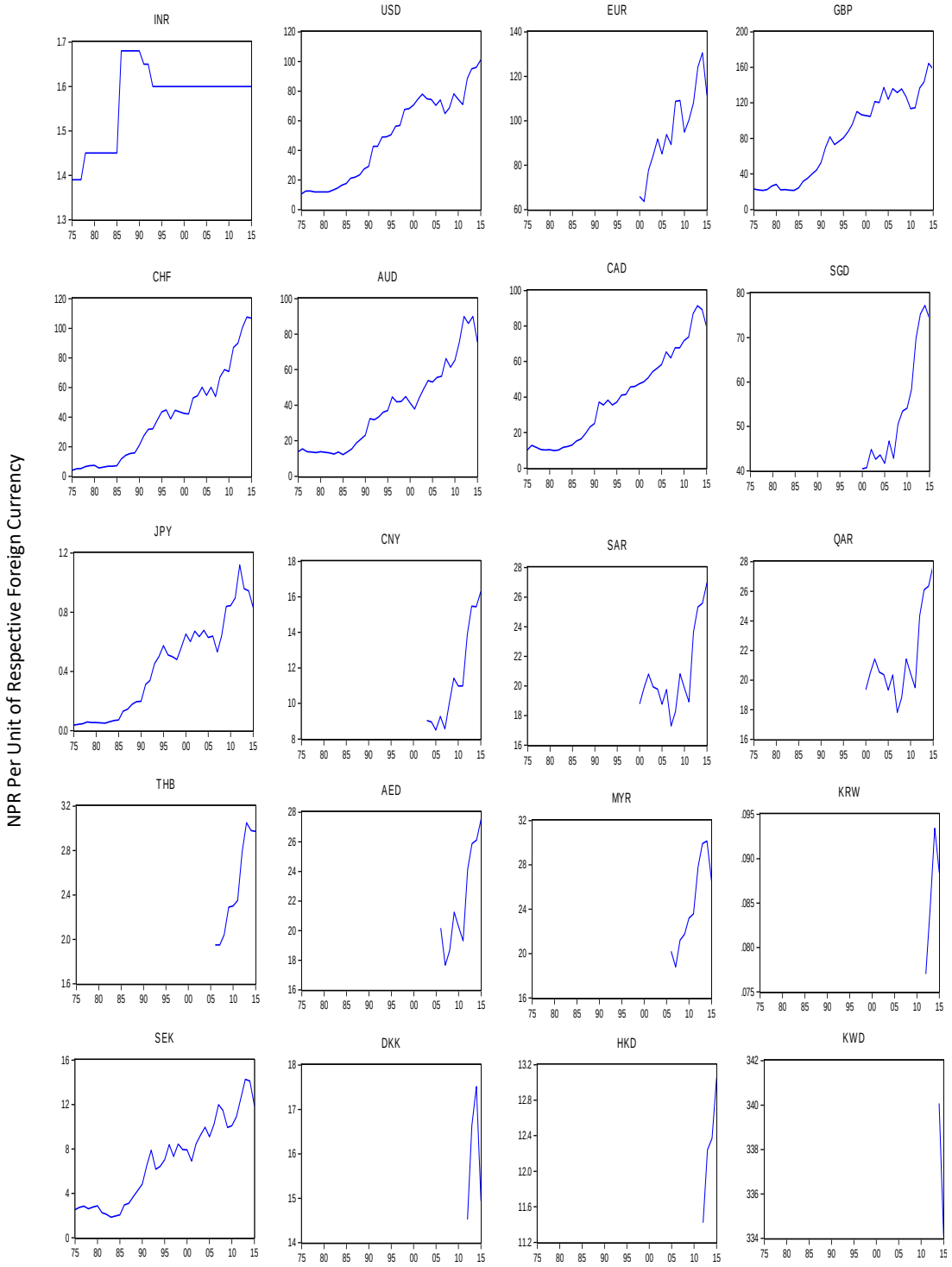
3.4 Overview of the Nominal Exchange Rate of NPR

Currencies which are traded in the foreign exchange market of Nepal currently number twenty-one. Out of these, the exchange rate of INR is fixed by the NRB and the exchange rate of the rest of the currencies is determined by market

forces on the basis of demand and supply. Foreign exchange traded in the Nepalese market for which the exchange rates are quoted on daily basis by the NRB comprise INR, USD, EUR, GBP, CHF, AUD, Canadian Dollar [CAD], Singapore Dollar [SGD], JPY, CNY, Saudi Arabian Riyal [SAR], Qatari Riel [QAR], Thai Baht [THB], United Arab Emirates Dirham [AED], Malaysian Ringgit [MYR], South Korean Won [KRW], Swedish Kroner [SEK], Danish Kroner [DKK], Hong Kong Dollar [HKD], Kuwaiti Dinar [KWD] and Bahraini Dinar [BHD]. The exchange rate quoted by the Central Bank may differ from the rate quoted by the BFIs under the present arrangement. The nominal exchange rates of the NPR with these currencies since FY 1974/75 to FY 2014/15 are presented in Figure 3.3 and Appendix 3.1.

Figure 3.3

Movement of Nominal Exchange Rate (buying) of Foreign Currencies against NPR



Source: NRB, Quarterly Economic Bulletin, Vol.50, No.4, Jul 2016, pp 121-123

Figure 3.3 above shows that NPR has depreciated sharply over the years. Factually, the exchange rate fluctuation has a profound impact on the value of financial assets traded in the financial markets. The NPR has depreciated from NPR 7.60 per unit of USD at the end of FY 1964/65, to NPR 49.00 at the end of FY 1992/93. Further, the rate depreciated to NPR 101.14 per USD at the end of FY 2014/15. However, the NPR-INR pegged exchange rate, which was at the level of NPR 1.60 per INR 1.00 in FY 1959/60 was also at the same level in FY 1992/93, with some ups and downs. Since FY 1992/93, no adjustment has been made in that rate till date.

NPR-USD Nominal Exchange Rate

The exchange rate that features most prominently in policy discussions and exchange market developments in Nepal is typically the nominal NPR/USD exchange rate, of which a rise corresponds to a weakening of NPR. USD is historically the intervention currency in Nepal. Under the existing regime, in principle, the NPR/USD exchange rate is determined by market forces and the Central Bank's influence on this rate is affected only through its purchase and sales in the local foreign exchange market via intervention. But, in practice, the commercial banks normally watch the INR/USD fluctuations in the international market and follow the same trend, which betrays a lack of faith in the pegged regime. The NPR/USD nominal exchange rate over the years since FY 1960/61 to FY 2013/14 has been presented in Appendix 3.1 together with other currencies which are in the exchange list of NRB. The revaluations or devaluations of NPR against USD, done during the period when it used to be pegged, are given in Table 3.3:

Table 3.3
Chronology of Revaluations and Devaluations of NPR against USD

S. No.	Date	Changes made on NPR/USD Exchange Rate
1	8th December 1967	The NPR was devalued by 24.8 percent.
2	9th February 1973	The exchange rate of the NPR vis-à-vis the USD was changed
3	9th October 1975	The exchange rate of the NPR vis-à-vis the USD was revised.
4	23rd March 1978	The NPR was revalued by 4.6 percent vis-à-vis the USD.
5	19th September 1981	The NPR was devalued by 9.2 percent vis-à-vis the USD.
6	17th December 1982	The NPR was devalued by 7.7 percent vis-à-vis the USD. From 1st June 1983, the trade weighted basket of currency system was introduced and INR was replaced by the basket of currency system.
7	30th November 1985	The NPR was devalued by 14.7 percent against foreign currencies.
8	1st July 1991	The NPR was devalued against USD.
9	4th March 1992	The NPR was made partially (65:35) convertible on current account followed by a change in the proportion to 75:25 on 12th July 1992.
10	12th February 1993	The NPR was made fully convertible on the current account.

