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IN THIS ISSUE

02 *Rebasing of National Accounts Estimates to Base Year 2015*

09 *Importance of Reducing Cost of Remittances and Using FinTech-Driven Remittance methods*

15 *What Determines Exchange Rates Between Two Currencies?*

25 *Funding for Deposit Insurance and Target Fund Size*

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Rebasing of National Accounts Estimates to Base Year 2015[1]

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Introduction

The national accounts framework estimates the values of economic activities, including production, consumption, investment, and income generation of an economy. These estimates are compiled at both, current and constant prices, based on the internationally recognised set of standards outlined in the System of National Accounts 2008 (SNA 2008). The Gross Domestic Product (GDP) is one of the main macroeconomic indicators derived from the national accounting process and it provides estimates for the value-added of economic activities. The GDP estimates at current market prices contain the impact of changes in quantity and prices, whereas estimates at constant prices value the economic activities using market prices that prevailed at a specific year which is generally referred to as the base year. The GDP estimates at constant prices, on the other hand, are considered as a volume measure. The change in constant price GDP over a given period of time reflects the real growth of an economy. This article outlines why rebasing is necessary for national accounts estimates and the key improvements to the coverage and the methodology that were incorporated during the recent rebasing exercise, and highlights the major outcomes of the rebasing exercise.

The Necessity of Rebasing National Accounts Estimates

The national accounts estimates, particularly those estimated at constant prices, are influenced by the economic and price structure that prevailed in the base year. In order to reflect the subsequent changes of the economy, it is necessary to revise the base year periodically by replacing it with a more recent year. The key reasons why national accounts estimates need to be rebased at regular intervals can be summarised as follows:

1. The Central Bank of Sri Lanka/Authors acknowledge(s) the information and the constructive feedbacks provided by the Department of Census and Statistics in preparing this article.

- To account for the changes that take place in the prices of various products and services as well as the production structure and consumption patterns over a period of time.
- To accommodate the range of new products and services that appear in the market, and the many products and services that become obsolete over time, as a result of continuous developments and innovations.
- There can also be economic activities that have not been covered adequately under the existing base year.

Hence, national accounts estimates are required to incorporate these changes taking place in the economy over time to reflect the updated status of the economy. Therefore, rebasing the national accounts estimates at regular intervals is recommended by the SNA. Best practices stipulate to update the base year at least once every five years to capture the updated status of an economy. The base year should ideally be a normal year without major disruptions/unusual fluctuations in economic activities.

A comprehensive rebasing process with improved data sources generally results in upward adjustments to GDP. In a recent rebasing exercise in Kenya, where the national accounts estimates were rebased from 2009 to 2016, a marginal increase of Kenya's GDP was reported (Kenya National Bureau of Statistics, 2021). Similarly, Pakistan, Nepal and South Africa have recently rebased their national accounts estimates. In 2021, Nepal has revised its base year for national accounts estimates to 2010/11 from 2000/01 (Nepal Central Bureau of Statistics, 2021). Following this rebasing exercise, the GDP level increased by around 14.1% in the base year itself (2010/11). Meanwhile, when considering the GDP rebasing process in Pakistan, the base year has been updated to 2015/16 from 2005/06, which yielded around 11.3% increase in the GDP level in 2015/16 (Pakistan Bureau of Statistics, 2022).

The Department of Census and Statistics (DCS) is the official compiler of the GDP estimates of Sri Lanka. The DCS has rebased the national accounts estimates of Sri Lanka several times, and the most recent rebasing exercise considers the year 2015 as the base year, replacing the previous base year of 2010. Alongside this rebasing exercise, DCS broadened the coverage of economic activities and improved the compilation methodologies.

Expanding the Production Boundary and the Coverage of Economic Activities

Addition of Colombo International Financial City to the Production Boundary

During this rebasing exercise, the coverage of many economic activities has been broadened. One of the major coverage expansions is the inclusion of reclamation work relating to the *Colombo International Financial City (CIFC)* project in the national accounts estimates. Under this project, a new land area of 269 hectares of reclaimed land from the sea adjacent to the Galle Face in Colombo has been added to the total land area of the country. This has broadened the production boundary of the economy. As the reclamation work related to the *CIFC* was carried out during the period from 2014 to 2018, it was not fully reflected in the national accounts estimates under the 2010 base year and now it is included in the 2015 base year estimates, taking into account the percentage of work done in each year. This leads to considerable fluctuations in the GDP estimates and the corresponding GDP growth rates during the period 2014-2019.

Expanding the Coverage of Economic Activities

The coverage of many of the Agriculture, Industry and Services activities has been expanded under this rebasing process. Considering the Industry activities, the most significant coverage improvement was the inclusion of reclamation work done related to the *CIFC* project in construction activities. With regard to the Agriculture activities, coverage improvements have been introduced to include *growing of fruits, oil palm, flower plant propagation, household log production* and *agriculture supporting activities*. The *support services to agriculture activities* have been expanded to include the supply of services to farmers for the preparation of land, pre-harvesting, and post-harvesting activities. Further, work-in-progress (WIP) of coconut plants, which is the value addition of the period from coconut planting to bearing fruits has been newly included in the *growing of oleaginous fruits (coconut, king coconut, oil palm)*. Moreover, the value-added generated during the period of a new-born calf becoming a dairy cow, which is referred to as the WIP of dairy cows, has also been included in the compilation of *animal production activities*. With respect to the Services activities, the coverage in the areas of *information technology, warehousing activities, broadcasting activities, courier services, financial services related to the central bank,* and *repair of motor vehicles and motorcycles* have been broadened during this rebasing exercise. With these coverage improvements, the rebased GDP estimates related to the Production Approach are disseminated under 49 economic activities; with the separation of plant propagation and support activities to agriculture instead of 48 economic activities had under 2010 series.

Methodological Improvements and Use of New Data Sources

Agriculture Activities

During the rebasing exercise, several methodological improvements have been introduced to the Agriculture activities. Accordingly, compilation methodologies of areas such as *support services to agriculture activities, forestry and logging,* and *plant propagation of flower plants* have been improved. Under the *forestry and logging activities*, DCS has initiated collecting log production data from Divisional Secretariats as well. Further, the Input-Output ratios of many agriculture activities, including *paddy, cereals, vegetables, tea, rubber, fisheries, spices,* and *animal production,* have been updated based on the latest information collected from field surveys.

Industry Activities

The compilation methodology of many Industry activities has also been improved by incorporating new methodological changes. Accordingly, the estimation methodology of *manufacturing activities* has been enhanced through the use of data extracted from the Labour Force Surveys and Economic Census 2013/14. Further, the Producer Price Index (PPI) is used as a deflator to derive the estimates of *manufacturing activities* at constant prices, replacing the Wholesale Price Index (WPI). Moreover, with respect to *construction activities*, the ratio of raw materials consumed for *construction activities* has been improved based on the latest Survey of Construction Industries and several other case studies. In the meantime, the compilation methodology of *electricity generation, transmission, and distribution activities* has been upgraded by separately accounting for the

contributions from hydro, fuel oil, coal, Non-Conventional Renewable Energy (NCRE) and Independent Power Producers (IPP) to the total electricity generation, in estimating the value-added of this segment.

Services Activities

Considering the Services activities, the outcomes of the IT and IT Enabled Services (ITES) Industry Revenue Survey, which was conducted by the DCS, have been used to improve the compilation methodology of *IT programming consultancy and related activities* resulting in an overall increase in the value-added of IT services. Moreover, compilation methodologies of *accommodation services* and the *food and beverage service activities, wholesale and retail trade activities, transportation,* general government-related activities relevant to *public administration, education* and *health services* have also been improved during the recent rebasing exercise.

In addition to the above changes, the following improvements have also been incorporated during the recent rebasing exercise.

- Several new data sources have been incorporated in compiling the rebased estimates under the base year 2015. Accordingly, the data of Economic Census 2013/14 have been used to improve the institutional sector-wise value-added estimates and to update the Input-Output ratios of many economic activities. Further, financial statements of companies listed in the *Colombo Stock Exchange* have been used as a benchmark indicator for estimating the value-added of several economic activities, including *accommodation services, real estate activities, private health services, wholesale and retail trade activities, logistics* and *warehousing activities*... etc.
- When deriving the constant price value-added estimates of many economic activities, the DCS has adopted the much more appropriate *"Double Deflation method"* in place of the "*Single Deflation method"*. Under the *"Single Deflation method"*, both Output and Intermediate Consumption (IC) were deflated using the same price index, whereas in the *"Double Deflation method"*, Output and IC are deflated using two different price indices to reflect more accurate constant price estimates, which is deemed to be more appropriate.
- The Revision Policy for quarterly and annual GDP estimates has been updated by limiting the frequency of revisions. Accordingly, going forward, quarterly GDP estimates are revised only with the release of the respective annual GDP estimates, while the annual estimates are revised only of two consecutive years.

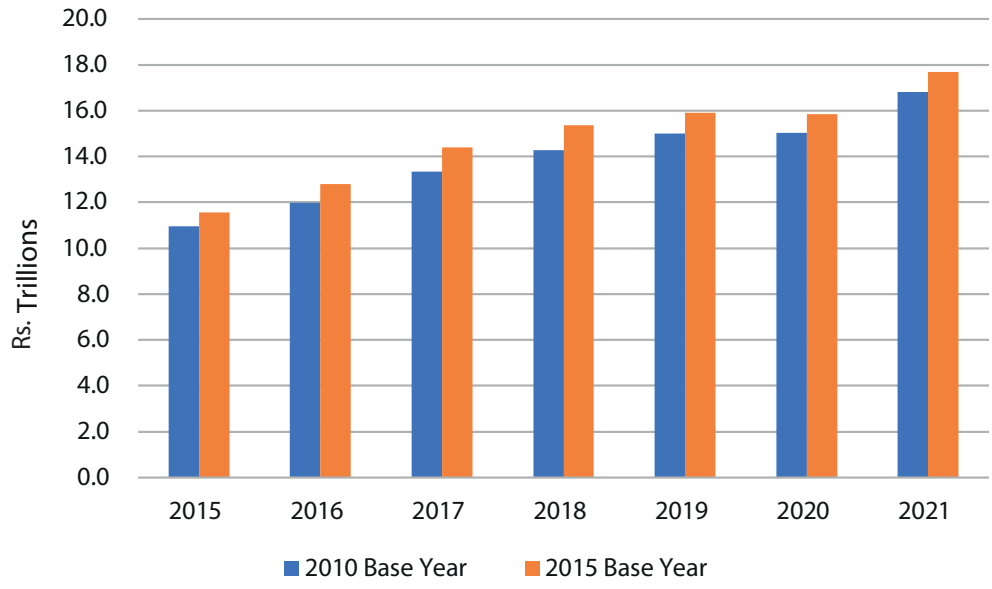
Key Outcomes of Rebasing National Accounts estimates to the base year 2015

The base year revision of the national accounts estimates has affected many indicators such as the size of the economy (value of GDP), GDP growth, the share of major activities to the economy, GDP implicit price deflator, per capita GDP... etc.

