

Financial Innovation in India: An Empirical Study

* Vishal Sood

** Poorva Ranjan

Abstract

Financial markets are a part of the changing business paradigms, across the globe. In fact, the financial markets are the first to unleash the creativity and imagination and lead the revolution. Today, globalization of competencies, thinking and perspectives has been the part of Strategic Action Plan of all the major players in the financial markets, globally. The cut throat competition across the market operators and the pressure to perform by the stakeholders has resulted in competition being fiercer than ever before. Both the business landscape and chemistry of the competition has changed significantly over the period of time. All around, there is a fresh thinking on the financial products, structure of market players and possibilities for value creation. We can say financial markets are being redefined, reinvented and reconfigured on a persistent basis.

*Prof. Vishal Sood, Finance & Accounts, Indore Indira Institute of Career Studies, Indore

** Prof. Poorva Ranjan, Marketing, Indore Indira Institute of Career Studies, Indore

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Financial innovation—like innovation elsewhere in business—is an ongoing process whereby private parties experiment to try to differentiate their products and services, responding to both sudden and gradual changes in the economy. Surely, innovation ebbs and flows with some periods exhibiting bursts of activity and others witnessing a slackening or even backlash. However, when seen from a distance, the process of innovation—in this instance, financial innovation—is a regular ongoing part of a profit maximizing economy. This paper will cover the recent trends in financial innovation with reference to Indian scenario. Our attempt is to find out the Impact of GDP, Growth Rate (NIFTY) & Inflation on the financial innovation revolution in India.

“The complexity and speed of financial innovation has reached the point where it is hard to grasp what is happening from moment to moment. Amateur investors and many professionals are wary of space-age trading strategies and kinky financial instruments.”

Peter L. Bernstein, (1992), Capital Ideas, Free Press.

Keywords

Innovation	Inflation rate	GDP	Multiple Correlation
Monetary policy	Fiscal Policy	Imperfection	Globalisation
Market Risk	Market Volatility	Growth rate	

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Introduction

In India, reforms to perk up efficiency and accuracy of the financial sector started early in the reform cycle that commenced in 1991 - in some ways anticipating the gains that would amass from the resultant flexibility in product and factor markets. However, the process of intensification of the functioning of the financial institutions in terms of prudential framework, operational efficiency and regulatory / supervisory regimes has been ongoing. It was also aligned with the development of money, FOREX, Govt. securities and equity markets. The velocity of capital & credit reforms is brisk & is transforming the scenario. The existence of assortment of financial innovations with different terms & conditions, now endow with a wider choice of instruments that suits the investment portfolio needs.

Meaning of Financial Innovation

Much of the theoretical and empirical work in financial economics considers an exceedingly stylized world in which there are a small number of securities (debt and equity, perhaps) and maybe a handful of trouble-free financial institutions (banks or exchanges.) However, in reality there is an immense range of diversified financial assets, many different types of financial institutions and a variety of techniques that these institutions take up to do business. The literature on financial innovation attempts to index some of this variety, described reasons why we observe an ever-increasing diversity of practice, and evaluate the private

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and social implications of this activity. “**Innovate**” is defined in *Webster’s Collegiate Dictionary* as “To introduce as or as if new,” with the root of the word deriving from the Latin word “**Novus**” or new. Economists use the word “**Innovation**” in an expansive fashion to describe shocks to the economy (e.g., “monetary policy innovations”) as well as the responses to these shocks (e.g., Euro deposits). Broadly speaking, “**Financial Innovation** is to activate, create and then popularise new financial instruments as well as new financial technologies, institutions and markets.”

The “Innovations” are categorised into *product* or *process* innovation, product innovations can be bundled by new derivative contracts, new corporate securities or new forms of mutual investment products, and the process improvements can be associated with new means of distributing securities, processing transactions, or pricing transactions. In practice, even this innocuous demarcation is not apparent, as process and product innovation are not always connected. The *processes* by which one churns and creates a new index linked to college costs or invests to produce a return that reveals this index are hard to separate from a new indexed investment *product* that tries to help parents to bank upon for their children’s education.

