artha

A NEWSLETTER OF THE FINANCE LAB

July 2013 | Anniversary Issue

INDIAN INSTITUTE OF MANAGEMENT CALCUTTA

Is Finance Good for the Society?

INDIAN INSTITUTE OF MANAGEMENT CALCUTTA

FRTL
Financial Research & Trading Laboratory

Chief Editor
Ashok Banerjee, Professor, IIM Calcutta

Editorial Team
Partha Ray, Professor, IIM Calcutta
Golaka C. Nath, Senior Vice President, Clearing Corporation of India Ltd.

Diamond Harbour Road,
Joka, Kolkata - 700104
West Bengal
033 2467 8300

Financial Research & Trading Laboratory

a₹tha

A NEWSLETTER OF THE FINANCE LAB

INDIAN INSTITUTE OF MANAGEMENT CALCUTTA

Indian Institute of Management Calcutta

Contents

Editorial

Your magazine has completed one year! On its anniversary, A₹tha gets a complete new look and the subsequent issues of A₹tha will appear in this new avatar. I am pleased to present the first anniversary issue, which comprises of six invited articles with a foreword. The regular contributors to your magazine have decided to take a pause for this issue!

The editorial team, while designing the issue, debated whether to have a particular theme for this issue. It was felt that it would be a good idea to talk about the importance and usefulness of finance in the present society. The theme of this issue has been drawn from the famous book by Robert Shiller 'Finance and the Good Society'. The six articles in the present issue debate on this theme.

Two more changes are forthcoming in your magazine. *First*, the frequency of the magazine, from the next edition, will be reduced to one issue in every two months. Thus, after the anniversary issue in July, the next issue will be released in September. *Second*, we are adding two new sections- Corporate Finance and Corporate Governance.

I hope you will enjoy reading the anniversary issue. Do send us your feedback at ashok@iimcal.ac.in

Ashok Banerjee

Preface

Maureen O'Hara

This issue of A₹tha brings into focus an important topic: Is Finance Good for Society? That this issue is even being raised speaks to the continuing aftershocks of the financial crisis and the view, held by many, that modern finance served to enrich the few at the expense of the many in the global finance system. But this question also speaks to a broader unease that finance has become too large a part of the global economy; that production of financial assets has taken on a too great a role relative to the production of real assets. From the Occupy Wall Street movement to The Economist, doubts are being raised about the social value of finance.[1]

Critics point to a wide range of excesses as evidence of the destructive power of finance. Structured finance, with its complex bundling and rebundling of cash flows, transmitted the financial difficulties of a few into financial misery for the many. What is particularly unsettling is that even large, presumably sophisticated financial institutions were bamboozled by structured mortgage products, or at least such is the contention of the U.S. Securities and Exchange Commission in its fraud complaint against Goldman Sachs. And it is does not end there. Problem in credit default swaps, excessive leverage created by synthetic financial instruments, speculative loans financed by complex borrowing arrangement, all have forced governments to bail out financial institutions around the world. As Iceland can attest, even countries have had to restructure due to financial overspecialization.

Yet, as Robert Shiller notes "Finance, despite its flaws and excesses, is a force that potentially can help us create a better, more prosperous, and more equitable society".[2] Modern finance has allowed for the "democratization" of finance, providing access to funding that was previously unavailable to borrowers both large and small. Finance has also provided mechanisms for sharing risk, helping everyone from the small farmer hedging his crop risk to the giant corporation investing in a much needed project in a developing country.

But the fact that finance can do good does not mean that it actually does do good. For this positive outcome to arise, we need to better understand the ways in which modern finance can be a power of good in society. This special issue fosters this dialogue, and challenges all of us in finance to make the case for why finance is good for society.

[1] *See "Greed and Fear: A Special Report on the future of finance," The Economist, Jan. 24, 2009/.*
[2] *See Shiller, Robert J., Finance and the Good Society, (Princeton University Press, 2012), page X.*

Contributors

Maureen O'Hara is the Robert W. Purcell Professor of Finance at the Johnson Graduate School of Management, Cornell University. She holds degrees from the University of Illinois (B.S. Economics), Northwestern University (M.S. Economics and Ph.D. Finance), and Facultés Universitaires Catholiques à Mons (FUCAM), Belgium (Doctorate Honoris Causa). Maureen's research focuses on issues in market microstructure, and she is the author of numerous journal articles as well as the book Market Microstructure Theory (Blackwell: 1995). Maureen has served as President of the American Finance Association, the Western Finance Association, and she is currently President of the Financial Management Association as well as the Society for Financial Studies. She has recently stepped down as the Executive Editor of the Review of Financial Studies.

Anup Kumar Sinha is a Professor of Economics at the Indian Institute of Management Calcutta (IIMC). He received his education from Presidency College, Kolkata, University of Rochester, New York and the University of Southern California, Los Angeles, from where he completed his Ph.D. He was earlier associated with the Centre for Economic Studies, Presidency College, for over a decade before joining IIMC in 1991. His research and teaching interests include Macroeconomics, Development Economics and Environmental Economics. Anup is a prolific writer and his popular articles on contemporary issues of finance and economics are widely read and appreciated.

M. Suresh Sundaresan is the Chase Manhattan Bank Professor of Economics and Finance at Columbia University. He has published research papers in the areas of Treasury auctions, bidding, default risk, habit formation, term structure of interest rates, asset pricing, investment theory, pension asset allocation, swaps, options, forwards, futures, fixed-income securities markets and risk management in major journals such as the Journal of Finance, Review of Financial Studies, Journal of Business, Journal of Financial and Quantitative Analysis, European Economic Review, Journal of Banking and Finance, Journal of Political Economy, etc. He has also contributed articles in Financial Times, and World Bank Conferences. He is an associate editor of Journal of Finance and Review of Derivatives Research.

Binay Bhushan Chakrabarti is Professor of Finance at the Indian Institute of Management (IIM), Calcutta. His teaching and research interests are in the fields of corporate finance, international finance, financial intermediation, financial derivatives, financial markets, asset pricing, capital management, and risk management. Binay has more than 25 years of industry experience at senior management levels. He has a PhD in Economics from Jadavpur University, Calcutta. Binay has recently been appointed as a member of newly constituted "RBI Committee on Financial Benchmarks" and also as a member of the Advisory Committee for Higher Education in West Bengal, constituted by the Governor of West Bengal.

Jayanth R Varma is a Professor in the Finance and Accounting Area at the Indian Institute of Management (IIM), Ahmedabad where he teaches courses in capital markets, fixed income and corporate finance. He has been the Dean of the IIM, Ahmedabad for three years. Jayanth was a full time Member of the Securities and Exchange Board of India (SEBI) for a year. He is currently a director on the Board of Infosys BPO Limited, Gujarat International Finance Tec-City Company Limited and Bharat Petroleum Corporation Limited. Jayanth's current research interests are principally in the area of financial markets including equity, debt, currency and derivative markets. He is also interested in broader issues related to the financial sector as also in mathematical modelling and computer simulation.

A. Vasudevan, economist and a career central banker, retired as the Executive Director, Reserve Bank of India (1996-2000) looking after monetary policy, economic research, information technology and statistics. He was Adviser to Executive Director (India) at the IMF (1984-89) and member of the two Task Forces relating to International Standards and Codes of the erstwhile Financial Stability Forum (2000). He was also Special Adviser to Governor, Central Bank of Nigeria between 2006 and 2012. His recent publications include, "Central Banking for Emerging Market Economies" (2002 being updated) and "Monetary Governance" (2012).

Nirakar Pradhan is the Chief Investment Officer (CIO) and is in charge of managing the funds on behalf of Future Generali India. Nirakar has over 25 years of experience in the financial sector including the last 16 years in Treasury, Investment & Portfolio Management in India and abroad. His last assignment was with SBI in Germany. He is a Ph.D in Business Administration, a CFA Charter Holder and a Certified Financial Risk Manager from Global Association of Risk Professionals, USA. He has several professional memberships like CFA Institute, GARP, PRMIA and has also published several articles in financial journals and newspapers.

From the Editors: Introducing the Theme

Finance and its Recent Faces: The Good, the Bad and the Ugly

Partha Ray

To say that the discipline of finance and the financial professionals had earned a bad name during the recent global financial crisis is perhaps stating the obvious without necessarily being informative. However, it is not exactly a welcome scene when the popular perception of a finance professional gets couched in terms of an individual doing some modern day alchemy and earning a fat bonus when the rest of the world suffers, unemployment soars in, and the pension funds of average citizens is put to some of casino activities. If the image of Michael Douglas in the 1987 Hollywood film *"Wall Street"* had not evoked happy feelings, the reaction to the same face in its 2010 sequel *"Wall Street: Money Never Sleeps"* was perhaps worse. While these stereotypes of seeing a finance professional as a greedy and self-centered human being are over-simplistic and hence incorrect, the thoughts behind such popular perception cannot be put under the carpet. In fact, it may not be an exaggeration to say that the distance between the Wall Street and the Main Street have increased over the years and more so in the recent past. Movements like "Occupy Wall Street" bears testimony to this sentiment. It is from this viewpoint that we, the editors of the e-magazine A₹tha, thought that it is worthwhile to initiate a dialogue on the question whether finance is good for the society.