The Level of GDP

The value of GDP in 2015 at current market prices under the new base year of 2015 is Rs. 11,567.0 billion, and it is considerably higher than that of Rs. 10,950.6 billion under the previous base year of 2010 indicating a level shift, which could be attributable to the updated prices that prevailed in 2015 instead of 2010, as well as the coverage and methodological improvements.

Figure 1: Levels of GDP at current prices – 2015 to 2021

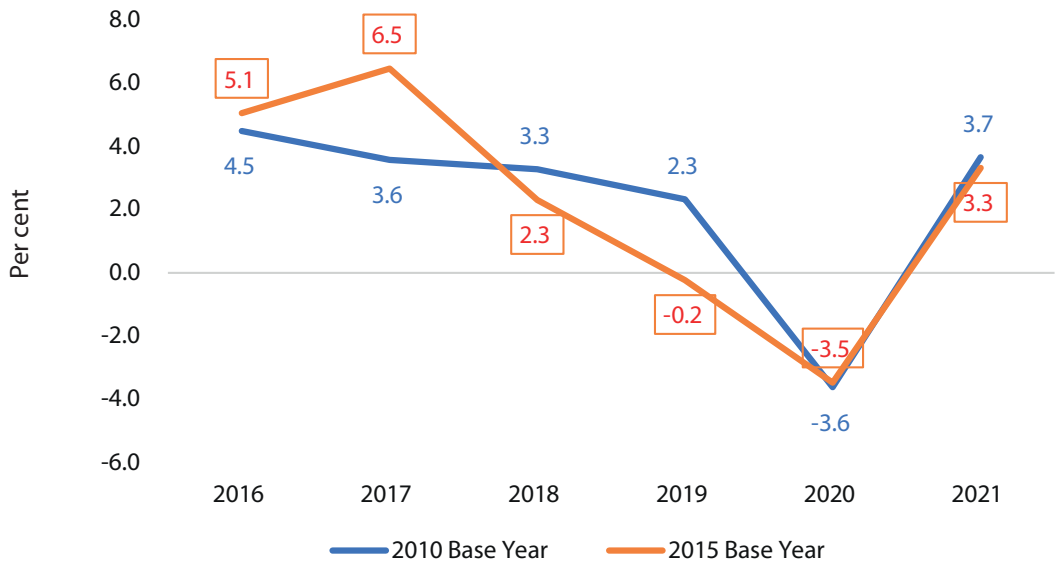


Source: Department of Census and Statistics

GDP Growth Rate

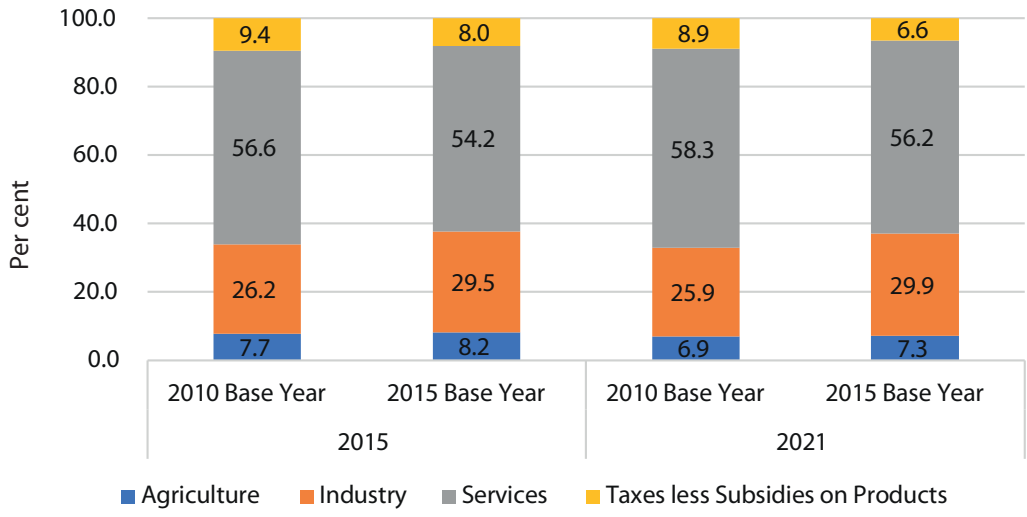
The GDP growth rate, which is the percentage change in the GDP at constant prices (real GDP), has been affected from the base year revision. This was mainly due to the changes in economic and price structure which were incorporated into the estimation of GDP through the improvements in coverage and estimation methodologies under the new base year. Moreover, the addition of reclamation work related to the *CIFC* project has also led to considerable revisions in GDP growth rates during 2014-2019 period under the new base year series. Accordingly, GDP growth rates from 2015 to 2021 have been revised under the new base

Figure 2: Annual growth comparison – 2016 to 2021



Source: Department of Census and Statistics

Figure 3: Share of GDP comparison



Source: Department of Census and Statistics

year. As shown in Figure 1, significant changes in the GDP growth rates could be observed in some years where the impact from newly incorporated activities were high.

Share of GDP

The GDP comprises of four major components, namely, Agriculture, Industry, Services and Taxes less Subsidies on Products. With the base year revision, the contribution to GDP from these components have been changed considerably, especially with an increase in the share of Industry activities and a decline in the share of Services activities and Taxes less Subsidies on Products.

Per Capita Gross National Income (GNI)

The per capita income of a country is estimated dividing the national income of a country (GNI) by the mid-year population of that country. This indicator (in US$ terms) is used by the World Bank[2] to classify countries based on the income level. As per the rebased estimates, Sri Lanka would remain categorised under the Lower Middle-Income category.

Concluding Remarks

National Accounts estimates play a pivotal role in economic analyses as well as in policy decision making as they reflect the real sector developments of an economy. Therefore, it is essential to accommodate the changes in the economic and price structures of an economy over time to the national accounts estimates through regular rebasing exercises. Following these internationally accepted practices, DCS has rebased the national accounts estimates of Sri Lanka on several occasions. During the recent rebasing exercise, DCS rebased the national accounts estimates to the base year 2015, updating from the base year 2010. Accordingly, in addition to the updating of prices to the new base year, changes have been introduced to the coverage as well as the compilation methodologies

2. According to latest World Bank country classification, Per Capita GNI in US$: Low Income: <1,046, Lower Middle Income: 1,046 – 4,095, Upper Middle Income: 4,096 -12,695, High Income: > 12,695. Source: https://blogs.worldbank.org/opendata/new-world-bank-country-classifications-income-level-2021-2022

Table 1: Comparison of Per capita GNI (Rs.) and Per Capita GNI (US$)

	GNI Per Capita (US$)		GNI Per Capita (Rs.)	
	2015 Base Year	2010 Base Year	2015 Base Year	2010 Base Year
2015	3,961	3,745	538,495	509,103
2016	4,046	3,781	589,058	550,541
2017	4,293	3,969	654,470	605,076
2018	4,248	3,947	690,463	641,500
2019	3,969	3,734	709,516	667,604
2020	3,791	3,591	703,367	666,285
2021	3,921	3,722	779,890	740,328

Source: Department of Census and Statistics

of economic activities. One of the most significant coverage expansions accommodate alongside this rebasing exercise is the inclusion of reclamation work relating to the *CIFC* project to the national accounts estimates, which led to fluctuations in GDP levels and growth rates, especially during the period 2014-2019. The rebased estimates indicate a level shift in GDP largely emanated from the addition of reclaimed land of the *CIFC* project, as well as the impact of improving the coverage and the compilation methodology of other economic activities. Following the increase in the level of GDP, several macroeconomic indicators which are compiled based on GDP have been revised. Since regular rebasing of GDP estimates result in the data series of different base years, when using these GDP estimates for research purposes, it is essential to develop a single series amalgamating the different base year series, with the use of suitable statistical techniques.

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Importance of Reducing Cost of Remittances and Using FinTech-Driven Remittance Methods

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Introduction

International remittances comprise mainly monetary transfers to the home country, made by family or other individuals living abroad. The movement of people across international borders has enormous implications for economic growth and poverty alleviation in both originating and destination countries. Many people in poverty ridden developing countries strive to secure foreign employment in order to send money back home, to support their family members. One of the goals of the United Nations' Sustainable Development Goals (SDGs) aims to lead the way in delivering a better platform for the easy and safe fund transfers for such migrants. The SDG 17, which aims to "strengthen the means of implementation and revitalize the global partnership for sustainable development", emphasizes the importance of partnerships for global development and the need to focus on facilitating and strengthening financial relationships between countries (World Bank, 2020). Accordingly, by providing a secure and enabling environment to migrants, both home and host countries can contribute to achieve such goals, through the alignment of policies to support sustainable development across borders.

The World Bank has predicted that the confluence of demographic forces, globalization and climate change will increase migration pressures in the coming decades, both within and across borders. SDG 10.C targets to reduce remittance cost to less than 3% and to eliminate remittance corridors that cost higher than 5% by 2030. However, the current global average cost of remittances remains at 4%, which is higher than the envisioned target under SDG 10.C (ILO,2020).

Although remittances have the potential to speed up the development agenda, the ineffectiveness of the prevailing cross-border payment system results in higher costs, which in turn, reduces the benefits. According to the World Bank (2019), the global average cost of sending US dollars 200 to low and middle-income countries amounted to 6.9% of the remitted value in 2018. This high cost minimises the overall benefits to the poor families in the beneficiary countries. The high cost of remittance reduces the amount received by the home country as well as their families and encourages the use of informal channels, such as Hawala/Hundi. The popularity of such informal channels limits the contribution that remittances can make to the

development of domestic financial markets. In addition, there are significant risks emanating from the informal money remitting systems, as most of the informal channels based on trust and no concrete assurances that the correct money will be sent to the beneficiary. Also, it doesn't provide any grounds for complaint because it is not an official system. Further, popularity of informal channels would restrict the ability of the households to use the formal financial system for their savings and investment purposes (OECD, 2020). Reducing the cost of transferring money would not only increase the disposable incomes of migrants, but would also serve as an incentive to send money back home through the formal channels. Remittances are also likely to increase as the cost of sending money to the home country decreases; encouraging migrants to transition towards the formal channels (Freund & Spatafora, 2008).