Innovation works as a tool for the ongoing research and development function and also diffusion (or adoption) of new products, services or ideas. Invention is probably an excessively liberal term, in that most innovations are evolutionary

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adaptations of aforementioned products. The lexicographer's addition of the phrase "as if" to the definition of innovation reflects one difficulty in any study of this phenomenon—almost nothing is completely "new" and the degree of newness or novelty is inherently subjective. (Patent examiners charged with judging the innovation of inventions face this challenge consistently.)

One of the sub-branches of literature on financial innovation has created lists or taxonomies of innovations. Given the extensiveness of possible innovations, this work tends to specialise in particular areas, such as financial innovations. For example, Finnerty (1988, 1992, 2001) has created a list of over 60 security innovations, organized by broad type of instruments (debt, preferred stock, convertible securities, and common equities) and by the function served (reallocating risk, increasing liquidity, reducing agency costs, reducing transactions costs, reducing taxes or circumventing regulatory constraints.) One investment bank published a guide to innovative international debt securities in the mid-1980s.

Some of the securities listed were nearly-identical assets offered by banks trying to distinguish their wares from those of their competitors. Others represented evolutionary up gradations on earlier products. Perhaps a few were in fact novel. There has been incredible innovation in exchange-traded derivatives, over-the-counter derivative contracts (such as the credit derivatives, equity swaps, weather

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derivatives and exotic over-the-counter options), new insurance contracts (such as alternative risk transfer contracts or contingent equity contracts), and new investment management products (such as exchange traded funds.)

Need of Financial Innovations

Taxes, regulation, information asymmetries, transaction costs, and moral hazard exist in the real world making the market imperfect. This affects the financial instruments and makes them obsolete as the new requirements arise. Without Financial innovations new financial process and products will not emerge in the market. This situation will benefit neither private parties nor society and would simply be neutral clones. On this basis, a many researchers have tried to understand how various “imperfections” (and changes in these imperfections) stimulate financial innovation. These imperfections prevent participants in the economy from efficiently obtaining the functions they need from the financial system. According to many researchers, financial innovations are simple responses to several basic problem or opportunities present in the market, such as incomplete markets that prevent risk shifting or asymmetric information. Many of the researches are “institution-free” as they are not taking into the account of the role of innovators in the process. At the same time other institutionally-grounded explanations study the role played by financial institutions which are continuously launching new and better financial products to face tough competition in the market.

Functions of Financial Innovation

Merton's (1992) functional decomposition identifies six functions of financial systems:

1. Channelising money across time and space
2. The pooling of funds
3. Risk management
4. Information database to support decision-making
5. Addressing moral hazard and asymmetric information problems
6. Payment system based sale & purchase of goods and services through a payment system.

Peter Tufano (2002) in his paper identifies following functions of Financial Innovation:

1. ***Innovation occurs to check market imperfections.*** Because of inherent market imperfections the market players are not able to move funds freely across time and space.
2. ***Innovations occur to answer innate agency concerns and information asymmetries:*** earlier researchers study how contracts can be written to better configure the interests of various parties or to make managers release private information to public.
3. ***Transaction reduction, search or marketing costs cutting takes place due to Innovation:*** Transaction costs play a vital role for financial

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intermediaries. Financial intermediaries allow households facing transaction costs to achieve their optimal consumption-investment program. Merton puts up the same reason to explain how equity swaps can be an efficient way to deliver returns to multinational investors. Payment systems backed by latest technological process innovations are lowering transaction costs. ATMs, smart cards, ACH technologies, e-401k programs and many other new businesses are legitimate financial innovations that seek to drastically cut the heavy costs of processing transactions.

4. ***Innovation occurs whenever taxes, policy & procedures change:*** “The major impulses to successful innovations over the past twenty years have come; I am saddened to have to say, from regulation and taxes.” Miller (1986). Zero coupon bonds, Eurodollar Eurobonds, various equity-linked structures innovated due to changes in taxes and government procedures. These new instruments are used to monetize asset holdings without inducing immediate capital gains taxes, and trust preferred structures.
5. ***Globalisation of economy leading to higher risk in turn initiates innovation:*** With increase of globalisation, market volatility and fluctuations have increased manifolds. In this type of uncertain market situation, financial innovations emerge to manage financial risk or to cover financial exposures.