Is this presumed dichotomy between the Main Street and the Wall Street an act of fiction? Or, are there elements of truth in it? The question is intimately interlinked with the perceived relationship between finance and economic growth. Views, in this context, do differ and often differ widely. There is a dominant school of thought which argues that cross-country differences in financial sector development is a key factor determining cross-country differences in long-run economic growth rates.[1] After all, a developed financial system plays a great role in a number of key functions in the growth process, such as, mobilization of savings, identification of projects with high returns, diversification and mitigation of risks and reduction of transactions costs. On the contrary, there is an equally strong view that the causality between finance and growth runs from growth to finance; this is typified in British economist Joan Robinson's famous statement, "where enterprise leads finance follows." From the vantage point of 2013, it seems that the direction and nature of causation between finance and growth has experienced a full circle – so much so that the average people in the street could have started believing that finance tended to affect growth adversely. People have become skeptic about the welfare implications of various financial innovations. Illustratively, former U.S. Fed Chairman Paul Volcker suggested that the ATMs machines seemed to be the last great financial innovation happened to mankind. But if that is true, then conscious efforts need to be undertaken so as to make finance good for the society. The question is how?

[1] *See Levine (1999) for a survey of such views; Levine, Ross (1999): "Law, Finance, and Economic Growth"; Journal of Financial Intermediation, Vol 8, pp 8–35.*

Robert Shiller's recent book, ***Finance and the Good Society*** (Princeton University Press, 2012) which served as the inspiration to the theme of the current anniversary issue of *Arttha*, probed into issues such as these. Shiller captured the popular perception on finance in the following statement of President Nicholas Sarkozy of France, who went on the say:

> "Purely financial capitalism has perverted the logic of capitalism. Financial Capitalism is a system of irresponsibility and is …amoral. It is a system where the logic of the market excuses everything."[2]

There are a number of symptoms of financial capitalism that has been despised by the people. Increasing income inequality, popular perception of sleaziness in finance, presence of perverse incentives in the finance industry and the "swing door" syndrome among the regulators (whereby regulators tend to come from the market participants and hence, by and large, are sympathetic to the causes of the market players) reveal the ugly faces of finance.

But in the current context, is it correct to blame the finance professionals on all excesses in the financial sector that led to the American subprime crisis (culminating into global financial crisis to begin with and the great recession later)? Raghuram Rajan in his book ***Fault Lines*** (Princeton University Press, 2010) has demonstrated that in the face of rising inequalities in the U.S and because of the inability to improve to quality of basic human services like health and education on the part of the U.S. government, the political response, "was to expand lending to households, especially low-income ones" (p. 9). Besides, one needs to appreciate that because of their high leveraging and systemic importance, finance is special. Hence, the extent of regulation over finance has to be more pervasive and more effective than what is observed over real-sector activities. In fact, along its inability to provide a sound regulatory net over the financial sector, government by pushing for bank loans for housing purpose (part of the great American dream) had a hand in the current crisis. Hence, the current crisis is a classic example of both market failure and government failure.

Life was simple fifty years back when bankers and stock brokers were seen as the only type of finance professionals. Banking was simple too with its 3-6-3 model, whereby bankers used to accept deposit at 3 percent, used to lend at 6 percent, and then at 3 pm used to go for golf. Life is much complicated now. There is, of course, a necessity to strip finance off from some the undue complications and make the incentive structure more aligned to the societal goals. Fortunately, world-wide there is consciousness towards this goal – G-20, FSB, BIS, as well as the national regulators are striving towards making finance good for the society. Both Wall Street and the Main Street need to form a coalition in this endeavor. Rather than falling into the trap of abject cynicism, we see a light, however faint, at the end of a long dark tunnel.

****

[2] *Nicholas Sarkozy in his speech, "New World New Capitalism", Paris, January 9, 2009.*

Money and Finance in Good Times and Bad

Anup K Sinha

"Money is a sixth sense without which you cannot enjoy the other five." – W. Somerset Maugham

Many years ago when I was a graduate student in USA an American friend of mine landed a summer job during the vacation to teach economics to prisoners in a state prison. My friend was excited and made enquiries about the educational background of the prisoners and was told to assume middle to high-school abilities. We had a long discussion of what and how to teach this rather heterogeneous group of law breakers. My friend decided to start the first class with a discussion on money. Within a few minutes of his starting the lecture he was interrupted by more than one person from the audience. They repeatedly claimed that there was only one obvious problem with money. Pointing to the great big world outside the prison premises, they said that the crux of the problem was very simple – those people (outside the jail) had the money and they (the prisoners) did not. My friend was not allowed to speak until he was able to answer their basic question – how do we get money enough to be a rich man?

Like the prisoners, even to the ordinary person the access to financial resources, especially money, is something that is vital, almost like the air we breathe. Money is required to make transactions that give us access to a variety of goods and services. The transactions can be made at any point of time, now or in the future. They can also be made at any place in the world. Yet, despite money and finance being something so inextricably connected with everyday life, they have their own mystery and complexity. Where does money come from? Why do interest rates vary? Why do exchange rates that help us convert one national currency into another fluctuate? What if a bank cannot honour a cheque that is presented for encashment? Am I going to be cheated?

Mysteries and Uncertainties

To the ordinary person the world of money and finance is difficult to understand and hard to make predictions about. Yet, as we mentioned, the resources are so important in conducting our daily lives. We all want to have more money – either through possession or through loans taken. People have been known to kill for money. The mystery and awe is deepened when the world of finance goes topsy-turvy from time to time in totally unpredictable ways. Financial uncertainties not only affect individuals in a household or a business firm, they affect entire economies – wealth is lost, jobs disappear, companies go bankrupt and the production of goods and services in the economy shrinks. It is as if the air that we breathe suddenly fills up with noxious fumes. Why do such things happen? Can they be prevented from happening? Is it not the arena for the display of greed and fraud and deception?

Limited comprehension of the mysteries of finance is not only limited to, what we have described as, the ordinary person. Experts in economics and finance find it equally difficult to predict future outcomes like prices of financial assets or interest rates. The reason is quite simple though. In taking a decision to undertake a financial transaction, a person is quite often confronted with incomplete information. Even when buying a material

product like a camera or a television set, we may be sure of the price, but we do not know for certain the quality of the product. Imagine the difficulty of predicting the future price of a stock that we may wish to buy today hoping to make capital gains of a certain amount within a certain specified period of time. There are so many things that might affect the outcome. Incomplete information about the present (and the past) along with a fundamental uncertainty about knowing future outcomes, makes financial transactions fraught with unpredictable consequences. Frank Knight, a famous economist, referred to this aspect of decision-making as uncertainty as distinct from risk. In situations of risk, Knight argued, probabilities could be (however difficult to do so) actually calculated, whereas under uncertainty the computation was an impossibility. Most of the consequences of financial transactions are uncertain in this sense.

Financial capital and labour are resources that are essential for any economic activity to take place. But unlike labour, finance is perfectly fungible. Finance as such is not valuable in itself. It only helps create and store value. It is a universal intermediate good, required in all economic activities. Hence the property of finance being perfectly substitutable when moved from one activity to another and its universal need makes it special. If anything happened to perturb financial flows in one sector of the economy, it is more likely than not, that other sectors of the economy would get affected in the same way. This is clearly not so for most other goods and services. For instance, if some unanticipated trouble affected the shoe-making industry, then it would be confined to the market for shoes and some related inputs such as leather or employment opportunities, and pay packages for workers working in that industry. Problems in larger industries such as steel for instance could have more widespread effects though certainly not likely to affect the entire economy in any significant way. Its fungible nature and the large range of its use give finance a special character.

Indeed the history of finance in human society records so many instances of sudden change of fortunes for individuals, as well as, for entire societies and economies like the famous Wall Street crash of 1929 and the ensuing Great Depression. There have been innumerable instances of financial greed from Bernard Madoff to Enron to Satyam. We all know the infamous Shylock the usurious money-lender in a Shakespearean play and Gekko in the movie Wall Street who proclaimed that greed is good. Instances of financial ruin, or for that matter unexpected financial gains are too many to cite. Hence one might ask a legitimate question – is there a place for finance in any vision of a good society?

In any society finance is an important instrument that helps us do two basic things – it helps us make transactions, and helps people who do not need financial resources now, to lend to people who would presumably make productive use of the borrowed resources. In short, finance connects borrowers and lenders. All the uncertainties and the incompleteness of information we talked about are unavoidable to some extent. Over and above that, there exists the possibility of people defaulting not because of a piece of ill-luck, or circumstances beyond their control, but because they want to avoid repayment.