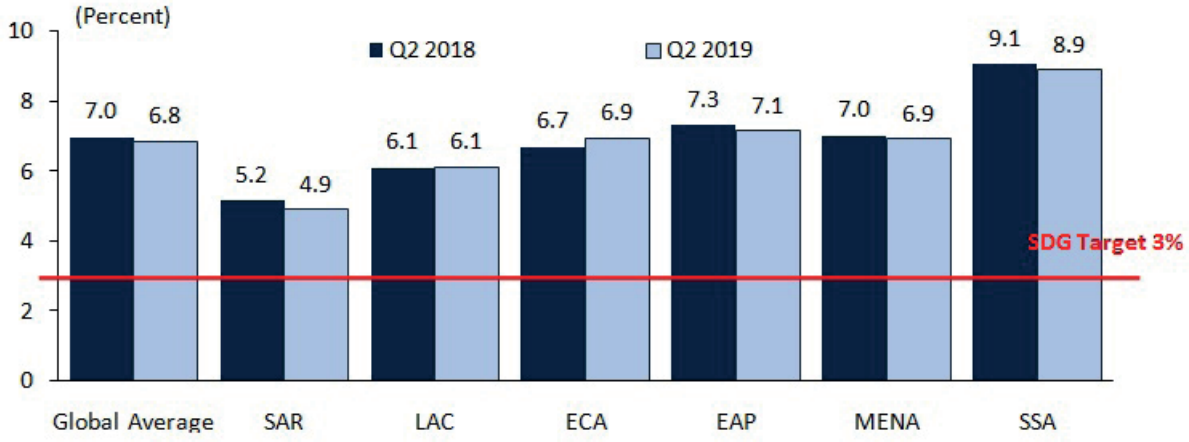
Reasons for the high cost of remittances

Numerous factors determine the transactional cost associated with remittances. These include:

I. **State of cross-border payments system:** The inadequately developed cross-border payments mechanisms comprise inefficiencies and complex arrangements that raise the cost of remittances. The infrastructure required to support remittance services is sometimes inadequate and the use of correspondent banking can be expensive for small value payments (World Bank; Bank for International Settlements, 2007).

II. **Regulatory and compliance cost:** The regulatory and compliance procedures that impose 'Know your Customer' (KYC) requirements to curtail money laundering and terror financing have raised the cost of operations for money transfer operators. In addition, there are regulatory costs associated with registration and licensing requirements of companies aimed at deterring fraudulent practices and protecting consumer interests.

Figure 1: Cost of Remittance by different regions



Source: Remittance Prices Worldwide database, World Bank (2019).

Note: EAP (East Asia and Pacific); ECA (Europe and Central Asia); LAC (Latin America and the Caribbean); MENA (Middle East and North Africa); SAR (South Asia); SSA (Sub-Saharan Africa).

III. **Cash-based transactions:** The prevalence of cash-based transactions significantly affects the cost of remitting due to delivery expenses. The cost of operating distribution points includes levying of commissions by the local agents who have to pay salaries and rents for conducting their operations, depending on the business model (ILO, 2020).

IV. **Lack of competition in the money remittance market:** According to Ratha (2006), when the bank concentration is high and competition is low, remittance fees tend to be a higher. The level of competition is dependent on the remittance volume and the exclusive arrangements of the larger money transfer operators. Many countries mandate exclusive partnerships between money transfer operators and post offices, which can drive up prices. High volume corridors tend to attract more competition resulting in lower fees.

Adoption of FinTech for remittances and its benefits

FinTech remittance services can be defined as the adoption of unconventional payment methods in transferring money, by using the internet or mobile phones. Conversely, traditional remittance service providers (traditional RSPs) include the institutions whose services are contracted through bank branches, brick-and-mortar agents or call centres. The main difference between these two methods is the access point from which their services are made available. FinTech is rapidly changing the financial ecosystem and providing a number of benefits, including the reduction of costs. During the pandemic, many countries introduced different FinTech models to create a conducive environment to send money to the home country that benefited migrant workers.

Money Transfer Organizations (MTO) and other remittance service providers that adopted FinTech were able to offer their services at a considerably lower cost than customary services. Mobile phone technology, mobile money, digital currencies, blockchain and distributed ledger technology, electronic identification and verification, and cloud technology (KNOMAD, 2019), could be cited as examples. Cost of remittances through the India-Nepal corridor has substantially decreased after the remittance services adopted new technologies. Not only do these technologies contribute to cutting down the cost of remittance significantly, but they also improve the speed and traceability of transactions (ILO,2020).

In addition, FinTech based methods also enabled them to increase the number of payment options available to their customers. Customers have the freedom to choose the best method as they wish among several options, such as paying through a bank account, payments via debit and credit cards or another different method like Google Pay, Apple Pay…etc. which are offered by different companies. Speed of transaction is another positive sign. Traditional bank transfer can be taken few days to process an overseas money transfer while FinTech have leveraged technology to do it in a faster way. Finally, the transfer charges for most FinTech remittance services are negligible or free.

Moreover, FinTech make financial inclusion easier by providing a comfortable platform to enhance the accessibility to useful and affordable financial products and services to individuals and businesses. Eventually, unbanked and under banked people will be connected with financial services; increasing their economic opportunities and improving their wellbeing. Efficient remittance channels and methods not only facilitate cost reductions on remittance and thereby helps financial inclusion, but also positively impacts investment, education

and health, which in turn, leads to economic growth, especially in emerging and developing economies. FinTech companies take advantage of several business models to promulgate cross-border remittances and the main models are as follows;

i) Mobile money-based remittance technology

The increased usage of mobile phones has led to an upsurge in the use of mobile money for international remittances with new models offering remittance services at a lower cost. They are usually provided by mobile network operators and consist of electronic wallets linked to the customer's mobile phone number. With these e-wallets, individuals can transfer funds, pay bills as well as deposit and withdraw cash through their mobile phones (ADB, 2016). Neither internet access nor smartphones are needed for these remittances as only the mobile-cellular network connectivity and a regular mobile phone is sufficient. The advances in mobile money services have made it possible to reduce costs by increasing competition, reducing transfer time and improving convenience.

As per the study by Global System for Mobile Communication (GSMA) on using mobile money, it is on average, more than 50% cheaper than transferring through global money transfer operators and 21% cheaper when mobile money cash-out fees are considered. Mobile money is particularly competitive for low-value transactions (GSMA, 2019). However, still many countries continue to use traditional methods and the mobile money technology has yet to reach many parts of the world. A study by GSMA shows that there are only 184 unique corridors connecting 35 sending countries and 40 receiving countries where mobile money is used to send and/or receive international remittances (OECD,2020).

ii) Online platform-based remittance technology

The 'online platforms' enable companies that provide exclusively online remittance services via mobile applications or online applications, to transfer money by having the senders link their bank accounts to the money remittance platforms. When the money is transferred, receivers can get the funds to their bank accounts or to the payment card. Some online platforms operate under a peer-to-peer model; which allows money to be received in a different currency to the end customer without a movement of funds through the borders. If someone is buying dollars by providing euros and another customer is buying euros by providing dollars, these transactions working in opposite directions would be paired instead of transferred or exchanged. By using two local transfers instead of one international transaction, this scheme allows Remittance Service Providers to charge the official exchange rates, which greatly reduces transaction costs (ESCAP,2019).

iii) Mobile wallets based Blockchain technology

Mobile wallets powered by Blockchain technology constitute another FinTech based method that is currently being tested and even used by many countries. Mobile wallets are installed on mobile phones and this system offers a range of services along with the facility to transfer money internationally. Blockchain is a modern technology based on distributed ledger technology (DLT). This new technology is an innovative approach for sending and receiving remittances which it makes the use of new digital forms of money, novel payment infrastructure, and a new type of remittance service provider (Finextra, 2020). These technologies help to reduce the cost of remittance

services of a number of countries including Singapore, Hong Kong, India…etc. Amongst the all benefits, freeing-up cash reserves, reducing counter-party risks, client on-boarding, and Know Your Customer (KYC) identification processes can be recognized as the key advantages of these technologies (ESCAP,2019).

vi) Remittance through ATM cards

Some countries comfortably use ATM cards for cross boarder remittances. The Bank of Indonesia and the Philippine National Bank encourage the use of ATMs by charging lower fees for remittances done via ATM cards. Further, the Indonesian government initiated the development of ATM linkages among ASEAN countries, together with other central banks (ASEAN Pay Initiatives). This involves a pilot linkage project between private banks in Malaysia (Maybank) and Indonesia (Bank Mandiri). In addition, they have initiated development of bilateral ATM linkages between Indonesian and Malaysian banks/ institutions through the network operators of each country.

Achieving SDGs and ensuring a safer way

Although the high cost of remittance is an important concern among migrants and policy makers, reducing the cost of remittances is a challenging goal as it involves both local and international transactions; therefore, a single country working on this concern in isolation cannot achieve much in this endeavour. In order to achieve this target related to SDGs, countries must work across multiple fronts, developing partnerships among countries. Some of the better practices proposed by SDGs and the Global Compact on Migration (GCM) to promote faster, safer and cheaper transfer of remittances and to foster financial inclusion of migrants are as follows:

- Harmonising the remittance market regulations and increasing the inter-operability of remittance infrastructure along corridors
- Establishing conducive policy and regulatory frameworks that promote a competitive and innovative remittance market
- Developing innovative technological solutions for transferring remittances at reduced cost, improved speed, and enhanced security while increasing the volume of transfers through regular channels
- Opening gender-responsive distribution channels
- Increasing the transparency and the level of competition in the remittance transfer market

Considering the contribution of FinTech in reducing the cost of remittances, it is important to encourage the use of FinTech for remittance transactions connecting Sri Lanka with the other countries. Accordingly, the adoption of FinTech would also contribute to the much-needed expansion in the formal channels of remittances which make the process safer. However, any technology can be associated with some risks. Increased instances of digital fraud, peer-to-peer lending platform collapses, and borrower distress as a result of irresponsible digital microcredit lending practices illustrate some of the risks that can emanate from such technologies (World Bank,2021). Whereas some of these risks are new, many are new indicators of risks that already existed in financial markets which arising from new business models, product features, and provider types.