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6. ***Modern sophisticated technology induces innovation:*** IT has always been making process in financial transaction simplified and fast which has led to many innovation. IT and improvements in telecommunications, Internet etc has facilitated a number of innovations, such as new methods of underwriting securities (e.g., OpenIPO), assembling portfolios of stocks (folioFN), new markets for securities and new avenues of executing security transactions.

Rationale of the Study

India has been upholding one of the highest growth rates among countries for quite some time now, the dynamics of growth has dramatically shifted in the last three to four years and the economy is expected to break shackles of an intermediate growth rate of around 6 percent to a high growth rate regime of above 8 percent. It is observed that despite of a highest level of internal resource generation and access to external borrowings, credit demand across sectors had picked up quite significantly which result in enhancing the rate of investment to new heights.

It is also evaluated that real GDP growth has averaged 8.7 per cent per annum during the 5-year period ending 2007-08. The present domestic investment rate is around 36-37 per cent and is expected to sustain the current growth momentum. The Indian economic history, has never witnessed this order of growth for five

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consecutive years; this has been realised while keeping inflation low and stable and anchoring inflationary expectations.

From the above facts, it is evident that GDP, Growth Rate & Inflation Rate of India are having some impact on the financial innovation. Through our analytical study we are trying to find the individual and combined impact of the three factors GDP, Growth Rate & Inflation Rate on the financial innovation in India.

Objective of the Study

1. To study the impact of GDP on Financial Innovation in India
2. To study the impact of Growth Rate on Financial Innovation in India
3. To study the impact of Inflation Rate on Financial Innovation in India
4. To study the combined impact of GDP, Growth Rate & Inflation on Financial Innovation in India

Hypothesis of the Study

1. GDP, Growth Rate & Inflation Rate of India have an positive impact on Financial Innovation in India

Research Methodology

Data analysis Tool: Multiple Correlation Analysis

Multiple Correlation is a tool to study three or more variables at a time. The effect of the Independent factors on a dependent variable is studied. We have taken

$$\begin{aligned} 1. R^2_{x,yz} &= (r^2_{xy} + r^2_{xz} - 2r_{xy}r_{xz}r_{yz}) / (1 - r^2_{yz}) \\ 2. R^2_{y,xz} &= (r^2_{xy} + r^2_{yz} - 2r_{xy}r_{xz}r_{yz}) / (1 - r^2_{xz}) \\ 3. R^2_{z,xy} &= (r^2_{xz} + r^2_{yz} - 2r_{xy}r_{xz}r_{yz}) / (1 - r^2_{xy}) \end{aligned}$$

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GDP, Growth Rate and Inflation Rate of past nine years (1999 – 2007) as three independent variables.

R	=	Multiple Correlation Coefficient
r	=	Correlation Coefficient
x	=	Growth Rate (NIFTY)
y	=	Inflation Rate
z	=	GDP Rate

Limitat

1. Data of past nine years (1999 – 2007) have been taken for analysis purpose
2. The growth rate values are as per NIFTY index. We have not considered SENSEX values

Data Analysis & Data Interpretation

Table I - Growth Rate data from year 1999 – 2007 [*Growth Rate (x) of Nifty Index.]

YEAR	X	$dx = (x-X)$	dx^2	x^2
1999	-10.14	-31.25	976.5625	102.8196
2000	64.44	43.33	1877.4889	4152.5136
2001	-15.04	-36.15	1306.8225	226.2016
2002	-15.57	-36.68	1345.4224	242.4249

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2003	3.25	-17.86	318.9796	10.5625
2004	77.97	56.86	3233.0596	6079.3209
2005	6.91	-14.2	201.64	47.7481
2006	36.34	15.23	231.9529	1320.5956
2007	41.86	20.75	430.5625	1752.2596
TOTAL	190.02	0.03	9922.4909	13934.4464

Table II - Inflation data from year 1999 – 2007 [*Inflation (y)]

