

Frydman Discusses 'Imperfect Knowledge Economics' (Transcript)
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Jan. 7 (Bloomberg) -- Roman Frydman, New York University economics professor, talked with Bloomberg's Tom Keene on Dec. 27 about the theory of rational expectations and his book, "Imperfect Knowledge Economics: Exchange Rates and Risk."

TOM KEENE, HOST, 'BLOOMBERG ON THE ECONOMY': Roman Frydman, Professor of Economics at New York University. Frydman and Goldberg's Imperfect Knowledge Economics is the controversial academic book of the year. Forget Lucas and rational expectations. In an uncertain world, think Keynes and Hayek, if that seems possible. Also, Frydman on Eastern Europe's fragile 2008. We are home on the range with Roman Frydman.

Robert Lucas, Rational Expectations, it's about the individual and individual analysis of risk and uncertainty. You say no. What is imperfect knowledge economics?

FRYDMAN: Actually, it has to do with an individual but in a quite different way than the rational expectations approach. The basic premises, of course - shared with rational expectations and the earlier micro foundations work of Phelps - is that what people think about the future matters for the outcomes. So, expectations of asset prices matter for prices themselves. The key question is, how do think about expectations and what our models can deliver.

The rational expectations view is that we should have exact predictions of future outcomes. Once we acknowledge, all of us acknowledge, the fact that expectations matter, and we want exact predictions, then, of course, that necessitates us having an exact view as to how the market participants think about the future. Rational expectations not only does that, it goes further than that. It supposes that that view is exactly the view that corresponds to the model that the economist himself writes down. Of course, there's something odd about this, as has been pointed out many times before, many economists have many different models, so how could one model represent rational forecasting.

KEENE: And I would think that a lot of my listeners are in Camp Frydman in saying, well we really don't know what's out there, and at the minimum, we have to amend it along the way. Is it too simplistic to say that the view of Roman Frydman in Imperfect Knowledge Economics, IKE, is simply rational expectations? But you've got to change your mind and amend along the path?

FRYDMAN: Yes. But the problem is the rational expectations sounds like it has something to do with rational prediction, when the opposite is the case. As Michael and I show in the book, rational expectations, because they do not presume amendment

along the path, in fact, entail the supposition of complete irrationality: the world is changing, yet, we stick to one fixed view. This is not rationality, but gross irrationality. So the question is, really that to talk about rationality and expectations, we have to allow for change. We have to allow for amendment along the path, and we have to abandon a kind of a mechanical way of modeling how people think about the future. That's really what it is.

KEENE: [If you're joining us folks, Roman Frydman of New York University, where it's just a thin book imperfect knowledge economics. And a math warning folks, there's a little bit of math in here. You can really turn to any page. This is truly an academic book. But for those of you who like to stretch, and particularly the beginning with some terrific history of how we got here and how we look into the future, it's truly the book of the year.] I want to go back to 1981, Ned Phelps stepped up, Axel Leijonhufvud, who is one of my heroes, stepped up. In 1981, they threw bricks at you, didn't they?

FRYDMAN: Not Ned and Axel.

KEENE: But they helped you do it.

FRYDMAN: Yeah, of course. Yes, yes. I was a student at Columbia, and I took Ned's courses. I just have come out of Poland where the attempt at a mechanical way of modeling the economy was a demonstrable failure. I arrived in a country in which people believe in markets, and the next I hear is that we're going to have an economic theory in which economists can say exactly how markets predict the future. I found this very strange.

What added to the oddity of the whole story from a personal point of view was the fact that I just have taken a course with Oscar Morgenstern. I studied physics, so actually my background is really analytical. And then I was always interested in economics, that wasn't maybe the greatest idea in the communist Poland. And I took courses with Oscar Morgenstern who, himself was one of the founders of game field, which is now a leading trend. And Oscar had taught us that this mechanical way of thinking that he even had in this own book of game theory is something that we should be very worried about.

I entered a graduate program at Columbia and I hear that the new trend is something that we will be able to predict the markets exactly. If that was possible, then of course Hayek and Keynes would be completely out. Planning would just be a matter of getting computers up and running and they would do the rest. And if mathematical models could do what markets do, then, of course, we wouldn't need markets. So, I found this all a little bit odd.

KEENE: [When you're looking, I just got 30 seconds left here. So] [T]he dovetailing of Hayek and Keynes together would surprise people. Did Friedrich Hayek and John Maynard Keynes, did they have a lot more in common than we perceive today.

FRYDMAN: Yes, a lot more in common. In fact, I wrote my masters thesis at Columbia on what they had in common, and this is what they had in common; it's actually quite specific. They both tried to situate themselves somewhere between kind of what then after the war became Keynesian economics, completely aggregate thinking and individual thinking about the economy, uncertainty being the glue. The uncertainty about not risk, but uncertainty in the sense of Frank Knight.