Source: Quarterly Economic Bulletin. Vol.50. No. 4. Mid-July 2016, Table No. 81. P.113, NRB.

3.5 Real Exchange Rate (RER), NEER and REER of NPR

3.5.1 Real Exchange Rate (RER) of NPR with INR and USD

The RER between two currencies is the product of the nominal exchange rate, the USD or INR cost of NPR, and the ratio of prices between the two countries. The RER is defined simply as the price of consumption/production basket in home country relative to the foreign country, measured in the same currency. RER indexes between two countries can be important and it fundamentally indicates whether there is misalignment of the exchange rate (Catao, 2007).

As regards the RER of NPR with INR during the period of 41 years (FY 1974/75- FY 2014/15), the index was below 100 in all of the years from 1974/75 to FY 1991/92, with the index remaining below 90 in four of the years (1974/75,

1985/86, 1986/87 and 1987/88). It appreciated from FY 1992/93 to FY 1999/00 while it was below 100 during the four years (FY 2001/02 to 2004/05). The RER again exceeded 100 since FY 2005/06 onwards. During the 41 years, the RER depreciated in 22 years and appreciated in 18 years, with one year remaining as the base year (Table 3.4).

However, in the case of RER of NPR with USD, it depreciated in just three years (FY 1990/91, 1997/98 and FY 2001/02). For the rest of 37 years, the RER of NPR against the USD appreciated as the indices remained above 100. It is noticeable that the indices remained above 200 during the initial seven years (FY 1974/75 - FY 1980/81). In the years from FY 2006/07 through FY 2014/15, the index has been consistently at least above 130. It implies very unfavourable RER position of NPR with USD.

Figure 3.4

Real Exchange Rate of NPR with INR and USD

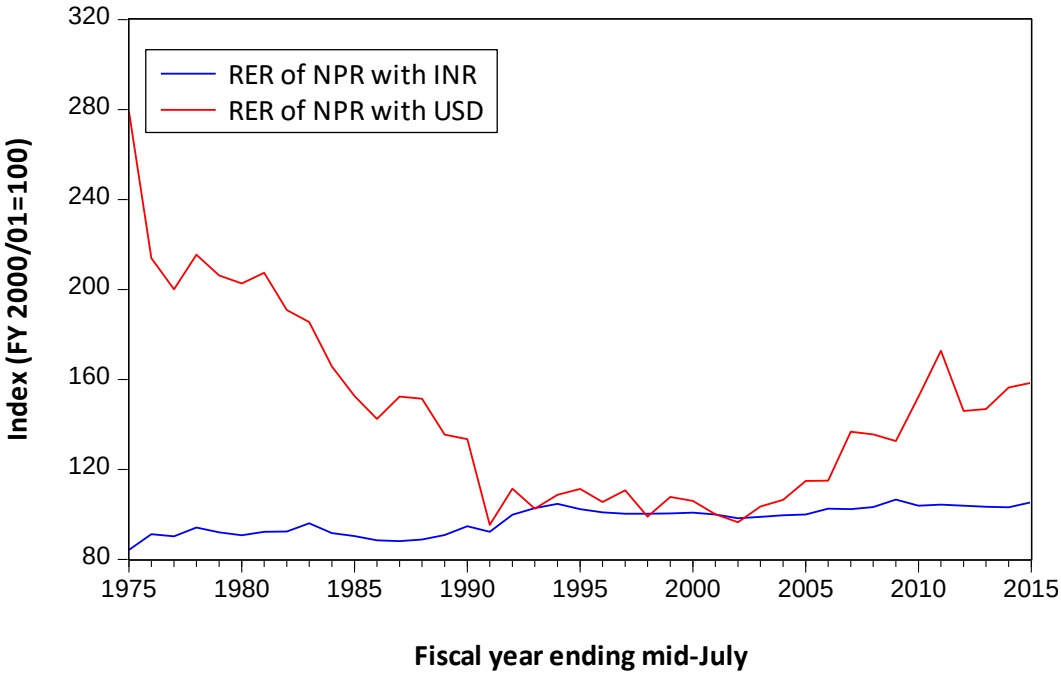


Figure 3.4 shows that the RER index for USD remained stable during FY 1991/92 to FY 2001/02. Prior to that, it consistently declined since FY 1974/75. Since FY

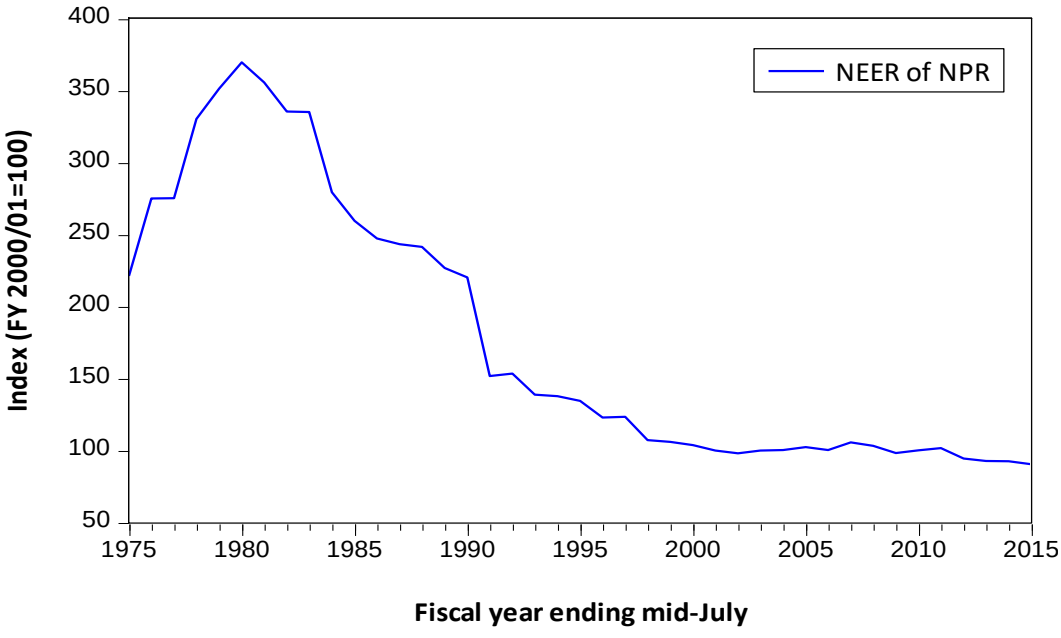
2002/03 onwards, it has shown an upward trend. Compared to this, RER of NPR with INR somewhat increased in FY 1992/93 and moreover stayed in the same trend for the rest of the period.

