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FINANCIAL LIBERALIZATION INDEX FOR NEPAL

SHRESTHA, Min B.*
CHOWDHURY, Khorshed**

Abstract
This paper constructs a financial liberalization index for Nepal employing the principal component method and using the annual data of 34 years (1970 to 2003). The index shows the degree of financial liberalization at a particular time. This index is specifically helpful in monitoring the pace of liberalization and evaluating the impact of the policy on various aspects of the economy. This paper also includes partial liberalization measures in the index. Previous studies have failed to do so. The constructed index shows that the financial liberalization process in Nepal speeded up during the period of 1984 to 1994.
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1. Introduction

The financial liberalisation process in Nepal started in 1984. Since then, various liberalisation measures have been implemented in order to widen and deepen the financial system. Some policy instruments were aimed at increasing the competition and efficiency in the financial market, which included removal of entry barriers to commercial banks, finance companies and development banks, and restructuring of two state-owned banks. In order to improve the efficiency of money and capital markets, measures such as auctioning of Treasury Bills and floor trading of securities were introduced. The policy instruments such as interest rate deregulation,

*Min B. Shrestha, The South East Asian Central Banks (SEACEN) Research and Training Centre, Lorong Universiti A, 59100 Kuala Lumpur, Malaysia. E-mail: minshrestha@seacen.org.
**Khorshed Chowdhury, School of Economics, Faculty of Commerce, University of Wollongong, Northfields Avenue, New South Wales 2522, Australia. E-mail: khorshed@uow.edu.au.

reduction in reserve requirement and change in the monetary policy stance from direct to indirect were implemented. Similarly, introduction of prudential norms, establishment of Credit Information Bureau, revision of Nepal Rastra Bank Act, and enactment of Debt Recovery Act were aimed at ensuring the integrity of banks and maintenance of the stability of the financial system of Nepal. All of these policy instruments were expected to complement each other in achieving the overall objectives of competition and efficiency, smooth functioning of money and capital markets, and attainment of stability in the financial sector of Nepal. These policy measures are discussed below.

Removal of Entry Barriers (1984)

Financial liberalisation in Nepal started evidently with the removal of entry barriers in the banking system. Until 1984, only two government-owned commercial banks were operating in the market. With the objective of promoting healthy competition among banks, the Commercial Bank Act 1974 was amended in 1984, which removed the entry barriers to the private sector in the commercial banking industry. This was done mainly to attract private joint venture banks with foreign collaboration with the hope that such banks would bring in much needed foreign capital and technical know-how, infuse modern banking skills to the domestic banks, and, widen as well as deepen the national financial structure (Acharya *et al.* 1998). Following the amendment of the Act, joint venture banks started to enter the financial system. In 1985, the Finance Companies Act was enacted in order to allow finance companies to enter the financial system. This was done with the objective of serving small borrowers and meeting the demand for consumer credit. The Act was amended in 1992. Following this amendment, there has been a very fast growth in the establishment of finance companies.

Deregulation of Interest Rate (1984)

Interest rate deregulation started in November 1984 with partial freedom provided to the commercial banks to fix the interest rates from 1.0 percentage points to 1.5 percentage points above the minimum administered rates for different types of term deposits. In May 1986, this range was eliminated, allowing the banks to offer higher interest rates to any level above the fixed minimum level. In August 1989, the interest rate was completely deregulated. Since then, commercials banks and financial institutions are free to set both the deposits and loans rates. The objective of interest rate deregulation was to let the market decide the true cost of capital, keep real deposit rates positive, thereby, stimulating savings and creating a competitive environment in the financial system so as to benefit both the depositors and borrowers (Khatiwada 1999).

Reforms in Treasury Bills Issuance (1988)

Treasury bills carried a coupon rate, which used to be generally low. Commercial banks were not interested in investing in such low yielding bills. As a result, Nepal Rastra Bank used to hold a large chunk of treasury bills, exacerbating the excess liquidity in the economy (Khatiwada 1999). To rectify this anomaly, NRB commenced auctioning of treasury bills since November 1988. Initially, the auctioning was done on a monthly basis. As the market matured, auctioning frequency was increased to every fortnight, and then to weekly from December 1991 (Acharya *et al.* 1998). After the introduction of auctioning, commercial banks began to hold increasing shares of such bills.

