*Welcome Address**

Duvvuri Subbarao

On behalf of the Reserve Bank of India, I have great pleasure in welcoming Prof. John Brian Taylor who will shortly be delivering the L. K. Jha Memorial Lecture. We are very happy to welcome also Ms. Raye Allyn Taylor who has accompanied Prof. Taylor. I also want to acknowledge the family members of late Dr. L.K. Jha - Smt. Dipika Maharaj Singh, Smt. and Shri. Aditya Maharaj Singh, Trisha Maharaj Singh. Many thanks to all of you for rejoining the RBI family. And of course, a hearty welcome to all our invitees who have made the time to come for this lecture. This year's L.K. Jha Memorial Lecture has special significance as it forms part of the Platinum Jubilee celebrations of the Reserve Bank.

2. Dr. Lakshmi Kant Jha was an outstanding economist and a distinguished civil servant. A member of the ICS, he was Governor of the Reserve Bank from July 1967 to May 1970. Prior to his appointment as Governor, Dr. Jha served as secretary to the Prime Minister. He headed the Reserve Bank during one of the most challenging phases of the Indian economy. The country was shaken by food security concerns, and initiatives to redress this eventually resulted in the much celebrated 'Green Revolution'. The Reserve Bank, under Dr. Jha, was an influential force in shaping these initiatives. The overall scarcity situation renewed the urgency for focusing public policy towards poverty reduction. This led to several path breaking policies, including the nationalisation of fourteen major commercial banks in 1969 on Dr. Jha's watch. Subsequently, he served as India's Ambassador to the United States and as Governor of Jammu and Kashmir. Dr. Jha was also member of the Brandt Commission.

* Welcome Address by Dr. Duvvuri Subbarao, Governor, Reserve Bank of India at the eleventh L. K. Jha Memorial Lecture on February 24, 2010.

In recognition of Dr. Jha's extraordinary services to the Reserve Bank and to the nation, the Reserve Bank of India instituted this lecture series in 1990. So far, there have been 10 lectures, and the lecture by Professor Taylor this evening will be the 11th in the series.

3. It is perhaps presumptuous to introduce Prof. Taylor, especially since his views and writings have been so central to shaping the debate on the resolution of the crisis that we have just gone through. Regardless, I will indulge in the pleasure of introducing Prof. Taylor, if also because the occasion demands it.

4. Prof. John Taylor is presently the Mary and Robert Raymond Professor of Economics at Stanford University. Prof. Taylor has straddled a wide academic canvas and is famous for his work on the development of rational expectation models with staggered wage setting, the design of monetary policy rules for the conduct of economic policy and international policy co-ordination.

5. Prof. Taylor's writings have had a profound impact on policy making particularly in the area of monetary policy. He has contributed to the development of mathematical methods for solving macroeconomic models under the assumption of rational expectations. In 1977, Prof. Taylor and Edmund Phelps, simultaneously with Stanley Fischer, showed that monetary policy is useful for stabilising an economy if wages are sticky, even when all workers and firms have rational expectations. This was insightful and path breaking research as it demonstrated that the theory of rational expectations was not inconsistent with Keynesian economics.

6. In the academia, reputations are built on pushing the frontiers of knowledge. A common metric for this is the quantum and quality of publications. But the ultimate recognition for an academic is to enter text books, and quite understandably very few make it. Prof. Taylor is among those select few, and the celebrated Taylor rule, that he propounded in 1992, is now part of standard macroeconomic text books.

7. The Taylor rule is a simple equation to describe the response of the Fed's interest rate target to inflation and business cycles. The equation succeeded in serving both as a description and as a prescription: it described how the Fed had been setting its interest rate target and prescribed what the Fed ought to - and indeed might - do next. The equation quickly gained wide acceptance among central banks as a useful guide for policy. Viewed as a prescription, the equation says that a central bank ought to raise the target interest rate above its neutral level when inflation is above the central bank's (explicit or implicit) target, or when output is above potential. In short, the equation requires of central banks to "lean against the wind." The equation also embodies what has come to be known as the Taylor principle: that a central bank should respond to an increase in inflation with a more-than-proportional increase in the policy interest rate.

8. Monetary policy has embraced the Taylor Rule so firmly that there has been an intense debate in the wake of the crisis on the policy stance of the US Fed *vis-à-vis* the Taylor rule. Some analysts used the

Taylor Rule to argue that the Fed funds rate, even at this historically low level, was not low enough and made out a case for doing a lot more to stimulate the economy. Prof. Taylor himself weighed in on the issue suggesting that those analysts were not applying his rule correctly. He contended that, quite to the contrary, his measure shows just the opposite: that the Fed policy is appropriate, the policy rate cannot remain low for too long, that central bankers are right to be considering withdrawal of their unprecedented monetary stimulus, and that critics who say otherwise are misinterpreting his rule. According to him, the formula is designed to show the best rate for spurring growth without stoking inflation.