3.5.2 Nominal Effective Exchange Rate (NEER) of NPR

NEER index is calculated as a weighted average of the exchange rate indices of NPR with INR and USD with trade weights of India and countries other than India. The trend of NEER reflects whether the currency has appreciated or depreciated in the aggregate with the trading partners. Table 3.4 and the Figure 3.5 show annual rise in NEER for the initial five years (FY 1974/75-FY 1979/80), which has since declined consistently throughout the remaining period. The NEER was below 100 in FY 2001/02, FY 2002/03, 2008/09 and FY 2011/12-FY 2014/15. Other than these seven years, the rest of the period was marked by an appreciated NEER. Although the figure shows the sharp declining trend following the FY 1979/80, it has remained above 100 in 33 years, signaling a lower comparative advantage of Nepal with the rest of the world.

Figure 3.5

Nominal Effective Exchange Rate of NPR



3.5.3 Real Effective Exchange Rate (REER) of NPR

REER is the nominal effective exchange rate divided by a price deflator or index of costs. An increase in REER indicates exports becoming more expensive and imports becoming cheaper; therefore, an increase indicates a loss in trade competitiveness of the country.

Nepal's exchange regime is pegged as a nominal exchange rate between NPR and INR which remains fixed unless authorities devalue or revalue it. However, the nominal exchange rates of NPR with other currencies are market-determined, hence, subject to change on a daily basis. To evaluate whether the currency is appreciated or depreciated, the RER indices and REER indices are constructed. For simplification of analysis, the RER indices of INR and USD are constructed. The rationale for using only two currencies being that the exchange rate of NPR is pegged with INR and the USD rate is benchmarked for determining the rate of other currencies. Thapa (2002) argues that using INR and USD rate is appropriate instead of using all currencies for REER index due to a lack of time series data of trade with all trade partner countries separately and also that trade share with India is almost two-thirds. Besides, the time series trade data are available as classified with India and with the rest of the world.

Unlike the NER and the RER, which are bilateral exchange rate indices, the REER is the composite exchange rate index which can be arrived at by taking trade shares of trade partner countries and multiplying such trade weights with respective RER indices and then summing them up. The procedure for the construction of these indices involves three steps: (i) calculation of NER indices where the exchange rate of NPR is calculated in terms of foreign currency, (ii) the calculation of RER with base year 2001, (iii) the calculation of the REER index by combining RER with trade weights. The REER index is calculated using an arithmetic average formula, which is given below.

$$\mathbf{REER} = \text{Trade Weight of Other Countries} \times \left(\text{Rate USD} \times \frac{\text{Price of Nepal}}{\text{Price of Advanced Countries}}\right) + \text{Trade Weight of India} \times \left(\text{Rate INR} \times \frac{\text{Price of Nepal}}{\text{Price of India}}\right)$$

The calculations of RER, NEER and REER of NPR is given on the table 3.4 below:

Table 3.4

RER, NEER and REER of NPR

(Base Year =2001)

Fiscal Year	CPI			NER Index		RER Index		Trade Share		NEER	REER
	Nepal	India	Countries other than India	India	Countries other than India	India	Countries other than India	India	Countries other than India		
1975	11.2	15.3	28.5	115	711	84.2	279.1	0.82	0.18	221.3	118.9
1976	11.2	14.1	31.4	115	600	91.2	213.9	0.67	0.33	275.2	131.7
1977	11.4	14.5	34.2	115	600	90.2	200.0	0.67	0.33	275.4	126.6
1978	12.7	15.3	37.0	113	627	94.2	215.5	0.58	0.42	330.3	145.4
1979	13.2	15.8	40.2	110	627	92.1	206.2	0.53	0.47	351.4	145.3
1980	14.4	17.5	44.6	110	627	90.7	202.7	0.50	0.50	369.7	146.9
1981	16.4	19.6	49.6	110	627	92.3	207.4	0.53	0.47	355.7	146.9
1982	18.1	21.6	54.1	110	570	92.3	190.8	0.51	0.49	335.5	140.6
1983	20.6	23.7	57.6	110	518	96.0	185.5	0.45	0.55	335.2	145.3
1984	21.9	26.4	60.5	110	458	91.7	165.7	0.51	0.49	279.5	127.7
1985	22.8	27.8	63.4	110	424	90.4	152.6	0.52	0.48	259.6	120.0
1986	26.4	29.9	65.6	100	354	88.4	142.5	0.42	0.58	247.3	119.8
1987	30.0	32.5	67.4	95	342	88.0	152.3	0.40	0.60	243.4	126.6
1988	33.2	35.6	69.6	95	318	88.9	151.5	0.34	0.66	241.4	130.0
1989	36.0	37.7	72.4	95	272	90.9	135.4	0.26	0.74	226.8	123.9
1990	39.5	39.7	75.9	95	257	94.7	133.4	0.22	0.78	220.3	124.7
1991	43.3	44.7	79.5	95	175	92.2	95.3	0.29	0.71	151.8	94.4
1992	52.4	50.9	82.4	97	175	99.8	111.5	0.28	0.72	153.5	108.2
1993	57.1	54.5	84.9	98	152	102.8	102.5	0.25	0.75	138.8	102.6
1994	62.2	59.4	87.0	100	152	104.6	108.7	0.27	0.73	137.7	107.6
1995	67.0	65.5	89.1	100	148	102.3	111.3	0.28	0.72	134.6	108.8
1996	72.4	71.8	91.1	100	133	100.9	105.5	0.30	0.70	123.0	104.1
1997	78.3	78.1	93.0	100	132	100.3	110.7	0.26	0.74	123.4	108.0
1998	84.8	84.5	94.6	100	110	100.3	99.0	0.31	0.69	107.2	99.4
1999	94.4	94.0	95.9	100	110	100.4	107.8	0.36	0.64	106.1	105.1
2000	97.7	97.0	97.8	100	106	100.8	106.0	0.38	0.62	103.7	104.0
2001	100.0	100.0	100.0	100	100	100	100	0.47	0.53	100.0	100.0
2002	102.9	104.6	102.0	100	96	98.3	96.5	0.55	0.45	98.1	97.5
2003	107.8	109.0	104.0	100	100	98.9	103.5	0.56	0.44	99.9	100.9
2004	112.1	112.6	106.0	100	101	99.6	106.5	0.58	0.42	100.3	102.5
2005	117.2	117.3	108.3	100	106	99.9	114.8	0.61	0.39	102.4	105.7
2006	126.5	123.4	110.8	100	101	102.5	115.0	0.63	0.37	100.3	107.1
2007	134.6	131.6	113.3	100	115	102.3	136.7	0.62	0.38	105.7	115.3
2008	145.0	140.5	116.5	100	109	103.2	135.6	0.64	0.36	103.2	114.8
2009	164.2	154.1	118.5	100	96	106.6	132.6	0.58	0.42	98.2	117.6
2010	181.4	174.8	119.4	100	100	103.8	152.4	0.59	0.41	100.1	123.7
2011	198.9	190.7	121.1	100	105	104.3	172.7	0.66	0.34	101.8	127.4
2012	215.4	207.5	124.3	100	84	103.8	146.0	0.65	0.35	94.5	118.5
2013	236.7	228.9	126.7	100	79	103.4	146.8	0.66	0.34	92.7	118.2
2014	258.2	250.3	128.5	100	78	103.2	156.4	0.67	0.33	92.6	120.9
2015	276.8	262.7	128.9	100	74	105.4	158.5	0.64	0.36	90.5	124.7

