Capital Markets & Derivatives

MBA 7007

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A. Financial markets

Importance to the economy

Financial markets are very important to the economy as they **contribute to the health and efficiency of the economy**. Development of financial markets **has a positive impact on economic growth**.

Financial markets **facilitate the efficient flow of savings and investments** in the economy as they connect deficit units and surplus units in the economy. Through that they **help the production of goods and services and the accumulation of capital**. Therefore, well developed financial markets are essential to **fulfil the requirements of lenders, borrowers and the overall economy**. (Erich & Helfert, 2003)

The financial market of Sri Lanka was liberalized under the economic reforms in 1977. The primary purpose of this liberalization was gearing the economy for sustainable growth. In addition to that it was expected to reduce the enormous stress on the system, improve the efficiency in resource mobilization and transform the exited network of financial intermediaries into the more efficient financial system.

Inter-bank call money market, Domestic, foreign exchange market, Government debt securities market, and Colombo stock market are the main contributing financial markets in Sri Lankan economy. As stated by CBSL, the financial markets contribute to the economy in the following way: Money market facilitates the liquidity management in the economy. And Capital market facilitates the raising of long term funds. The following graph shows the behaviour of some economic and financial market indicators.

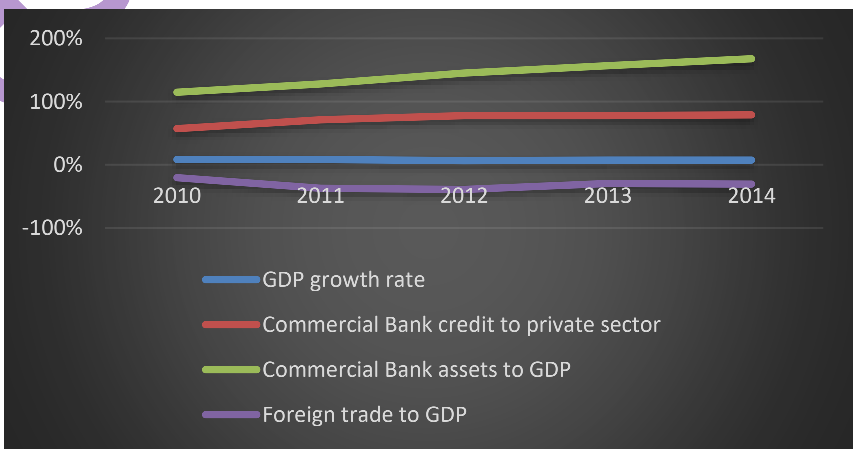

Figure 1 - behaviour of some economic and financial market Data source: CBSL

As shown in the graph, the growth of the economy has not been positively influenced by the financial market developments during the period under consideration. Therefore, the objectives of the economy have not been fulfilled. The reasons for that may be the inefficiency in resource allocation and dominant activities of government in the financial markets. However, CBSL continuously promotes access to finance with a view of balanced economic growth.

B. Financial intermediaries

2.1 Role

Financial intermediaries act as a middleman in financial transactions. They carry out very special financial intermediation function of borrowing from surplus units and lending to deficit units. The intermediaries contribute to avoid the drawbacks in financial disintermediation where ultimate lenders and borrowers come together directly.

According to CBSL, the banking sector in Sri Lanka dominates the financial system with 58% of total assets of the system and banks are playing a critical role by providing liquidity to the entire economy. (Erich & Helfert, 2003)

2.2 Functions

***Facilitate transactions**

Intermediaries bring together the lenders and borrowers with matching circumstances. Banks facilitate financial transactions by providing payment services (CBSL).

*Facilitate portfolio creation

Unlike in financial disintermediation, intermediaries provide lenders with opportunities to diversify.

*Provide liquidity

Intermediaries borrow from surplus units and lend to deficit units.

*Minimize risk

Banks are provided credit ratings. Therefore, lenders can minimize their default risk.

*Reduce information asymmetry

Unlike individual investors, intermediaries have market information as they are professional fund managers.

2.3 Similarities and differences

Similarities	Differences
***Act as a middleman in financial transactions.**	*Engage in different services. i.e. Banks connect lenders and borrowers, Insurance companies collect premiums and provide benefits, financial advisors connects with clients by purchasing financial assets, pension funds collect funds from members and distribute to pensioners, etc.
***Provide liquidity to the economy.**	*All financial intermediaries cannot mobilize deposits. i.e. Only Banks and Non- bank deposit taking financial institutions can mobilize deposits.

