On behalf of the Reserve Bank of India, I have great pleasure in welcoming Prof. Joseph E. Stiglitz, who will shortly be delivering the C.D. Deshmukh Memorial Lecture. Also, a warm welcome to Mrs. Anya Stiglitz who has accompanied him. I am delighted to acknowledge the presence here of the family members of Sir Chintaman Deshmukh - Shri Atul Deshmukh, Smt. Sheetala Deshmukh, and their children, Ashish and Priyanka, Prof. Sunita Chitnis and her son Dr. Ajay Chitnis. Your presence here means a lot to us. Finally, and importantly, a warm welcome to all our invitees to this prestigious lecture.

C.D. Deshmukh

2. Sir Chintaman D. Deshmukh has a special place in the history of the Reserve Bank. He was the first Indian Governor of the Reserve Bank, and served the institution with great distinction and dignity from August 1943 to June 1949. He presided over the transformation of the Reserve Bank from a private shareholders' bank to a nationalised institution and was the intellectual force behind the enactment of a comprehensive legislation for the regulation of banking companies which has stood the test of time. Governor Deshmukh participated
actively in the establishment of the Bretton Woods Institutions in 1945 and played a critical role in managing India’s nascent economy as we confronted the challenges of war financing following the Second World War.

3. After leaving the Reserve Bank, Shri Deshmukh went on to become the Finance Minister of India, a career graph repeated by our current Prime Minister, Dr. Manmohan Singh nearly forty years later. Shri Deshmukh brought to the office of the Finance Minister a passion for newly independent India’s development and a humane and inclusive vision for nation building. By all accounts, Sir Chintaman Deshmukh was one of the finest public policy intellectuals of post-independence India.

4. The Reserve Bank instituted the C.D. Deshmukh Memorial Lecture in 1984 to honour the memory of this illustrious Governor of the Bank. The last Deshmukh Memorial Lecture was delivered by Lord Adair Turner in February 2010 on: “After the Crisis: Assessing the Costs and Benefits of Financial Liberalization”.

**Today’s Speaker - Prof. Stiglitz**

5. It is befitting that the fifteenth C.D. Deshmukh Memorial Lecture today will be delivered by a pre eminent public policy intellectual and one of the most influential economists of our time. Introducing Prof. Stiglitz is a challenge because he is so well known and that no introduction can be original or revealing. It is a challenge also because his contribution to public policy has been so enormous and phenomenal that it is difficult to summarize that briefly. Nevertheless, I will take on the task of introducing Professor Stiglitz if only to pay homage to a tradition.
6. Professor Joseph Stiglitz is currently University Professor at Columbia in New York and Co-chair of Columbia University’s Committee on Global Thought.

7. In 1979, Joseph Stiglitz was awarded the coveted John Bates Clark Medal, given by the American Economic Association to an economist under 40 who has made the most significant contribution to the field. Prof. Stiglitz lived up to that early promise by winning, as we all know, the Nobel Prize for Economics in 2001 for his analysis of markets with asymmetric information. He has the distinction, in a sense, of a ‘double Nobel’ as he was a lead author of the 1995 Report of the Intergovernmental Panel on Climate Change, which shared the 2007 Nobel Peace Prize. In 2011, the prestigious Time magazine named him one of the 100 most influential people in the world.

8. Prof. Stiglitz helped create a new branch of economics, "The Economics of Information", exploring the consequences of information asymmetries and pioneering such pivotal concepts as adverse selection and moral hazard which have now become standard tools not only of theorists, but also of policy analysts.

9. I am sure many in this audience have read his book Globalization and Its Discontents. Some of you may have read the authorized edition, some may even have read the pirated edition because this seminal book has been translated into 35 languages, besides at least two pirated editions. In the non-pirated editions, it has sold more than a million copies worldwide. His most recent book, The Price of Inequality: How Today's Divided Society Endangers Our Future, hit the New York Times best seller list within a few weeks of publication. The book provides a
powerful critique of the free market orthodoxy, but ends on a note of hope, arguing that ‘another world is possible’.

**Revolution in Monetary Policy**

10. The topic for Prof. Stiglitz’s Lecture today is: “A Revolution in Monetary Policy: Lessons in the Wake of the Global Financial Crisis”.

11. Since the topic is about a revolution in monetary policy, I can do no better than invoking Vladimir Lenin, something of an authority on revolutions, who said: “A revolution is impossible without a revolutionary situation”. Global macroeconomic developments over the past five years have indeed led central banks to a revolutionary situation. When the crisis hit following the collapse of Lehman Brothers, central banks acted with an unusual show of policy force, quickly exhausted their conventional tools, then threw out the rule book and went on an uncharted territory of money creation which has taken many names and metamorphosed into many acronyms.

12. Today, there is quite some bewilderment among policy makers, particularly central bankers, about what else can be done to engineer a recovery. This bewilderment has spawned a vigorous, interesting and instructive debate on the pursuit of monetary policy. Let me briefly outline some key issues in this debate.

*Quantitative Easing*

13. The point of departure in this debate is the view that after policy interest rate has been brought to the zero lower bound, nothing else needs to be done except for the central bank to say that it will keep interest rates low in the future too. It is
argued that this would encourage people to borrow more and spend it, bailing the economy out of recession.

14. But this idea of topping up monetary easing with communication may not always work. People may not believe that the central bank will keep its promise of low interest rates. Even if they believe the central bank, they may not still borrow since what they are trying to do is to get out of debt rather than get into further debt as is the case today.