Source: 1. Quarterly Economic Bulletin, Vol.50, Serial No.4, July 2016, NRB

2. International Financial Statistics of the IMF, 2016.

During the period of FY 1974/75 to FY 2015/15, the REER of NPR was below 100 in three fiscal years, i.e., 1990/91, 1997/98 and 2001/02. In rest of the 38 years, the REER was above 100. It means that there was real depreciation in NPR in those three years and appreciation in 37 years. The average REER during the 41 years was 118.47, with standard deviation at 14.92. The REER during the first 21 years averaged at 126.66, with standard deviation of 15.53. Similarly the REER during the latter 20 years averaged at 110.68, with standard deviation at 8.86. So, REERs in the latter years were more stable although they still reflected a lower comparative advantage of Nepal vis-à-vis the rest of the world.

Figure 3.6

Real Effective Exchange Rate of NPR

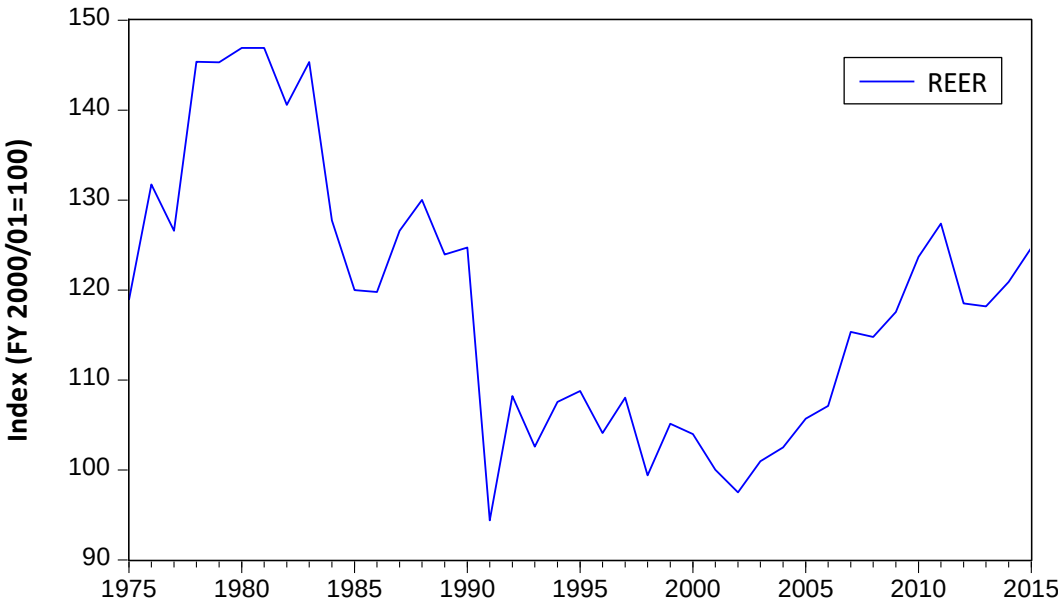


Figure 3.6 above shows that REER reached to the lowest point in FY 1990/91; however, if started rising sharply again after FY 2001/02. On an overall basis, the REER of Nepal is weaker which needs massive corrective efforts focusing on improving productivity as well as carrying out vigorous supply-side policies.

3.6 Relationship of Exchange Rate with Trade Deficit and Foreign Exchange Reserves: An Empirical Analysis

Exchange rate plays a key role in the international trade, with countries using the exchange rate as a strategic variable to improve trade balance, especially in countries focusing on export-led growth. The depreciation of exchange rate is resorted for promoting exports to bring about positive effects on the trade balance. While analyzing the impact of exchange rate on trade balance, it is found that the domestic currency devaluation first increases the total value of imports leading to higher prices of imported goods. As the value of incremental imports exceeds the change in value of exports, it aggravates the trade deficit. While the devaluation increases the demand for exports resulting in a higher level of exports, the improvement in trade balance takes place. In this perspective, this section quantitatively evaluates the effect of exchange rate on overall trade deficit and foreign exchange reserves in the Nepalese context.

3.6.1 Methodology

The relationship of exchange rate with trade deficit and foreign exchange reserves are represented in the following functional form:

Trade Deficit: $TD = f(CPI\_N, EX\_AV, RGDP)$ ……. (3.1)

Foreign Exchange Reserves: $RESERVE = f(RGDP, EX\_AV)$ ……. (3.2)

Where,

TD stands for Trade Deficit, CPI_N for CPI of Nepal, EX_AV for average exchange rate of NPR, RESERVE for foreign exchange reserves and RGDP for Real GDP.

The equations are estimated using annual time series data. As described in the functional forms, the relationship is examined using the ordinary least squares method by converting non-stationary time series data into stationary data.

With reference to equations 3.1 and 3.2, it is recognized that there exists the dimension of simultaneity, which may be inevitable perhaps, when postulating relationships involving macroeconomic variables. Admittedly also, the concern about multicollinearity between the independent variables is also valid. Notwithstanding these aspects, it was decided to employ regression analysis.

3.6.2 Description of Data

The relationship of exchange rate with trade deficit and foreign exchange reserves has been examined from FY 1974/75 to 2014/15 and the data have been obtained from Quarterly Economic Bulletin published by NRB and International Financial Statistics (IFS) of IMF. The variables used in the analysis are Consumer Price Index [CPI] of Nepal (CPI_N), Trade Deficit (TD) of Nepal, foreign exchange reserves (RESERVE), Real GDP of Nepal (RGDP) and average exchange rate of the USD (XR_AV), in terms of NPR, all being annual figures. Further, as the trade deficit is nominal terms, it was correspondingly decided to use the average exchange rate and the CPI_N among the predictor variables. The data used in this empirical analysis are presented in Appendix 3.2.