Figure 2 -behaviour of some economic and financial market

2.4 Service

Financial intermediaries benefit the financial system in the following way.

As financial intermediaries reconcile the conflicting preferences of savers and borrowers, they provide cost advantages to financial system. CBSL states that banks facilitate all entities of the economy to carry out their financial transactions. Further, banks can prevent market failures that occur due to mismatch in maturity of assets and liabilities. Therefore, financial intermediaries contribute to maintain confidence in the financial system.

Sri Lankan financial system depends to a large extent on Licensed Commercial Banks (LCB) as the LCBs have dominated the system with 49% market share of the entire financial system's assets. Therefore, the performance, financial strength and soundness of the LCBs determine the health of financial system of Sri Lanka.

C. Impact of changes in interest rates on profitability of financial institutions

Changes in interest rates have direct impact on profitability of financial institutions. Financial institutions perform two basic functions:

- Borrowing money from savers by paying them an interest.
- Lending money to borrowers charging them an interest.

Therefore, the impact of changes in interest rates can be viewed in two perspectives.

Financial institutions pay a set interest rate which is below short term rate to the savers. They invest the cash in savings account in short term notes. Therefore, the yield of financial institutions is the difference between short term rate and the rate they pay out to the savers.

When the short term rate increase, the difference between two rates increases and in turn the earnings and profitability of institutions go up. However, if the short term rate declines, the gap becomes less and earnings and profitability also go down. (Lemieux, 2012)

On the other perspective, interest rate increases in an environment where there is a strong economic growth. In such situations bond yields are also rising and the demand for loans also increase. Therefore, the increased demand for loans also enhances the earnings and profitability of financial institutions. Furthermore, when short term rate increases, long term rates increase faster. Therefore, the profitability on loans increases as the difference between long term and short term rates expands. (Erich & Helfert, 2003)

Additionally, when short term rate decreases, the demand for loans increases; but the decline in the yield on savings offset the increased earnings on loans. As a whole, it can be identified that the profitability of financial institutions has favourable impact when the long term interest rates are higher and the short term interest rates are lower.

During the first nine months of 2015, CBSL implemented a relaxed monetary policy creating a low interest rate environment. It encouraged the demand for bank credit by the private sector. The following figures show the behaviour of interest rates and bank credit during early months of 2015.

Table 7.1 Classification of Outstanding Loans and Advances Granted by Commercial Banks (a)(b)

Rs. billion

Sector	End June 2014	End June 2015 (c)	Year-on-Year Change Amount	Year-on-Year Change %
Agriculture and Fishing	**280.2**	**291.2**	**11.0**	**3.9**
of which, Tea	62.6	69.0	6.4	10.2
Rubber	20.0	20.3	0.4	1.8
Coconut	6.8	9.8	3.1	45.1
Paddy	16.2	16.6	0.4	2.3
Vegetable, Fruit and Minor Food Crops	13.9	16.2	2.3	16.5
Fisheries	9.9	10.3	0.3	3.3
Industry	**929.9**	**1,188.0**	**258.1**	**27.8**
of which, Construction	406.8	528.5	121.8	29.9
Food and Beverages	64.8	73.5	8.7	13.5
Textiles and Apparel	101.1	131.8	30.7	30.4
Fabricated Metal Products, Machinery and Transport Equipment	86.7	105.2	18.5	21.3
Services	**626.6**	**787.0**	**160.4**	**25.6**
of which, Wholesale and Retail Trade	207.6	232.0	24.4	11.8
Tourism	70.9	88.8	17.9	25.2
Financial and Business Services	102.7	165.3	62.6	60.9
Shipping, Aviation and Supply, and Freight Forwarding	11.0	12.7	1.7	15.5
Personal Loans and Advances (d)	**624.9**	**644.1**	**19.2**	**3.1**
of which, Consumer Durables	84.0	108.2	24.2	28.8
Pawning	200.9	153.3	-47.7	-23.7
Safety Net Scheme Related Advances	**34.1**	**50.2**	**16.1**	**47.2**
Total	**2,495.7**	**2,960.5**	**464.7**	**18.6**

(a) Based on the Quarterly Survey of Commercial Banks' Loans and Advances to the Private Sector
(b) Includes loans, overdrafts and bills discounted and excludes cash items in the process of collection
(c) Provisional
(d) Excludes personal housing loans, which have been included under 'construction' classified under 'Industry'