YEAR	Y	dy = (y-Y)	dy²	y²
1999	-64.39	-53	2809	4146.0721
2000	-14.89	-3.5	12.25	221.7121
2001	-5	6.39	40.8321	25
2002	13.16	24.55	602.7025	173.1856
2003	-11.63	-0.24	0.0576	135.2569
2004	0	11.39	129.7321	0
2005	5.26	16.65	277.2225	27.6676
2006	-25	-13.61	185.2321	625
2007	0	11.39	129.7321	0
TOTAL	-102.49	0.02	4186.761	5353.8943

Table III - Gross Domestic Product (GDP) data 1999 – 2007 [* GDP (z)]

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YEAR	Z	dz = (z-Z)	dz²	z²	xy	xz	yz
1999	-8.3	-17.89	320.0521	68.89	-5725.73	-1232.442	22048.39
2000	9.09	-0.5	0.25	82.6281	-0.125	-41.31405	20.65703
2001	-28.33	-37.92	1437.9264	802.5889	-54526.2	-30434.17	1154064
2002	0	-9.59	91.9681	0	-881.974	0	0
2003	-6.98	-16.57	274.5649	48.7204	-4549.54	-807.297	13376.91
2004	100	90.41	8173.9681	10000	739008	904100	81739681
2005	-25	-34.59	1196.4681	625	-41385.8	-21618.75	747792.6
2006	33.33	23.74	563.5876	1110.8889	13379.6	26372.502	626083.2
2007	12.5	2.91	8.4681	156.25	24.6422	454.6875	1323.141
TOTAL	86.31	0	12067.2534	12894.9663	645343	876793.22	84304390

Table IV - Correlation among three variables and its impact on Financial Innovation

	x	y	Z
Mean	21.11	-11.39	9.59
S_d	33.203	21.57	36.62
R_{x,yz}	0.62	-	-

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$R_{y.xz}$	-	0.04	-
$R_{z.xy}$	-	-	0.61

Result of the Study

1. H_0 : As the Financial Innovation changes all three factors Growth rate, Inflation & GDP change in +ive direction.
2. H_1 : Not in +ive direction.

The result concludes that the percentage change in Growth rate, will contribute to change Inflation & GDP simultaneously.

It is shown as follows:

3. $R_{x.yz}$ = Fix Growth Rate there will be a +ive change in inflation and GDP
i.e. 0.62
4. $R_{y.xz}$ = Fix Inflation there will be a +ive change in Growth Rate & GDP
i.e. 0.04
5. $R_{z.xy}$ = Fix GDP there will be a +ive change in Inflation and Growth Rate
i.e. 0.61

Future Trends of Financial Innovation

1. There should be a serious transparency

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2. Mostly the products will be designed on the basis of liquid underlying assets
3. US and European financial institutions will be appraised more for their financial products—Regulators will focus on
 - a. Transparency
 - b. Liquidity
 - c. Valuation
4. Governance of Institutions designing products will be strained
5. Product designer will be look more and more towards behavioral finance
6. Financial e-commerce

Conclusion

As the Growth rate is increasing there is an increase in Inflation and GDP of Indian Economy. Thus through our analysis we found that the GDP, Growth Rate & Inflation rate are having positive impact in contributing Financial innovation in India. But it is a matter of concern as market is becoming volatile day by day and risks are increasing. True such conditions favour economic growth and innovation but such a growth is inorganic growth. India being a developing country must follow a long term sustainable development policy. It is only possible when it maintains low inflation rate.

We need to practice to some extent counter cyclical monetary and fiscal policies with suitable external sector management, ensuring a by and large financial

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firmness – price stability, low inflation, low inflation prospects and low inflation volatility. It is only under these conditions, that investments, innovations and growth can be maintained in a sustainable manner. We must continue to ensure that the growth thrust is sustained with price permanence.

The prospects in financial markets are toning somewhere and at the same time escalating elsewhere. Both alteration and the rapidity of alteration in the financial markets would be different tomorrow. Continuous exploration of scopes and values would demand a radiant focus on emerging opportunities, competence building, strategies for leadership position in the opportunity zones and principles centered business practices. Financial innovation is viewed as the “driving force” of the financial system towards its goal of improving the performance of what economists describe the “real economy”. Therefore, we need to create a culture, which embraces alteration and moves ahead with an aim to lead.

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