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# GLOBALIZATION AND FINANCIAL ENGINEERING

### Abstract:-

Globalization can be described as a process by which the people of the world are unified into a single society. This process is the combination of economic, technological, socio-cultural, and political forces. Financial globalization has been one of the most dynamic components of continued globalization experienced by the world in the recent years. Risk management and quantitative approaches play everincreasingly important roles in financial and insurance sectors. It is expected, the forces that have given birth to this profession will continue to drive it.

### Keywords:

Globalization, Financial Globalization, Risk Management.



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### **INTRODUCTION**

Globalization can be described as a process by which the people of the world are unified into a single society. This process is the combination of economic, technological, socio-cultural, and political forces. The last 30 years have been one of the most important periods in the economic history. We have witnessed significant changes in the structure, composition and operation of the world economy and global financial markets. The emergence of flexible exchange rates, further trade liberalization in goods and services, increases in the level of FDI, the emergence of the European Monetary System, trade liberalization in financial services, deregulation of financial markets both in developed and in a number of emerging countries, deregulation of the financial institutions and issues related to their supervision, securitization, macroeconomic coordination, consolidation of financial institutions, increased mergers and acquisitions, the gradual integration of stock markets around the world, an increase in the role of corporate governance in national and international investment strategies, regional integration such as those experienced in Europe, Asia and America, the Asian currency crisis and the call for a New International Financial Architecture, coordination amongst the central banks through the BIS and financial globalization are amongst some of the developments, changes and events that the world financial markets have witnessed over this period. These changes have also paved the way for further financial market development and integration, financial globalization and acceleration of the process of deregulation of the financial services industry in the 21st century.

Financial globalization has been one of the most dynamic components of continued globalization experienced by the world in the recent years. As definition of globalization makes clear, globalization of financial markets implies a harmonization of rules and a reduction of barriers that will allow the free flow of capital and permits all firms to compete all markets. Financial globalization has been driven by technological advances in the areas of information processing and telecommunication and innovation. The removal of restrictions on cross border flows of capital, deregulation of derivative products, all allow fluid movements between currencies, greater competition among the markets for a share of world transactions business, and more investment and financing opportunities for the people around the world. All these have helped to bring about an increasing integration of financial markets. As the Bank for international Settlements (BIS) has pointed out:

A sharp acceleration in the pack of innovation, deregulation, and structural changes in recent years has transformed the international financial system in important ways. The new financial instruments ... have either been created or have dramatically increased their role in the financial structure; international credit flows have shifted from loans through international banks into direct credit markets; the volume of daily transactions has multiplied; financial markets have become more closely integrated worldwide; capital has become much more mobile. Apart from this ongoing integration and globalization, we can find out three characteristics in the world financial markets:

Increased ssecuritization or progressive replacement of bank credit by instruments that are tradable in public or private markets. That results from substitution of notes, commercial papers, certificates of deposits, and traded bonds for direct lending. One aspect of this securitization process has been the increase in corporate bond issuance, which has also coincided with a diminishing supply of government bonds in many countries, particularly in the United States.

Development of new risk transfer instruments allowing financial markets participants to break out risk embedded in traditional financial instruments and trades them separately. This trend began more than 20 years ago with the development of interest rate swap market. During the last few years, the pack of financial innovation has considerably accelerated leading to the establishment of an increasingly liquid market for credit default swaps (or CDS), and other new derivative contracts, with increasingly important roles.

The International Swap and Derivative Association, in its most recent biannual survey (covering the second half of 2007) assessed the total notional amounts of CDSs outstanding at US\$45.5 trillion. This is about twice the value of the United States stock market, and three times the value of the gross domestic product of the US (US\$13 trillion). It must be noted that broadening of these markets has been largely facilitated by rapid advances in technology, financial engineering, and risk management, helping enhancement of both the supply of and the demand for more complex and sophisticated derivatives products. The increased use of derivatives to adjust exposure to risk in financial markets has also contributed to the rise in the notional amounts of outstanding derivatives contracts seen in recent years, in particular in over-the-counter (OTC) derivatives markets with interest rates and equities as underlying securities. While the leveraged nature of derivative instruments poses risks to individual investors, derivatives also provide scope for a more efficient allocation of risks in the economy, which is beneficial for the functioning of financial markets, and hence enhances the conditions for economic growth.