Reducing the Impact of Troubles

Given the inherent uncertainties and the possibility of opportunistic behavior by borrowers, societies have devised two distinct ways of attempting to reduce the negative fallout, not only on individual firms and households, but also on the entire economy. The first way is to regulate - through some governance mechanism – by creating laws restricting or penalizing specific kinds of behavior. These rules could be given to monitoring bodies for ensuring compliance. This would at least minimize fraud and other forms of deviant behaviour. Regulations often try to minimize the negative fallouts of uncertainties. The fundamental uncertainty in finance is often split up into smaller measurable risks

and some kinds of benchmarks are adopted for financial institutions and markets to follow. For instance, there could be a requirement that banks keep adequate (as determined by the regulatory authorities) reserves, so that if their investments (the amounts they lend to borrowers) turn sour and repayments suffer, then there would be something to fall back on. However, this regulation does not to address the fact that investments may go sour; they merely attempt to minimize the negative consequences of many investments going sour for the lenders.

The second way that society has attempted to keep the consequences of inherent uncertainties to a minimum is through the creation of innovative transactions and approaches to financial management. The joint stock company is an excellent example of how individuals can take small risks yet large amount of resources can be pooled together from a large number of individuals. In the event of a failure of the company, or the price of the stock falling sharply, the individual small stock owner's loss is small. A particular stock holder may be thus induced not to put all eggs in one basket, but rather diversify holdings over a set of possibly dissimilar companies. It would be unlikely that all the companies would do badly simultaneously.

Another type of transaction that helps people to reduce uncertainty is futures trading in commodities or forward markets in currencies. The most traditional form of business risk that can be thought of would be the uncertainty faced by a farmer regarding the final price of his crop post-harvest. However, one way to mitigate the uncertainty would be if the farmer found a person who was willing to pay him an agreed upon price for his harvest at a pre-specified future date. If he knew what price he was going to get his worries would be reduced to a large extent.

Many of these instruments of hedging like the more recent ones called financial derivatives have gradually evolved in society over long periods of time, indicating that human beings have always be aware of the factor of uncertainty and on the lookout for solutions that would address this particular problem.

Two Things to Ponder On

Two issues warrant some discussion at this point. The first is the assumption made in economics and finance that people behave rationally when they take decisions regarding a financial transaction. This implies that a person is fully aware and informed of the consequences and tries to maximize his returns subject to the risk he is willing to take (usually referred to as his risk appetite). He is supposed to do this consistently, every time he takes a decision. This assumption does give us some neat results about the behaviour of financial markets. The intuition is the following: if all economic agents take rational decisions and maximize their returns and manage their perceived risks, then the market would be reasonably well-behaved. The only uncertainty would be a pure random disturbance that would be hard to predict, but it would be known that there remained an element of randomness in aggregate outcomes in the market that might have adverse effects.

Most recent research, however, seem to indicate that people do behave irrationally. They do not behave irrationally in the extreme sense of aberrant behaviour, but irrationally to the extent of being imperfectly rational. Moreover, they almost invariably have incomplete information about possible contingencies that may arise in the future. Hence observed variations in outcomes in financial markets may not be pure random disturbances but the result of imperfectly rational human behaviour – something that is currently popular in terms of the research agenda in finance and goes under the broad heading of 'behavioral finance'.

The second issue worth discussion is the growing understanding, particularly after the great financial crisis of 2008 from which the world has yet to fully recover that even if every economic agent tried to hedge against risk, and even if the purely random disturbance did not prove to be serious in terms of magnitude, the system's overall risk could increase. The issue of systemic uncertainty has to be treated as something distinct from the patterns of

individual risks that might emerge. In fact, one important lesson of the sub-prime crisis that originated in the housing-finance market was the unintended rise in systemic risk. This was not random, and this emerged despite everybody involved trying to hedge through diversification (through structured financial instruments like collateralized debt obligations) and hedging (through credit default swaps). Each thought that his own risk was covered adequately. Yet the system crashed with a vengeance. The regulators, the risk rating agencies, the insurers; they were all caught unawares to an embarrassing degree.

A big question that has emerged from all this is that however hard we may try to be strict in terms of regulations and compliance with regulations, can we remove systemic risk altogether? We may try to plug risks in a particular segment or from a particular new instrument, but the inherent uncertainty would remain. Alongside this, if we agree that people can be (and indeed are) on many occasions imperfectly rational, the complexity of financial market outcomes can increase sharply. In a given circumstance a person can be fully rational in one specific way. His behaviour could be fully described if the information he had, and his risk appetite, were known. However, a person can be imperfectly rational in vastly different ways. Hence predicting individual behaviour would be well nigh impossible.

Compounded Complexity and the Good Society

If we now combine the two sources of unpredictability – one macro in nature and systemic, and the other micro in nature and individual – the possibility of financial markets behaving in unpredictable fashions, actually increases. This possibility is independent of the quality and strength of regulatory oversight and the ability of individual agents to hedge their risks.

We now have a trade-off that has to be weighed and considered well – finance is so important in the life of a society yet cannot completely cover all the uncertainties that future outcomes imply. Precisely because of this uncertain future people wish to protect themselves in the form of a life insurance, health insurance, a pension plan, or just pure saving from current incomes. All these are attained in terms of financial instruments that help people hedge against the vagaries of life and the unpredictability of an uncertain future. It is in this sense that finance improves the quality of living in society contributing to social welfare. Hence finance and financial institutions are considered basic economic infrastructure, without which other productive activities would be difficult to sustain.

But this means that to be able to hedge against adverse state of affairs, to buy an insurance, to have a pension plan, or to save and put the savings in a bank account – one must have income or wealth. Without having money that represents income or wealth a person cannot hedge against the big adversities that life might bring. For everybody to have access to finance – everybody to be financially included – there has to be adequate levels of economic activity for all in that society. It is an unfortunate fact that the richer we are the more we can cover for the future while the poorer we are the more vulnerable we are to life's harsh predicaments.

We may conclude by noting that human beings have been aware of the role of finance in facilitating everyday life and making the risks of the unknown future somewhat easier to bear. We are also aware that at the minimum, whatever may be the degree of inequality in any society, the access to some form of finance must be universal. In other words every one must be financially included. Then only the ability to use finance to protect oneself against the unknown can come into play. A great deal of inequality might necessitate a sympathetic government (welfare state) to do what financial markets might have done – provide support in times of crisis. The ability of the welfare state to come to our rescue also depends on the presence of financial instruments and the ability to manage them well. These are taxes that can be raised and subsidies that can be provided without much fiscal strain on the size

of the government's debt and the extent of the budgetary deficit.

Would it mean then that if all had access to finance, and all had productive employment, financial institutions were well regulated, and the state was fiscally sound and well managed, there would be no possibility of financial troubles? The answer is clearly in the negative. We will never be free from systemic risks, mistakes made by ill-informed people and unanticipated shocks. The challenge before a good society must be in finding institutions and instruments that are able to minimize the human costs of such events - whether it is from an individual's perspective, or from that of the community as a whole. In many ways life's uncertainties make living a challenge and a charm. Sound finance helps us with a bit of courage to face the challenge and a bit of assurance to enjoy the charm.

****

Best products and practices in finance Some examples from Development and Consumer Finance[1]

Suresh Sundaresan

1. Introduction

Access to financial services is something most households take for granted: getting the salary automatically deposited to bank accounts, obtaining a loan to buy a car or home, investing in a savings deposit, making a wire transfer, getting a debit/credit card, or getting property and life insurance are just examples of financial services that many households transact regularly and at reasonably low costs in most countries.

In obtaining any financial service, households must evaluate the time and effort that is needed match their own needs for financial services with the types of products/services that are offered by banks and other providers. In addition, they must evaluate the efficiency with which the products and services are provided. Finally, they must determine whether the pricing and transparency associated with pricing are reasonable to meet their needs.

With most financial services, the relevant information that is available to the providers of financial services is typically less complete than the information possessed by the buyers of financial services. For example, in life insurance context, the seller of health insurance knows much less about the state of health of the buyer of insurance. Likewise, the provider of loans never has complete information about the ability/willingness of the borrower to repay the loan in a timely manner. This leads to problems of both ***adverse selection*** (in which the seller faces the prospect of dealing with a "riskier consumer" – consumers with good health vis-à-vis consumers with ill health) and ***moral hazard*** (in which the seller is unable to observe the efforts expended by the consumer relevant to the performance of the contract – consumers who take good care of their health by eating a balanced meal and exercising vis-à-vis consumers who do not). When the information problems are severe, it can lead to products and services that are expensive, and in the extreme form, can lead to the collapse of markets. In other contexts, it may be very difficult and expensive to match the providers of financial servicers with the potential consumers, because the consumers are dispersed, they demand services in such small amounts that scaling is very expensive, and the informational disparities are too great. This characterizes much of development of finance. Here even information about basic things like the identity

[1]*This article was written to illustrate how some products and services in the field of finance has improved the welfare of consumers in the society, without detracting from the fact that a great deal has to be done to improve the governance and efficiency of financial services industry to deliver financial services effectively to large under-serviced sectors of the society.*

of the individual, his/her credit history or prior indebtedness, etc. are not necessarily known.