Source: Central Bank of Sri Lanka

Source: CBSL

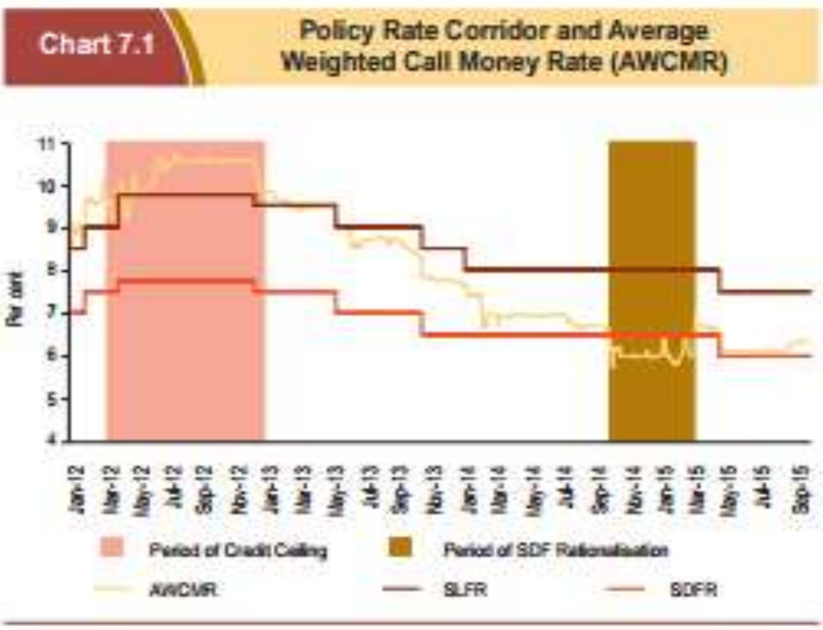

Figure 3 - The behaviour of interest rates and bank

Source: CBSL

D. Impact of exchange rate volatility on performance of financial institutions

As stated by Mbabazize, Daniel and Ekise (2014), exchange rate volatility can have favourable impact on financial institutions by enhancing their profitability as well as unfavourable impact by decreasing their profits and leading to losses. Financial institutions are exposed to exchange rate volatilities as they are engaging in foreign currency transactions and they are taking 'positions' in foreign currencies. The exchange rate volatilities affect the following items of financial institutions.

-Income from abroad

-Foreign currency borrowings

-Foreign currency investments

-Assets and liabilities in foreign currency

Therefore, the exchange rate volatilities can have impact on financial institutions' revenue and cost structure and finally their overall business operations and competitive position.

Appreciation of the country's currency will have the following effects and depreciation will have the opposite effects on financial institutions.

*Increasing the income from abroad.

*Lowering the outstanding debt in foreign currency.

*Lowering the value of foreign currency investments.

*Lowering the value of assets in foreign currency.

Therefore, both appreciation and depreciation of the country's currency will have both favourable and unfavourable impact on financial institutions.

According to CBSL, the foreign currency risk of banking sector increased in year 2015 as borrowings from foreign sources were expanded. At the end of 2015, the aggregate foreign currency net open position as a percentage of bank's regulatory capital remained at 1.4%. As a result of the depreciation of the rupee against the US Dollar, banking sector reported a net gain of Rs. 12bn at the end of 2015 with this positive net open position (CBSL).

E. Risk management

I. Different types of risks

*Credit risk

Risk of failure of any of the clients to fulfil their contractual obligations.

*Market risk

Risk of reduction in earnings or capital due to volatilities in interest rates, foreign exchange rates, commodity prices or equity prices.

*Liquidity risk

Risk of having insufficient financial assets to meet obligations when they fall due.

*Operational risk

Risk of failure in internal processes, systems, people or external events with negative consequences on organizations. (Lemieux, 2012)

*Strategic risk

Uncertainties and unexploited opportunities in strategic intent of organizations.

*Reputation risk

Risk of damaging the image of organizations with negative impact on their position.

*Compliance risk

Risk of failure to comply with applicable laws, rules, regulations and codes of conduct.

II. Recognizing and measuring risks

In order to recognize risks, a formal and ongoing procedure is essential. Both existing and new risks should be identified. In order to that the following methods can be used: Application of checklists, Financial statements analysis, Flow chart method, Contract analysis, Statistical analysis of loss records, Incident reports analysis and Hazards analysis (Fault tree analysis and Risk chain).

After identifying all possible risks, risk measurement should be done. There, the risks should be ranked according to the importance to the organizations to facilitate resource allocation in managing them. To do that, yardsticks should be developed and applied to measure the importance to the organization. Then frequency of losses, severity, maximum probable loss and maximum possible loss of the risks should be measured and a probability distribution should be developed. These measures facilitate risk control process. (Lemieux, 2012)

III. Objectives of risk management

*To develop a common understanding of risk across the organization.