Introduction of Prudential Norms (1988)

With the objective of helping in the sustainable development of the financial sector through creating a healthy banking environment, a set of prudential norms was introduced in 1988. Such norms put in place by NRB included capital adequacy requirement, loan classification, loan loss provisioning, interest income recognition, single borrower limit, and account disclosure norms. Most of these norms were revised in 1991. The requirements, ratios, limits, types, and formats set in these norms have been changed from time to time.

Commercial banks initially were directed to classify their loans into four categories namely pass, substandard, doubtful, and loss.

After the re-categorization of loans in 1991, the banks were required to classify their loans into six categories based on the overdue period. Since 2002, the loans are categorised again into four categories, *viz,* pass, substandard, doubtful, and loss. Along with the introduction of loan classification norms, commercial and development banks were directed to set aside certain funds as loan loss provisioning.

With the objective of avoiding the over-concentration of the bank resources in the hands of a few people as well as lowering the risk elements, single borrower limit was introduced in 1989. Since FY 2003, the single borrower limit is 25 percent of the capital base for fund based lending and 50 percent for non-fund based lending. Such limits are the same for both the commercial and development banks (Nepal Rastra Bank 2005a; 2005b). Before the introduction of the norms related to interest income recognition, the banks used to show accrued interests as their income. On the basis of profits based on such accounting, dividends and bonuses were paid. As a consequence, the financial health of the banks started to deteriorate. To check this trend, a new prudential norm was introduced in 1989, which redefined the interest income on the actual basis instead of accrual basis. According to this norm, interest income is recognized only when it is received in cash.

Another norm introduced in 1989 was related to disclosure of the financial information of financial institutions. To maintain a common accounting year in line with the fiscal year of the Government of Nepal, financial institutions were directed to adopt the fiscal year starting on the 1st of the Nepali calendar month Shrawan (16 July) and ending on the 31 of Ashadh (15 July). Similarly, NRB developed common formats for financial institutions to prepare their balance sheet, profit and loss account, and classification of loans, advances and reserves.

Establishment of Credit Information Bureau (1989)

With a view to check the possible fraud and irregularities in banking transactions, the Credit Information Bureau was established in 1989. Every commercial bank has to supply necessary credit information to the Bureau and the Bureau in turn supplies credit information to all other banks. On the basis of credit information received from the banks, the Bureau prepares a defaulters list and a black list. Prior to the establishment of the Bureau, a defaulter of one bank could obtain a loan from another bank. With the help of the credit information supplied by the Bureau, it has become easier for the banks to avoid the risky lending.

Shift in Monetary Policy Stance (1989)

The way monetary policy is conducted has a direct impact on the financial sector. After the full liberalisation of the interest rate and elimination of credit ceilings, the monetary policy stance has been changed from direct to indirect. Under the indirect monetary policy stance, there is no direct control on the price or interest as well as on the volume of loans of commercial banks. Market behaviour is aligned through the use of indirect monetary policy instruments such as bank rate, cash reserve requirement, and open market operations.

Strengthening of Government Owned Commercial Banks (1991)

To evaluate the financial positions of the two state-owned commercial banks – Rastriya Banijya Bank and Nepal Bank Limited, a study was conducted with the financial support of the UNDP in 1989. The study recommended a series of corrective and preventive measures to improve their financial performance. To implement the recommendation of the study, the government provisioned a supplementary budget of Rs.3.45 billion in 1991. The fund was used for the recapitalisation of two banks and to repay the government guaranteed overdue loans (Acharya *et al.* 1998).

Reform in the Capital Market (1992)

The Securities Marketing Centre was established in 1977 with the objective of developing markets for the government securities. The centre carried out both regulatory and operational functions. In 1984, it was converted into the Security Exchange Centre, but the functions carried by it remained almost the same. The reform in capital market started with the amendment in the Security Exchange Act in 1992. Operational and regulatory functions were separated in 1993. The Security Exchange Board was established to look after the regulatory functions and at the same time the Nepal Stock Exchange Centre was created to carry out the trading of the securities (Khatiwada 1999).