KEENE: [I want to go over some of those names Professor Frydman that you mentioned before. But, I love this. It's in a - it's in a article, actually that was on in November of this year, that you did on dollar-Euro exchange rate. And you mentioned] Well, Karl Popper, the scientific methodologist, 1957, we cannot predict by rational and scientific methods the future course of our scientific knowledge. Do you fault Bob Lucas for trying to make it a more rational path?

FRYDMAN: Let me be a little bit specific here if you allow me, because this is a delicate point in the whole development. On one hand, Bob Lucas has made a tremendous contribution to our understanding of the connection between thinking and outcomes by pointing out that when government changes its policies, marketplace responds and therefore fixed Keynesian models of the earlier period would be rendered irrelevant. And therefore, one cannot use them for predictions by central banks and traders and market participants.

This famous paper that, eventually, was cited by the Nobel committee is a paper whose first part - that economists call the "econometric policy evaluation" - is basically very sound and very deep, and follows, of course, in the footsteps of Ned Phelps' work in the earlier work for which Ned was recently awarded the Nobel.

But then there is a second part of that paper that got us on the wrong path. After concluding that the thinking of market participants matters for the future, Bob Lucas moves on and says, "Don't worry. This is a very serious problem, but I'll tell you how to solve it." So, the solution is going to be that we're going to assume some mechanical way of modeling expectations. And that will tell us when the government changes policy how the marketplace responds. And that's where it goes wrong. So that's why it's delicate. It doesn't go wrong in pointing out that changes in policy will change models. It goes wrong in the solution that it proposes to this fundamental problem.

And then, it's that solution that grabbed the profession and has led to the fact that we've spent a lot of time looking for

answers along these lines. So, what I want to emphasize is that this is not a more rational path. In fact, one of the misunderstandings is that we're contrasting here rational man who can calculate everything with an irrational man who is living by emotions. That's not the proper distinction. The rational man recognizes that knowledge is imperfect, and, therefore, economic theory has to also recognize this. And assuming that people ignore imperfection of knowledge in an economic model is a presumption that they're actually irrational. So, the doctrine that is called rational expectations actually, has nothing to do with rational forecasting.

That's why it has difficulty dealing with risk, it has difficulties with modeling asset prices and so on.

KEENE: [Just in 30 seconds here.] Can a central bank get out ahead of the economy? Or, by definition, must an institution be reactive?

FRYDMAN: The institution, I wouldn't call it reactive. The institution has to have a lot of experience. So history matters. History matters a great deal. It can be prospective, but can only be prospective in a qualitative sense.

KEENE: The book, *Imperfect Knowledge Economics*, controversial, but coming from a conference of some 25 years ago, 1981, and then a journal two years later. Was it a big deal, Professor Frydman, when the journal came out in 1983?

FRYDMAN: Let me first say, the book comes out of that work because that's where the criticism of the currently prevailing paradigm appeared. The book also puts forth alternative approach. The Journal - the conference itself and the appearance of an article in the *American Economic Review* that actually showed that rational expectations have nothing to do with rationality - has not been a splash, I'm afraid. In fact, it has been basically for the most part completely ignored. The profession just move forward, move very strongly to solidify the use of REH to apply it everywhere. The REH models started to fail, the failures were ignored, and we just moved on, as if this was some kind of Holy Grail in which we'll finally discover the truth.

KEENE: And bringing it to the present, has the Holy Grail once again failed with this credit crisis that we're in?

FRYDMAN: No question about it.

KEENE: I think I knew the answer to that, but please continue, Professor Frydman.

FRYDMAN: One interesting example here on the current crisis, which is very rarely talked about, the crisis has been actually really talked about extensively. But there's one little fact here, which has to do with - one of the linchpins of the crisis,

of course, was the difficulty of the rating agencies to assign ratings to this instrument. Now, when one looks a little more closely into the numbers, one discovers something that's actually quite remarkable. With all of the criticism of the rating agencies, S&P, for example, has done a remarkably good job in rating corporate bonds. Why were they - and yet, a horrendous job in rating the CDOs and the complex instruments.

KEENE: What happened?

FRYDMAN: Why is that the case, exactly. And does this way of thinking have something to do with that case? This requires research. But, actually, there seems to be a straightforward suggestion. When S&P rates corporate bonds, they use mathematical and statistical models, together with experience, together with people who know the companies, and they do a very good job. The complex instruments were driven by rational expectations, equilibrium theories of various kinds, arbitrage theories, mechanical theories, and their experience naturally was not there. The market prices were not there. So there was an attempt to substitute synthetic mathematical models for what markets do, so that had to fail.