3.6.3 Unit Root Test

The time series data usually have the property of non-stationarity, which can be identified by using an econometric test i.e., the unit root test. The regression equations estimated with the non-stationary data may be spurious. To identify the problem of non-stationarity, Augmented Dicky-Fuller (ADF) test has been applied. To verify whether the variables integrated of order zero I(0) or I(1), the tests of stationarity are performed on consumer price index of Nepal (CPI_N), trade deficit (Trade_Deficit) of Nepal, real gross domestic of Nepal (RGDP), average exchange rate of the USD (XR_AV) and foreign exchange reserves (RESERVE) using ADF test. ADF test statistic is applied to check the order of integration of time series i.e., whether they follow the unit root process.

Table 3.5
Unit Root Test

Name	Variable	ADF - Test Statistics	
		Level	First Difference
CPI of Nepal	CPI_N	-0.3523	-4.712*
Trade Deficit of Nepal	Trade_Deficit	-0.4099	-5.7388*
Real GDP	RGDP	0.4062	-7.9654*
Exchange Rate Average USD	XR_AV	-1.3046	-4.8211*
Foreign Exchange Reserves	Reserve	0.2097	-5.3132

Note: Lag Selection criterion is SIC, LAG=2
* significant at 1 percent level of significance
Source: Output from E-views 7.1.

As shown in Table 3.5, the ADF test statistic suggests that the time series of CPI_N, Trade_Deficit, RGDP and XR_AV show existence of a unit root when these series are tested with ADF test. However, first differenced time series of CPI_N, Trade_Deficit, RGDP and XR_AV do not show the unit root when these variables are tested with all the three cases at the 1 percent level of significance. Therefore, the ADF test suggests that the time series of variables applied for analysis are integrated of order one, I(1). Thus, the series can be used for ordinary least square estimate with the first difference.

3.6.4 Estimation and Analysis

The estimating methodology used by the study is based on ordinary least squares (OLS) model. The estimating equation is shown schematically presented as below:

$$Y_t = \alpha_i + \sum_{j=0}^{p} \beta_j X_t + \lambda D + \varepsilon_t \quad \text{…. . … .. …… .. …… …. …… .. … ….. (3.3)}$$

Where, Y_t is the dependent variable, X_t is the set of independent variables, D is the dummy variable applied to capture the effect of a regime change. The α_i is a constant term or intercept, β_j represents coefficients of independent variables, λ is a coefficient of dummy variable, ε_t is the error term. As shown in equation 3.1, two separate multivariate analyses have been conducted to analyze the impact of

exchange rate and other variables on trade deficit and foreign exchange reserves of Nepal.

3.6.5 Foreign Exchange Reserves and Exchange Rate

The empirical relationship of nominal exchange rate of Nepal with foreign exchange reserves is examined with the equation (3.4). The relationship shows that the foreign exchange reserves of Nepal are determined by the exchange rate of NPR with the USD and the real GDP of Nepal. The summary of the equation is given below including diagnostics tests results – residual analysis and robustness of the equation.

$$\mathbf{Dlog(RESERVE) = 0.032 + 0.823\ DLOG(XR\_AV) + 2.730\ DLOG(RGDP) - 0.602\ DUM84} \quad \text{... (3.4)}$$

*t-statistics (0.524) (2.110)** (2.161)** (4.569)**

R^2 = 0.397 F = 7.92* Durbin-Watson (DW) = 2.33 No. of Obs. = 40

Breusch-Godfrey Serial Correlation LM = 3.36 (Probability = 0.186)

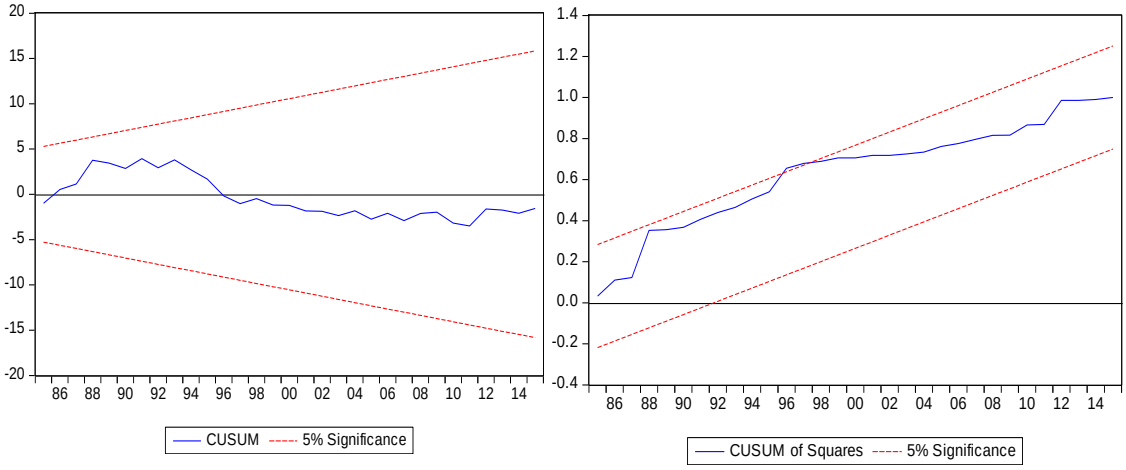
(* significant at 1 percent level of significance and ** significant at 5 percent.)

The t-statistics of estimated equation shows that the coefficients of average nominal exchange rate for USD and real GDP are significant at 5 percent level of significance. The dummy (DUM84) is to capture the effect of exceptional case of external sector crisis and the time when the liberalization started.

The diagnostic tests are run on the equation of reserves to diagnose its fitness (Jarque-Bera 0.47, Probability 0.79); it fails to reject the null hypothesis that series are normally distributed. The test statistics of Breusch-Godfrey serial correlation LM test shows LM as 3.36 and Probability = 0.1876. The hypothesis that there is no serial correlation in residual series cannot be rejected at the degree of freedom 2 and at 10 percent level of significance. Moreover, the LM value to test the heteroskedasticity at 2.785 (Probability =0. 426) shows that we failed to reject the null hypothesis of homoskedasticity. It depicts the evidence of

homoskedasticity. The CUSUM and CUSUM of Squares test also reflects that the parameters are stable.

Figure 3.7
CUSUM and CUSUM of Squares Test for Equation 3.4



3.6.6 Trade Deficit and Exchange Rate

The empirical relationship of nominal exchange rate with trade deficit of Nepal has been examined, which is represented in the equation (3.5). The relationship shows that the trade deficit of Nepal is determined by the price level of Nepal and exchange rate of NPR with the USD. The equation is given below, where all other statistics, residual analysis and robustness of the equation are shown.

DLOG(TD) = 0.084 + 2.518 DLOG(CPI_N)- 0.753 DLOG(XR_AV)-
t-statistics *(2.033)*** *(6.104)** *(-3.488)**

1.621 DLOG(RGDP)+ 0.28DUM94 – 0.35 DUM98_99 ……(3.5)
*(- 2.380)*** *(2.914)** *(-5.302)**

R2 = 0.689 F = 15.06* Durbin-Watson (DW) = 2.47 No. of Obs. = 40

Breusch-Godfrey Serial Correlation LM = 3.828 (Probability = 0.148)

(* significant at 1 percent level of significance and ** significant at 5 percent.)