15. So, how do central banks improve their credibility? By tying their promise of low interest rates to specific quantitative real sector variables? The US Federal Reserve has recently led the way in this direction by saying that it will keep interest rates low as long as the unemployment rate remains above 6.5 per cent, and in the process, is willing to tolerate inflation slightly above its long-run target. Another way of reinforcing this promise of low interest rates is the idea of shifting from targeting inflation to targeting nominal GDP.

Financial Stability

16. Quantitative easing has not been the only issue in this monetary policy revolution. A parallel, if also related, debate has been about the role of financial stability in the monetary policy objective function. This has raised several questions. What is the role of central banks in preserving financial stability? When and how should they use monetary policy to pursue financial stability? If you admit the argument that one instrument can secure only one objective, do central banks have the policy instruments to pursue the financial stability objective?
Independence of Central Banks

17. A third major debate in monetary policy has been about the independence of central banks. In recent weeks, we have all seen this issue of central bank independence play out in Japan with political pressures on the Bank of Japan to adopt a higher inflation target so as to create more room for growth stimulus. The example of Japan is recent and high profile, but by no means an exception; the issue of monetary policy independence has acquired greater potency following the expansion of the mandates of central banks and their more explicit pursuit of real sector targets such as growth and unemployment.

Emerging Market Economies and Monetary Policy Revolution

18. Revolution in monetary policy is not exclusive to advanced economy central banks. Emerging market economy central banks are going through a revolution too with, of course, different nuancing. They have not been inflation targetters in the strict sense; they have always struggled to maintain the balance between growth and price stability. And learning from the experience of several country specific and regional crises, they have also added, either explicitly or implicitly, financial stability to their objective functions.

19. Monetary policy revolution in emerging market economy central banks has an additional dimension, which is that in formulating their monetary policy, they are having to contend with the forces of globalization, in particular the spillover impact of the advanced economy central banks. The ‘impossible trinity’ asserts that a country cannot simultaneously maintain all three policy goals of free capital flows, a fixed exchange rate and independent monetary policy. Recent experience
in emerging market economies has demonstrated that the ‘impossible trinity’ is no longer a textbook paradigm; balancing between these three policy goals is becoming a practical policy consideration.

*Monetary and Fiscal Policies*

20. Even as monetary policy, both in advanced and emerging market economies, is going through a ‘revolution’, one thing is clear. Central banks cannot fix economies by themselves. Governments need to act too from the fiscal side, and monetary and fiscal policies have to act in harmony. On top of this, governance needs to improve to inspire the trust and confidence of consumers and investors.

21. The crisis is still with us; and the revolution in monetary policy is still work in progress. But it has thrown up a number of questions. How will this revolution play out? What will it mean for the mandates of central banks and the autonomy with which they will deliver on that mandate? Who will win and who will lose? And, to sum it all up, what are the lessons from this ‘revolution’ for monetary policy? For answers to these weighty questions, who better to turn to than Professor Joseph Stiglitz.

22. Ladies and gentlemen, please join me in welcoming Professor Joseph Stiglitz to deliver the C.D. Deshmukh Memorial Lecture on: “A Revolution in Monetary Policy: Lessons in the Wake of the Global Financial Crisis”.
The global financial crisis (GFC) refers to the period of extreme stress in global financial markets and banking systems between mid-2007 and early 2009. During the GFC, a downturn in the US housing market was a catalyst for a financial crisis that spread from the United States to the rest of the world through linkages in the global financial system. Many banks around the world incurred large losses and relied on government support to avoid bankruptcy. Millions of people lost their jobs as the major advanced economies experienced their deepest recessions since the Great Depression in the 1930s.


Introduction: This speech by Prof. Joseph E. Stiglitz was delivered at RBI's fifteenth C.D. Deshmukh Memorial lecture. Stiglitz dismisses the notion that financial markets are self-regulating. Initially it was believed that the financial sector had become highly regulated due to conflicts of interest and predatory practices. However, advances in economic theory eventually explained why markets were likely to be unstable. In the 1970s and 80s, the general theory of imperfect and asymmetric information was developed which showed that whenever information is imperfect and asymmetric, and risk markets incomplete, the economy is unlikely to be Pareto efficient.

Rethinking Monetary Policy in the Aftermath of Global Financial Crisis: Li Bo.

2 Beyond Flexible Inflation Targeting: Canada’s Experience: John Murray.

4 The ECB’s Monetary Policy Framework Before and After the Crisis: Philipp Hartmann.


13 Lessons from Israel’s Monetary Policy Experience: Leonardo Leiderman.

32 Lessons from Israel’s Monetary Policy Experience: Leonardo Leiderman.

36 Cyclical Macro-Prudential Policies: Nellie Liang.

Topics: Economic models; Financial stability; Monetary policy framework; Uncertainty and monetary policy. JEL codes: C, C5, E, E3, O, O11, O33.

Résumé. This paper is about managing technological progress in monetary policy-making. We look to three past industrial revolutions for insight. We then apply those lessons learned to the fourth industrial revolution—the emergence of artificial intelligence—and consider how central banks might manage the risks as they unfold. We find that there has been a steady evolution in monetary policy-making in the wake of past industrial revolutions. In particular, the main pitfalls that emerged during the early 2000s have led to the progressive incorporation of financial vulnerabilities into monetary policy.

Easy monetary policy in the United States did not cause the crisis. A lesson from the crisis is that price stability is not enough to achieve financial stability. But, importantly, interest rate policy is not enough to achieve financial stability. A separate financial stability policy is needed for financial stability. Asia’s role in the post-crisis global economy. When setting up a better financial stability policy, it is important to understand that monetary policy is distinct and different from financial stability policy. The two policies have different objectives and different suitable instruments.