Expects to make aware organizational people regarding possible risks.

*To ensure all the risks affecting the organization are identified, measured and controlled.

Expects to identify and mitigate all possible risks.

*To identify need for any insurance coverage.

Expects to identify risks that cannot ne internally controlled.

*To reduce cost of risk.

Risks incur losses and costs. Risks management minimizes incurring losses.

*To ensure overall security, efficiency and continuity of organizational operations.

Risk management helps to improve productivity by removing obstacles.

The followings are the risk management objectives of Bank of Ceylon (BOC)

Risk Management Objectives

Our entire strategy is conceptualized to not only provide direction for our risk profile but also to be a strong truss to our business strategy. The continuous evaluations conducted by various individuals, teams and those tasked with assessing and identifying risk, have the ultimate directive of determining risk by customer need and in a wider sense, all our stakeholder needs.

In the 76 years of our existence and in having the ultimate guarantee of being a state owned bank, BoC has exampled its competence in managing risk prudently and with great judiciousness. In our deliberations and identifying our risk profile, tolerances and appetite, we have used our risk preferences including expected returns, customer interests and their relationship with us, prevalent and emerging risk exposures and characteristics that can be caused due to extreme industry events and the timeline in which risk can materialize.

BoC has also strategically highlighted risk tolerances and limits to ensure that our solvency and liquidity positions are well aligned to accepted norms.

Figure 4 -the risk management objectives of BOC

Source: BOC

F. Hedging

I. Need for hedging strategies

During the past decade, globalization and liberalization all over the world enhanced the businesses and volume of international trade. As a result, the interest rates, exchange rates and stock market prices began to change more frequently. The final impact on organizations was increased financial risk of corporate work.

As current business environment is highly volatile, corporations have to face many unanticipated risks. Most of the organizations are risk averse and they wish to avoid risk. Therefore, they need some protection against the adverse impacts of those risks. That is why hedging strategies are need for organizations to mitigate such risks. The followings are the three main purposes of hedging strategies.

- To give protection against adverse movements in future prices.
- To transfer the risk from risk averse parties to risk seekers.
- To provide opportunities to earn profits for parties who are willing to accept higher risk.

II. Costs and benefits of hedging

Costs	Benefits
***Explicit costs** **Costs that can be easily computed. In the case of buying insurance, the insurance premium is an explicit cost.** ***Implicit costs** **Costs that cannot be easily identified. In the case of buying derivative contracts, there is no immediate cost. However, the organizations will have to give up potential profits and in some times have to incur losses if prices go opposite the anticipation. For example: hedging case of Ceylon Petroleum Corporation.**	*Tax benefits With hedging, earnings will be lower and will be taxed at lower rates. *Better investment decisions With hedging organizations can reduce the number of good investments that are rejected due to risk aversion of managers or insufficient capital. *Reduce distress costs Hedging against extreme risk may reduce the distress costs. *Additional debt capacity Firms with less distress costs are more likely to borrow more. Since debt is low cost, firms can have lower cost of capital. *Informational benefits

	When companies hedge risk, their financial statements provide more information to investors and investors may give higher value to the firm.

Table 1- Costs and benefits of hedging

G. Risk management strategies and instruments

Risk management strategies	Risk management instruments
Credit risk **In customer level, organizations undertake credit analysis, obtain collaterals and monitor performance. In organizational level, develop credit policy, hierarchy of approvals, single borrower limit and portfolio management.**	**Market risk** Organizations buy derivative instruments to cope with adverse movements in future prices, interest and exchange rates. Examples: futures, forward contracts, options and swaps.
Liquidity risk **Firms maintain a pool of liquid assets, an adequate advances to deposit ratio, etc.**	Operational risk Obtain insurance policies against adverse movements in operations.
Operational risk **Organizations continuously assess and review the processes and people, establish internal controls, policies and procedures, segregate the duties, effectively use MIS, develop contingency plans and undertake audits.**	
Strategic risk **Participate all levels of management in formulating strategies, establish a strong strategic planning process and ongoing review and update of strategic**	

environment.	
Reputation risk **Establish and implement strong set of organizational policies and procedures, encourage reporting of all potential incidents, organizing public relation campaigns and engage in CSR.**	
Compliance risk **Establish and implement a strong compliance policy.**	

Table 2 - Risk management strategies and instruments

Risk management strategies of BOC can be shown as follows:

Risk	Management strategies
Credit risk	A well-established process for approving new credits and for the renewal of existing credits. A system for monitoring the condition of individual credits. Regular credit reviews. An internal risk rating system.
Market risk	Price Value per Basis Point (PVBP) and Duration techniques to assess the interest rate risk. Use counterparty limits, money market limits, risk appetite limits and Value at Risk (VaR) measurements.
Liquidity risk	Many funding channels through correspondent banks and always maintains high quality liquid assets. Periodic stress tests.

