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Impact of Derivatives on Financial Services Sector and Risk Management

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Abstract: The paper examines risk associated with financial services sector (FSS) and suitability of derivatives to manage these risks in Pakistan. Derivatives enable firms to hedge against systemic and non-systemic risks. The main types of derivatives are: forwards, futures, options and swaps. To develop derivatives market in Pakistan, The Financial Derivatives Business Regulations (FDBR) have been formulated in exercise of the power derived by State Bank of Pakistan under Banking Companies Ordinance 1962 and Foreign Exchange Regulations Act 1947, to permit, regulate and supervise financial institutions entering into derivative transactions.. Using SBP/FDBR publications and the literature, the study concludes that derivatives products are suitable for managing FSS risk exposures; derivatives provide massive economic benefits, if properly engaged; and, development of derivatives market in Pakistan is necessary to enhance liquidity and mobilise the required capital for economy growth. The study is imperative in two major ways: first, it facilitates the understanding of derivatives market, products and participants; and second, it advocates the development of derivatives market and the use of derivatives to manage FSS risks. The study contributes to knowledge, as no study has been conducted on the use of derivatives in Pakistan FSS.

Keywords: Risk management · Derivatives · Financial services sector · Systematic risks · Unsystematic risks · Pakistan

INTRODUCTION

Risk is at the centre of economic activity. The 2008 global financial crisis that turned into the worst economic recession across the world has led to some serious soul searching among the scholars and practitioners about the ways in which financial sector has to be regulated and supervised. There is very little doubt that the U.S. and European financial systems were badly affected and trillions of public tax dollars had to be poured into the system to avert a complete breakdown. The prompt and coordinated response of the G-8 and G-20 to the crisis was something which had not been seen before. Emerging and Developing Economies (EDEs) particularly China, India and Pakistan however survived this onslaught as well as the 1995-96 Asian crises. The crisis also revealed clearly that the models used by the banks and financial institutions to capture the real risks were either flawed or inadequate. There was not sufficient available data in regard to the new instruments. The behavioural relationships based on the past observed data proved to be unstable or invalid under the pressure points triggered by the crisis. The underlying assumptions and the estimated probabilities turned out to be wrong. Sudden, abrupt and quantum changes in asset prices and their consequences for liquidity and solvency were never taken into account in these risk models. Underestimation of optimistic calculation of risks also led to under pricing of risks, a more relaxed credit extension regime and unsustainable leverage levels. With the hindsight, after the enormous damages were caused to the financial system across the globe it became apparent that if that the models used by the financial institutions were correctly calibrated they could have revealed amplification rather

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than mitigation of risks. The financial market is broader, encompassing bonds, foreign exchange, real estate, commodities and numerous other assets classes and financial instruments. A developed financial market promotes economy and institutional stability. Likewise, a healthy financial system facilitates economic growth and development. An economy that experience sustainable growth is likely an active financial sector and high incentives for investment. Moreover, a healthy financial system provides effective structural linkages necessary for economic growth. Hence, there is greater responsibility on the financial sector of an economy to mobilise the required capital to generate employment and income [1, 2]. FSS is an important part of a country financial system; and derivative market is a segment of the financial market. Following the recent global financial crisis, the derivatives market has attracted more attention. Although the financial crisis is caused by structured credit-linked securities that are not derivatives, but there is need for countries to maintain a functional and virile derivatives markets. Consequently, governments and regulators all over the world are working to strengthening regulations in order to increase transparency and safety both for derivatives and other financial instruments. The use of derivatives in developing countries, including Pakistan, is not yet as widespread as in developed economies. The developed countries have used financial derivatives to share risks among financial institutions; thereby reduced the impact of financial crisis significantly. Specifically, derivatives are not understood or traded anywhere in Africa, except South Africa and marginally Ghana. To develop derivatives market in Pakistan, The Financial Derivatives Business Regulations (FDBR) have been formulated in exercise of the power derived by State Bank of Pakistan under Banking Companies Ordinance 1962 and Foreign Exchange Regulations Act 1947, to permit, regulate and supervise financial institutions entering into derivative transactions. Derivatives provides firms the opportunity to hedge (insure) against systemic and non-systemic risks. Consequently, a thorough understanding of derivatives market, products and participants is necessary. The questions to be addressed in the paper include:

- What is derivative?
- Who are the participants in the derivatives market?
- How does derivatives market operate?
- What are the use and benefits of derivatives?
- Can financial derivatives be used to manage risks associated with FSS activity?
- Does Pakistan need to develop its derivatives market?