Reduction in the Reserve Requirement (1993)

The banks were required to meet the high reserve requirement in the form of the cash reserve ratio (CRR) introduced in 1966 and statutory liquidity ratio (SLR) introduced in 1974. CRR was imposed for monetary control and prudential norms, whereas SLR was imposed to provide a captive market for government securities. The SLR was completely abolished in August 1993. After the complete liberalisation of the interest rate in 1989, the CRR however, was revised upward from 9 per cent to 12 per cent of the domestic deposits. Since April 1998, the CRR has been gradually revised downward. As of November 2003, the average CRR to be maintained by the commercial banks is 7.75 per cent of their domestic deposits (Nepal Rastra Bank 2003).

Introduction of Floor Trading of Securities (1994)

In January 1994, floor trading of the stocks was introduced under the Nepal Stock Exchange Centre. Due to this new arrangement, trading in stocks started to boom, and the number of listed companies as well as the market capitalization increased gradually. The number of companies listed in the Centre stood at 114 in July 2004.

Enactment of Development Bank Act (1996)

Nepal Industrial Development Corporation, established in 1959, and the Agricultural Development Bank established in 1968 were the two developments banks operating in the market to meet the long-term credits. To allow new development banks in the market, the Development Bank Act was enacted in 1996. The number of development banks including Nepal Industrial Development

Corporation and Agricultural Development Bank has reached 25 in July 2004 (Nepal Rastra Bank 2004). This includes five regional development banks that are carrying micro credit operations in rural villages.

Revision of Nepal Rastra Bank Act (2001)

The Nepal Rastra Bank Act 1955 was revised in 2001. This Act has made NRB an autonomous institution. As in other developing countries, central bank of Nepal – Nepal Rastra Bank previously had to work under government control. As a result, the bank could not implement monetary policies as well as financial sector policies independently. It is expected that the revised Act will serve the requirements of a modern central bank as part of the government's overall financial sector development and modernization program (Pyakuryal 2002).

Restructuring of Government Owned Commercial Banks (2002)

The financial health of Rastriya Banijya Bank and Nepal Bank Limited was reported to be gradually deteriorating for quite some time. A diagnostic study carried out by KPMG-Barents Group in 1998 reported that these two banks would need between Rs. 25 billion to 30 billion for recapitalisation. To improve the financial health of these two banks, the restructuring process started with the technical and financial assistance of the World Bank. In this process, NRB has handed over the management of Nepal Bank Limited to the ICC Consulting Group of Bank of Scotland in July 2002. Another professional group - Deloitte Touche Tohmatsu was selected for managing Rastriya Banijya Bank. But since this Group breached the contract, Nepal Rastra Bank hired Mr. Bruce F. Henderson, an American bank Professional, as the Chief Executive Officer of Rastriya Banijya Bank in December 2002. Under the new management, restructuring activities are being carried out in these banks (Nepal Rastra Bank 2003).

Enactment of Debt Recovery Act (2002)

RBB and NBL gradually accumulated a huge proportion of non-performing assets (NPA). Such assets of Rastriya Banijya Bank stood at 52 per cent and in the case of Nepal Bank Limited; it reached 62 per cent of the total loans in 2003. The increasing NPA in the banking sector was attributed to the lack of strong legal measures for the recovery of loans. To address this issue, the Debt Recovery Act was enacted in 2002. This Act is expected to reduce the increasing pressures of bad loans in banks and financial institutions.

2. Construction of Financial Liberalisation Index

Financial liberalisation is a process that involves the implementation of a number of policies as discussed above. In order to show the degree or the level of financial liberalisation at a particular time, a financial liberalisation index (FLI) for Nepal is constructed based on principal components method following Bandiera, Caprio *et al*. (2000), and Laeven (2003). Bandiera, Caprio *et al*. (2000) construct a financial liberalisation index for eight developing countries by including eight main components of financial liberalisation in their index, which are (1) interest rates, (2) procompetition measures, (3) reserve requirements, (4) directed credit, (5) banks' ownership, (6) prudential regulation, (7) stock markets, and (8) international financial liberalisation. Laeven (2003) constructs a similar index for 13 developing countries. He includes six measures of financial liberalisation but excludes the measures related to stock markets and external sector in his index. Previously, Demetriades and Luintel (1997) constructed a financial repression index for India using the principal components method. They included nine different repressionist policies in their index. Following the same method, Laurenceson and Chai (2003) construct a similar financial repression index for China.