2. Development Finance

In delivering financial services and products, the industry has to deliver a) ease of access, b) timeliness and reliability in delivery, c) attractive price that is at once viable to both sellers and buyers, d) protecting the privacy of transactions, and e) minimizing the risk of the theft of consumer's identity.

To this date, the branch of modern finance that has embraced technological innovations represents the best that finance has had to offer the society. I will dwell on the following illustrative innovations to make my point, and to keep the article short: Each innovation that I discuss below has two pillars: a technology platform and a theory of finance and economics.

❖ Credit Bureaus/Credit Scores

Credit Bureaus are institutions that collect information about the credit history of individual consumers, tabulate and score the credit history and offer that information to potential providers of financial services for a fee. The underlying theoretical basis is to reduce informational disparity between consumers and providers of financial services to mitigate adverse selection. Equifax is an example of a credit bureau that operates in different parts of the world. Credit bureaus issue credit reports that are valuable to the underwriting of a housing loan, or auto loan, or opening a line of credit. This can increase the flow of credit and reduce the costs by deceasing informational disparity. On the other hand, Credit Bureaus collect sensitive information about consumers (prior indebtedness, arrears, etc.) and a balance must be struck between the consumers' right to privacy on the one hand, and the need to reduce the costs associated with asymmetry of information. Credit scores such as FICO scores in the United States can be an important factor determining the ability of consumers to effectively access financial services.

❖ Peer-to-peer loans and savings

Another area where modern economics/finance theory has blended with technology is peer-to-peer financial services. The basic theory is about matching "buyers" and "sellers" of financial services at a low enough cost that a market evolves with the potential to improve the welfare of those who participate in such a market. Organized banks have a high level of operating costs that they are not able to offer financial services to a significant part of the society, even in developed economies. New companies such as Lending Club (https://www.lendingclub.com), Prosper.com (http://www.prosper.com), etc. have emerged to bridge this gap. These companies provide information about consumers who wish to obtain loans (employment history, FICO scores, reasons for the loans, etc.). In addition, they provide loan servicing (collecting interest and principal payments, handling delinquencies and default, etc.). By acting as intermediaries for a fee, they extend the availability of financial services to a broader section of the society than was previously possible. Again, with development of such companies, it is necessary to

❖ Mobile-based delivery of financial services

Finance theory suggests that credit reputation and credit history are relevant in access to financial services. Mobile phone users are now able to leverage their phones to build their credit related database. First, many countries have created biometric ID cards and "no frill" bank accounts, which enable the users of mobile phones to have a bank account. Mobile service providers are able to track the seasonal patterns of wire transfers, savings and expenditures and build a large database of credit-relevant information. Many companies have grown rapidly in this area, especially in Africa and India. M-PESA, M-Shwari (http://www.safaricom.co.ke/personal/m-pesa/m-shwari) in Kenya, FINO (http://www.finopaytech.com), in India are just a few examples, which have combined technology with basic principles of

finance and economics to offer a broad range of financial products to under-served sections of the society.

3. Conclusion

Paul Volcker, the ex-chairman of the Federal Reserve Bank of New York commented at the height of financial crisis that the best financial innovation that he has seen is the ATM! While, ATM is undeniably an important and ubiquitous financial tool that millions of consumers use on a daily basis, sound principles of finance coupled with modern technology has enabled reliable and efficient delivery of financial services to millions of consumers in developing economies, with the prospect of scaling. This is an exciting development.

****

Financial Innovation and Risk Management

B. B. Chakrabarti

Introduction

Risk was nothing new for Peter Munk, the gold baron and currently the Chairman of Barrick Gold Corporation. In 1944 at the age of 17, Munk, a Jew, had to run away from his homeland Hungary to Switzerland on the Kastner train to save his life in the "blood-for-goods" deals[1] with the Nazis. Munk, an electrical engineering graduate of the University of Toronto, started his business career in 1958 by setting up Clairtone, a manufacturer of high-end stereos and TVs but left the business in 1967 when financial condition of the company deteriorated sharply. After some more business experience including huge financial losses in the oil and gas sector in North American Oil and Gas Company, he founded "American Barrick Resources Corporation" (currently renamed Barrick Gold Corporation) in 1983. Peter Munk preferred low financial risk in business and believed that target investors would be willing to invest in a gold mining firm that lowered the risk of movements in gold prices. He was willing to sacrifice potential profits from gold price peaks in order to level out potential losses in the troughs. How could he achieve that? He used forward contracts, option collars, participating min/max option combinations and spot deferred contracts. Barrick Gold is now a $14 billion company.

1981 saw the birth of a major financial innovation of modern times, the swaps. The World Bank (more properly IBRD) wanted to borrow funds for supporting construction projects in developing countries. The relevant interest rate in the US at that time was 17 percent, an extremely high rate due to the anti-inflation monetary policy of the Fed under Paul Volcker. IBRD sought a lower rate to reduce its lending rate to non-affluent countries. How could that be done? The interest rate in Switzerland was 8 percent but IBRD could not borrow from there as the Swiss government imposed a borrowing limit on IBRD and the World Bank had borrowed up to the limit. Similar was the story in West Germany, where the interest rate was 12 percent. IBM came in the scene. IBM had German deutsche mark and Swiss franc debts for repayment. The complimentary needs gave birth to the first swap deal of the world. IBM and the World Bank worked out an arrangement in which the World Bank borrowed dollars in the U.S. market and swapped the dollar payment obligation to IBM in exchange for taking over IBM's Swiss franc and Deutsche mark obligations. The swap market subsequently grew by leaps and bounds helping banks in asset-liability management, borrowers by reducing borrowing costs, investors by increasing investment returns and many other financial market participants in various ways. Starting in 1981, the total notional value of the most traded over-the-counter derivative product, interest rate swap stood at $865.6 billion in 1987, more than $250 trillion in mid-2006 and about $370 trillion in December 2012 (more than five times the world GDP)[2].

Let us now turn to another major innovation, credit default swap, which separated credit risk from lending by banks. The idea originated in 1994 in a meeting in Boca Raton, Florida, US when the J P Morgan executives

[1] *Ligaya, Armina, "Anna Porter on a hungarian pariah", CBC News, September 21, 2006 http://www.cbc.ca/news/background/holocaust/index.html accessed on 28 June 2013.*
[2] *BIS statistics, www.bis.org accessed on 27 June 2013*

were discussing a $5 billion line of credit for Exxon to cover potential damages resulting from the 1989 Exxon Valdez oil spill. The executives were reluctant to sanction the line but Exxon was a major client whose demand could not be ignored. J P Morgan's hesitation was on account of the 8 percent reserve cash requirement against such loan as per the Basel rules which could result in a substantial reduction of profits. The solution could be in the separation of the credit risk from the funding so that the loan could be risk-free without any requirement for reserve cash. Blythe Masters, a member of the J. P. Morgan swaps team, approached the European Bank for Reconstruction and Development, London to sell the credit risk. The idea was that if Exxon defaulted, the EBRD would pay the default amount to J P Morgan and in return J P Morgan would pay a regular fee to the EBRD during the agreement period. J. P. Morgan could thus honor its client relationship with Exxon. The deal was so new that it did not even have a name for some time. The "credit-default swap" was born. The innovation earned notoriety during the 2007-08 global financial crisis[3]. However, the notional value of the outstanding contracts as in December 2012 stood at more than $25 trillion[4] and more countries including China and India have opened up their financial markets for CDS contracts.

Financial Innovation – What is it?

Merton H. Miller (1986) eloquently explains the concept of a successful financial innovation in the cited paper. He uses the example of time-series analysis to differentiate innovation from plain improvement. In such analysis, the change over time of a variable is broken into two parts – one part uses the trend based on the past information and the other is unanticipated, unforecastable "surprise". Innovations are such "surprises" which cannot be forecast. And a successful innovation leaves a permanent impact, survives and continues to grow even after their initiating force is removed. Miller, however, adds that the emergence of a successful innovation is not merely a matter of chance and does indeed occur in business. Some innovations have been existing in one form or another but wait for some environmental change to grow with significant impact on markets, institutions and society.

There have been many significant financial innovations over the last fifty years. Some of the major innovations in financial products include interest rate swaps, credit default swaps, total return swaps, synthetic CDOs, treasury inflation-protected securities (TIPS), money-market mutual funds, long-term fixed rate mortgages, Eurodollar accounts, Eurobonds, Sushi bonds, floating-rate bonds, zero-coupon bonds, financial futures, options, options on futures, options on swaps, currency swaps, negotiable CDs, swaps with different structures, callable / puttable bonds, options on indexes and currencies, money market accounts and many others. Euromarkets and senior-subordinate mortgage and asset-backed securitization opened new avenues of raising large amounts of funds for business. The ATMs, debit and credit cards have revolutionized cash transfers with very high level of efficiency. Short selling, margin trading and cash settlement have increased trading volumes resulting in better price discovery, no arbitrage trading and more efficient transactions.