The study is organized into eight sections. Section one introduces the study and states the research questions to be addressed. Section two highlights scope, objectives and significance of study. Section three states the methodology and section four establishes the study theoretical framework. Section five identifies and explains risks associated with FSS activity. Section six provides an overview of derivatives market, products and participants in derivative markets. The section seven discusses the meaning of derivatives; the use of derivatives; underlying assets in a derivative contract; the derivative markets participants; classification and types of derivatives; factors that contribute to rapid growth of derivative markets; and potential benefits of derivatives for Pakistani economy. Finally, section eight highlights conclusions and recommendations.

Scope Objectives and Significance of Study: The paper examines management of FSS risk exposures through derivatives in Pakistan. Specifically, objectives of the study include:

- To identify and explain risks associated with FSS operations;
- To examine the meaning of derivatives;
- To highlight the underlying assets in a derivative contract;
- To identify classes of derivatives and derivative market participants;
- To explore commodity derivatives and financial derivatives;
- To identify factors that contribute to the rapid growth of derivative markets; and
- To outline the potential benefits of derivatives for Pakistan economy.

Derivatives are forms of risk management tools. Little research has been done on the subject in developing countries, including Pakistan. Specifically, no study has been conducted on management of FSS risk exposures with derivatives in Pakistan. Moreover, there is low level of aware of derivative products in Pakistan. Beside high transaction costs and volatile market conditions, financial services firms in Pakistan are reluctant to use derivatives due to the lack of awareness about derivatives products and their benefits. The study intends to fill this gap and contribute to knowledge on the

benefit and adoption of derivatives to manage risks associated with Pakistan FSS. Considering the benefits of derivatives to the economy; the study is imperative to facilitate adequate understanding of derivatives market, its products and participants.

MATERIALS AND METHODS

The study is done mainly by collecting and analysing secondary data. The main sources of these data are website and publications of the SBP, IMF, AKD, Securities Limited, Global financial report 2013 by World Bank. In addition, relevant literature is reviewed to obtain knowledge working procedure of the study. Essentially, the adoption of secondary data for the study is reasonable as there is little or no data on derivatives in Pakistan because the derivative market in Pakistan is relatively new and passive.

The services sector is a dynamic sector in most economies [3]. The service sector is distinct from other sectors because it offers intangible services; but the other sectors, like manufacturing, offer tangible products. The economic importance of services sector cannot be over-emphasised, because the sector provides auxiliary services to other sectors of the economy. Moreover, substantial parts of the sector's services are highly tradable; thus, nations are increasing becoming significant exporters of services [4]. FSS is an integral part of the services sector. Financial services encompass financial intermediation offered by financial services firms including: investment firms, leasing enterprises, credit institutions, insurance and pension funding firms and other auxiliary services such as the financial markets administration, security broking and fund management. The financial sector generally refers to the wholesale, retail, formal and informal institutions in an economy offering financial services to consumers, businesses and other financial institutions [5]. This implies that financial services firms include banks, stock exchanges, insurers, credit unions, microfinance institutions and money lenders. Financial services are fundamental to economic growth and development. The expansion of financial services that can be accessed by the public can increase income growth; thereby, reducing the direct impact of poverty. FSS has witness significant changes over the last few decades. The changes are due to the interplay of some factors including: financial sector reform, technological development, consolidation, internationalisation of financial services, changing roles of financial services providers and competition and outsourcing [6]. Financial services firms operate in dynamic, complex, competitive and global markets. Consequently, the risks associated with FSS operations should be effectively managed. Risks associated with financial services operations can be effectively managed through derivatives. Moreover, derivatives are an integral part of the corporate risk management system among the world's leading companies [7].

Financial Services Sector Risk Exposures: Risk is the extent to which an assets or investment portfolio deviates from its expected value and probability of that deviation. Basically, there are two types of risks associated with the FSS operations: systematic risk and unsystematic risk [8, 9]. These risks, as illustrated in Figure 1, are examined below.

Systematic Risks: Systematic risks are risks associated with the overall market or the economy. These risks, sometimes identified as uncontrollable or unavoidable risks, are outside the control of firms operating in the market. Financial services firms must monitor systematic risks for four main reasons: one, they can impact on cost of capital and traded value of firms; two, they are prominent factors in measuring risk associated with financial decision-making; three, they are inherent in the market within which firms operate [10]; and, they vary from one firm to another. Systematic risk cannot be eliminated by applying diversification technique. However, Al-Tamimi and Al-Mazrooei [11] argue that some systematic risk can be reduced through the use of risk mitigation and transmission techniques. Financial services firms, among others, are exposed to several systematic risks, including: credit risk, operational risk, market risk and legal or regulatory risk. These risks are described below. Although previous literature about the effect of financial derivatives on systemic risk is scarce, some papers suggest the possible role of credit derivatives as determinant of systemic risk.

