Financial Innovation

Theories, Models and Regulation

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PREFACE

Financial innovation is an essential force motivating the financial system toward greater economic competence with considerable economic advantage accruing from the changes over the time. In the process of creating a new financial product, a financial engineer needs to acquire knowledge of optimization and financial modeling techniques besides basic theory of financial management. After going through various studies, for instance Levich (1985), Smith, Smithson, and Wilford (1990) Verghese (1990), Merton (1992), Levine (1997), Finnerty (2002) and Draghi (2008), etc., it was observed that there is a need for contribution in the area economics by focusing on integrated study of financial innovation and the economic regulatory mechanism.

This book is presented in six chapters. First chapter focuses on the concept of financial innovation and pioneers in financial innovation. It also examines application of financial innovation theories. Second chapter intends to focus on theorems and theories contributed towards financial innovation by various financial economists. Third chapter focuses on use of technology for financial modeling. Fourth chapter identifies inter-links and gaps between financial innovation and economic regulatory system. Fifth chapter focuses on an overview of the global financial system. The sixth chapter focuses on the regulatory mechanism and comparative analysis of India and the United States.

CHAPTER OUTLINE

1. First step to Innovation: This chapter focuses on genesis of financial innovation.
2. Theories of Financial Innovation: This chapter focuses on theorems and theories from financial economics contributed towards financial innovation.
3. Financial Modeling and Technology: This chapter focuses on application software used in financial modeling.
4. Financial Innovation and Economic System: This chapter identifies inter-links and gaps between financial innovation and economic regulatory system.
5. The Global Financial System-An Overview
6. Financial Regulatory Mechanism: This chapter focuses on regulatory mechanism and comparative analysis of the India and the United States.

LIST OF ABBREVIATIONS AND ACRONMYS

1. AMC: Asset Management Company
2. AMFI: Association of Mutual Funds in India
3. AUM: Assets Under Management
4. BSE: Bombay Stock Exchange
5. CAGR: Compounded Annual Growth Rate
6. CAPM: Capital Asset Pricing Model
7. ELSS: Equity Linked Savings Scheme
8. FDI: Foreign Direct Investment
9. FEMA: Foreign Exchange Management Act
10. FERA: Foreign Exchange Regulation Act
11. FII: Foreign Institutional Investor
12. FIPB: Foreign Investment Promotion Board
13. FMCG: Fast Moving Consumer Goods
14. GDR: Global Deposit Receipt
15. GIC: General Insurance Corporation of India
16. ICI: Investment Company Institute
17. ICICI: Industrial Credit Investment Corporation of India
18. ICRA: Institutional Credit Rating Agency
19. IDFC: Industrial Development Finance Corporation
20. LIC: Life Insurance Corporation of India
21. MFs: Mutual Funds
22. NAV: Net Assets Value
23. NIFTY: National Stock Exchange 50 Index
24. NYSE: New York Stock Exchange
25. RBI: Reserve Bank of India
26. SCBs: Scheduled Commercial Banks
27. SEBI: Securities and Exchange Board of India
28. SID: Scheme Information Document
29. U.S.A.: United States of America

30. US 64: Unit Scheme 1964 of UTI
31. UTI: Unit Trust of India
32. UTIMF: Unit Trust of India Mutual Funds

Chapter 1

FIRST STEP TO INNOVATION

1.1. Introduction

Financial innovation is an essential force motivating the financial system toward greater economic competence with considerable economic advantage accruing from the changes over the time. In the process of creating a new financial product, a financial engineer needs to acquire knowledge of optimization and financial modeling techniques beyond the basic theory of finance. This chapter focuses on theories contributed towards financial innovation by various pioneers in the area of finance.

1.2. Need for Financial Innovation

Financial innovation creates financial instruments on a continual basis. When any drawbacks are found in the existing instruments, new instruments are engineered to replace or supersede the existing financial instruments. When a product/service/contract is engineered before a need for the engineered features is felt, it is a hard sell. It takes a long time for the product to come into use in the financial markets. However, when engineering is applied as a cure for the nagging limitations of the existing products, markets certainly welcome, adopt and absorb such innovations. Further, this would bring about a change in the attitude of the households in such a way they desire to invest more. This attitudinal change on the part of the households may even persuade the government to restructure or even privatize the public sector financial institutions. While such things have been increasing the complexity of the financial system, there has been a growth in general economy, variety of financial transactions, sums and risks involved, and the number of market participants. The quantitative modeling has been replacing the intuitive modeling in the financial markets. The unending reforms of the economies and the financial sector in particular have started plugging the existing loopholes at a faster pace. Apart from this, globalization of most of the financial markets is demanding newer financial products, services, and contractual concepts.

1.3. Review of Literature

The breakdown of the Bretton Woods agreement in 1972 led to major increases in volatility and competition. Smith, Smithson, and Wilford (1990)[1] document the increase in the volatility of interest rates, exchange rates, and commodity prices, and draw a relation between increase in riskiness and financial innovation.

Levich et al (1988)[2] made a broad assessment of the recent developments surrounding financial innovation, including their impact on financial stability and national policy-making. His theory addresses a basic question: What financial product and process changes have occurred over the last twenty to twenty-five years in the United States and international financial markets?

Verghese (1990)[3] states that it is necessary to take a close look at the main features of the current wave of financial innovation and evaluate objectively what it has achieved and at what cost. It is also important to identify the lessons of the financial change and innovation. He started with a comprehensive study of financial innovations in India.