Such financial innovations not only help in risk management but also broadens the choice of companies and households in capital market transactions like investments and borrowings (Hamilton et. al., 2007).

Trends in Financial Innovation

There has been a remarkable growth of financial markets in recent years. We can illustrate this point by looking at some statistics of the OTC derivative markets, which are increasingly becoming more popular.

[3] Philips, Matthew (September 27, 2008), "The Monster that ate Wall Street", Newsweek accessed on 28 June 2013.
[4] BIS statistics, www.bis.org accessed on 27 June 2013

The notional outstanding amounts of the interest rate contracts in the global OTC derivative market grew from $291.6 trillion in 2006 to $449.8 trillion in 2009 to $489.7 trillion in 2012. These contracts made up 77% of the total OTC market in 2012. The major interest rate contract has been the interest rate swaps with notional outstanding amount in excess of 58% of the total OTC market in 2012. The forex contracts also grew rapidly from $40.3 trillion in 2006 to $49.2 trillion in 2009 to $67.4 trillion in 2012. The CDS contracts used for managing credit risks grew rapidly till 2007, then slowed down as expected but still has a sizeable volume. Table 1 below presents the notional outstanding amounts of major categories of OTC contracts in the global market while Figure 1 depicts the same graphically.

What causes Financial Innovation?

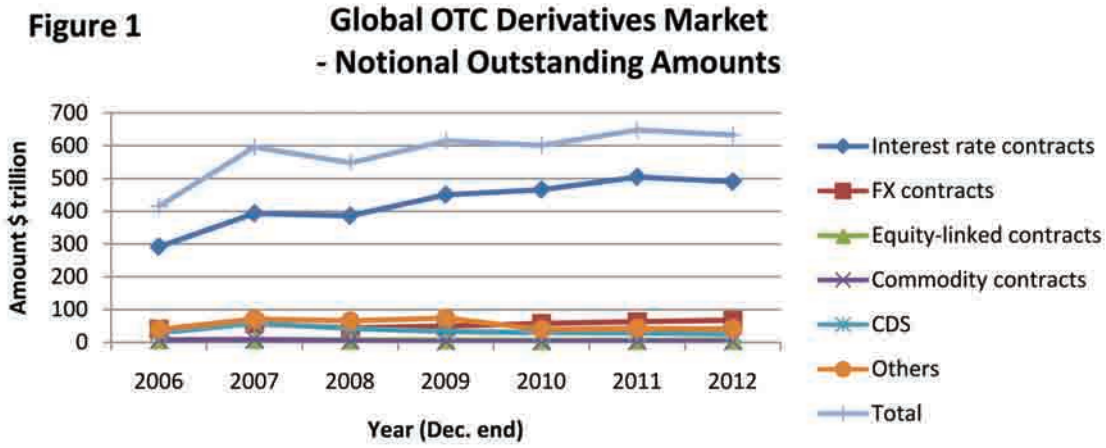
The development of the Eurodollar market is probably the most important financial innovation in the post second world war period. Regulation Q in the US that placed a ceiling on the rate of interest that the US commercial banks could offer on time deposits, relatively higher interest rates in London, self-regulation by banks and changes in access to the forward exchange market were primarily responsible for the origin of the Eurocurrency market in London (Schenk, 1998). The Eurobond market was set off by a tax change in the US that charged 30% withholding tax on interest payments on bonds sold in the US to overseas investors. The dollar-denominated bond market thus grew outside the US and when the withholding tax was repealed, the market still remained in London

Table 1 Notional Outstanding Amounts of Global OTC Derivative Market (Figures as of Dec-end in $ trillion)

	2006	2007	2008	2009	2010	2011	2012
Interest rate contracts	291.6	393.1	385.9	449.8	465.3	504.1	489.7
FX contracts	40.3	56.2	44.2	49.2	57.8	63.3	67.4
Equity-linked contracts	7.5	8.5	6.1	6.6	5.6	6	6.2
Commodity contracts	7.1	8.5	4.3	2.9	2.9	3.1	2.6
CDS	28.6	57.9	41.9	32.7	29.9	28.6	25.1
Others	39.7	71.1	65.5	73.5	39.5	42.6	41.6
Total	**414.8**	**595.3**	**547.9**	**614.7**	**601**	**647.7**	**632.6**

Source: BIS

Figure 1



and the continental Europe to bypass the cumbersome guidelines for new issues imposed by the Securities and Exchange Commission on public issues of securities in the US.

The financial futures market started in 1972 in the International Money Market (IMM) (Melamed, 1996) in Chicago which permitted short selling, reduced costs of transacting in securities, experimented with many new kinds of contracts for hedging and had no premium on knowing one's counterparty.

Interest rate swaps developed in 1981 when interest rates skyrocketed in the US as discussed earlier. Credit default swap was the outcome of defaults in the corporate bond market in the US in 2002 after the recession began in 2001, which affected the United States and the European Union with huge job losses. Total return swaps are used to convert dividends into capital gains to reduce taxes as capital gains are taxed at a lower rate.

Some innovations are the result of the discovery of mathematical models. Take the example of options. The option market could start and then explode only after the development of the famous pricing model by Fischer Black, Myron Scholes and Robert C. Merton in 1973. The collateralized debt obligations (CDO) could be developed in early 2000 only when it became known that dependence modeling with copula functions can be applied for financial risk assessment and actuarial analysis for pricing CDOs (Li, 2000).

Technology played a very significant role in the development of ATMs, debit and credit cards and online payment systems by making cash transfers more wide spread and efficient with reduced transaction costs. Online banking and e-commerce for the same reason are becoming more popular with households.

Financial Innovation and Risk Management

Financial innovations are driving the global financial system towards the goal of greater economic efficiency (Merton, 1995). Derivatives have been particularly useful in risk management through hedging. Forwards, futures, options and swaps – both exchange-traded and over-the-counter products – can lower transaction costs and expand opportunities for risk sharing. Hedging can be a very efficient substitute of capital, the traditional instrument for risk management. While equity capital acts as a cushion for absorbing risks in financial and other institutions, hedging can dissipate risks to other market participants thus reducing the probability of unanticipated losses and the need for equity capital. While equity capital can absorb any unanticipated loss arising from any source of uncertainty, hedging is used to control targeted risks. Hedging, however, can be much less expensive while equity capital is a costly source of money due to agency costs, taxation, floatation costs, inadequate supply and other reasons (Grossman and Hart, 1982 and Jensen, 1986).

How do I interpret risk? I define risk as a measurable uncertainty different from unmeasurable ones. Risk, for example, will thus be the probability that an actual return on an investment will be lower than the expected return. Managing risk will hence encompass all such actions that can be taken to transfer such risks or reduce the unfavorable impact on costs and / or prices.

Let us take an international bank, say Deutsche Bank (DB) to understand the role of financial innovation in business and risk management. The primary risk categories identified by DB[5] include credit risk, market risk and operational risk. The bank has to manage the identification, assessment and mitigation of all these risks and maintain economic capital to absorb unanticipated losses. The credit risk is on account of traditional lending activities as well as direct trading activities with clients using OTC derivatives, FX forwards and Forward rate agreements. All these direct trading instruments are the result of financial innovation over the last few decades

[5] *Deutsche Bank Annual Report 2012*

and contributed about 55% of DB's income in the year 2012. DB also uses risk transfer techniques like securitization via collateralized loan obligations, single-name and portfolio credit default swaps to manage credit risk. DB assesses market risk using value-at-risk and stressed value-at–risk measures and manages the risk by diversification using portfolio management approach and by hedging using futures, options and swaps. DB measures operational risk using Advanced Management Approach (AMA) methodology. It can be easily concluded that the sophisticated techniques of risk assessment and mitigation would not have been possible without the financial innovations.

Conclusion

Risk management is not rocket science[6]. Yet the hedge fund managed by LTCM (Long-Term Capital Management) collapsed in 1998. Who managed LTCM? It was led by John Meriwether, an MBA from the University of Chicago and a pioneer in fixed-income arbitrage in Salomon Brothers. Two of the partners were Myron Scholes and Robert C. Merton, who won Nobel prizes for their discovery of the option pricing model, which hinged on hedging derivative risk. Further, more than half of the partners were doctorates in finance mostly from MIT. In spite of all such talents in the management, the fund lost more than $4.6 billion in four months in 1998 following the Russian financial crisis, default in domestic debt and declaration of moratorium on payment to foreign creditors in August 1998. LTCM was bailed out with $3.6 billion recapitalization by a consortium of fourteen financial institutions under the supervision of the Fed. LTCM was finally dissolved in December 1999.