Credit Risks: Credit risks are potential losses resulting from uncertainty in counterparty's (borrower) ability or willingness to meet its contractual obligations [12]. Such events are associated with risks of not receiving payments owed by debtors. For example, credit risks occur when customers' fail to pay for goods or services supplied on credit. Financial services firms are exposed to credit risk; particularly where both short-term and long-term lending are essential.

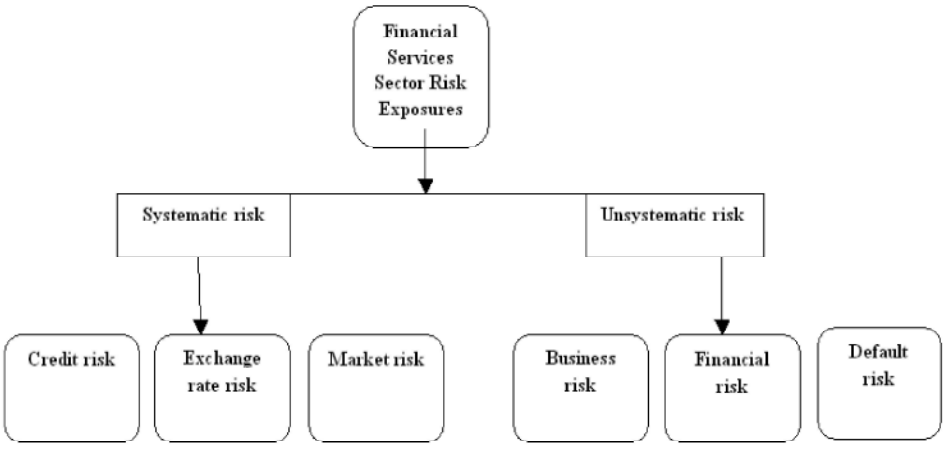

Fig. 1: Financial Services Sector Risk Exposures

Operational risks are potential losses resulting from inadequate or failed process, people and system or from external events [13]. Operational risk is concerned with the uncertainty inherent in the execution of firms' activity in order to fulfil their goals and objectives [14]. Financial services firms are exposed to operational risks, as they can incur losses due to internal system failures, mechanical problems (e.g. machines malfunctioning) or human errors (e.g. poor allocation or mismanagement of resources).

Market Risks: Market risks are potential losses associated with changes in market conditions and underlying economic factors, such as fluctuation in interest rates, exchange rates, equity and commodity prices. Market risk is the financial risk of uncertainty in the future market value of assets and liabilities. Market risk is associated with FSS operations because financial services firms operate in a market that is mainly concerned with financial exposure or uncertainty. Consequently, derivatives are suitable for managing market risks associated with financial services firms operations.

Legal or Regulatory Risks: Legal or regulatory risk is the possibility of loss resulting from a firm's and its representatives (contractors or employees) failure to meet their statutory and/or contractual obligations. Financial services firms are exposed to legal or regulatory risk because their operations are subject to laws and regulations. For example, new regulations could introduce profitable opportunities for some firms, but could also impose significant costs on some firms. Change in political landscape could lead to expropriation of property and other claims in a foreign country. Changes in tax regime may also alter the after-tax profitability of many firms.

Unsystematic Risks: Unsystematic risks are related to a specific asset or firm. Unsystematic risks are potential losses attributable to firm-specific events fuelled by factors specific to an industry or a firm; for example research and development, marketing strategy, pricing and labour union. Unsystematic risk is also known as diversifiable or controllable risk because it can be removed or reduced by applying diversification techniques. Financial services firms, among others, are exposed to the several unsystematic risks, including: business risk, financial risk and default or performance risk. These risks are described below.

Business Risks: Business risk, sometimes referred to as operating risk, is risk associated with the market or industry within which a firm operates. Business risk is fundamental to a firm, as it is inherent in the firm's operations. Ordinarily, financial services firms assume business risks to exploit a competitive advantage in their operations. Assumption of business risk by a firm is inevitable because it is impossible to create a business without taking risks. Moreover, business grows through greater risk taking; and getting rid of risk undermines the sources of value creation and potential opportunities. In a broader sense, the inability of company managers to effectively manage business risk can result to financial distress or insolvency.

Financial Risks: Financial risk entails a firm's ability to secure the funding it requires; for example, access to sufficient credit from its bank. Financial risks are inherent in financial services firms operations. According to Falemi and Luft [15], financial risk arises from adverse changes over relatively shorter term horizons in interest rates, commodity process, equity prices and foreign currency value. Financial risk is directly linked with liquidity risk and cash flow risk. Liquidity risk relates to its ability to fulfil its financial commitments; whilst cash flow risk relates to the volatility of the firm's operating cash flow. Financial derivatives are highly suitable for managing FSS financial risks.