The t-statistics of estimated equation shows that the coefficients of CPI and average nominal exchange rate of USD are significant at one percent level of

significance while real GDP is significant at 5 percent level of significance. The dummy variable, DUM94, applied for 1994 to capture the effect of policy change in full convertibility of NPR in current account transaction is significant at 1 percent level of significance. Similarly, the dummy DUM98_99 is used to neutralize the effect of outlier or abrupt change in trade deficit during 1998 and 1999.

The diagnostic tests are run on the equation to ascertain its robustness (Jarque-Bera is 0.245, Probability 0.88); it fails to reject the null hypothesis that series are normally distributed. The test statistics of Breusch-Godfrey serial correlation LM test shows, LM = 3.828 and Probability = 0.148. The hypothesis that there is no serial correlation in residual series cannot be rejected at 2 degrees of freedom and at 10 percent level of significance. Moreover, the LM value to test the heteroskedasticity at 4.755 (Probability=0. 447) shows that we failed to reject null hypothesis of homoskedasticity. Therefore, it shows the evidence of homoskedasticity. The CUSUM test and CUSUM of squares test reflects that the parameters are stable.

Figure 3.8
CUSUM Test and CUSUM of Squares Test for Equation 3.5

The coefficients in the equation (3.5) depict that a 1 percentage point depreciation in NPR with USD improves the trade deficit of Nepal by 0.75

percentage point. Similarly, the increase in real GDP improves the trade deficit, may be through export and substitution of import; a 1 percentage point increase in real GDP decreases the trade deficit by 1.6 percentage points. However, the increase in consumer price increases the trade deficit of Nepal, where a 1 percentage point increase in consumer price increases trade deficit by 2.5 percentage point.

3.6.7 Results

This section described the empirical relationship of exchange rate with foreign exchange reserves and trade deficit of Nepal analyzing the impact of exchange rate change on Nepalese foreign exchange reserves and the merchandise trade balance employing a regression equation. The model is estimated using ordinary least squares estimates, where the data are made stationary after the unit root test. The two equations, foreign exchange reserve equation and trade deficit equation, are estimated to identify the impact of the nominal exchange rate of NPR. The results also show that a 1 percentage point depreciation of the NPR results in an increase in reserves by 0.82 percentage points.

The major impact of the changes is captured by the dummy variables both in the foreign exchange reserves equation and trade deficit equation. The empirical results observed in both the equations are consistent with the theoretical foundation. Both equations show that exchange rate depreciation can improve trade deficit and foreign exchange reserves of Nepal while the domestic price level plays a major role in increasing deficit. The comparison of the two equations shows that exchange rate depreciation could have net favorable effect on the trade deficit and foreign exchange reserves. However, there are many outliers in the Nepalese economy as the country remained in a long period of turmoil and transition. Thus, the result of the study should be applied cautiously for policy purpose.

3.7 Major Issues in Nepal's Exchange Rate

3.7.1. Unofficial Exchange Rate of INR in the Informal Market

According to the prevailing laws and regulations, the foreign exchange transactions are conducted through Central Bank or BFIs and institutions licensed by the Central Bank. All the foreign exchange transactions are constantly monitored and the licensed financial institutions must regularly report to the NRB. Though the exchange rate of NPR is pegged with the INR, the high concentration of Nepal's trade with India and long open border resulting in high factor mobility and informal trade in cross-border have pressured the official peg rate to moderate to significant levels based on the seasonality (Table 3.7).

The unofficial exchange rate of INR is observed due to the insufficient supply of INR in the form of cash for retail and informal trade mainly in India-Nepal border areas. The open border encourages the flow of goods to the side bearing higher prices to capitalize on price difference. The movement of gold, petroleum products, daily consumption items like sugar, edible oil, readymade garments, and electronic items create a high demand for INR in the informal market. Some economists claim that this situation of high demand of INR is the outcome of overvalued NPR against the INR. As NRB implemented tight policy to supply the INR in cash form effective 21st March 2011, including bans on INR 500 and INR 1,000 denominations banknotes, this problem became acute. The issue of ATM cards usable also in India by the Nepalese banks in the last few years and the removal of the ban on the import and export of INR 500 and INR 1,000 denominations banknotes to and from Nepal up to the limit of INR 25,000 per person per visit effective 24th February 2015 has helped to reduce the acute demand for INR in the border areas. Some policy considerations should be made to address this demand of INR to which the national currency has been pegged, otherwise there may be a pressure on devaluation of the existing peg rate. The implications of the informal market rate is presented in Table 3.6:

Table 3.6
Implications of the Informal Market Rate

Scenarios	Advantages	Disadvantages
The informal market NPR rate depreciates vis-à-vis the peg rate		○ Exporters will earn more by exchanging their proceeds in the informal market. ○ As there is an open border between Nepal and India, exporters in the border trade will also convert their INR proceeds through the informal market. ○ Nepalese working in India will also prefer to exchange their earnings in the informal market. ○ Recipients of informal investment income and transfers (like pension) will clearly perceive an incentive to prefer the informal market. ○ Indian tourists visiting Nepal will be inclined to sell their INR in the informal market. ○ In the informal market, there will be a substantial rise in the inflow of INR whereas there will be similar decline in INR outflows. Compared to this, in the formal market, there will be massive decline in the INR receipts and large increase in demand for INR payments. ○ Informal market will have much higher supply and less demand for INR, while the formal market will have huge demand but less supply. This will make the market fragmented and inefficient. ○ In the formal market, there will be attempts to meet excess demand by supplying INR reserves, even by purchasing INR by selling USD, as practiced by Nepal at the moment.
The informal market NPR rate appreciates vis-à-vis the peg rate		○ Be it Nepalese importers or Indians working in Nepal or Indian recipients of transfers/informal income or Nepalese pilgrims and tourists visiting India, the appreciated NPR will offer an incentive to them to exchange their NPR to INR in the informal market. ○ In the informal market, increased demand and reduced supply will exhaust INR reserves while in the formal market, increased supply and reduced demand will result in build-up of INR. Informal market will have excess demand whereas formal market will suffer from increased supply. The consequence will be the problem of fragmentation and inefficiency of market. Unifying the exchange rate in both these markets is the first precondition toward eliminating the existence of informal market. This calls for introduction of the market-based exchange rate.