	Maturity gap analysis. Key liquidity ratios.
Operational risk	Reporting mechanism of the "operational loss events" and "events disrupting business". Systematic risk analysis, root cause analysis and lessons learnt exercise. Internal alert levels. Information System Security, Business Continuity Plan, Insurance and Outsourcing.

Table 3 - Risk management strategies of BOC

Data source: BOC

Importance and use of derivatives

As mentioned in the explanation of hedging, the increased volatility in interest rate, exchange rate capital and commodity prices and increased risk for the corporations gave rise to the need for new financial instrument to manage those risks. Derivatives have been developed in order to fulfil that requirement. (Lemieux, 2012)

The basic purposes of derivatives are:

- to give protection against adverse movements in future prices,
- to transfer the risk from risk averse parties to risk seekers and
- to provide opportunities to earn profits for parties who are willing to accept higher risk.

Uses of derivatives:

Financial derivatives are expected to provide the following services.

- Can be used to avoid, control, manage or shift different types of risks through different strategies like hedging, arbitraging, spreading, etc.
- Act as barometers of trends in future prices which would end up with discovering new prices.

- Can be used to determine various information about future trading of different securities and commodities which would aid in discovering equilibrium price.
- Help in effective allocation of resources of the society.
- Enhance liquidity and reduce transaction costs as derivatives trading are based on margin trading and large numbers of operators are involved.
- Derivatives trading smooth out price fluctuations.
- Encourage the competition in the market.
- Facilitate different risk preferences of the market operators (hedgers, traders, speculators, arbitragers, etc.).
- Enhance the trading volume in the country.

The main types of financial derivatives are: Forwards, Futures, Options and Swaps. The attributes and uses of those instruments can be identified as follows.

Forwards	Futures	Options	Swaps
Agreements between two parties.			
Use to buy or sell a specified quantity of assets at a specified price and at a specified time.			
Help to reduce the risk of adverse movements in future prices.			
Customized contracts. Unique in terms of contract size, type of assets, quality, expiration date, etc.	Standardized contracts. Quantity and quality of assets, date and month of delivery, unit price, settlement place are standardized.	Customized or standardized contracts.	Customized contracts.
Forwards	**Futures**	**Options**	**Swaps**
Traded in OTC markets.	Traded on an exchange.	Traded in OTC markets or exchange.	Traded in OTC markets.
Regulated by the counter parties.	Regulated through an exchange.	Regulated by the counter parties.	Regulated by the counter parties.

Obligation to both parties.	Obligation to issuer and right to buyer.	Obligation to both parties.
Have cash flows on just one future date.		Have cash flows in several future dates.
No premium is involved.	Involve a premium.	No premium is involved.

Table 4 - The main types of financial derivatives

H. Determining risk management strategies (is it necessary to consider actions and strategies of competitors?)

The ultimate objective of risk management is to ensure overall security, efficiency and continuity of organizational operations. In achieving that objective, an important consideration should be given to the competitors. Because the strategies of the competitors have a greater impact on the competitive position of the organization.

Allayannis and Ihrig (2001) stated that organizations hedge more if the competition is more intense. However, Mello and Ruckes (2008) stated that firms operating in more competitive industries are less likely to hedge. The question that whether risk management strategies of any organization are affected by the strategies of competitors is also related with the above argument.

Most theories of corporate risk management do not consider possible interaction between risk management strategies of firms. However, according to Froot, Scharfstein and Stein (1993), risk management strategy of a firm can be affected by the competition and as a result firms may formulate different strategies from its competitors.

In addition to that it can be stated that, it is useful to take competitors' risk management strategies into consideration to get an idea how competitors deal with certain risks as the organization also faces similar risks. Further, it is useful to identify the effectiveness of competitors' risk management to formulate more effective strategies within the organization. Also the company can modify and add any corrective actions for any inappropriate strategies of competitors and incorporate them to the organization for an enhanced risk management. On the other hand, risk tolerance is an indicator of objectives of the competitors.

Therefore, taking the risk management strategies of competitors into account in determining risk management strategies of the company is useful to strengthen the risk management of the firm and to enhance its competitive position.

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