Default or Performance Risks: Default or performance risk is a potential loss resulting from failure to discharge a contractual obligation, to properly monitor employees or to adopt appropriate procedures to execute a task. As financial services firms increasing enter into long-term contracts (with suppliers, buyers and subcontractors) they assume performance risk. For example, buyers may breach their contracts to purchase pre-specified quantities of a product; subcontractors may delay delivery of key components or may compromise on quality of deliverables; and financial counterparties may default on their obligations. In addition, the outcome of the judicial process and the ability to collect damages from the breaching party may be highly uncertain.

In Pakistan, risk management is still in its infancy and therefore it won't be too difficult for the regulators to introduce new risk measures such as leverage ratio and new risk models. The limited leverage ratio would make it difficult for the board's managements and others to indulge in excessive risk taking on the strength of borrowed money. The allocation of risks between the owners and shareholders of the financial institutions and the society, particularly tax payers, would thus undergo a change. Under Basel III rules, capital requirements for trading book exposures, complex securitizations and exposure to off-balance sheet vehicles have to be enhanced substantially, for better risk coverage.

Derivative Market, Products and Participants: Having highlighted risks associated with FSS operations; derivatives market and characteristics of the market are examined in this section.

Meaning of Derivatives: Derivatives are an important building block of modern finance. In essence they are financial contracts that facilitate the trading and redistribution of risks. They owe their name to the fact that their value is derived from an underlying (e.g. the price of a share of a publicly traded company). Since they redistribute risk, they can be used either to insure (hedge) oneself against a particular risk or, conversely, to take on risk (invest or speculate). They can also be used to arbitrage between different markets.

Derivatives can range from those that have fully standardised parameters, such as notional value or maturity, to those that are fully tailored to the specific needs of a particular user. The type of derivative usually also determines how a derivative is traded: fully standardised derivatives are typically traded on organised trading venues, i.e. derivatives exchanges, while customised (or bespoke) derivatives are traded bilaterally, i.e. off-exchange or, as commonly called, over-the-counter (OTC). The most common types of derivatives traded on an exchange are futures and options. Conversely, the most common types of OTC derivatives are swaps, forwards and (exotic) options. OTC derivatives are generally divided into five broad segments: foreign exchange derivatives, interest rate derivatives, equity derivatives, commodity derivatives and credit derivatives (credit default swaps are the most important type of contract in this segment).

Classification of Derivatives: Basically, derivatives can be categorised into two, commodity derivatives and financial derivatives, as illustrated in Figure 2. The most common types of derivatives are: forwards, futures, options and swaps. Commodity derivatives underlying asset can be silver, gold, grain, etc; but financial derivatives underlying assets are stocks, bonds, currencies and other interest rates bearing securities, etc

Types of Derivatives: The main types of derivatives (forwards, futures, options and swaps) are examined below.

Forward Contract: A forward is a contract whereby two parties agree to exchange the underlying asset at a predetermined point in time in the future at fixed price. The buyer agrees today to buy a certain asset in the future and the seller agrees to deliver that asset at that point in time, in the future. Forward contract is the simplest form of derivative contract. In addition, forward contract is a cash market transaction, the price of which is determined on the initial trade date, but the delivery is made in the future. The contract must be honoured by the parties whether the real price increases or decreases. Although