KEENE: [So we got three hours for this interview, but not that much time. But] [T]he distinctive features, institutional knowledge that they had in corporate bonds, how does imperfect knowledge economics fit in with the ambiguity and the institutional sense of, say, Douglas North economics, out at Washington University. He's a great believer in these societal needs for institutions.

FRYDMAN: The important thing in this is that one needs history and experience to make decisions. In addition to quantitative models, one needs experience. So it fits very well with theories that suggest that institutions matter.

KEENE: [I want to keep this going within the math of the book, and again, the math and the imperfect knowledge economics, modest heavy lifting. You talk about, and I want you to try to do this in a less math way and I bring this up folks, because this has a lot with able Bernanke, or Chairman Bernanke's work.] You talk about "bounded instability." Those two words don't go together, in that instability is what we know. And that you say it's bounded. Is that, what I said in the introductions, home on the range. You're looking for a range of instability?

FRYDMAN: There are basic concepts here. The basic concept is that in an imperfect knowledge world, as Michael and I show in the book, markets will necessarily fluctuate around longer-term benchmark values. This is inconsistent the standard way of thinking in the rational expectations world that deviations we see are basically random deviations from that path.

That, unfortunately, cannot explain fluctuations in stock prices, and cannot explain fluctuations in exchange rates that last for a very long time. To explain such long swings we need to allow for the fact that individuals do not know the exact mechanism that underpins prices. We show that this generates the observed fluctuations. But although long lasting these fluctuations do not last forever?

The most important historical features of those fluctuations is they're bounded. And to explain the boundedness, one has to have a different theory of risk on financial assets than the current theory. The current theory says that risk depends on volatility, on variability of asset prices. The theory we propose goes back to John Maynard Keynes - and has been a little bit used by Jim Tobin in his early work on behavior towards risk, but otherwise ignored entirely - postulates that the key to understanding risk is the magnitude of deviation of the asset price from its benchmark or conventional value.

We implement our theory of risk and test it against the conventional theory. It seems to do much better. And our theory helps us understand why instability will be bounded. When the asset price is very far away from the conventional value, the risk of capital loss becomes so great that it limits the instability.

KEENE: [I want to talk about two themes here in this shorter block of final thoughts. One is, behavioral economics.] How do we fold behavioral economics into your work?

FRYDMAN: The basic point is that the behavioral economists, especially the behavioral finance economists, such as Barberis and Thaler - as distinct to Bob Shiller, who has never actually done this - have proposed an approach that what we relate in our book to that of East European reformers. They know the standard mechanistic model of rationality doesn't work, so now they are attempting to develop an exact model of irrationality. The problem is not however with rationality or irrationality, the problem is with mechanical economic models.

Now, having said that, the insights they deliver, if they're used in a qualitative way, are extremely important, because they allow us to talk about how individuals might revise their forecasting strategies. They become a part of the model. We just have to basically strip the pretense of mechanical models, and then the behavioral insights come naturally, if in fact we use them.

KEENE: [And the second idea, here, which I urge you to spend a few minutes on here is mechanistic models, boy that sounds like Alan Greenspan not only read your book, but read it two or three times or knew of your work in the early '80s. The chairman really has come out for discretion and judgment and understanding of

history.] Was Alan Greenspan the ultimate central banker of imperfect knowledge economics?

FRYDMAN: No question about it. Alan Greenspan gave an incredibly insightful presentation to the American Economic Association. As everything else along those lines it was completely ignored in the profession. He really understood Hayek intuitively. And he actually understood that in addition to models, one needs judgment and ultimately it's the combination of models and judgment that delivers good policies. So he is the ultimate central banker of imperfect knowledge economics. And that's why we start the book with him and Hayek, in fact.

KEENE: [When you look at the future of this, you go to AEA this year, which they'll throw things at you bricks and bats and the rest of it.] Where will imperfect knowledge economics be in 10 years?

FRYDMAN: I hope that we can persuade our colleagues to move on. Their talent is needed. We need to be thinking about...

KEENE: Well, what do the kids in your class think? What do the Ph.D. students and graduates students, are they enthused by this?

FRYDMAN: I know of one graduate student who is reading the book and is interested in it. The rest, I think, are thinking about where they're going to get their jobs. So when the jobs in imperfect knowledge economics become plentiful, I think many people will do it. In the meantime, we'll have to do with people like Michael Golberg, who, incidentally, was also a student of mine, and at that time, he was the only one who was willing to take that seriously because he thought that would lead somewhere. So, there will always be people like this, the innovators, that's how it works. And gradually, hopefully, we'll persuade the world that this is something that we need to develop. This is just a start. But I'd be the last one to be predicting what will happen with this 10 years from now.

KEENE: [That's great.] Roman Frydman, thank you so much for coming in.

END OF TRANSCRIPT