Hence, all the stakeholders including regulators should be vigilant to mitigate and minimize the risk by taking necessary precautions, considering not only risk-mitigation concerns but also possible implications for formal financial sector

development and innovation. Adoption of high standards of security in exchanging data and following clearly spelt out settlement parameters are absolutely vital to establish strong and safer remittance flows.

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WHAT DETERMINES EXCHANGE RATES BETWEEN TWO CURRENCIES?

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Introduction

The exchange rate has dominated policy discussions and debates in recent times in Sri Lanka. The importance of the exchange rate stability, the impact due to exchange rate volatility, the losers and gainers of exchange rate volatility, the factors that determine the exchange rate of a country are among the topics that are widely discussed these days. The objective of this article is therefore to describe some of the important areas related to the exchange rate, including, the evolution of exchange rate systems in the world, differences between fixed and floating exchange rate regimes, the evolution of the exchange rate system in Sri Lanka, the main determinants of the exchange rate and the recent exchange rate behavior in Sri Lanka…etc.

In simple terms, the exchange rate is the rate at which one currency is exchanged with another currency. It is a relative value, stated as a comparison of the currencies of two nations. For example, the exchange rate stipulates the number of Sri Lankan Rupees (LKR) that would need to be exchanged for one United States Dollar (USD). The USD/LKR exchange rate, which stood as LKR 362.00 as of end August 2022, indicates that LKR 362.00 is required to exchange for one USD. When the value of a local currency increases in terms of another currency, it is called an appreciation of the local currency. Similarly, the decrease in the value of a local currency in terms of another currency is referred to as a depreciation.

Prior to the use of money as a medium of exchange, nations traded goods directly, paying for one good by exchanging with another, which is called the "barter system". However, due to a number of disadvantages in the barter system, money was eventually formed to facilitate trade. In the early days, commodities with intrinsic values, such as gold or silver, were used to facilitate trading (commodity money). After a period of time, the benefits of paper currency became apparent (fiat money). However, international trade became increasingly complex as each nation starting to issue its own currencies, with their own purchasing powers. Consequently, nations started to conduct their own monetary policy, allowing international trade to be conducted by providing a means of exchanging one currency for another according to the exchange rate between them, which was either agreed-upon or set by the market forces of supply and demand.

Evolution of Exchange Rate Systems in the World

The exchange rate systems changed from time to time, over the past century. The "Gold Exchange Standard" reigned from 1876 to 1933, where the exchange rate was mainly dependent on the

respective currency's comparative convertibility to an ounce of gold. The Gold Exchange Standard started breaking down during the Second World War, as European nations printed currency in excess of the value of gold that they had in their reserves in order to finance military spending. Subsequently, the system ended with the declaration by the United States President Franklin Roosevelt in 1933 that the private ownership of gold is illegal, except in the form of jewelry.

After the Gold Standard ended, a system of fixed exchange rates was formed in 1944. Accordingly, the US dollar was chosen as the international reserve currency. To facilitate this, with the representatives of 45 nations, "Bretton Woods System" was established. International institutions created in 1945 to monitor the economic activities of the nations across the world. These included the International Monetary Fund (IMF) and the International Bank for Reconstruction and Development, commonly known as the World Bank, to offer financial support initially for the reconstruction of war damaged economies and subsequently for development projects. The IMF was operationalized in 1947, for the purpose of acting as a supranational institution to stimulate global monetary collaboration and to provide assistance to developing nations. In addition, in order to promote international trade between nations, General Agreement on Tariffs and Trade (GATT) was signed in 1947. GATT was later replaced by World Trade Organization. Bretton Woods System was in operation until early 1971.

Since December 1971, for a very short period of time, "Smithsonian Agreement" was in effect with a new set of fixed exchange rates based on the devalued US dollar. Currencies of 10 industrialized nations were pegged to the US dollar. These nations include Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, the United Kingdom, and the United States. As speculators pushed the US dollar lower, in 1973, countries abandoned the Smithsonian exchange rate system and moved in favor of floating exchange rates.

Subsequent to the failure of Smithsonian exchange rate system in 1976, IMF member countries met in Jamaica to agree on a new international monetary system. Accordingly, the "Jamaica Agreement" was formed to establish the floating exchange rate system that continues until today, in different versions. Under this system, currencies float against one another and the exchange rates are determined by the demand and supply of currencies with leeway for the respective Governments to intervene if there is a necessity to stabilize their currency. In addition, the objectives of IMF were also expanded to incorporate lending money as a last resort to countries with balance of payment challenges. Since then, countries have selected fixed or floating exchange rate systems either allowing their central banks to intervene or allowing market forces to determine the exchange rates. A summary of exchange rate systems that prevailed in the world during the past century as in Table 1.

Fixed Exchange Rate Systems and Floating Exchange Rate Systems

International trade expanded with globalization. However, there is a timing gap between the trade date, delivery of goods or services date and the payment date. If the exchange rates fluctuate substantially during this period, it may not be favorable for the business partners and would make it difficult to estimate costs and revenues. Having a stable exchange rate supports better estimations of costs and revenues. Accordingly,

Table 1 - A Summary of Exchange Rate Systems

Name of the System	Period/Signed Year	Summary
Gold Exchange Standard	1876 - 1933	Value of the currency is decided based on the comparative convertibility to an ounce of gold.
Bretton Woods System	1944 - early 1971	Fixed exchange rates were using the US dollar as the international reserve currency.
Smithsonian Agreement	December 1971 - February 1973	New set of fixed exchange rates based on the devalued US dollar.
Jamaica Agreement	In 1976	Formalized the floating exchange rate systems.

certain countries prefer to peg or fix their currency to protect themselves from exchange rate fluctuations and to preserve the international competitiveness of their exports. Fixed exchange rate is where the price of a currency is fixed against the price of another currency. This is also known as a "Pegged Exchange Rate". The purpose of a fixed exchange rate is to preserve the value of a country's currency within a planned threshold. However, currency pegging is costly, as the central bank of the respective country has to supply foreign exchange to the market by purchasing local currency using the foreign exchange reserves of the country, when the value of the currency falls below the peg. The easiest form of fixing the exchange rate is pegging the value of a currency against a single currency. In addition, certain countries fix the value to a basket of currencies, instead of one currency. Examples for some of the countries that are following fixed exchange rate systems are Bhutan, Denmark, Brunei, Hongkong, Bulgaria, Jordan, Lebanon, Namibia, Saudi Arabia, Qatar, Nepal, Iraq *(IMF: Annual Report on Exchange Arrangements and Exchange Restrictions 2018, dated April, 2019).*

In contrast, floating exchange rate is where the price of the currency is permitted to be determined by market forces; that is demand and supply for the respective currencies. This is also known as "Fluctuating Exchange Rate". As per the floating/ fluctuating exchange rate, value of the currency is permitted to fluctuate in response to foreign exchange market mechanism; that is the demand and supply for respective currencies. The currencies of most of the major economies in the world are allowed to float freely. By maintaining floating exchange rate, countries can adhere to their own economic policies. However, floating exchange rates are exposed to high foreign exchange risks, including for marked-to-market losses, currency depreciation etc... Therefore, countries are using hedging instruments, such as swaps, forward contracts, options and futures to mitigate such foreign exchange risks. The major differences between these two exchange rate systems are as in Table 2.

When analyzing the advantages and disadvantages of fixed and floating exchange rate systems, a fixed exchange rate delivers currency stability. Therefore, users of foreign currency know the worth of its currency at any given point of time. Hence, no hedging mechanisms are required to hedge the currency risk. This supports attraction of foreign direct investments to the country. In addition, if the

Table 2 - Major Differences Between Two Exchange Rate Systems

Fixed Exchange Rate System	Floating Exchange Rate System
a) Value of a currency is controlled.	a) Allowed to be decided by the demand and supply.
b) Determined by Government or the Central Bank.	b) Exchange rate varies as per the market forces.
c) Foreign currency reserves need to be preserved, in order to maintain the fixed exchange rate system.	c) Foreign currency reserves can be maintained at a reduced level.
d) No need to hedge currency risks, when a country is using a fixed exchange rate.	d) Hedging instruments are required to mitigate currency risks.
e) Changes in currency prices are termed as devaluation and revaluation.	e) Changes in currency prices are termed as depreciation and appreciation.
f) Speculation takes place only when there is rumor about change in government policy.	f) Speculation is very common.
g) Operates through variation in supply of money, domestic interest rate and price.	g) Operates to remove external instability by changes in forex rate.

currency is pegged to a popular currency, it will facilitate to minimize the effects of inflation as well. In respect of floating exchange rate system, it is a self-correcting mechanism and does not depend on the actions of the Government or the central bank. Market forces will automatically determine the value of the currency. It supports protection of the economy from external economic events. When the supply and demand move without restrictions, the domestic economy will be protected from instabilities in the world economy. In addition, it provides freedom for Governments to select their own domestic economic policies.

However, there are number of disadvantages inherent in each of these systems. A fixed exchange rate is costly to maintain as it requires adequate foreign exchange reserves to manage the fixed exchange rate. In addition, there will be a high probability for speculation and very often, artificial movements in the exchange rates can create foreign exchange shortages in the market. In a fixed exchange rate system, if the central bank does not have adequate foreign currency reserves, it has to raise interest rates, which could lead to an economic downturn. In addition, a fixed exchange rate does not reflect the true economic condition and the macro-economic fundamentals of the country. On the other hand, floating exchange rate, which involves higher volatility, makes it difficult for financial markets to estimate the costs and revenues and therefore, significant resources are required to predict and hedge the foreign exchange risk. In addition, when a country is suffering from economic difficulties, the situation may become worse, due to the high volatility in the exchange rate, which could make imports more costly, exports less attractive, investors to lose confidence and it can impact on inflation as well, as macro-economic variables of the country.

Overall, a fixed exchange rate has been proven to create more stability while a floating exchange rate is more efficient in determining the value of a currency as well as generating equilibrium in the international market.