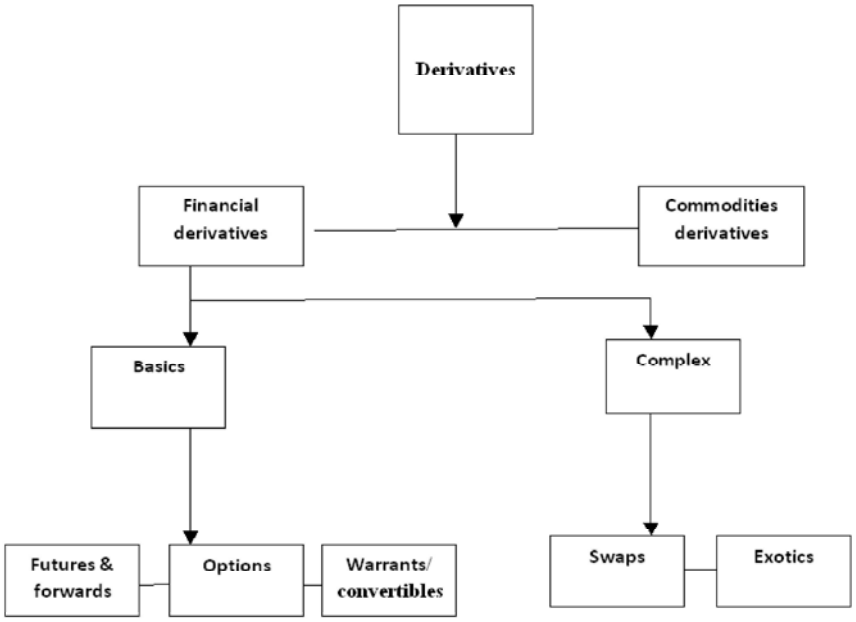

Fig. 2: Types of Derivatives

forward contracts can help reduce volatility in certain market; however, they are not easily transferred or cancelled, i.e. not liquid.

Future Contract: Futures is a standardised forward contract to buy (long) or sell (short) the underlying asset at a specified price at a specified future date through a specified exchange. Futures are standardised forwards traded on-exchange. Such contracts are traded on exchange (clearinghouse), which sets the standardised terms regarding the quality, price quotation, date and delivery (in case of commodity). The exchanges work as a buyer or seller for the counterparty. The clearinghouse provides a mechanism that guarantees the honouring of the contract, thus ensuring very low level of default. The major types of financial futures contract include: stock future or equity futures, stock index futures, currency futures and interest rate bearing securities such as bonds, Treasury bill futures.

Options Contract: An option is a contract that gives the buyer the right, but not the obligation, to buy (call) or sell (put) the underlying asset at or within a certain point in time in the futures at a predetermined price (strike price) against the payment of a premium, which represent the maximum loss for the buyer of an option [16].

Both parties are under obligation to perform their contractual obligations. However, an options contract, as the name suggests, is rather an optional contract. This is because an option is the right, but not the obligation, to buy or sell something at a stated date at a stated price. What distinguishes option from forwards and futures is that, options settle only if exercised and will be exercised only if in-the-money, i.e. if the strike price is lower/higher than the current market price for a call/put. Options, if employed properly, are a cost effective and economical practice to hedge against market exposures. The main strength of options is their flexibility; but they are expensive and risky. Consequently, options afford financial services firms' a robust strategy to protect themselves from potential negative effects of market fluctuations. Basically, there are two types of options contracts: call options and put options. A 'call option' gives one the right to buy; and a 'put option' gives one the right to sell. Options can also be classified as Over-the-Counter (OTC) options and exchange traded options. The exchange traded options contracts are customised contracts trades on recognised exchanges; whereas the OTC options are customised contracts traded privately between parties.

Swap Contract: Swap is a contract whereby the parties (known as counter parties) agree to exchange a predetermined series of payments, or exchange interest payments or one set of interest payment (fixed with floating or vice-versa) with another, for a specified time. A swap is like a barter or exchange. The two commonly used swaps are: interest rate swaps

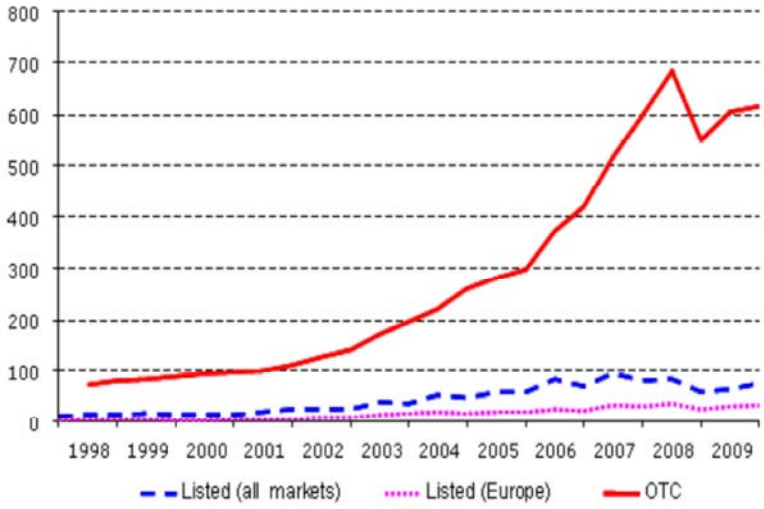

Fig. 3: The size of derivatives markets: on- and off-exchange34 ($ trn)
Note: The figure shows the notional amounts outstanding in on- vs. off-exchange market segments in USD trillions in 1998-2009. On-exchange data shows outstanding amounts worldwide and in Europe(no similar geographic breakdown exists in OTC data).
Source: BIS.

and currency swaps. The interest rate swaps entail swapping only the interest related cash flows between the parties in the same currency; while the currency swaps entail swapping both principal and interest between the parties, with the cash flows in one direction being in a different currency than the cash flows in the opposite direction.