The unofficial exchange rate of INR prevailing in the informal market from FY 2003/04-FY 2014/15 has been presented in Table 3.7 below:

Table 3.7

INR vis-à-vis NPR Exchange Rate in the Informal Market Prevailing in Indo-Nepal Border Area

In NPR per hundred of INR

Fiscal Year	July/Aug	Aug/Sep	Sep/Oct	Oct/Nov	Nov/Dec	Dec/Jan	Jan/Feb	Feb/Mar	Mar/Apr	Apr/May	May/Jun	Jun/Jul	Annual Average
2003/04	160.02	160.08	160.12	160.16	160.08	160.00	160.20	160.26	160.12	160.14	160.68	161.16	**160.25**
2004/05	160.78	160.26	160.66	160.20	160.06	160.20	160.12	160.26	160.54	160.90	161.20	160.80	**160.50**
2005/06	160.26	161.10	160.32	160.12	160.25	160.32	161.10	161.08	161.18	161.10	160.52	161.59	**160.75**
2006/07	161.68	161.15	160.42	160.25	160.28	161.48	160.80	160.92	160.84	161.02	161.92	162.21	**161.08**
2007/08	162.04	162.14	161.08	160.92	160.98	162.18	163.00	162.00	162.08	162.32	163.18	163.08	**162.08**
2008/09	162.92	162.54	161.22	161.12	160.10	161.30	160.90	161.10	161.40	161.78	162.82	163.74	**161.75**
2009/10	163.70	163.10	161.84	160.48	160.28	161.42	161.92	162.18	162.82	163.18	163.96	165.08	**162.50**
2010/11	164.92	162.48	161.58	161.08	161.16	162.00	163.00	163.24	163.56	164.00	164.86	165.08	**163.08**
2011/12	164.38	164.15	162.21	162.12	162.94	164.00	164.00	163.25	163.14	164.08	165.45	166.26	**163.83**
2012/13	166.58	166.78	165.08	165.15	165.92	166.52	167.18	167.66	167.74	167.38	168.02	167.98	**166.83**
2013/14	167.18	167.16	166.08	165.62	166.28	165.14	165.35	166.08	165.12	165.25	166.08	166.62	**166.00**
2014/15	165.58	165.62	164.65	164.32	165.15	165.18	166.25	166.28	166.65	166.92	166.32	166.08	**165.75**
Average	**163.34**	**163.05**	**162.11**	**161.80**	**161.96**	**162.48**	**162.82**	**162.86**	**162.93**	**163.17**	**163.75**	**164.14**	**162.87**

Notes: 1. Selling rate of the money changers, petrol pump operators, goldsmiths and businessmen

2. The months are according to Nepalese calendar and the corresponding months of the Gregorian calendar are explained under Assumptions and Conventions.

Source: Selected money changers, goldsmiths, petrol pump operators, and informal discussion with businessmen as well as security personnel from Nepal-India border areas, viz., Bhairahawa, Birgunj and Janakpur.

According to Table 3.7, the average exchange rate during the first six years (2003/04-2008/09) was NPR 161.07 while it was NPR 164.67 during the last six years (2009/10-2014/15). Compared to the peg selling rate in the formal market (NPR 160.15), the INR in the informal market appreciated by an average of 0.57 percent {(161.07/160.15)}x100-100 during the first six years while it appreciated by an average of 2.82 percent {(164.67/160.15)}x100-100 during the latter six years. So, in the informal market, the latter period witnessed greater INR appreciation than the former period. In other words, compared to the previous period, the latter period saw more depreciation of the NPR vis-à-vis the INR in the informal market. As the informal market NPR rate depreciates vis-à-vis the peg rate, suppliers will supply more INR in the informal market while demanders will demand more INR from the formal market. As a result, there will be excess supply of INR in the informal market and excess demand for INR in the formal market. To meet such excess demand in the formal market, INR will be officially purchased by selling USD (as has been the practice in Nepal). As a result, because of market distortions and fragmentation arising from the dualistic market, there is increased likelihood of Nepal's USD reserves being indirectly used for financing the informal market of INR. The leakages into the informal market would be tantamount to a modest form of capital flight and may also be used for smuggling.

From the horizontal average figures, it can be observed at that the exchange rate of NPR against the INR in the local informal market depreciates at the maximum level in the months July, June and August respectively whereas appreciates in the months November, December and October respectively.

NPR vis-à-vis INR exchange rate in the informal market prevailing in Indo-Nepal border area presented in Table 3.7 is graphically expressed in Figure 3.9 below:

Figure 3.9

NPR vis-à-vis INR Exchange Rate Prevailing in the Informal Market

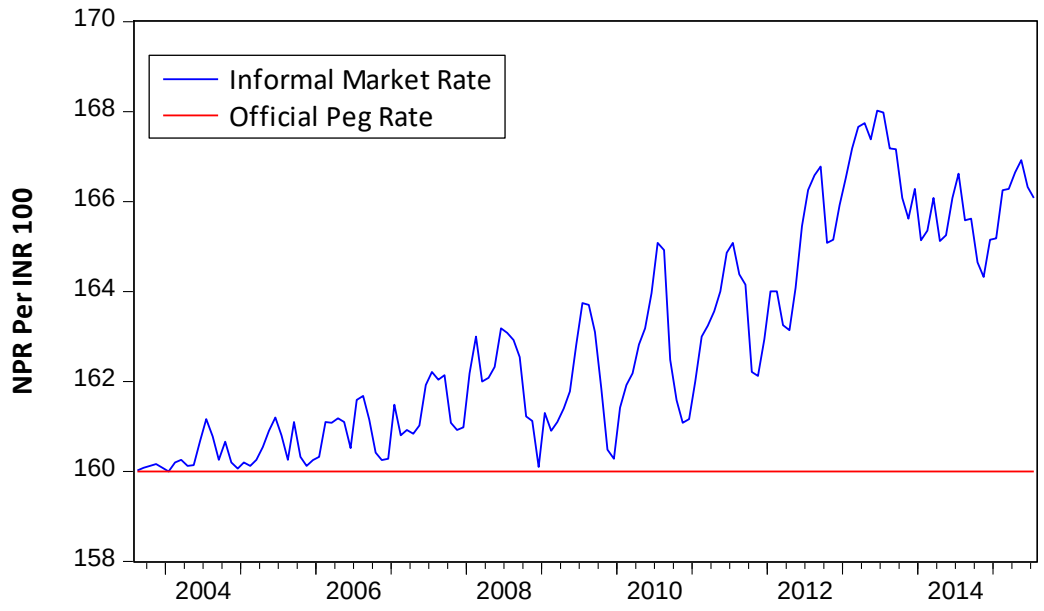


Figure 3.9 also shows that during the 12-year period the informal market rate depreciated which left the official peg rate overvalued. Moreover, there appeared to be regular fluctuation of informal market rates, characterizing an overall depreciating trend.

To test the difference between the peg and informal market rates, the descriptive statistics for the informal market rate of the INR were obtained by using e-views from the available data (Table 3.7), which are as follows:

Mean	162.8660
Median	162.1600
Maximum	168.0200
Minimum	160.0000
Std. Dev.	2.362464
Sum	23452.70
Observations	144

Null Hypothesis (H_0) = μ = 160.15 i.e., the mean exchange rate of INR in the informal market is not greater than 160.15.

Alternative Hypothesis (H_1): $\mu > 160.15$ i.e., the mean currency rate of INR in the informal market is greater than 160.15

(Under the existing peg rate mechanism, the INR is officially purchased at NPR 160 and sold at NPR 160.15 for INR 100. Therefore, μ is 160.15.)