The third hallmark of this period of financial innovation and globalization is the effect that these developments in financial engineering have had on risk and asset management. Beside all beneficial effects, financial globalizations have brought new sources of volatility. In the increasingly integrated markets, the latest bout of market volatility has been experienced globally, at least in some degree. Distant events can have Sharpe impacts, even on local institution. Regardless of how this environment came about,

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two things are certain. First the volatility of market rates has created ever increasing demand for clever financial products to manage financial risk. Second, current technology has made it possible for financial institutions to create, price, and hedge products specifically designed to neutralize these financial risks. In fact from these foundations financial engineering was born. It is not a new phenomenon but recent years have witnessed a growth in the field of financial engineering in a scale which has not been seen before. The term of financial engineering came into use after the collapse of Bretton Woods and discovery of the Black-Scholes Option Pricing Model in early 1970s. Their scientific discovery led to a new methodology to solve practical problems. Recently, the rises of many new markets for derivatives and innovation in information technology have dramatically reduced the cost of trading standardized financial instruments. This has deeply increased the scope of financial engineering. As a result, financial engineering is a multidisciplinary research area that draws from a wide range of quantitative analysis disciplines. Financial engineering typically works in the area of structured finance, derivative trading, risk management, portfolio investments, corporate financing, financial and insurance products and financial information technology. Hence there has been a growing interest all round the financial world in research on techniques to aid the fulfillment of these theories. Financial engineering is the application of financial economics, mathematics, computer technology, and the scientific method to the optimal sourcing, utilization, and protection of financial assets. It can be defined as the use of financial instruments to restructure an existing financial profile into one having more desirable properties. Financial engineering can help achieve excellence, but not the impossible.

The current globalization trends in all financial markets call for customized answer for each type of clients. Financial engineering is a newly created discipline among both practitioners and academics tackling that requirement. Using as building blocks the tools of risk management, derivatives, statistics, and financial institutions, through existing creative process, financial engineering will develop a framework for designing and implementing tailor made instruments and solutions through an exciting creative process.

Through financial engineering, a diverse combination of the underlying credits becomes the raw material for a new set of financial assets, which could be matched to the needs of ultimate investors. Now with more opportunities available, investors are more willing to accept the risks associated with entrepreneurial ventures to create new financial products and services. In early 1994, Freeport McMoRan Copper and gold (FCX), a mining company, issued two series of gold-denominated depository shares to raise 430 million dollars expanding their mining capacity in Indonesia. FCX successfully enhanced the credit quality of the issue. This credit enhancement was achieved because the effect of linking the payoff the depository shares to gold reduced default risk and is similar to conventional risk management. The design of the security also overcame the asset substitution problem. The depository shares issued by FCX illustrate how firms can enhance credit quality through financial engineering without changing the existing ordering of their capital structure. Nowadays, wide varieties of financial instruments dazzle even the knowledgeable. Individuals, corporations can trade, in addition to stocks and bonds, option, future, stock index option etc. When it comes to diversification, one has thousands of mutual funds and exchange-traded funds to choose from. Government and corporation increasingly use complex derivative securities to manage their financial risk or even to speculate.

All these are the fruits of financial engineering which means structuring financial instruments to target investor preferences or to take advantage of arbitrage opportunities. The innovations in financial markets are paralleled by equally explosive progress in computer technology: automated trading, online trading, day trading, large-scale databases, and tracking and monitoring of market conditions. Those applications deal with information. Structural changes and increasing volatility in financial markets since 1970s as well as the trend toward greater complexity in financial products design call for quantitative techniques. Today most investment houses use sophisticated models and software on which their trades depend. Here computers are used to model the behavior of financial securities and key indicators, price financial instruments and find combinations of financial assets to achieve results consistent with risk exposures. The confidence in such models in turn leads to more financial innovations and deeper markets.

The expanding range of financial instruments available to corporations and individuals, coupled with the increasing complexity of the analytical methods used by financial analysts, strategic planners, investors, creditors, and insurers, have forced businesses and academics alike to turn to sophisticated technologies for solutions. Risk management and quantitative approaches play ever-increasingly important roles in financial and insurance sectors. It is expected, the forces that have given birth to this profession will continue to drive it.

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