'New Normal' is a Name for a Fear and, Unfortunately, Roosevelt Was Right

Beacon of empiricism, nemesis of the efficient markets hypothesis, and Nobel Prize winner Robert Shiller speaks to Gunduz Caginalp of the University of Pittsburgh about the new edition of *Irrational Exuberance* and the truth behind the 'new normal'

The bets had been on Robert Shiller to win the Nobel Prize in Economics for some time prior to his eventual receipt of the award in 2013. What was surprising was that the prize was split three ways and that one of the co-recipients was Shiller's antithesis Eugene Fama, he of the view that Shiller's outlook was so pessimistic that he could not fail to claim he had foreseen any crisis, given a long enough horizon. Shiller, of course, had spent much of his career pointing out the flaws in the efficient markets hypothesis (EMH), a system whose reliance on informational efficiency had, time and again, proven incapable of digesting the bubbles and price disconnects of post-1987 financial markets.

Market Volatility, published in 1989, collected Shiller's work over the preceding decade to present a coherent response to Fama's EMH – that price fluctuations were far from rational and could in no way reflect all known information, and that it was human behavior that was at play when prices moved so much more than future dividends could justify. Investors do not base stock prices on the expected receipt of future dividends, discounted to a present value.

Two years later, with colleagues Karl Case and Allan Weiss, Shiller formed a company to produce a repeat-sales index using US home sales prices data. Case had conducted a study of unsustainable house pricing booms contemporaneously, with Shiller studying the behavioral aspects of economic bubbles. The index was later acquired and further developed by Fiserv and Standard & Poor, creating the Case–Shiller index.

Irrational Exuberance was developed as the stock markets climbed to all-time highs, fueled by dot-com IPOs. Shiller argued that the current market was a bubble based on no sensible economic fundamentals and was liable to pop at any given moment. The book drew on studies of the enormous stock market boom whose origins were placed around 1982 and that accelerated after 1995. This ongoing boom was placed in the context of stock market booms generally, policy changes that should be initiated in response to this, and other such booms that were proposed. Structural factors behind the boom were considered, giving a list of 12 precipitating factors (see sidebar) that appear to be its ultimate causes. Amplification mechanisms, naturally occurring Ponzi processes that enlarge the effects of these precipitating factors, were described. Shiller goes on to discuss cultural factors, the effects of the news media, and 'new era' economic thinking. The third section is devoted to a discussion of psychological factors, psychological anchors for the market, and herd behavior. In the final sections, Shiller discusses attempts to rationalize exuberance: efficient markets theory and theories that investors are learning, and presents policy options and actions that should be taken.

The second edition, in 2005, was among the first to warn of the global financial crisis that began with the collapse of subprime mortgages in 2007. Shiller added an analysis of the real-estate bubble as similar to the stock market bubble that preceded it, and warned that:

"*Significant further rises in these markets could lead, eventually, to even more significant declines. The bad outcome could be that eventual declines would result in a substantial increase in the rate of personal bankruptcies, which could lead to a secondary string of bankruptcies of financial institutions as well. Another long-run consequence could be a decline in consumer and business confidence, and another, possibly worldwide, recession.*"

Shiller has now published a third edition, updated for the world financial crisis 2007–2009 and the 'new normal' equilibrium that followed the crisis. It is this third edition which forms the foundation of the following discussion between Gunduz Caginalp, and Shiller.

Gunduz Caginalp: I was very happy to see, recently, that the third edition of your book *Irrational Exuberance* has been published. I'd like to start first by asking, for people who haven't already read it, what are some of the key insights that one can attain from this edition?

Robert Shiller

Prelude to a Boom

Twelve structural factors preceding the boom

In *Irrational Exuberance*, Robert Shiller identifies 12 structural factors that contributed to the unprecedented rise in stock prices from 1995 to 2000.