In order to derive the financial liberalisation index, some arbitrary value is assigned to each of the financial liberalisation policy variables (Table 1). Each policy variable can take a value between 0 and 1 depending on the implementation status. When a particular sector is fully liberalised, that policy variable takes a value of 1 and when that sector remains regulated, it takes a value of 0. To capture the scenario of partial and phase-wise gradual liberalisation of a particular sector, partial values like 0.33, 0.50, and 0.66 have been assigned. A value of 0.50 indicates the first phase of partial deregulation in a two-phased deregulation process, whereas a value 0.33 and 0.66 indicate the first and second phase, respectively, in a three-phased deregulation process. The two-phased process takes a value of 1 in the second phase and the three-phased case takes a value of 1 in the third phase. In other words, if a sector is fully liberalised in a single phase, the value assigned in this case is 1. But if the liberalisation is completed in two phases, then 0.5 is assigned for the first phase and 1 for the second. Similarly, if the liberalisation takes place in three phases, then the number assigned is 0.33 for the first phase, 0.66 for the second phase and 1 for the last phase.

The description of the policy variables used in the index construction and their implementation date are presented below.

IRD Interest Rate Deregulation– Partially deregulated with ceilings in 1984, ceilings removed in 1986, and completely deregulated in 1989.
REB Removal of Entry Barriers – 1984.
RRR Reduction in Reserve Requirements – 1993.
ECC Easing in Credit Controls – 1991. Some control still exists,
IPR Implementation of Prudential Rules-1988. The central bank became independent in 2001.
SMR Stock Market Reform – Floor trading of stocks started in 1994.
PSB Privatisation of State-owned Banks – The managements of two ailing state-owned banks were given to foreign parties on contract in August 2002; and it has been planned to privatise these banks.
EAL External Account Liberalisation – The current account became fully convertible in 1993, but the capital account by and large still remains inconvertible.

Table 1. Financial Liberalisation Policy Variables

Year	*IRD*	*REB*	*RRR*	*ECC*	*IPR*	*SMR*	*PSB*	*EAL*
1970	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1971	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1972	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1973	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1974	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1975	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1976	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1977	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1978	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1979	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1980	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1981	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1982	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1983	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1984	0.33	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1985	0.33	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1986	0.66	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1987	0.66	1.00	0.00	0.00	0.00	0.00	0.00	0.00
1988	0.66	1.00	0.00	0.00	0.50	0.00	0.00	0.00
1989	1.00	1.00	0.00	0.00	0.50	0.00	0.00	0.00
1990	1.00	1.00	0.00	0.00	0.50	0.00	0.00	0.00
1991	1.00	1.00	0.00	0.50	0.50	0.00	0.00	0.00
1992	1.00	1.00	0.00	0.50	0.50	0.00	0.00	0.00
1993	1.00	1.00	1.00	0.50	0.50	0.00	0.00	0.50
1994	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
1995	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
1996	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
1997	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
1998	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
1999	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
2000	1.00	1.00	1.00	0.50	0.50	1.00	0.00	0.50
2001	1.00	1.00	1.00	0.50	1.00	1.00	0.00	0.50
2002	1.00	1.00	1.00	0.50	1.00	1.00	0.00	0.50
2003	1.00	1.00	1.00	0.50	1.00	1.00	0.50	0.50

Note: Number assigned 0 for none, 1 for full, and 0.33, 0.50 and 0.66 for partial and gradual deregulation.

From the values presented in Table 1, the financial liberalisation index (FLI) for Nepal is derived. To this end, the weight of each of the components is calculated by employing the principal component method. The composition of the FLI can be expressed in the following terms:

$$FLI_t = w_1 IRD_t + w_2 REB_t + w_3 RRR_t + w_4 ECC_t + w_5 IPR_t + w_6 SMR_t + w_7 PSB_t + w_8 EAL \quad (1)$$

In the above equation, w_i is the weight of the component given by the respective eigenvector of the selected principal component. The eigenvalues and eigenvectors of the correlation matrix of financial liberalisation policy variables are as follows:

Table 2. Eigenvalues and Eigenvectors of the Correlation Matrix of Policy Variables

Variables	*Eigenvectors (λ_k)*		
	λ_1	λ_2	λ_3
IRD	0.373	0	0.477
REB	0.334	0	0.589
RRR	0.394	0	0.325
ECC	0.393	0	0.079
IPR	0.377	0	0.189
SMR	0.381	0	0.380
PSB	0.000	1	0.000
EAL	0.390	0	0.366
Eigenvalues (λ_k)	5.558	1	0.935