9. If the Taylor rule is so time tested in prescribing the policy interest rate, it is legitimate to ask what role there is left for central bankers. I do not have a simple answer for this; perhaps Prof. Taylor does. I do have a complex and somewhat longish answer and here it is.

10. For my long and complex answer, it is necessary to refer to the interesting debate on whether economics can be a deterministic and exact science like physics. Indeed, some people argue that one of the great follies of economics - the reason it often lost direction, if also credibility is because it had pretense to being like physics. I have no intention of getting into that debate, but in the context of the Taylor rule, I can't resist the temptation of drawing upon a comparison of economics with physics, if at an altogether different level.

11. Sir Issac Newton gave us the three laws of motion and the law of gravity. The mathematical formulation of these laws embodies a complete description of the universe. All you need to specify are the initial conditions and using Newton's laws, you can calculate the state of the universe for eternity with absolute determinism. This is classical Cartesian reductionist framework in its quintessence. People, therefore, asked, if God has decided on the laws and decided on the initial conditions, he has determined the course of the universe for eternity. Besides, he gave us Newton to let us know of the laws so that we can estimate the course of the universe with immutable precision. After he has performed his initial and only task, what need then for God, a question that Stephen Hawking poses powerfully in his 'Brief History of Time'?

12. In a similar vein, it is possible to ask, if the Taylor rule is so deterministic, and monetary policy is just a question of plugging in numbers into an equation, and using the results for the policy, what need then for central banks?

13. Here again, I suppose, the analogy with physics will help. Even though Newtonian mechanics held intellectual sway for nearly 250 years, we now know that the physical universe is not as deterministic as implied by Newton's laws. Newtonian physics does not work at the extremely small scale where we need quantum mechanics and at the extremely large scale where we need the relativity theory. So, Newtonian physics works and works effectively as a very good approximation for understanding the known universe. At the extremes, we need the sophistication of quantum mechanics or relativistic mechanics. Similarly, the Taylor rule, I believe, gives us a basis for determining the monetary policy stance,

but central banks need to superimpose their judgement in applying it to practical policy.

14. Prof. Taylor will be speaking to us today on 'Lessons from the Financial Crisis for Monetary Policy in Emerging Markets'. Frankly, he could not have chosen a more relevant topic. The monetary policy challenges of emerging economies are clearly quite distinct from those of advanced economics. But we tend to forget this. During the crisis, for example, there was quite a bit of pressure on us to do everything that advanced economy central banks were doing notwithstanding the fact that our situation was different in many respects. Of course, the decoupling theory did not work and all emerging economies were impacted by the crisis, although to different extents. But our banks and financial institutions did not have significant exposure to sub-prime assets and therefore were not threatened by illiquidity or insolvency. Even at the height of the crisis, our financial markets continued to function normally. Our concern was not so much rescuing a collapsing financial sector but rather arresting the moderation in economic growth. Second, we never had a fear of deflation although WPI inflation was negative for a short period; in fact, inflation has been and continues to be our dominant concern. Third, in advanced economies, the crisis spread from the financial sector to the real sector whereas in emerging economies, the direction was the reverse - the fault lines spread from the real sector to the financial sector. Finally, much of our pressures came from the supply side, not the demand side. For all these reasons and more, the challenges we faced were different and the responses called for from us had to be different. It is important for us as well as the rest of the world to appreciate these differences between advanced and emerging economies. What better person than Prof. Taylor to look at monetary policy responses from the special perspective of emerging economies?

15. Prof. Taylor's career has been marked by a seamless back-and-forth between the academia and policymaking, most recently as the U.S. Treasury's top official for international affairs. When in academia, he jumps into teaching and research with an abandon that seems uncharacteristic of a Washington policymaker. To grab students' attention in a class on agricultural supply and demand, he once pranced around the classroom in a California raisin costume to the tune of Marvin Gaye's "I heard it through the Grapevine."

16. Having a concept named after oneself is as much a mark of honor in economics as it is in other sciences. By this standard, Prof. Taylor is among the most honoured macroeconomists of his generation. Indeed, concepts bearing his name have become so pervasive that the U.S. Federal Reserve Board Chairman Ben Bernanke once remarked that "with our appetites whetted by the Taylor rule, the [Taylor] principle, and the [Taylor] curve, we now look forward to the Taylor dictum, the Taylor hyperbola, and maybe even the Taylor conundrum."

17. Here in Mumbai, and in a more immediate sense, we look forward to the Taylor lecture.

18. Ladies and gentlemen, I have great pleasure in inviting Prof. Taylor to deliver the eleventh L.K. Jha Memorial Lecture.