Evolution of the Exchange Rate Systems in Sri Lanka

Since establishment of the Central Bank of Sri Lanka (CBSL) in 1950, like many other countries in the world, Sri Lanka also followed the fixed exchange rate system. This system was maintained until the economy was opened to the world in November 1977, with strict exchange control measures. During this period, LKR was first devalued in 1967 by 20%, mainly due to depletion of the foreign exchange reserves of the country and the continued devaluation of the peg currency of GBP. With this development, to preserve the value of LKR, a dual exchange rates system was introduced in 1968. This system called the "Foreign Exchange Entitlement Certificates Scheme (FEECS)" and under this system, essential imports and traditional exports were priced at an official exchange rate while another higher exchange rate was applied for other imports and exports.

In May 1976, by determining the exchange rate using an appropriately weighted basket of currencies, LKR moved from a single currency peg (i.e. GBP) to a basket peg. This supported to reflect the effects of underlying trends in the Sri Lankan economy to a greater extent in the exchange rate and this system was progressively re-adjusted under a crawling peg system until mid-November 1977.

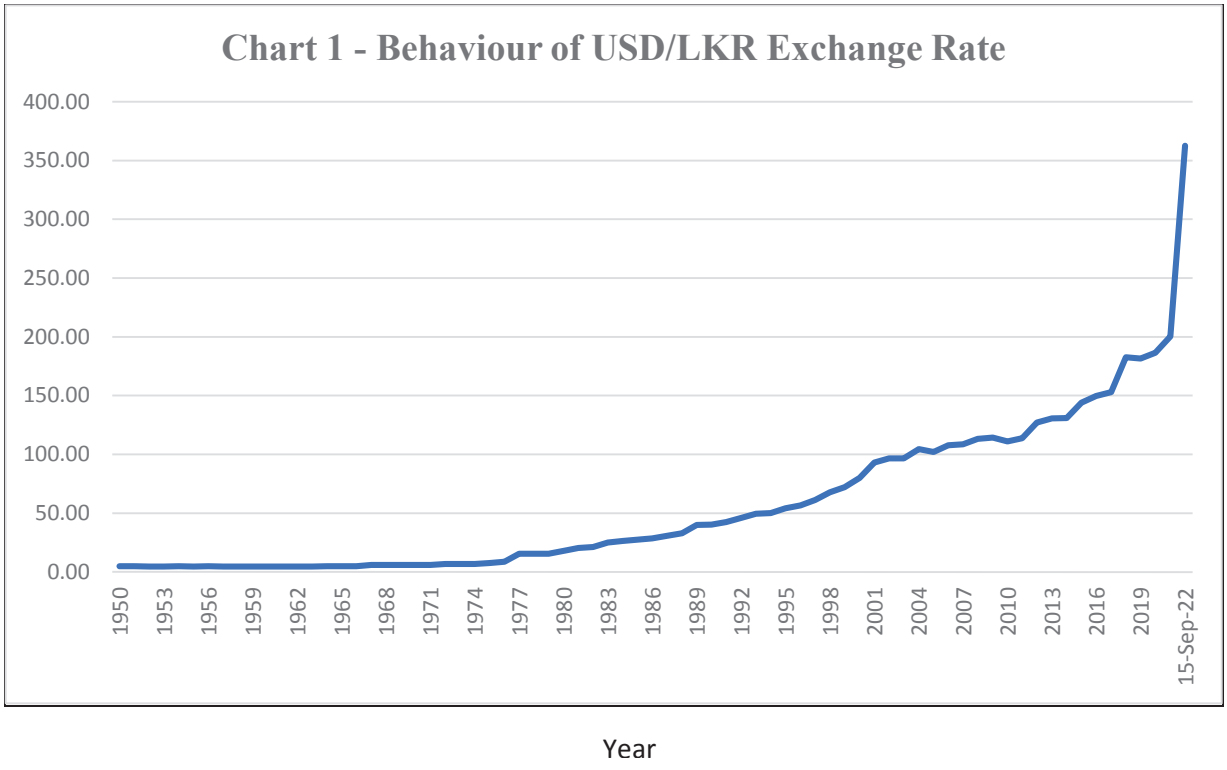
In November 1977, Sri Lanka made a key move towards a partial liberalization of external trade and payments from restrictive exchange rate policies, by introducing a unified exchange rate. Under the unified exchange rate system, the exchange rate was allowed to float and to be determined largely based on the demand and supply in the market. However, considering the very thin foreign exchange market in the country and given that the financial system was not adequately matured to operate on its own, it was considered to be optimum to allow the CBSL to continue to manage the exchange rate system. Accordingly, the CBSL announced the buying and selling exchange rates to the market on a daily basis and specified a narrow band within which it should operate. These systems are called as "managed crawling/floating exchange rate system". Together, with the opening-up of the economy in November 1977, a number of market developments occurred, including the steady increase in import demand, increase of oil import prices and additional imports on account of security related expense, all of which resulted in an increase in the balance of payments deficit and triggered the drain of the foreign exchange reserves of the country. In addition, in 2000, with the adverse developments in the civil status of the country due to ongoing war situation, the government expenditure also increased. Based on market expectations in favor of further depreciation of the LKR, the exporters held onto their foreign exchange earnings and financed local operations through rupee funds, while importers advanced their operations and made forward bookings for imports. To manage the significant pressure on the exchange rate, the CBSL gradually revised the buying and selling bands several times while supplying a significant volume of US dollars to the market to manage the exchange rate. Due to this reason, Sri Lanka experienced a decline in its foreign exchange reserves, as CBSL had to sell a significant volume of foreign exchange reserves to maintain the managed floating exchange rate within the desired bands. From November 1977 until January 2001, exchange rate in relation to US

dollar was gradually revised from LKR 15.56 in 1977 to LKR 80.06 in the end of 2000.

With these developments, since 23rd January 2001, Sri Lanka maintained a floating exchange rate system, by allowing the market forces of supply and demand of foreign exchange to determine the exchange rate in the domestic foreign exchange (FX) market. Intervention of the CBSL was limited only to maintain the exchange rate stability when it observes a significant volatility in the exchange rate.

In the recent past, there were several instances when the CBSL observed a significant level of volatility in the exchange rate and accordingly, from time-to-time the CBSL supplied part of its foreign exchange reserves to the market to manage the volatility. In the same way, when the market is conducive, the CBSL purchased US dollars from the market to build-up its foreign exchange reserves. Further developments in the exchange rate management of the CBSL during the prevailing crisis situation is explained under the section on "Recent Exchange Rate Behavior in Sri Lanka".

Graphical representation of the behavior of USD/LKR exchange rate over the period is depicted in the Chart 1.



Factors Determining the Exchange Rate

Aside from variables such as inflation and interest rates, the currency exchange rate is one of the most important elements of an economic stability and the level of economic health of a country and it plays a critical role in the context of an international trade of a country. Therefore, among other factors, the exchange rates are the most analyzed, examined, watched, and politically influenced economic measures. In this respect, it is worthwhile to understand some of the major factors that are behind the movements of the exchange rate.

(i) Interest Rate Differentials

Factors such as interest rates, inflation and exchange rates of a country are highly correlated and closely associated. By adjusting interest rates, central banks may exert influence over the inflation of a country as well as on the exchange rates. higher interest rates of a country offer a higher return to lenders/ investors relative to other countries and may induce attraction of foreign capital. In general, foreign investors often flow funds to countries with higher interest rates, which is called as hot money flows. This leads to an appreciation in the exchange rate. However, this is subject to the impact of other factors as well such as the status of the sovereign credit rating, foreign currency debt liabilities, level of doing business index, political stability, status of financial intelligence/know your customer compliance etc... All else being equal, a higher interest rate in a country will increase the demand for a domestic currency since more foreign investors seek to invest at the higher interest rate, thereby investing foreign capital into the domestic currency. However, in practice, it is balanced out by inflationary pressures.

(ii) Inflation Differentials

Usually, a country with a consistently lower inflation rate shows an appreciation of the currency value. It is because the purchasing power of such currency is higher compared to other currencies. With lower inflation, goods/ services become more competitive and demand for such goods/services will be generally high. All else being equal, a higher inflation will decrease the demand for the domestic currency and tend to depreciate the domestic currency value.

(iii) Public Debt

Governments raise debt for several reasons using numbers of means. For an example, certain governments engage in large value public sector projects through raising large scale debts, both in terms of own currency as well as in foreign currency. Even though those projects stimulate the domestic economic activities, countries with large public debts are less attractive to foreign investors. Such instances may be worrying for foreigners if they believe that there is a country risks of defaulting on its obligations. Further, foreigners may not be willing to own securities denominated in that currency if the risk of default is great. For this reason, the country's debt is a crucial determinant of its exchange rate. Therefore, if a country has a substantial level of national debt without a credible repayment plan, that can negatively affect currency value.

(iv) Current Account Deficits

Current account of a country summarizes trade balance plus net foreign exchange income and direct payments. The trade balance is the difference between a country's imports and exports of goods and services. If there is a deficit in the current account, it means a country is spending more on foreign trade and foreign payments than it is earning, and it requires borrowing of capital from foreign sources to fill the deficit. In other words, the country requires more foreign currency than it receives through exports and other means. The excess demand for foreign currency leads to the depreciation of the exchange rate.

(v) Monetary Policy and Economic Performance

If a country has a record of solid economic performance and sound monetary policy, external investors and foreign counterparties are

more convinced to make investments. A country with such optimistic economic fundamentals will attract more foreign investments resulting in the appreciation of the domestic currency value. On the other hand, political instability, for example, can cause loss of trust in a currency and a movement of funds out from the country resulting depreciation of the domestic currency.

(vi) Terms of Trade

When the price of exports of a country increases higher than that of the price of imports, it can be considered as a favorable improvement in respect of terms of trade. When terms of trade improve, it supports increase in the demand for exports and in turn appreciation of the value of the currency.

(vii) Political Stability

When a country is experiencing a political instability, investor confidence loses, and situation become less attractive to foreign investors. This will impact negatively on the domestic value of the currency and the exchange rate. Political instability raises concerns for investors, due to uncertainty over the protection of their investments, transparency of the legal framework and the fair and orderly market practices.

(viii) Speculation

Due to number of reasons, when a country's currency is anticipated to appreciate/depreciate for any reason, including rating actions, change in Government policies, expectation of significant foreign exchange inflows/outflows… etc, speculation by market participants will occur and will have an impact on the value of the currency.

(ix) Special Considerations

In addition to the above, there are certain other considerations that also that have an impact on the value of domestic currencies. For example, several "safe-haven" currencies which are considered to be steady and likely to attract foreign capital when the overall economic stance is uncertain. Those safe-haven currencies include the US dollar, Japanese yen, the euro… etc. In addition, the US dollar is considered to be a global reserve currency, resulting in an increase in the demand for the US dollar compared to other currencies.