Derivatives refer to a broad class of financial instruments which derive their value from the value of an underlying asset or market variable. Derivatives are just one form of hedging instruments which comes in form of contracts or agreements between two parties. The basic meaning of derivatives is to derive something from something else. A simple example of derivative is butter, which is a derivative of milk. The price of butter depends upon the price of milk, which also depends upon the demand and supply of milk. Size is an important factor influencing the decision of firms to use derivatives. Hence, the huge initial cost of establishing a derivative position can discourage small firms from using them. Nevertheless, derivatives are highly suitable managing risks associated with the FSS operations, if appropriately employed.

Derivative contracts bind counterparties together for the duration of the contract. The duration varies depending on product type and market segment, ranging from a few days to several decades. Throughout the lifetime of a contract, counterparties build up claims against each other, as the rights and obligations contained in the contract evolve as a function of its underlying

The Use of Derivatives: The use of derivatives has grown exponentially over the last decade. Most of this growth was driven by OTC transactions (Figure 3). At the end of December 2009, the size of the OTC derivatives market by notional value equalled to approximately $615 trillion, a 12% increase with respect to the end of 2008. However, this was still 10% lower than the peak reached in June 2008. Derivatives are good risk management tools.

Interest rate derivatives are by far the largest segment, followed by foreign exchange derivatives and credit derivatives. In April 2007, the EU accounted for 63% of the interest rates derivatives market and 54% of the foreign exchange derivatives market.40 In comparison, the US accounts for 24% and 15%, respectively.

Derivatives can be used for hedging, speculating and arbitrage purposes. With a hedge, an investor can protect himself against risk he is routinely exposed to. Since there are two parties to a derivative deal, a speculator needs to find someone who holds the opposite view or would like to transfer a particular risk. Hedging provides an investor the option of passing on some of the risk that he bears to another party. He either takes on another risk in return or makes cash payment in exchange for the risk transfer. Risks that can be hedged with derivatives include

movements in market variables, such as exchange and interest rate, share and commodity prices. Derivatives can also useful for speculating movement of market variables. Speculators add liquidity to the market by taking a view on the direction of the movement; consequently, what is often called taking a bet can be called taking a risk. Derivatives can also be used for arbitrage, to make arbitrage profits. Arbitrage profit provides risk-free, zero net investment profits, opportunities by capitalising on price differentials on the same commodity in different markets. Arbitrage profit accrues from differential profit emanating from the intention to buy low and sell high in two different markets. Derivatives allow for large portfolio position changes without incurring the buying and selling transaction costs. Derivatives can be combined to replicate other financial instruments, thus they can be used to connect markets by eliminating pricing inefficiencies between markets. Derivative are suitable for managing risks associated with FSS operations, because the primary aims of financial derivatives are to enhance profitability and mitigate risks.

Underlying Asset in a Derivative Contract: While forwards, futures, options and swaps can be view as the mechanics of derivation, the value of these contracts (derivative instruments) depends upon the prices of the underlying assets. The underlying asset in a derivatives contract may assume many forms, such as: commodities including orange juice, coffee beans, grain; precious metals, e.g. gold and silver; foreign exchange rates or currencies; bonds of different types, including medium to long term negotiable debt securities issued by governments, companies, etc; short term securities such as Treasury bills (T-bills); shares and share warrants of companies traded on recognised stock exchanges and Stock Index; and Over-the-Counter (OTC), money market products such as loans or deposits. Depending on the type of underlying, the values of the derivative contracts can be derived from the corresponding equity prices, interest rates, exchange rates, commodity prices and probabilities of certain credit events. In view of the advancement of financial innovation, the variety of derivatives products (commodities) have increased significantly.

Derivatives Market Participants: Basically, derivatives can be used for hedging, speculating and arbitrage purposes. There are three main participants in derivatives market: hedgers, speculators and arbitrageurs.

- Hedgers: are those who counterbalance one transaction against another to protect against loss. They use the derivatives markets to reduce or eliminate the risk associated with price of an asset. Majority of the participants in derivatives market belongs to this category.
- Speculators: are risk-takers which assume risk of losses for the possibility of considerable gains. They transact ‘futures’ and ‘options’ contracts to secure extra leverage in betting on future movements in the price of an asset. They can increase both the potential gains and potential losses by usage of derivatives in a speculative venture.
- Arbitrageurs: engage in arbitrage by purchasing securities in one market for immediate resale in another market with an intention to profit from the price difference. Their behaviour is guided by the desire to take advantage of a discrepancy between prices of more or less the same assets or competing assets in different markets. For example, if they see the futures price of an asset getting out of line with the cash price, they will take offsetting positions to profit from the price differential.