1. The capitalist explosion and the ownership society encouraged stock investing.
2. Cultural and political changes favor business success.
3. New information technology suggested that new era.
4. Monetary policy and the Greenspan put took perceived risk out of the equation.
5. The perceived effects of the baby boomer generation.
6. The 1990s surge in business media undoubtedly contributed to an interest in the stock market
7. Analysts' estimates were routinely overoptimistic in the late 1990s.
8. Defined-Contribution Pension Plans grew and replaced many Defined-Benefit Plans.
9. The number of mutual funds surged.
10. Benign inflation created the illusion of wealth and prosperity.
11. The explosion of trading volume kept the bid in the bubble.
12. There was an increase in gambling over the years.

Robert Shiller: It is the updated version of a book that I first published in 2000, before the millennium peak in the stock market, and the second edition came out in 2005, somewhat before the peak in the housing boom. Both of those editions were really an analysis of events leading to speculative bubbles, and I presented what I consider was a comprehensive theory of bubbles informed by modern behavioral finance.

The third edition, which is now after a gap of ten years, is an updating of a lot of things, which includes making reference to the huge boom we've seen in the stock market and the housing markets since 2009. In the updating, I wanted to try to understand as much as I could about these separate booms in the market, but also to generalize more. I think that the themes that I wrote about in 2000 and 2005 have more generality in light of recent events, and I wanted to bring that out, so it's not as focused on one event as it was in 2000.

GC: Yes, I see. I remember we were talking about the bubble in 1999, when we met as part of the editorial group. But I wanted to also ask you about a part of the book, which was also in previous editions, that discussed the overall theory of bubbles. For example, in the bubble of the late 1990s, you mention about a dozen factors. I wanted to focus on a few of those: the tax cuts of the Reagan years, the maturing of the baby boom generation, the introduction of retirement plans such as 401K plans, and the expansion of trading volume. I wanted to ask you about interpreting these through the way that I normally think of markets. As someone who has invested and traded for much of my life, I've observed practitioners say that excess cash – they sometimes call it liquidity but we try to avoid that term in the finance literature because it means other things – or cheap money fuels markets. We've also seen this in laboratory experiments with Vernon Smith and Dave Porter. I've found that many economists are surprised by the idea that if you put more money into the system, prices rise, even though in terms of valuation there has been no change.

So, getting back to some of the factors in your book… For example, the baby boomer generation, at one stage in their lives, needed to buy a lot of things for their families, in the 1960s, when prices started to go up. Later, as they thought about retirement, they put more money into investments and this put more money into the market, thereby boosting prices. Following the tax cuts of the Reagan years, a lot of the affluent became more affluent, and really without much need to spend on additional items. Consequently, money went into the stock markets, pushing up markets, and similarly with 401K plans. To what extent would you agree with this interpretation, that many of these things fall under the same umbrella, that an increase in excess cash fuels markets?

RS: That's a very complicated question. Where to begin? I think of the money supply as part of a general equilibrium model. You would have a central bank money supply function, which is typical in econometric models, which has a federal reserve or central bank policy as endogenous and responding to shocks itself. There are also money demand equations that help us understand how the changes in money supply change consumer prices as well as stock prices. But now you seem to be bringing up liquidity – that's not money supply, that's something else. Your question is a complicated one because we are trying to describe something very basic, like the level of the market, when in reality there are very many influences on it. That's why we have models. But the problem with econometric models is that they are limited to a set of factors that are already measured like the money supply or like the interest rate. These, in turn, are themselves endogenous variables of the ultimate exogenous variables that drive liquidity or drive public interest. So, for example, in terms of the baby boom, well, why did we have a baby boom? I guess it has something to do with World War II! I guess we can take that as exogenous now because adult population is determined with a lag of a generation.