Recent Exchange Rate Behavior in Sri Lanka

As mentioned previously, the exchange rate is one of the most discussed topics in the recent past. Therefore, it is necessary to understand, what are the most commonly used indicators for the exchange rate of the country.

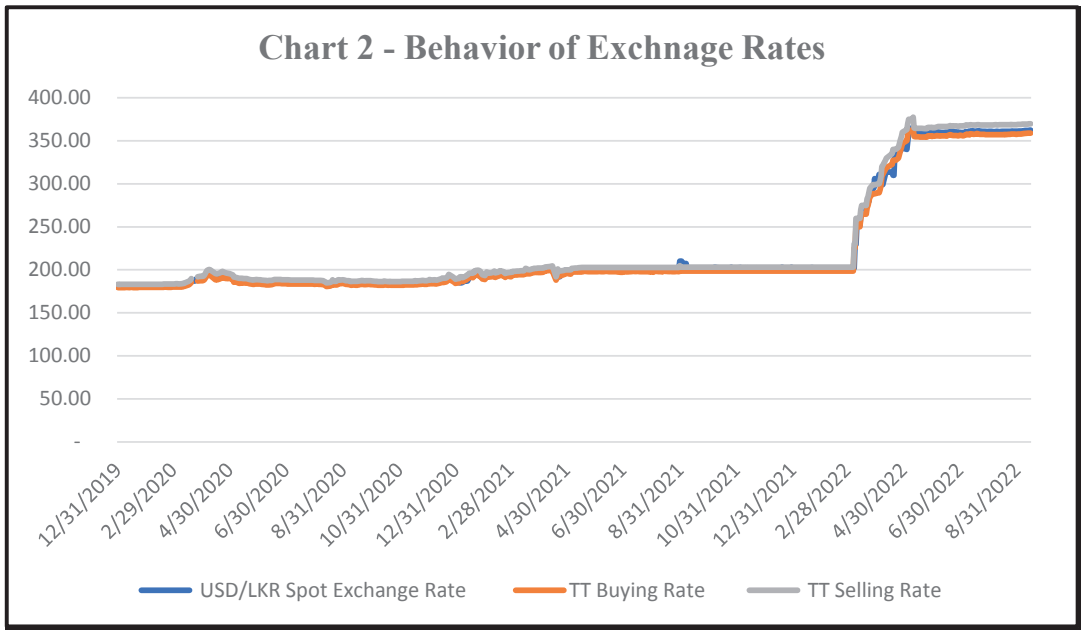
In Sri Lanka, the CBSL is the authorized institution to publish the exchange rate of the country. Accordingly, the two important exchange rate indicators published by the CBSL are the indicative US dollar spot exchange rate, which is currently known as the "Middle Rate of USD/ LKR Spot Exchange Rate" (since 13.05.2022) and the buying and selling Telegraphic Transfer (TT) exchange rates. Middle rate of USD/ LKR spot exchange rate is the weighted average rate of all actual USD/ LKR spot transactions executed in the domestic inter-bank foreign exchange market throughout the previous business day/latest available business day. It includes both outright foreign exchange transactions as well as spot transactions relating to foreign exchange SWAP transactions, including the CBSL marked-based spot transactions. The buying and selling TT rates refer to the average of quotes

provided by selected licensed banks at 9.30 a.m. to the CBSL on daily basis. However, during the day, the actual TT rates may change from bank to bank based on intra-day movements of the exchange rate. In general, middle rate of USD/ LKR spot exchange rate is used in transactions between licensed banks in the domestic inter-bank foreign exchange market while TT buying and selling exchange rates are used in transactions between licensed banks and customers including exporters, importers, corporates, investors, and the general public as a whole.

When analyzing the behavior of these two indicators since January 2020 to mid-September 2022, it is clear that the USD/LKR exchange rate has depreciated during this period on an overall basis.

The middle rate of USD/ LKR spot exchange rate depreciated against US dollar from LKR 181.63 as at 31.12.2019 to LKR 186.41 as at 31.12.2020 by 2.6%. And the same trend continued since 01.01.2021 to 15.09.2022, however with a significant depreciation of USD/LKR spot exchange rate by around 96% until 15.09.2022, from LKR 185.39 to LKR 362.45. In respect of the TT buying and selling exchange rates also, the same trend continued and the TT selling exchange rates were recorded at LKR 183.33 on 31.12.2019 was depreciated to LKR 369.71 on 15.09.2022. Main reasons for the significant depreciation of the exchange rate during this period is the impact due to the continuation of Covid 19 pandemic, which impacted significantly on the tourism related foreign exchange inflows, continuous sovereign credit rating downgrades, political instability in the country, significant volume of foreign debt obligations, which are beyond the repayment capacity of the CBSL/Government to service in a timely manner etc. As per the records of the CBSL, annual tourism related earnings were recorded at around USD 3,607 Mn in 2019, which was reduced to USD 507 Mn. in 2021 *(CBSL Annual Report 2021)*. In respect of the continuous sovereign credit rating downgrades by the global credit rating agencies., in September 2020, Moody's Investors Service ("Moody's") downgraded Sri Lanka's long-term foreign currency issuer and senior unsecured ratings to Caa1 from B2 and changed the outlook to stable and in November 2020, Fitch Ratings has downgraded Sri Lanka's Long-Term Foreign-Currency Issuer Default Rating to "CCC" from "B-", particularly based on the rise in ratio of sovereign debt to Gross Domestic Product and considering the debt sustainability risk. Further, in December 2020, Standard & Poor (S&P) downgraded Sri Lanka credit rating from B to CCC+. In addition, with the debt standstill arrangement of the Government announced in April 2022, Fitch Ratings has downgraded Sri Lanka's Long-Term Foreign-Currency Issuer Default Rating to "RD" (restricted default) in May 2022 and S & P lowered long-term foreign currency sovereign credit rating to "SD" (selective default) in April 2022. These rating actions by global rating agencies have a severe impact on the foreign exchange liquidity position in the domestic foreign exchange market as well as on the exchange rate of the country. This heavily impacted on the investor confidence and the foreign holders in the Colombo Stock Exchange and the Government Securities Market who continued to sell their holdings.

During 2020 and 2021, total net foreign exchange outflows from the Colombo Stock Exchange and the Government Securities Market recorded as USD 825 Mn and USD 290 Mn, respectively. In addition, the rating downgrade directly impacted on the foreign counterparty credit limits of licensed banks in Sri Lanka and accordingly, foreign exchange liquidity position in the domestic foreign



exchange market was affected significantly. These exerted a significant pressure on the exchange rate. In addition, recent unfavorable developments in the country with political instability created uncertainty for investors and impacted heavily on the confidence in the market, which caused to depreciate the exchange rate further. However, certain policy decisions taken by the Government together with the CBSL during this period supported to ease the pressure on the exchange rate to a greater extend. Such policy measures include temporary restrictions on non-essential imports and selected outward remittances, introduction of incentive schemes to encourage inward workers' remittances, imposition of mandatory repatriation and conversion requirements for exporters, banning of Open Account Payment method for import financing, actions relating to channelling of foreign exchange through unofficial channels, such as Hawala, Undiyal, financing of majority of the countries' energy related foreign exchange requirements by the CBSL, including for fuel, gas, coal, without passing the burden to the banking sector…etc.

In addition, time to time certain exchange rate guidance were provided by the CBSL with the support of the banks and recently, effective from 13.05.2022, in order to minimize the undue intraday volatility in the exchange rate, measures were taken to publish a middle exchange rate with a variation margin to banks on a daily basis.

The behavior of middle rate of USD/ LKR spot exchange rate and the TT buying and selling rates during the recent period are depicted in the Chart 2.

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Funding for Deposit Insurance and Target Fund Size

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Deposit Insurance Funding

Deposit Insurance is a pillar of trust. It acts as a safety net operated with the objective of protecting depositors from failure of financial institutions and promotes financial system stability. The main function of a Deposit Insurance System or an Authority (DIA) involves compensating the insured depositors in the event of a failure of the financial institution and thereby, avoiding depositor runs; to ensure the stability of financial system. Hence, in order to build up the trust and confidence, it is essential that adequate funding is maintained by the deposit insurer to be utilized for its core functions, according to its mandate, including compensating depositors, implementing resolution tools and covering its operational and administrative expenses.

Types of Deposit Insurance Funding

Funding includes financing mechanisms of the DIA. There are two main types of funding methods that can be arranged by a deposit insurer known as the Ex-Ante Funding method and Ex- Post funding method.

1. Ex Ante Funding:

   Under this method, deposit insurer establishes a fund, which accumulates over time through the regular premia collected which are utilized for the future compensation payments as well as the operational and administrative expenses of the DIA. This is operated as a defined benefit plan and contributions are collected until the fund is adequate enough to meet future obligations.

   The Ex Ante funding arrangements have a number of advantages as it helps build up public confidence through the existence of the fund and that help the reimbursement of depositors promptly.

2. Ex Post Funding:

   Here, contributions are not made in advance to accumulate a fund to meet future obligations and it is essentially a loss sharing or mutual arrangement between participatory institutions. Accordingly, in the event of a failure of a financial institution, funds are collected from the surviving members of the institutions to pay compensation for the insured depositors of the failed member institution.

   One advantage of this arrangement is that it will induce banks/financial institutions to monitor the activities of each other and thereby, offset the weakening of market discipline and excessive risk taking by banks/financial institutions. Thus, the main weakness of this

arrangement is that as funds are not collected beforehand, the method could involve delays and tends to be less dependable.

Core principles applicable for deposit insurance funding

International Association for Deposit Insurers (IADI) and the BASEL Committee on Banking Supervision have jointly issued the core principles applicable for effective DIA (core principles) in 2009, which were subsequently revised in 2014. These core principles serve as the best practices for any effective deposit insurance mechanism. In terms of these core principles, the deposit insurer should have readily available funds and funding mechanisms in order to ensure prompt depositor payouts. Further, the responsibility of paying cost of deposit insurer should be borne by the member institutions.