Factors That Contribute to Rapid Growth of Derivative Markets: According to Chui [17], some fundamental changes in global financial markets have contributed to rapid growth in derivative markets. First, the collapse of the Breton Woods system of fixed exchange rates in 1971 increased the demand for hedging against exchange rate risk. Consequently, trading in currency futures is allowed at the Chicago mercantile Exchange in the following year. Second, emerging market financial crises substantially influence the demand for hedging against credit risk. Third, innovation in financial theory and advancements in options pricing research also contribute to rapid development of the derivative markets. Lastly, rapid improvements in computer technology enabled asset managers to design and develop increasingly sophisticated derivatives as part of their risk management tools.

Derivatives available in Pakistan’s Capital Market: In Pakistan many Banks, DFIs, Mutual Funds, Non Banking Financial Institutions trade in the derivatives market. However, the use varies with the nature of the organization. Mutual Funds manage funds of the general public and they work under the supervision of their respective trustees. Mutual Funds mostly trade in equity

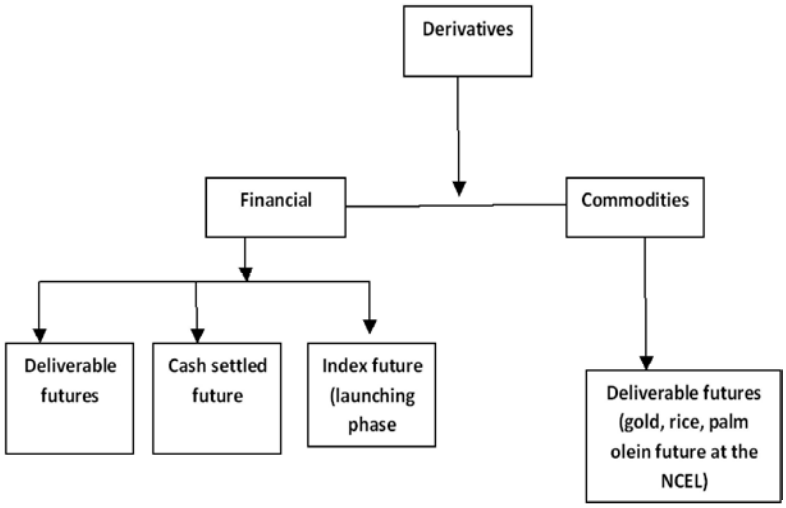

Fig. 4: Derivatives in Pakistan's Capital Market

derivatives to reap arbitrage opportunities; they first take a long position in the spot market and then sell in the derivatives market to lock in confirmed profits. Mutual funds cannot take positions in future trade to create leverage. Islamic mutual funds are not allowed to buy or sell in the existing equity derivatives market. However, the Karachi Stock Exchange is working on the launch of Islamic derivatives (Figure 4).

Markets for derivatives started in Pakistan in the year 2003. The first transaction was the coupon swap by National Bank for PARCO. At that time the market was very thin and uneducated. Clients were not sophisticated enough to handle transaction. Moreover there were not enough transactions taking place in the market. After PARCO, forward rate agreement took place in 2004 which were apparently termed as the first derivatives in the market done by UBL.

2004 was the year in which State Bank of Pakistan focused on derivatives. SBP gave approval for FX options, interest rate swaps on a case to case basis. At that time there used to be four active players in the market, Standard Chartered Bank, Citi Bank, ABN Amro and Deutsche Bank. In November, 2004 SBP introduced the concept of Authorized Derivative Dealer (ADD). In 2005, license was given out to Banks for ADD.

Even after all this the derivative market of Pakistan is underdeveloped due to many reasons. The main reason is the inconsistent performance of the economy on the whole. Due to wide swings in economic activity over the year, risks and uncertainties are extremely high, baring the foreign investors from entering our market. Foreign players involved in derivatives can help us progress in the field of derivatives. The main reason is the lack of knowledge and expertise followed by tight risk management measures mandated by the Securities and Exchange Commission of Pakistan

Derivatives are sophisticated products. It does not involve a single transaction; it has effects on the balance sheet and on the shareholder's equity.

Potential Benefits of Derivatives for Pakistan Economy: Derivatives are useful risk management tools when used appropriately. Derivatives market creates a platform for transferring financial risks to other parties who are more willing or better suited to take or manage those risks. Thus, purchasing derivatives can be a safer choice (of hedging risks) if there is a possibility of a looming bear market. In other words, a derivatives market can benefit the Pakistan economy in three major ways.

