

Answers for the American Finance Association Panel

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On January 4, 2014, the American Financial Association (AFA) hosted a panel discussion with 2013 Nobel laureates. AFA President Luigi Zingales, the panel moderator, circulated these questions in advance. My answers below elaborate a bit on what I said at the panel.

1. Question: *While the quality of the contributions is beyond question, this particular combination of awardees has left many puzzled. Could you explain not only why you got the prize but why you got it together with these two other researchers?*

I prefer not to defend why I received the prize since I was not on the award committee. Nevertheless let me not discard this opportunity and say something about my work.

My initial background was in econometrics and macroeconomics. Some of my important contributions have been to econometrics more generally. My entrance into empirical asset pricing thus came from an outsider's perspective, which I believe proved to be advantageous. I was lucky enough to have some important collaborations stemming from my time at Carnegie-Mellon University with Bob Hodrick, Scott Richard, Ravi Jagannathan, Marty Eichenbaum and especially Ken Singleton. These coauthors helped me explore asset pricing from the lens of the econometric methods that I was simultaneously thinking about. I felt that there is an important role for formal statistics in assessing asset pricing models. I still have the conviction that the discussion of empirical evidence should be pushed beyond impressionistic approaches to financial time series.

Why did we get the prize together?

I have heard somewhat flippant comments about the award that draw comparisons to the 1974 Nobel Prize to Hayek and Myrdal. The Hayek-Myrdal award looks very much

like it was the outcome of a balancing act by the award committee. That particular pairing looks peculiar to me. I see little common ground in their contributions. Of more interest to me, I see no Hansen counterpart in that award. Needless to say, I have little sympathy with the comparison to Hayek-Myrdal award.

I also had some conversations with people who have thought more seriously about this award suggesting that indeed there is important common ground among my fellow laureates Gene Fama and Robert Shiller and me. I agree with this. The three of us were engaged in assessing empirical puzzles in asset pricing. Puzzles are only well defined in terms of models. Of course models by their very nature are wrong, but the question is whether they are wrong in important ways. We all took an empirical outlook on this question, with the aim to build better models. We challenged existing models based on evidence from financial market data with the aim to be build better ones.

Along this line, I am currently intrigued by the following modeling challenges motivated by empirical evidence. Risk prices as encoded in stochastic discount factors show substantial fluctuations. They appear to be larger in magnitude in bad macroeconomic times than good ones. Are these risk prices or more generally uncertainty prices? To what extent can we distinguish the role of risk from investor beliefs and from investor struggles in assessing the future?

2. Question: *Even if the Nobel prize was awarded for your fundamental contribution to empirical asset pricing, your prize has stirred a renewed interest on the issue of market efficiency. How do you think about market efficiency, and what do you think are its practical implications (if any)?*

I recall a *New York Times* Op Ed published shortly after the prize announcement suggesting that I am “well known for having rejected one form of the efficient markets model in a famous paper with Kenneth Singleton.”¹ There is a lot loaded in the qualifier “one form.” Empirical tests of this nature are tests of composite hypotheses, and our paper featured a simple specification of investor preferences that was commonly used at that time in dynamic economic models. We also imposed a financial market structure in which there were no frictions. I see the conclusion of our work differently than what was suggested in the *New York Times*. Our empirical results

¹See “Sharing Nobel Honor, and Agreeing to Disagree” by Robert Shiller, published in the *New York Times* on October 26, 2013.

and other related work served as a catalyst for a variety of interesting and revealing explorations of the role of investor preferences and market structures better suited to confront empirical challenges. This subsequent literature in macroeconomics and finance has enriched both fields and their interplay.

Market efficiency had its theoretical origins in the work of Samuelson, motivated in part by earlier work of Bachelier. Gene's fundamental contribution was to turn this into empirically testable hypotheses, certainly in ways that were much more direct than research like that of Singleton's and mine. An important point to remember is that it takes a model to beat a model. Thus we make little progress by simply rejecting models. All models by their very nature are abstractions and hence have shortcomings. Any discussion of rejecting the efficient markets model should be coupled with a formal alternative model.

On a different point, I find the term "market efficiency" to be a bit peculiar. As economists we care about allocative efficiency, which may indeed be supported by markets. When we discuss financial market imperfections, presumably what we care about are consequences for resource allocation. Are these consequences substantial or trivial? It seems critical that in assessing the role of financial markets we need to broaden the discussion to incorporate the allocative consequences. This of course is much more challenging, but it also elevates substantially the overall discussion.

3. Question: *In his Nobel lecture Gene Fama has called bubble a nefarious term. Regardless, of whether you believe bubbles exist or not, there is the fundamental problem of how to detect them. George Soros once claimed he spotted five of the last three bubbles. In your view, what is the best way to identify a bubble in real time? What is the best way to identify it ex post?*

There are interesting episodes in financial time series with sustained increases in value followed by steep declines. We often use 'bubbles' to describe such episodes. But our approach to the study of bubbles has to go beyond naming unexplained residuals from our models or relying on impressionistic interpretations of time series. I am reminded of Lord Kelvin's dictum, stated in abbreviated form as:²

Lord Kelvin's dictum: .. when you cannot measure it, when you cannot express it numbers your knowledge is of a meagre or unsatisfactory kind: it

²For an interesting discussion entitled "The Kelvin Dictum and Social Science," an article by Merton, Sills and Stigler, published in the *Journal of the History of the Behavior Sciences*, Volume 20, 1984.

may be the beginning of knowledge but you have scarcely, in your thoughts advanced to the stage of *science*, whatever the matter might be.

There are a variety of theoretical models of bubbles. It is important to work with formal models for two reasons. Models are needed to support the measurement and models can serve as guides to prudent policy. Some models suggest that bubbles might enhance social welfare. For instance, the collateral value of an asset satisfies some notions of a bubble as it adds value to the asset in excess of a measure of the fundamental value. The use of collateral in market transactions sometimes can enhance market opportunities and improve welfare. While there are interesting models of bubbles, in my view none of the models are sufficiently grounded in empirical evidence and well designed to support reliable measurement and detection *ex ante*. Without such measurement, discussions of bubbles are of very limited value in the design and conduct of policy. Moreover, it is potentially dangerous to design government policy based on an overstatement of our knowledge and understanding.³

³For an excellent discussion of the theoretical literature on bubbles and their ramifications see Jose Scheinkman's monograph entitled "Speculation, Trading, and Bubbles (The Third Arrow Lecture)" to be published by the Columbia University Press.