Principles for sources of funding and uses of funds - Core Principle No.09

Core principle No. 09 indicates the **sources of funding and the uses of funds.** Accordingly, several essential criteria have been stipulated that need to be fulfilled to ensure the effective operation of a DIA, some of which are stipulated under core principle No.9 include the following:

- Funding for the DIA to be provided on an ex-ante basis and funding arrangements are clearly defined and established in a law or regulation.
- Funding the DIA is the responsibility of the member institutions.
- Initial capital or start-up funding (e.g.: from government or international donor organizations) is permitted to help establish a deposit insurer. Any start-up funding provided by a government should be fully repaid before the deposit insurer reduces any or all bank premiums.
- Emergency funding arrangements for the DIA, including pre-arranged and assured sources of liquidity funding, are explicitly set out (or permitted) in law or regulation. Sources may include a funding agreement with the Government, the Central Bank or through market borrowing. If market borrowing is used, it is not the sole source of funding. The arrangement for emergency liquidity funding is set up in advance, to ensure effective and timely access when required.
- After establishing an ex ante deposit insurance fund: (a) the target fund size is determined on the basis of clear, consistent and transparent criteria, which are subject to periodic review; and (b) a reasonable time frame is set to achieve the target fund size.
- The deposit insurer has the responsibility for the sound investment and management of its funds. The deposit insurer has a defined investment policy for its funds that aims at ensuring: (a) the preservation of fund capital and maintenance of liquidity; and (b) that adequate risk management policies and procedures, internal controls, and disclosure and reporting systems are in place.
- The deposit insurer may hold funds in the Central Bank. The deposit insurer establishes and complies with rules to limit significant investments in banks.

(Source: IADI core principles for effective DIA (November 2014), issued by IADI)

Sources of funding

Amongst the two funding mechanisms, the ex-ante funding is the recommended method by the core principles. The start-up funding or the seed funding to establish ex-ante fund can be provided by the Government or other sources. Further, once ex-ante fund is established with start-up funds, the following regular and other funding sources can be utilized to augment the fund;

1. Regular premiums and extra ordinary premiums from the member institutions

   Regular premium collections from the member institutions are the most common and widely used funding source. Further, some deposit insurance authorities can charge extraordinary premia during certain periods and circumstances as set out in the deposit insurance law.

2. Investment income

   In terms of the core principles, sound investment and management of the fund is the responsibility of the DIA. Accordingly, such investment return also added to the deposit insurance fund as a source of funding.

3. Recoveries from failed banks and deposit taking financial institutions

   Upon completion of liquidation of the failed bank, amount recovered out of compensation payments made by DIA, can be treated as another funding source.

4. Listed fines, penalties and donations

   Deposit insurance law may stipulate penalties and fines and they also act as credits to the fund. Further, donations, if any, and government contributions can also be considered as other funding sources.

Contingency funding arrangements

Backup or contingency funding arrangements indicate additional funding arrangements to supplement the deposit insurance fund when the accumulated fund balance is insufficient to meet the obligations of the deposit insurance scheme such as depositor payouts or other intervention/ resolution methods.

Based on the core principles, it is essential that contingency/emergency funding arrangements are established by the deposit insurer to function its activities uninterruptedly and to act in a way to avoid depositor run and possible crisis situations.

The following funding sources can be considered as such back up funding arrangements:

1. Borrowing arrangements with the Treasury or the Central Bank

   As financial system stability liability finally rests with the Government, contingency funding arrangements may be entered with the Central Bank or the finance ministry of the government, in many instances.

2. Borrowings from international financial institutions

   There may be borrowing arrangements entered by the DIA from international financial institutions such as Asian Development Bank (ADB), as backup funding arrangements.

3. Market/private sector borrowing – can be considered as a contingency funding arrangement that are very rarely used

4. Raising funds through issuing of bonds guaranteed by the Government

   Certain deposit insurers can go to the

market to raise funds by issuing bonds guaranteed by the Government as a back up funding arrangement. Eg: Deposit Insurance Corporation of Japan.

Funding for systemic crisis

Generally, DIAs are not structured to deal with systemic crisis. Usually, it is co-managed by all the safety net participants such as the Government, the Central Bank, financial regulatory and supervisory authorities, resolution authority and the DIA. Therefore, cost of systemic crisis would not be borne by the DIA.

It is necessary that these formal funding arrangements are set to address systemic crises among safety net participants. Such formal funding arrangements can be an memorandum of understanding/agreement or arrangements stipulated within the applicable laws and regulations. Mainly, Central Banks engage in funding arrangements that are designed to deal with systemic crises. Currently, it can be seen that separate resolution fund has also been built up to finance resolution of systemic financial institutions.

What is Target Fund Size?

Based on the core principles, once an ex-ante fund is established, the target fund size would need to be determined. Target fund size or the target funding level is the optimal size of the ex-ante deposit insurance fund, typically measured as a proportion to an assessment base, such as the total or insured deposits; sufficient to meet the expected future obligations and the expenses of the DIA. Usually, predetermined time should be decided to achieve the target fund size. The target fund size can either be an absolute monetary value or it could be measured as a percentage of the assessment base. In some instances, the target fund size is set as a range, as minimum and maximum values.

Based on the core principles, the criteria that determine the target fund size needs to be clear, transparent and consistent. Further, target fund size should be periodically reviewed to validate the appropriateness of approach, methodology and models in determining the target fund size. A reasonable time period should be set to achieve the determined target fund size.

Why target funding level for DIA is important?

Determining the target fund size is important in assessing the adequacy of the deposit insurance fund to meet its mandate and to cover deposit insurer's risk exposure in providing protection. Further, as deposit insurance act as a safety net to the financial system participants, maintaining a optimal funding level is essential in building the confidence in the financial system. Therefore, in order to achieve the objectives of establishing the DIA, maintaining a target funding level, at minimum to cover the potential net losses from providing deposit insurance protection is essential. Hence, availability of target funding level and setting a timeframe to achieve it with frequent review is vital for an effective deposit insurance mechanism.

Target Funding Ratio/Target Reserve Ratio

When target fund size is determined as a ratio/ percentage, it is called Target Funding Ratio/Target Reserve Ratio (TRR). TRR is measured as a proportion of assessment base, i.e., insured deposit liability. TRR is a good measure to determine the adequacy of the deposit insurance fund to meet the expected future obligations of the DIA. DIA should ensure that the deposit insurance fund is adequate to cover its obligations reasonably.

What is the optimal TRR for a DIA?

There is no uniformly accepted TRR and it is likely to vary over time. It depends on the strength of the financial sector or the banking and non-banking industry of the country and more importantly, the condition of the economy affects the TRR. According to Ketcha Jr (1999), funds' adequacy ultimately depends on the goals established for DIA. Further, if maintaining solvency in the face of extreme outcomes were the only consideration, then the choice of a reserve ratio would, conceptually, be reduced to identifying the process that generates insurance losses and selecting the level of protection desired from an appropriate statistical loss distribution.

In terms of the research paper on Deposit Insurance Fund Target Ratio (2018), by Deposit Insurance

Table1: Summary of Target Funding Levels out of 69 DIA's

Fund target	Jurisdiction	Fund target
	Czech Republic	1.5%
	Estonia	2%
	Guatemala	5%
	Honduras	5%
	Indonesia	2.5%
	Kazakhstan	5.7%
	Macedonia	4%
	Palestine	3%
	Uruguay	5%
	As % of total deposits, 2	
	Armenia	5%
	Argentina	5%
Set by the DIA governing body, 16	**As % of insured or covered deposits, 7**	
	Brunei	0.5%
	Canada-CDIC	1%
	Jamaica	8% to 10%
	Kosovo	8% to 9%
	Malaysia	0.6% to 0.9%
	Philippines	5.0%
	US	2%
	As % of insurable or eligible deposits, 4	
	Colombia-Fogafin	5.5%
	Mongolia	4%
	Romania	3%
	South Korea	0.825% to 1.1%
	As % of total deposits, 2	
	Canada-British Columbia	0.88%
	Zimbabwe	2%
	As % of deposits and borrowings, 1	
	Canada-Alberta	1.5%
	As an amount, 2	
	Bahamas	BSD 81 million
	Japan	Approximately JPY 5 trillion

Fund target	Jurisdiction	Fund target
Set in the law, 28	**As % of insured or covered deposits, 15**	
	Albania	5%
	Bulgaria	1%
	Chinese Taipei	2%
	Finland	0.8%
	France	0.5%
	Hong Kong (China)	0.25%
	Hungary	0.8%
	Italy	0.8%
	Kyrgyz Republic	15%
	Libya	3%
	Moldova	7%
	Montenegro	10%
	Poland	2.6%
	Singapore	0.3%
	Slovak Republic	0.8%
	As % of insurable or eligible deposits, 11	
	Azerbaijan	5%
	Brazil	2%

Source: Deposit Insurance Fund Target Ratio - Research paper, by Deposit Insurance Fund Target Ratio Technical Committee of IADI, (2018)

Fund Target Ratio Technical Committee of IADI; based on a survey conducted in 2015 to which 69 of the 113 DIAs invited to participate responded; the target funding levels of DIA's of different countries have been indicated in the Table 1.

Setting a target fund size/level

There are numerous factors to be considered by DIAs in setting target funding levels; a few of which are outlined below:

i. Financial system structure of the country and its characteristics

Number of institutions in the financial sector, financial condition of member institutions, risk exposure of the DIA, types of deposits and depositors covered, loss experience of DIA, potential for imminent bank failures, probability of failure, etc., are affecting the determination of target fund size as they affect the assessment of expected and unexpected losses, growth of premia and surplus of the ex-ante deposit insurance fund.

ii. Governing legal framework of DIA

DIA's mandate and powers, existence of special resolution regime, etc., affects the setting of funding target of DIA.

iii. Prudential regulation, supervision and resolution regime

Prompt identification and correction of weaknesses of member institutions, monitoring of supervisory actions, resolution approaches, early intervention

powers, resolution powers, etc. affects the probability of failure of member institutions, exposure level at time of failure and determines which factors directly affects in setting the target funding level.

iv. Macro-economic conditions of the country

Macro-economic conditions such as trends in gross domestic production (GDP), hyper inflationary pressures, monetary and fiscal policy will directly or indirectly affect the performance of the financial system & its participants and the stability of the financial system of the country in general. Further, economic conditions of the country affect the potential default rates and loss rates of DIA.