First, effective derivatives market can help Pakistan economic agents to manage risks, thereby enhancing the nation's economic efficiency. Some of the risk of Pakistani economy is exposed include: inflation, excessive dependency on foreign economics, foreign trade prices, foreign currency and foreign interest rates.

Second, effective derivative market can enhance liquidity in Pakistan economy through shift of risk (currency and default) and futures contract or option before the expiration date at the derivative exchange.

Finally, a derivatives exchange can attract more foreign investments to Pakistan. Thus, provides a medium through which foreign investors can reduce foreign-exchange risk regarding investments return.

Derivatives, however, have some drawbacks. If derivatives are used as a speculative instrument, it is possible to incur financial loss if the market changes dramatically. Similarly, with regard to options, the party that hold the put option are obliged to adhere to it if the holder of the call chooses to exercise its right to sell or buy; thus resulting to financial loss. Furthermore, derivatives have been associated with some high-profile corporate events that off-balanced the global financial markets over the past two decades, resulting to global financial crisis. Warren Buffet views derivatives as time bombs for the economic system and called them financial weapons of mass destruction.

CONCLUSION AND RECOMMENDATIONS

Financial stability is a public good that can inform corporate investment and financing decisions and thus any new regulatory initiative should be very carefully designed to give the different instruments within an asset class, in this case, derivatives, the appropriate regulatory oversight. In terms of the growth of the derivatives market and the variety of derivative users, the Pakistan equity derivatives market has shown subdued performance as compared to India. In local bourses, retail investors remain the major users followed by private sector institutions and large corporations. State owned institutions have participated minimally. The variety of derivative instruments available for trading is expanding slowly. Neisy and Peymany [18] conclude that despite of wide applications of stochastic differential models with stochastic volatility, they have two major problems in practice. First, selection of proper model and estimation of its parameters (i.e. volatility of volatility) is subjected to controversy. Alam *et al* [19] opine that recent global financial crunch 2007 increases the presence of equity risk exposure all over the world, especially in Asian countries, which increases the incentive of using equity derivative for managing risk.

Derivatives provide an opportunity to transfer risk from the one who wish to avoid it, to one who wish to accept it. The paper examines risks associated with the FSS and the suitability of derivatives to manage these risks in Pakistan. The FSS is an important parts of a country financial system, hence the necessity to effectively manage risks associated with the sector's activity. The study identifies risks associated with FSS operations. It also explores derivatives market, products and participants to facilitate thorough understanding and workability of derivatives markets. In this context, its explores the meaning of derivatives; the use of derivatives; underlying assets in a derivative contract; the derivative markets participants; classification and types of derivatives; the factors that have contributed to the rapid growth of derivative markets; and potential benefits of derivatives for Pakistani economy. The study findings suggest that: derivatives products are suitable for managing FSS risk exposures; derivatives provides huge economic benefits to a nation, if properly engaged; and, the development of derivatives market in Pakistanis necessary to enhance liquidity and mobilise the required capital for economy growth.

To facilitate rapid growth of Pakistan derivatives market, the following are recommended:

- There remain major areas of concern for Pakistan exchange traded equity derivatives. Large gaps exist in the range of derivative products that are traded actively. In equity derivatives, only single stock deliverable futures are traded and account for almost 100% of the total volume in exchange traded derivatives. Trading in cash settled Futures and Stock Index Futures is virtually absent. A lack of market liquidity may be responsible for inadequate trading in these instruments. The main challenge to SBP is to ensure that derivatives transactions are properly traded and prudently supervised. The SBP should, therefore, regulate and monitor the nation's derivatives market participants to ensure compliance with the market guidelines.
- The Exchange should launch new programmes to inform and educate brokers, dealers, traders and market personnel. In addition, institutions will need to devote more resources to develop the business processes and technology necessary for derivatives trading. Moreover, fund managers should be motivated to participate more actively to take advantage of existing market inefficiencies. Development of derivatives markets in Pakistan will attract foreign investment.
- Furthermore, market development reforms will help these markets grow faster. For example, the development of the shares lending and borrowing market and presence of market makers will help increase the liquidity in spot and future markets. Moreover, state owned institutions like Employee Old Age Benefit Fund and National Investment Trust should be encouraged to participate in the derivatives market. This will help increase liquidity.

- The government and SBP must prevent the market participants from excessive risk-taking, while not slowing the financial innovation aspect of the market.
- There is urgent need to improve the quality of data of derivatives contracts. This calls for improved data quantity and quality to enhance the understanding of derivatives markets.

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