What went wrong in LTCM? At the beginning of 1998, the fund's capital was $4.7 billion, total assets $125 billion and notional value of derivatives of more than $1,250 billion. The investments were in various uncorrelated markets like Danish Mortgages, Russian bonds, US stocks, Treasury and mortgage bonds and swaps and UK and Latin American bonds. The whole idea was to reduce risk by way of uncorrelated diversification. However, risk management failed primarily because risk measures like VaR rely on the forecasts of the distribution of returns with quite accurate prediction under normal times, but VaR becomes absolutely useless in crisis periods when past information is hardly relevant for future predictions.

Has the financial innovations and developments made the world riskier? Rajan (2005) comments that it is not really so. On the contrary, individuals and firms have access to cheaper money and in larger amounts. Increasingly more and more risks can be transferred helping financial institutions to lend or invest more with a stimulating effect on economic growth.

But misuse of innovations can also lead to disaster as was witnessed time and again, the most recent one being the global financial crisis of 2007-08. Great physicists discovered the science behind nuclear energy that involves getting the atomic nuclei of atoms to undergo changes and release energy. This knowledge is used to develop nuclear power but the same knowledge was also used to make atomic bombs to destroy human lives and properties in Hiroshima and Nagasaki in 1945.[7]

Some even criticize that the financial innovations have hardly led to any significant productivity growth. Paul Krugman[8] mentions that "*the rapid growth in finance since 1980 has largely*

[6] *Rene Stulz, "Why risk management is not rocket science", Financial Times, London, 27 June, 2000*
[7] *J. Robert Oppenheimer, the team leader of the Manhattan project that developed the atom bombs in the USA which were later dropped on Hiroshima and Nagasaki, remarked later that it brought to mind words from the Bhagavad Gita, "Now I am become Death, the destroyer of worlds." Oppenheimer spoke these words in the television documentary, "The Decision to Drop the Bomb" (1965).*
[8] *Paul Krugman (2009), "Darling, I love you", The Conscience of a Liberal, New York Times, December 9.*

been a matter of rent-seeking, rather than true productivity".

Warren Buffet in a letter to the shareholders[9] of Berkshire Hathaway in 2002 described derivatives as time bombs and financial weapons of mass destruction. He wondered that firms book profits on derivative positions on positive swing of the market even though nothing has changed hands. However, it is observed from the Form 10-Q[10] filing by Berkshire Hathaway with the US SEC for the quarter 1 of 2013 that Warren Buffet collected premiums of $1.246 billion by selling put options on S&P 500, FTSE 100, Euro Stoxx 50, and the Nikkei 225.

I would like to conclude that risk management is actually a part of social sciences, where the object of study changes continuously and such changes are also brought about by financial innovation. Academicians, researchers and practitioners develop new products, models, methods, markets and institutions with the idea of gains for households, firms and society in general, and financial innovations have contributed very significantly in management and transfer of risks. However, understanding the negative impact of financial innovation on the risks of doing business not only during the normal times but also when markets could tumble under great uncertainty is highly desirable.

[9] Warren Buffet on Derivatives, http://www.fintools.com/docs/Warren%20Buffet%20on%20Derivatives.pdf accessed on 4 July 2013.
[10] Berkshire Hathaway Q1 2013 Form 10-Q filing with SEC, http://www.sec.gov/Archives/edgar/data/1067983/000119312513199397/d508175d10q.htm accessed on 4 July 2013.

Bibliography

1. Black, Fischer; Myron Scholes (1973), "The Pricing of Options and Corporate Liabilities". *Journal of Political Economy*, 81 (3): 637–654
2. Duffie, Darrel, Rohit Rahi (1995), "Financial Market Innovation and Security Design: An Introduction", *Journal of Economic Theory*, vol 65 (1), pp 1-42.
3. Grossman s. J. and O.D. Hart (1982), "Corporate Financial Structure and Managerial Incentives", in: J.J. McCall ed., *The Economics of Information and Uncertainty*, University of Chicago Press.
4. Hamilton R., N. Jenkinson and A. Penalver (2007), "Innovation and Integration in Financial Markets and the Implications for Financial Stability", in C. Kent and J. Lawson (eds), *The Structure and Resilience of the Financial System*, Proceedings of a conference, Reserve Bank of Australia, pp 226-250.
5. Jensen M.C. (1986), "Agency costs of free cash flow, corporate finance and takeovers", *American Economic Review*, vol 76, pp 323-329.
6. Li David X (2000)., "On default correlation: A copula function approach", *Journal of Fixed Income*, vol 9, no. 4.
7. Melamed Leo (1996), "Leo Melamed: Escape to the Futures", John Wiley.
8. Merton, Robert (1973), "Theory of Rational Option Pricing". *Bell Journal of Economics and Management Science* **4** (1): 141–183.
9. Merton R.C. (1995), "Financial innovation and the management and regulation of financial institutions", *Journal of Banking and Finance*, vol 19, pp 461-481
10. Miller Merton H. (1986), "Financial Innovation: The Last Twenty Years and the Next", The Journal of Financial and Quantitative Analysis, vol. 21, no. 4, pp 459-471
11. Persons, John C. and V.A. Warther (1997), "Boom and Bust Patterns in the Adoption of Financial Innovation", *The Review of Financial Studies*, vol 10 94), pp 939-967.
12. Rajan R.G. (2005), "Has the financial developments made the world riskier", Working paper 11728, National Bureau of Economic Research, Cambridge, USA.
13. Ross, Stephen A. (1989), "Institutional Markets, Financial Marketing and Financial Innovation", *The Journal of Finance*, vol 44 (3), pp541-556.
14. Schenk Catherine R. (1998), "The origins of the Eurodollar market in London: 1955-1963", *Explorations in Economic History*, vol 35, issue 2, pp 221-238.
15. Tufano Peter (2003), "Financial Innovation" in George Constantinides, Milt Harris and René Stulz (eds), *The Handbook of the Economics of Finance,* vol 1, part 1, Elsevier, pp 307-335.

****

Finance: Keeping the Evil Society in check

Jayanth R. Varma

Shiller (2013*a* and 2013*b*) has written about the need to redesign finance to advance the Good Society. I would like to make a case for something much less ambitious but more practical. The realistic goal in my view is to redesign finance to keep the Evil Society in check. Evil cannot be eliminated, but if it can be sufficiently constrained, the benefits of finance will outweigh the costs that it periodically imposes on the rest of the economy.

This article takes inspiration from Kiyotaki and Moore (2002) who argue forcefully that rather than money being the root of all evil, things are the other way around: evil is the root of all money. In the Evil Society, promises may be broken, and because of information asymmetry, debt securities could become illiquid creating a resalability constraint on these securities. Money is an invention that allows trading to take place in the Evil Society by creating a highly liquid medium of exchange.

It is quite clear that the Kiyotaki and Moore argument applies not just to the invention of money but to many other financial innovations in credit markets. In the language of Gorton et al. (2012), these innovations attempt to create safe (informationally insensitive) assets that relax the resalability constraint. Gorton et al. explain how the shadow banking system evolved to meet the demand for safe assets.

Secured lending is another debt market innovation that holds the Evil Society in check. By increasing the bargaining power of the lender, this innovation makes it harder for the borrower to break his promise. In the Good Society, there would be little need for secured lending. (Even in the real world, highly credit worthy borrowers are usually able to borrow unsecured.)

At a deeper level, corporate debt is itself an attempt to keep the Evil Society in check. In the Good Society, firms could finance themselves entirely with equity and financial crises would be all but impossible. But as Jensen and Meckling (1976) explained nearly four decades ago, equity financing is problematic in the Evil Society because the managers may not act in the best interest of outside shareholders. Debt serves to restrict the free cash flow that managers could divert to their own gain.

During the global financial crisis many of these innovations became sources of financial risk and fragility. Worse, the innovations designed to act as a check on the Evil Society served instead as shelters within which the Evil Society could actually grow unobserved and unnoticed.

- Informationally insensitive assets attracted investors with little incentive or capability to assess the true risk of these assets. Because of this breakdown of screening processes, a large number of bad loans were originated, bundled into securities and sold to these non discriminating buyers.
- Secured debt encouraged lenders to lend on the basis of the collateral without adequate analysis of the creditworthiness of the borrower. When the value of the collateral (say, home prices) fell sharply, there were large credit losses.
- Financial intermediaries leveraged themselves excessively and therefore did not have enough capital to absorb the credit losses during the crisis.

- The search for informationally insensitive assets led to an excessive reliance on short term financing especially in the repo markets. This created huge liquidity risk and aggravated the crisis.

To my mind, the lesson to be learned is that the Evil Society is very resourceful at adapting itself to the circumstances and is not easily held in check. Innovations designed to constrain the Evil Society may work for some time, but the Evil Society often finds ways to subvert these constraints and break free.