Methods to set Target fund size/level

There are several methods and approaches that can be adopted by the DIA to determine the target fund size. Such methods range from discretionary approaches to statistical modeling. The methodologies can be broadly categorized into three as discretionary methods, statistical methods and combination methods.

a) Discretionary methods

This approach relies on judgment or expert opinion and hence, also called quantitative methods. Historical data on bank failures and associated losses may or may not be considered in this method. TRR approach to determine target fund size is a core aspect of the discretionary/judgmental approach. Under, TRR approach, soundness of the deposit insurance fund is estimated corresponding to the existing coverage level and it does not consider potential liabilities on changing coverage levels. Further, under this method, expert opinion or discretionary judgment is often backed by analysis of data and information. However, sometimes, this method may be inaccurate since it incorporates only a best guess of possible losses. The "Back of the Envelop method" is one of the examples of such discretionary method followed by some DIAs.

b) Statistical methods

This method uses DIA's loss distribution data to determine the adequacy of funding level. Under this approach, sufficiency of deposit insurance fund is based on risk analysis using statistical methodologies. Value-at-risk (VaR) methodology is such statistical method. Such method considers the possible losses covered by the DIA and in estimating such covered losses, both expected losses and unexpected losses are estimated and the fund should be adequate to cover both losses. In order to estimate the unexpected losses, statistical simulation method or Monte Carlo simulation method can be used. In order to quantify expected losses, Exposure at Default (EAD), Probability of Default (PD) and Loss given Default (LGD) need to be measured. EAD includes the estimation of insured liability of the deposit insurance scheme. PD is the probability of default of member institution/bank. Further, LGD includes share of unrecoverable losses from the failed member institution, and which can be defined as ratio of losses in the event of default to exposure at default. Further, if the DIA does not have historical data to calculate LGD, IADI suggests that another DIA data can be used.

c) Combination methods

This method uses statistical methods in combination with discretionary approach which is based on historical experience, expert opinion and judgments.

Time frame to achieve target fund size

A credible timeline would have to be predetermined to achieve the target fund size. In deciding such timeline, the DIA should consider factors such as rate of growth of insured deposits, level of premium collection and its growth, level of accumulation of the fund, i.e., the estimated net surplus of the fund, etc. Generally, according to IADI, the time frame to achieve target funding level should be approximately 10 years. Moreover, IADI also stipulates the Enhanced Guidelines for Effective DIAs: Ex Ante funding (2015), the DIA should consider the factors such as the rate of growth of insured deposits, the level of premia to be assessed on member banks, and the level of net surplus to be accumulated annually, in setting the time frame to achieve target fund size. Further, as these factors vary and affects the time frame differently, DIA is required to make a periodical review to validate the approach, methodology and models which are being used to determine the adequacy of fund levels and as well to ensure the relevancy of the status quo; and to monitor the progress of achieving the fund target.

Exclusion of Too Big to Fail Banks

Systemically important institutions, which hold the largest number of deposits, are commonly considered as "too big to fail". The Government or the Central Bank would take extraordinary measures to avoid failing these institutions considering contagion effect and generally, DIA is not meant to address systemic issue. Therefore, liabilities from systematically important institutions can be excluded from the target funding analysis.

Achieving the Target Fund Size

Once a target fund size is determined and a specific time period is set to achieve it, a requirement may arise to increase or decrease the premium charged from member institutions in order to achieve the target. Further, there may be instances where extraordinary premia would have to be charged to achieve target fund size. Extraordinary premia indicate premium that is charged exceeding the regular amount charged, in extraordinarily circumstances and it would depend on the applicable deposit insurance law. Hence, legislation should not be too inflexible in defining a specific target fund size. A range rather than a hard or fixed target level could be better as it does not necessitate the drastic increase in premia during unfavorable economic times, when the fund may need to be replenished by more, because of one or more bank failures. Furthermore, setting a fund target range will provide adequate discretion to allow greater flexibility in managing the target fund by gradually increasing or reducing premiums depending on the need based on changing economic conditions. Moreover, a range will help prevent sharp fluctuations in the premia that will be charged from member institutions, rather than maintain a specific target ratio; which in turn, would help to mitigate adverse impacts on member institutions' financial conditions, especially during unfavorable macroeconomic conditions.

The Case for Sri Lanka

Sri Lanka Deposit Insurance and Liquidity Support Scheme (SLDILSS) was established in 2010. The SLDILSS was initially established by the Sri Lanka Deposit Insurance Scheme Regulation No.1 of 2010,

and there were several subsequent amendments thereto. Further, these Regulations were repealed and replaced by Sri Lanka Deposit Insurance and Liquidity Support Scheme Regulations No.02 of 2021, dated 06.08.2021. SLDILSS is an ex-ante deposit insurance fund. Initial capital or the seed fund for SLDILSF was provided by the Abandoned Property Fund managed by the Central Bank of Sri Lanka (CBSL) amounting to Rs.1 billion and from the Voluntary Deposit Insurance Scheme Fund amounting to Rs. 0.3 billion, which was in operation prior to year 2010 and has ceased to be in operation with the establishment of mandatory deposit insurance scheme of SLDILSS in 2010. Members of the SLDILSS are all Licensed Banks (Licensed Commercial Banks and Licensed Specialized Banks) and Licensed Financed Companies (LFCs) of Sri Lanka and membership of the scheme is mandatory. The regular premia are collected from all the Member Institutions (MIs) of SLDILSS. Accordingly, Licensed Banks (LBs), which maintained a capital adequacy ratio of 14 per cent or above at the end of the immediately preceding financial year as per its audited accounts as accepted by the Director of Bank Supervision, are required to pay a premium of 0.10 per cent per annum and all other licensed banks are required to pay a premium of 0.125 per cent per annum. All LBs are required to calculate their premia applying the applicable rate of premium, on total amount of all eligible deposits as at end of the quarter and pay quarterly. Further, all LFCs shall pay a monthly premium of 0.15 per cent per annum calculated on total amount of all eligible deposits as at end of the month and remit monthly. The delay in paying premiums on stipulated dates including premium underpayments are subject to penalties.

Accordingly, the source of funding to SLDILSF are the initial capital, regular premium collections from MIs and penalties, if any, investment earnings by investing the funds of SLDILSF in government securities and granting liquidity support loans according to the applicable legal provisions. Further, any recoveries from compensation amounts paid to depositors of failed MIs, once liquidation of such failed MIs is executed, are also to be considered as funding sources to SLDILSF. Based on regulations of SLDILSS, permitted borrowings are also included under financing sources and contingency funding/backup funding needs to be routed under this provision.

SLDILSS has not set a target fund size yet and it is in the process of conducting the analysis on the same. Further, based on the published audited financial statements of SLDILSF, the balance of SLDILSF as at 31.12.2021 was Rs.67.88 billion. Due to the increase of amount of maximum compensation payable (coverage) of SLDILSS from Rs.600,000 to Rs.1,100,000, effective from 01.04.2021, the insured liability of SLDILSS has increased considerably and hence the ex ante fund balance against the assessment basis of insured liability has been reduced considerably now compared to the ratio that would have been estimated before the increase of coverage level.

Conclusion

Maintaining ex ante deposit insurance fund is recommended by the core principles applicable for effective deposit insurance scheme, which were issued jointly by IADI and BASEL Committee. Further, maintaining adequate funding to meet the future risk exposures of the deposit insurer in providing the protection is very important. Moreover, adequate funding is important to build up the trust and confidence on the stability of the financial system by the deposit insurer.

Factors such as financial system structure of the country, economic conditions, legal framework and mandate of DIA, level of prudential regulation and level of compliance by banks and non-banks and supervisory framework...etc, affect the determination of target fund size of DIAs and since such factors affect differently from country to country, there is no uniformly acceptable TRR. Setting time frames to achieve target funding levels and periodical review and validation of the approaches, methods and statistical models used to determine the optimal funding level is very important.

Maintaining adequate funding by the DIA to meet expected and unexpected future losses is important. Thus, this has to be balanced against the capacity of the member banks to fund the system, as ex ante funds are mainly contributed by the member institutions premia. Further, it should be noted that strong capitalization and liquidity levels of the member institutions are the most crucial factors and that they act as first line of defense in maintaining financial system stability, rather than deposit insurer holding excessive reserves, while investing the fund in low yielding low risky assets.

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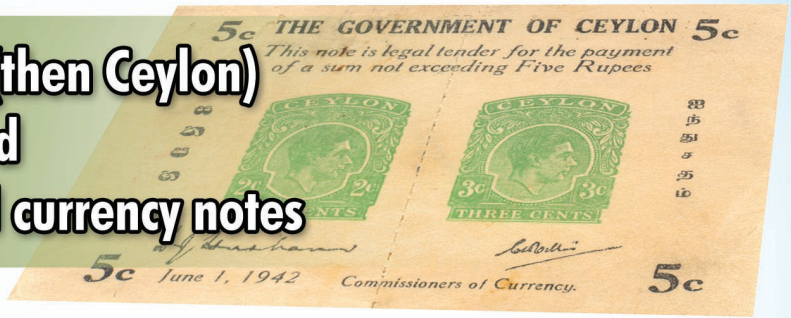
Did you know...

Sri Lanka (then Ceylon) once issued perforated currency notes



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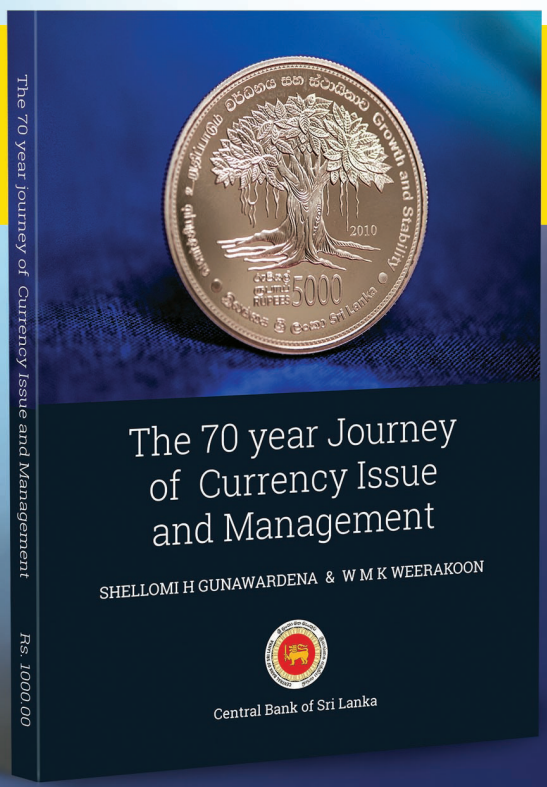

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A message from the Central Bank of Sri Lanka

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