Marshall and Bansal (1992)[4] have classified the causes of increasing risk into two: environmental and intra-firm. And this classification is used to analyze the reasons why the increase in risk and major developments in finance, taken together, created the right environment for rapid growth in financial innovation.

Miller (1992)[5] focused on the future perspective of financial innovation and he explained functional perspective of financial intermediation. His study is about financial innovations, lower cost of capital, reduce financial risks, improve financial intermediation, and hence welfare enhancing. He stated that is to him “the growing need of financial innovation in stimulating economic growth and businesses operations indeed can be viewed by explaining functions it has performed”.

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[1] Smith Clifford W, Jr., Smithson Charles W, and Wilford D. Sykes (1990), *Managing Financial Risk*, Harper Collins Publishers.

[2] Richard M. Levich, Gerald Corrigan E, Charles S. Sanford Jr, George J. Votja (1988), “*Financial Innovations in International Financial Market*” in The United States in the World Economy, Editor: Martin Feldstein, University of Chicago Press, ISBN: 0-226-24077-0, 215 – 277

[3] Verghese, S K (1990), Financial Innovation and Lessons for India, Vol. 25 (5), 03 Feb.

[4] Marshall John F, and Bansal Vipul K (1992), *Financial Engineering: A Complete Guide to Financial Innovation,* New York Institute of Finance, New York.

[5] Miller Merton H (1992), "Financial Innovation: Achievements and Prospects," *Journal of Applied Corporate Finance, Vol. 4* (winter), 4-12.

Levine (1997)[6] opines that the most of the empirical studies had confirmed that finance or financial system is the heart of any economy which determined economic growth in an economy. This perhaps displays the growing significance of financial innovation as a casual contributor in stimulating the economic growth and re-engineering businesses particularly in emerging economies.

Finnerty (2002)[7] compiled an informative list of products relating to the financial innovations and factors that are primarily responsible for innovation. The compilation covered consumer type financial instruments, securities, financial processes, and financial strategies/solutions based on the tax advantages, reduction of risk of volatility in interest rates, reallocation of risk, reduction of transaction and agency costs, increase in liquidity etc.

Tufano (2003)[8] examines a cross-section of new securities to examine whether financial product innovators enjoy first-mover advantages. He finds that, during the 1974-1986 periods, investment banks that created new products did not charge higher prices in the period before imitative products appear and in the long run charge lower prices than rivals. He provides the standard explanation for financial innovation is; it helps correct market inefficiency or imperfections to some extent. For example, if markets are incomplete then financial innovation can improve opportunities for risk sharing. If there are agency conflicts, then new types of security can improve the alignment of interests. Other important motivations for financial innovation are to lower taxes or to avoid the effects of financial regulations. Since both issuers and buyers must benefit from an innovation for it to be successfully introduced, the traditional view of financial innovation has been that it is desirable.

Frame and White (2004)[9] surveyed and summarized the existing empirical literature on financial innovation. They have stressed the surprising fewness of research papers that empirically test hypotheses concerning financial innovation, although they have also offered some conjectures as to why that fewness might not be so surprising after all. There exists a positive relationship between education and income and use of the new financial technology

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[6] Levine, Ross (1997). Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature, Vol. 35* (June), 688-726.

[7] Finnerty John and Douglas Emery (2002), Corporate Securities Innovation: An Update, *Journal of Applied Finance, Vol.* 12 (Spring/Summer), 21-47.

[8] Tufano P, (2003), "Financial Innovation," Harris M, Stulz, R. (Ed.), *Handbook of the Economics of Finance*, Vol. 1a (Corporate Finance), Elsevier, 307– 336.

[9] Frame W and Scoot and Lawrence J. White (2004), "Empirical studies of Financial Innovations: Lots of Talk, Little Action", *Journal of economic literature, 42*(1), 116-144.

by consumers. Financial innovators tend to gain by first mover advantages and re compensated well for their efforts.

Draghi (2008)[10] focuses on the financial regulation should not prevent innovation, which is necessary if we are to improve product choices for consumers and an expanded access to credit. Thus, the goal will be to strengthen the resilience of the system without hindering the process of market discipline and innovation that are essential to the financial sectors contribution to economic growth.

1.4. Types of Innovation

Engineering of financial instruments is the description of promised yield, liquidity, maturity, security, and risk. Given that innovation has the same characteristics in different packaging to suit the constantly varying needs of the issues and the investor's constitute the indivisible condition of such concept. There are two kinds of innovations:

1. Innovation for the tax planning.
2. Facilitate adaptive changes in the available financial instruments.

1. **Innovation for the tax planning**: Financial engineers are called upon to develop special instrument or a combination of instrument to attract more investors which will enables them to reduce tax burden. They need to design a product which reduces other expenses like agency costs, commission, incentives etc.
2. **Facilitate adaptive changes in the available financial instruments**: Financial engineers are expected to design new features, which facilitates adaptive changes in the existing financial instruments of the capital market. For instance, profit-linked interest rate securities, optionally dual currency bonds, rating-linked interest rate bonds, and special incorporation equity etc. Some recent developments in the financial products are:
    a. Instruments that offer security with a fixed interest rate coupon and a percentage of the profits derived on the projects.

[10] Draghi M (2008), "How to Restore Financial Stability", *Bundesbank Lectureseries,* September 16

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