There has been much discussion after the crisis of the problems of corporate governance in the financial sector. There has been concern that the bonding mechanisms identified in Jensen and Meckling (1976) are inadequate to deal with modern banks and financial institutions. Many of them have become so complex that they remain opaque despite hundreds of pages of disclosure. Too Big to Fail (TBTF) banks and financial institutions appeared to be immune to the ultimate disciplining mechanism in any free market economy – bankruptcy and exit (what is sometimes called the invisible foot). Taxpayers bailed out these banks rather than let them fail. TBTF banks also appear to be relatively insulated from the market for corporate control – the threat of hostile takeover – that also serves to discipline incumbent managements.

I do not find this argument persuasive. On the contrary, the incentives of managements in these banks were very well aligned with that of the shareholders. Both benefited from high leverage and risk taking in a TBTF environment – privatization of gains and socialization of losses. Shareholders and management were united in looting the taxpayer. Similarly, the hostile acquisition and breakup of ABM Amro shortly before the crisis at the instance of activist hedge funds showed that the largest banks are not immune to this disciplining mechanism.

By and large, in the equity market, the evil genie remains sealed in the bottle. It is in the credit markets that the evil genie managed to escape from the bottle, and we are struggling to put it back. It is my view that we can never hope to keep the evil genie permanently bottled up. It will periodically escape the bottle in which it is confined, and we must periodically put it back with great effort.

After the global financial crisis, the market place has adapted to avoid many of the problems observed during the crisis. Some of the worst instruments have disappeared and the rest have been simplified and cleaned up. The process has by no means been completed, and this is partly due to the way governments have stepped in to bail out not only individual institutions but also whole markets and asset classes. In particular, loose monetary policy around the world has propped up all asset markets including some that deserved to shrink if not die. This has delayed the natural adjustment process through which free markets correct themselves.

In short, the Evil Society has been and will always be with us, but it can and is usually kept in check through a variety of institutional mechanisms. Market discipline, regulation and social norms all place checks on the Evil Society. The pursuit of the Good Society places too much burden on social norms to accomplish this, and I do not believe that social norms by themselves will prove adequate to the task.

References

Gorton, G. B., Lewellen, S. and Metrick, A. (2012), The safe-asset share, Working Paper 17777, National Bureau of Economic Research. **URL:** *http://www.nber.org/papers/w17777*

Jensen, M. C. and Meckling, W. H. (1976), 'Theory of the firm: Managerial behavior, agency costs and ownership structure', *Journal of financial economics* **3**(4), 305–360.

Kiyotaki, N. and Moore, J. (2002), 'Evil is the root of all money', *The American Economic Review* **92**(2), 62–66.

Shiller, R. (2013*a*), *Finance and the good society*, Princeton University Press.

Shiller, R. J. (2013*b*), 'Reflections on finance and the good society', *American Economic Review* **103**(3), 402–05.

****

Finance for Societal Good

A. Vasudevan

This question should fall ideally in the realm of the old fashioned area of 'welfare economics' but most of the discussions on it since the 1970s are based on empirical analyses of financial sector and real growth of a country or a panel of countries. These discussions generally point out the beneficial effect of financial sector growth on real sector growth in domestic economies. As geographical boundaries do not count when economies allow free capital mobility, growth of financial markets across borders is often considered as global good.

Is this perception true? The well-known recent global financial and economic crisis of 2007-08 which emanated from the US, has given rise to considerable skepticism about the functioning of the markets and the behavior of most market participants. Markets became dysfunctional by 2007 despite support for the internationally adopted standards and codes based on the practices that were said to have been in operation in advanced economies at least right from the 1990s. What could have been the sudden shift from the international best market practices in the advanced economies in 2007/08? Is it because of information asymmetries? Or, is it because the participants have been led by perverse incentives thrown up by hefty bonuses? Or, is it because of lack of adequately coordinated regulation of markets?

The number of failures and financial weaknesses of banks and other financial entities in the US, the UK and Europe has been large, drawing comparisons with the Great Depression of 1929. The financial crisis had spread to the real sector through the credit and balance sheet channels. It became global through trade and financial linkages among the countries, especially the emerging market economies. The crisis in advanced economies was sought to be corrected by high fiscal and monetary accommodation for turning the economies around, strengthening the financial entities and creating infrastructure. The monetary policy corrections in advanced economies are regarded as unconventional while the fiscal actions in these countries are considered to be potentially unsustainable due to spurt in deficit and public debt. The actions taken with regard to supervision and regulation however have been somewhat institutional in orientation. The Basle accord on supervision has been reoriented and the financial stability board has been created with larger number of representatives from both the advanced and emerging economies. The mismanagement of financial firms which led to Wall Street demonstrations has not been seriously tackled by the Main Street which believed in self corrections with State support.

The genesis of the recent crisis is well known. Good many studies of the recent crisis in advanced economies show that information asymmetries have abounded with some of them blaming the market participants for the crisis out of excessive greed. Some have pointed out that there had been bad supervision and regulation standards in the US, the UK and Europe. Canada however has been an exception. Doubts arose on the relevance and efficiency of having one supervisor in the form of a financial services authority in the UK.

What is relevant is to learn from the pointers from the policy mistakes leading to the crisis. First, the size of the bank is no guarantee for failure. Secondly, banks need to focus on narrow banking of accepting deposits and providing loans to worthy borrowers after due diligence. Universal banking needs to be eschewed. Thirdly, there has

to be proper coordination of regulators of all areas of financial activity. Coordination is needed even if there was to be a single financial services authority. Fourthly, all supervision standards should as far as possible be uniform/consistent for fostering financial stability. Fifthly, monetary policy need not necessarily be led by a single objective. It could be led by considerations of price stability, real growth and financial and monetary stability. Finally, public and private debt sustainability is critical for markets to function efficiently and grow.

The fact is that the financial crisis that originated in the US has quickly spread to the rest of the advanced economies through exposures. Emerging economies too have been affected through trade and financial linkages despite some element of capital controls and better financial supervision. Emerging economies tried to neutralize the adverse effects of the crisis by following accommodative fiscal and monetary policies. While this approach helped to improve domestic demand and to reduce dependence on external commodity demand, it had aggravated inflationary impulses and after a lag slowed down growth in view of the rise in fiscal and external sector deficits. There are, however, very few known solutions to the current situation of slow growth with high potential commodity inflation. It is also not clear as to what extent the financial sector should be developed with new products, innovations and markets when growth impulses seem to lack dynamism. This is the story with which most India observers are familiar with.

It is more than 5 years since the financial crisis erupted in advanced economies. The corrective actions have not so far produced the requisite results. On the other hand, there are many incongruities that have developed within and among these economies. Unemployment is ruling high and income inequalities have increased further. Poverty among the vulnerable sections might have gone up as well. It will take years to set the fiscal operations in order, even if one were to assume that political parties would adopt cooperative attitude towards consolidation over the medium term. In the US unlike in the UK and Europe, there are, however, some signs of economic recovery though the timing and the sequencing of exit policies from the current accommodative stance are unknown.

In the case of India, a tantalizing question arises as to whether growth would have been higher had the financial sector been not liberalized and allowed to grow at least since about the end of the 1980s. One way of looking at this question is to look at the data of financial saving and growth over the years. The data shows that the ratio of gross domestic saving (GDS) to GDP has been 20 per cent and over from 1987-88 till 2003-04. Since then, the GDS rate has been over 30 per cent. About 60 per cent of GDS has been in terms of financial assets since 2008-09. Prior to this year, 70 per cent and over of GDS was in terms of financial saving. Growth rates have been in general high since 1988-89 and in only four years since then did growth rates were less than 4 per cent. Social indicators, however, have not recorded much improvement and poverty and unemployment levels are still high.

These facts show that while financial sector growth fosters growth, growth itself is not the best measure of 'good'. What about equity and social service availability? However, growth without adequate finance is a rarity. One should recognize that growth with real resource mobilization is critical for finance to give support to growth efforts. It is also important to see that unbridled and unregulated financial sector growth does not occur, for, it would destabilize the economy and impede future growth outlook.

****

Challenges in Treasury Management Post 2008 Crisis

Nirakar Pradhan

Detroit, once the hub of America's automobile industry, filed for bankruptcy on Thursday, 18th July to become the largest American city to take such a step. This happened more than 5 years after the Global Financial Crisis in 2008 which started with the subprime crisis and led to collapse of Lehman Brothers; acquisition of Bear Sterns and Merrill Lynch; Govt. bail-out of AIG, Freddie Mac, Fannie Mae and a number of other companies. While a coordinated move by central banks by infusing liquidity into the system saved the day temporarily, new cracks appeared in the form of Euro Zone debt crisis by late 2010 requiring sovereign bailouts for Ireland, Portugal, Greece, Spain and Cyprus. This sequence of events completely changed the way world looks at risk management strategy in treasury.

How Investment Return Scenario Changed

Global crisis in 2008 followed a 5 year bull run in risky asset classes between 2002 and 2007. During this period equity markets across the globe posted one of the best returns on the back of higher growth rate in emerging economies, lower interest rates and a commodity super-cycle. Sensex gave a 43% CAGR return between 2002 and 2007 which is one of the highest returns for any 5 year period. Most of the major equity indices like Dow Jones (US), Dax (Germany), FTSE (UK) hit their all time highs during this period.