The test statistic under the null hypothesis is,

$$t = \frac{\bar{x}-\mu}{\frac{s}{\sqrt{n}}} \sim t_{n-1}$$

where,

$\bar{x}$ stands for sample mean, μ for population mean, s for sample standard deviation, t for number of years and n for sample size.

$$= \frac{162.8660 - 160.1500}{\frac{2.3625}{\sqrt{12}}} \sim t_{12-1}$$

$$= 3.9824 \sim t_{n-1}$$

The tabulated value of t at 5 percent level of significance for 11 degrees of freedom for a one-tailed test is 1.796.

Thus, since the calculated value is greater than tabulated value, the null hypothesis is rejected and the alternate hypothesis is accepted which means that the exchange rate of INR in the informal market is greater than NPR 160.15. It establishes the significant pressure on the pegged exchange rate of the INR.

3.7.2 Dual Policies on Exchange Rate Determination

Opinions about the features of the exchange rate regime (pegged with the INR and flexible with the rest of the currencies) adopted by Nepal have been frequently surfacing among the observers and experts over the years. The

discussions mainly focus on assessing the appropriateness or otherwise of the exchange rate regime in operation. Because of the sticky exchange rate with the INR and flexible arrangements with the other currencies, people feel that the exchange rates between the INR and other currencies are not judiciously treated and appropriately maintained. They are particularly concerned about the persistent imbalances in the external sector, especially the huge merchandise trade deficit that Nepal has been experiencing for decades. Their apprehension being that the INR has been given special favor relative to the other currencies since the exchange rate regime in operation has made the other countries' products costlier and the Indian products cheaper in Nepal. By the same token, the Nepalese products have been made costlier in India relative to that in other countries, resulting in larger trade deficits with India. Observers also opine that Nepal's exchange rate system has undermined the monetary independence and effectiveness in the process of attaining the monetary policy goals. They believe that the monetary policy should be designed in a way that helps enhance its dynamic role in the economy, especially contributing to macroeconomic stability and prudence in an environment of sustained high economic growth. Nepal, of course, is not the only country in the world that has pursued a pegged exchange rate regime.

3.7.3 Feasibility of Managed Floating of NPR

Though there are stability gains of the pegged exchange rate in the short to medium-term, the market would automatically perceive the sustainability or otherwise of the exchange rate that is not based on sound market fundamentals and economy's prerequisites. Besides, the competitiveness of the Nepalese economy in general and that of the export sector in particular has been hurt. To meet the INR shortfalls due to reduced exports, NRB also used to purchase INR for USD since the early nineties. The provisions of the trade treaty with India like the implementation problem at the state level (imposition

of quotas, tariffs and para-tariffs) have not supported Nepal's production and export to the extent envisaged. Started in 1993, industrial raw materials and machinery were imported from India on the basis of USD payments which, by the end of FY 2014/15, reached 161 items to ease the concerns of industrialists. However, as discussed in section 3.3.4 entitled, 'Sustainability of the Peg', the peg with INR has been generally favourable to the Nepalese economy in the short to medium-term. Moreover, the RER as dealt in section 3.5 entitled, 'RER and REER of NPR with INR and USD' is more unfavourable with USD while it is generally favourable with INR.

Nepal has become highly dependent on all sorts of imports from India. Industries that have been established with the purpose of exporting to India have not become competitive, resulting in massive trade deficits for Nepal. Such import dependence, export fragility and reduced transactions with India have curtailed the development prospects of the economy of Nepal. The rise in export to India following the revised Nepal-India trade Treaty has also received setbacks when quantitative restrictions were imposed on four of the export items, namely, vegetable fats, acrylic yarn, copper products and zinc oxide (Government of India, 2009). The trade deficit with India during the recent years has continuously widened (Table 5.3).

To make Nepal's export sector competitive and strong on a sustainable basis, what is required is floating the exchange rate with INR on a long-term. This process will bring the demand for and the supply of INR in equilibrium at the market-determined exchange rate. The arrangement will also enhance the credibility and confidence of the market participants in the exchange rate regimes, which will then help expand the transactions between NPR and INR. This policy development will also control unnecessary imports from India. The regime can be reviewed when the trade deficit with India is substantially narrowed.

There have been also cases of capital flights from Nepal to India when some abnormal situations developed in Nepal. Due to the pegged exchange rate, this process of capital flight gets encouraged as there is no automatic depreciation of the NPR when there is excess demand for the INR. Thus, the pegged exchange rate could exacerbate instability in the financial system. The instability in the financial markets arising from the capital flight reinforces the pro-trade cycle movements as the demand in the economy gets squeezed on account of the capital flight to India (Adhikari, 2003).

India's inflation is directly transmitted into Nepal due to the pegged exchange rate presently in operation. Had there been a floating exchange rate, Nepalese exports to India would have risen, Nepalese imports from India would have fallen and trade imbalances would have declined. Under the pegged exchange rate, there is no nominal exchange rate appreciation following reduced import demands in Nepal on account of inflation in India, thereby directly increasing the inflation in Nepal. So, to attain the goal of price stability in Nepal, there is a need for introducing floating exchange rate with INR in the long-run. To make the exchange rate system realistic and based on the macroeconomic fundamentals of Nepal, the only viable alternative in the long-run is to respect and recognize the fundamentals of the market by floating the currency. Not to do so would be to ignore the negative consequences on the export sector and the industrialization process that a developing economy like Nepal can least afford to bear (Adhikari, 2003).

3.7.4 Possible Future Change-Capital Account Convertibility

Theoretically, the capital account convertibility is needed to make the financial sector more liberal. The current account is convertible in Nepal but the capital account is still inconvertible till date. Capital account convertibility conditions like macroeconomic stability, transparency, an efficient financial sector and effective rule of law and order are yet to be fulfilled. However, Nepal obtained

the Article VIII status of the IMF on May 30, 1994. The move towards liberalization helped the country to receive this status. Under this status, Nepal is obliged to keep the commitments towards current account convertibility.

Since capital flight benefits a limited number and can harm the welfare of most Nepalese, the implementation of capital account convertibility should be a distant goal. However, with progress in the sectors mentioned in the preceding paragraph, especially the macroeconomic condition, Nepal could consider permitting outward direct investment in specific sectors up to fixed limits. Such investments would yield inward returns in precious foreign exchange.

3.8 Concluding Note

Nepal has been successful in establishing the NPR as a single legal tender currency within the territory by abolishing the dual currency system with the introduction of peg exchange rate system. The peg exchange rate regime has remained the basic foundation for the conduct of monetary policy. Countries with similar situations may draw lessons from the experience of Nepal of the last six decades.

The pegged exchange rate regime, no doubt, poses limitations on the conduct of independent monetary policy. But other factors like the state of financial deepening, possibility of currency substitution, the degree of capital flows, and monetary independence from fiscal policies and authorities are equally important determinants of effective monetary policy implementation.

Nepal's pegged exchange rate arrangement has served the country well at the time when India's economic growth remained high, inflation stood low, and INR remained reasonably stable. But a drawback of the pegged exchange rate system is the overvaluation of the NPR, which very likely explains the chronic trade deficit with India and a shortage of INR.