Taking the first principal component (λ_1), which accounts for 74 per cent of the total variance[1], in the eight policy variables and substituting the respective eigenvalues for w_i's in equation (1):

$$FLI_t = 0.373 IRD_t + 0.334 REB_t + 0.394 RRR_t + 0.393 ECC_t + 0.377 IPR_t + 0.381 SMR_t + 0.000 PSB_t + 0.390 EAL_t \quad (2)$$

The index for the individual policy components are calculated by substituting the values for IRD, REB, RRR, ECC, IPR, SMR, PSB and EAL in equation (2) from Table 1 and multiplying by the respective values of *w*. The financial liberalisation index for each

[1] $\Sigma\lambda_K = 5.558 + 1.000 + 0.935 = 7.493$. $\lambda_1 = 5.558/7.493 = 0.74$.

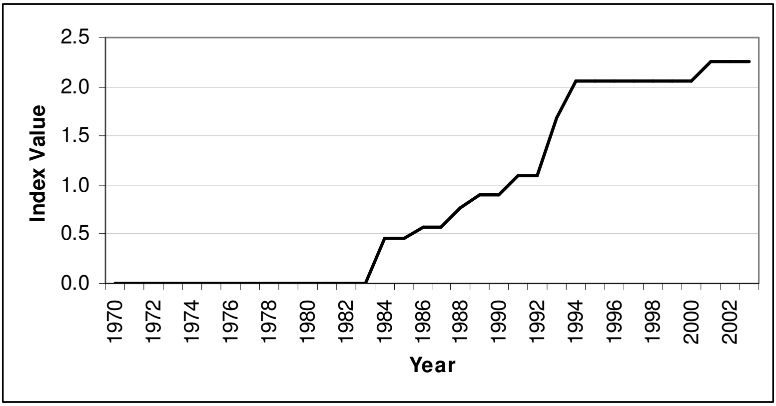
year is derived by summing up the calculated values of all the eight policy components for the respective year. The calculated individual and total index are presented in the Table 3.

Table 3. Financial Liberalisation Index (FLI) for Nepal

Year	*IRD*	*REB*	*RRR*	*ECC*	*IPR*	*SMR*	*PSB*	*EAL*	*FLI*
1970	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0
1984	0.123	0.334	0	0	0	0	0	0	0.457
1985	0.123	0.334	0	0	0	0	0	0	0.457
1986	0.246	0.334	0	0	0	0	0	0	0.580
1987	0.246	0.334	0	0	0	0	0	0	0.580
1988	0.246	0.334	0	0	0.189	0	0	0	0.769
1989	0.373	0.334	0	0	0.189	0	0	0	0.896
1990	0.373	0.334	0	0	0.189	0	0	0	0.896
1991	0.373	0.334	0	0.197	0.189	0	0	0	1.092
1992	0.373	0.334	0	0.197	0.189	0	0	0	1.092
1993	0.373	0.334	0.394	0.197	0.189	0	0	0.195	1.681
1994	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
1995	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
1996	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
1997	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
1998	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
1999	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
2000	0.373	0.334	0.394	0.197	0.189	0.381	0	0.195	2.062
2001	0.373	0.334	0.394	0.197	0.377	0.381	0	0.195	2.251
2002	0.373	0.334	0.394	0.197	0.377	0.381	0	0.195	2.251
2003	0.373	0.334	0.394	0.197	0.377	0.381	0	0.195	2.251

The figure of the financial liberalisation index (FLI) given in the last column of the above table is presented in Figure 1.

Figure 1. Financial Liberalisation Index



3. Concluding Remarks

The financial liberalisation index for Nepal has been constructed by including eight different policy measures implemented during the liberalization process. The liberalization index is based on principal component method and also takes into account the partial liberalisation policy measures. Previous studies failed to properly include this part. Most of the past studies either treated the partial financial liberalisation as the full liberalisation, or excluded it by taking only the full liberalisation date. This is misleading, especially during the impact evaluation. The financial liberalization index for Nepal shows that the decade of 1984 – 1994 was the period during which most of the financial liberalisation measures were implementation in Nepal.

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