The following 5 year period post crisis (2007-12) presented the investors with one of the worst return performances across risky assets

Equity	2002-07	2007-12
Sensex	43.13%	-0.86%
Dow Jones (US)	9.72%	-0.24%
Dax (Germany)	22.76%	-1.15%
FTSE (UK)	10.38%	-1.79%
Shanghai Composite (China)	31.11%	-15.48%
Bovespa (Brazil)	41.49%	-0.94%
Micex (Russia)	42.72%	-4.83%

(equity market returns are in local currency and are calculated between (1) Dec 31, 2002 & Dec 31, 2007; (2) Dec 31, 2007 & Dec 31, 2012)
(returns for Fixed Income = Avg. yield on 10 year Govt. Sec.)

especially in emerging countries. Below data gives a comparative picture of 5 year CAGR return during each of the period between 2002-07 and 2007-12 across asset classes.

Fixed Income	2002-07	2007-12
India	6.76%	7.85%
USA	4.39%	2.93%
Germany	3.91%	2.85%
UK	4.66%	3.30%
China	3.59%	3.63%
South Africa	8.67%	8.50%

Commodity	2002-07	2007-12
Gold	19.10%	14.97%
Silver	25.35%	15.45%
Crude Oil	26.77%	3.43%
Copper	33.74%	3.51%
Aluminum	12.28%	-2.96%

Source: Bloomberg

As can be seen from the tables above, all the risky assets (equities, base metals) have given worse performance during 2007-12 compared to 2002-07 while precious commodities (Gold, Silver) and bonds have posted relatively better-off.

How Regulations Changed Post Crisis

The Global Financial Crisis saw an unprecedented amount of money being pumped in by Central Banks in terms of bailouts of private and government companies and bond buying from secondary market through Quantitative Easing (QE) which is still underway. The credit derivatives market which was on the rise with lot of insurers like AIG selling Credit Default Swap (CDS) protection to buyers dried up post the crisis. The financial crisis also evoked response by various governments through regulatory changes to have more oversight over banking and financial sectors. Dodd-Frank Act which became a law in USA in 2010 calls for new oversight council to evaluate systemic risk, increased transparency of derivative instruments, consumer protection reforms, increasing international standards and cooperation including proposals related to improved accounting and tightened regulations of credit rating agencies. This act also includes Volcker Rule which aims at restricting US banks from making certain kinds of speculative investments that do not benefit their customers. Also, BASEL III, a global voluntary regulatory standard on bank capital adequacy, leverage and liquidity requirements were introduced in 2010-11 and is expected to be fully implemented by 2019.

In India, RBI responded to crisis by giving enough liquidity in the system through cuts in policy rates and Cash Reserve Ratio (CRR). To manage forex liquidity, the norms for External Commercial Borrowing (ECB) were relaxed for corporate and NBFCs and Housing Finance Companies were allowed access to foreign borrowing. Securitization guidelines were strengthened; additional disclosure norms were introduced for NBFCs with exposure to real estate sector, interest rate and currency futures were introduced to manage interest rate/currency risks better, introduction of Credit default Swaps (CDS) was slowed down in the wake of role of credit derivatives in global financial crisis, cap on bonus to top officials of private banks was introduced, Financial Stability Unit (FSU) was set up within Reserve Bank for conducting macro-prudential surveillance and stress tests.

Challenges Post Crisis

Volatility

The volatility has increased manifold across asset classes post global financial crisis. The below chart shows CBOE Volatility Index, a key measure of market expectations of near term volatility, in pre-crisis and post-crisis scenarios.

(2004-07)

(2007-12)

(Avg. value of CBOE volatility i ndex during 2007-12 was 26.13 while the same for previous 3 years was 15.03)
Source: bloomberg

Because of increased volatility across asset classes, the risk adjusted returns across risky asset classes have decreased substantially post financial crisis.

The currency of emerging markets including India has seen unprecedented volatility making hedging of foreign currency exposure a must for corporate treasury managers. The table below shows the percentage depreciation of various emerging market currencies against Dollar during last one year (Jul'12 to Jun'13).

Country	Percentage Depreciation
India	6.74%
Brazil	10.95%
Indonesia	6.05%
Russia	1.30%
South Africa	21.08%

Source: Bloomberg

Inflation

On the back of an easy monetary policy post 2008 crisis, most of the emerging countries including India witnessed higher inflation. This is also fuelled by higher imported inflation due to a depreciating rupee amidst a strong Dollar and weak Current Account Deficit (CAD) (almost 35% of our imports is crude oil). A higher interest rate regime suppresses corporate profits leading to lower earnings growth. Posting good return on investment amidst lower corporate profit growth and higher bond yield makes the task of investment manager much more difficult.

Regulatory Intervention

With a depreciating currency and an elevated Current Account Deficit (CAD), the need of foreign capital inflow is more than ever. This has made regulatory intervention across Indian capital markets more frequent thus making overnight positions of investment managers riskier. One of the most recent examples of such regulatory intervention being the 200 bps increase in rate of Marginal Standing Facility (MSF) and restriction on borrowing from repo market at 75,000 crore. Next day yield on 10 year Govt. Security saw a rare jump of 53 bps wiping out all the gains in Government Securities / bonds during past 3 months in a single day.

Socio-Political Risks

This has added a new dimension to risk management strategy of investment managers with increasing social unrest across Europe (Greece, Cyprus, Spain, Portugal etc.) and Middle East (Egypt, Bahrain, Syria) over austerity

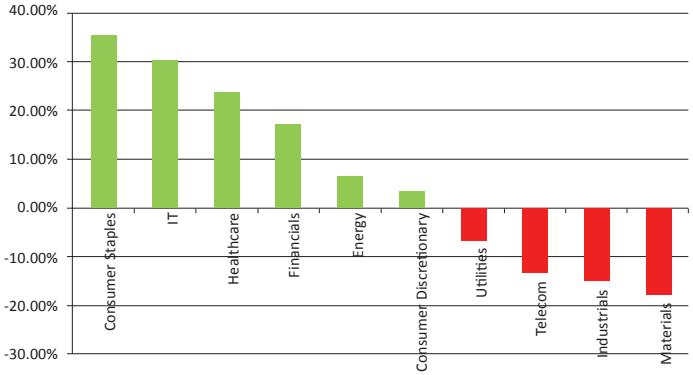
measures, bad governance. While Cyprus imposed a tax on savers with deposits over 100,000 euros at the country's largest bank, the investors in Greek sovereign bonds had to take a write off up to 75% of their holding. Recently Japanese Prime Minister was elected based on his promise of liquidity easing (to bring the country out of deflation) and Yen depreciation (to aid the exporters). In India and abroad, election/ re-election of a government has been increasing linked to the quantum of populist measures rather than sound economic steps.

Increasing Valuation Gap

Amidst all the above mentioned uncertainties, Indian equity markets have seen sharp divergence in valuation increasing investment manager's dilemma. While almost all of the PSU banks are trading at a P/B multiple of less than 1 (they were trading at 2 to 3 times in 2007), private sector banks trade at a P/B multiple of between 1 and 5. The valuation gap between Nifty stocks and mid-cap stocks has been increasing consistently. Investment managers who have stuck to large cap companies with good earnings visibility, low debt and sound corporate governance have reaped rich dividends even though indices (Nifty/Sensex) haven't given any absolute return during last 5 years. Accordingly sectors like IT, Pharma, FMCG have performed well while PSU banks, Capital Goods, Infrastructure, Metals have been beaten down.

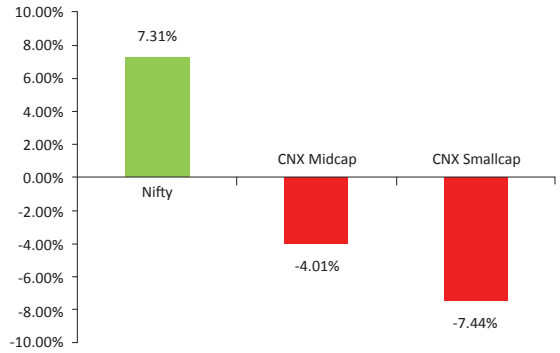
Conclusion

The complex macro-economic environment is expected to continue in near term with uncertainty on tapering off/withdrawal of USD 85 bn/month bond purchase program by USA Fed. Parameters such as hardening of bond yields across different countries including USA, strengthening of Dollar Index and outflow of foreign capital from emerging markets already indicate nervousness linked to unwinding of the bond buying program. Also, domestic political uncertainties on the back of general elections next year shall test the asset allocation and stock selection strategy of an investment manager.



(Sectoral Performance of Nifty constituents in FY2013)

Source: Bloomberg



(FY2013 Performance of Nifty, Midcap, Smallcap indices)

****

Financial Research & Trading Laboratory