The baby boomers' demand for stocks has a number of factors related to it; one of them is, as I said in the book, the rise of 401K plans, which is kind of a legal institutional change. But also mentioned in my book is the rise of institutional funds. This is related to the rise of 401K plans because 401K plans forced people to make allocation decisions and forced them to learn about mutual funds. So, there was a huge explosion in the number of mutual funds provided. These brought, I suppose you could say, liquidity into the stock market, brought more people in. But I think of them as historical institutional sociological phenomena and they have strange origins. Like, the 401K plan developed when somebody thought they saw a tax loophole for compensating employees through a 401K plan and that had to be tested, and turned out to be acceptable by tax authorities. History is like that, it's filled with special causes. That's why I gave a dozen precipitating factors for the millennium bubble. You are putting a number of them together as somehow related to liquidity, and I agree. But I also think that the complexity of the phenomenon is hard to escape.

The problem with explaining these bubbles is that they have so many different factors and so many different kinds of factors that are hard to quantify.

GC: Getting back to the third edition, one of the issues that couldn't be discussed before was the Colombian housing bubble of 2004–2013, with prices rising 69 percent over the inflation rate in that period in some key cities. Again, one can look at it from this excess cash point of view, that President Santos' policies increased economic activity, increased wealth to the upper middle class, and maybe at some point they don't need to buy so much. Maybe at some point they have to preserve their capital because inflation would eat it up, and without a reliable stock market, a natural place for money to flow is into the housing market, boosting house prices. What would you think of that interpretation?

It's not purely people independently looking at interest rates or economic activity. It's also about being informed by the stories that people tell

RS: I think that's part of the story; you're referring to Colombia, but also in China, they've had restricted investment opportunities, they've learned some mistrust of financial markets, they want to invest in something they can see and trust, something that is definitely theirs and won't be taken away. The neighbors know who they are and know it's their house, so it's a very primitive sort of investment that appeals to people who are uncertain and worried about law and government. But I think that there are other things that might help to explain these housing booms in other countries – notably, an impression created through reading about what happened in other countries. Notably, people in Colombia or Mexico or Brazil hear about these housing booms and they think "why not here?" One thing I emphasize in the book is the importance of stories. It's not purely people independently looking at interest rates or economic activity. It's also about being informed by the stories that people tell. One thing you will find is that there are more and more stories about real-estate booms; it's kind of a cultural change that's spreading around the world.

GC: Speaking of interest rates, of course many people have the choice between putting money into stocks versus interest instruments such as CDs and short-term government bonds. As the interest rates go lower, these alternatives to assets such as housing or stocks become less attractive, so one of the issues in the US is that interest rates are close to zero, which is very unsatisfying. So, that pushes people toward the stock market. Consequently, short of some shock to knock them down, markets move up with low interest rates. What do you think about that? I'd like to talk more about interest rates and their implications.

RS: The era of low interest rates that we live in now is really unprecedented. The interesting thing is that even long-term interest rates are low; also, real interest rates often have been zero or negative. So, for example, very recently the index-linked gilts in the UK, which had a 20-year maturity, were negative. In the US, the 30-year tips have been down less than 1 percent. So, you wonder, why would anyone invest in that? Why would you commit your money for such a long time? It sounds like there's some extraordinary pessimism about interest rate outlook.

GC: In a sense, one could perhaps view the bond market as a type of bubble and just like with many other bubbles, when it continues week after week, and month after month, one feels that it will always be this way. Interest rates, it seems, will be at these tiny levels that you mention, but, ultimately, when interest rates go up, the bond prices will fall inversely, so perhaps one can view this as a bubble?

RS: In my book, I have a long definition of bubbles. I thought, it's not often defined and I think there's some confusion, so I wanted to write down what I thought was a bubble. The bond market is maybe in a bubble but it doesn't fit the definition that I wrote in my earlier edition; for me, a bubble is a kind of social epidemic – our attention is drawn to a speculative market's price increases. So, people take an interest in it because it's a new story; they are excited by stories about other people making a lot of money in the markets, they feel regret that they didn't enter it sooner, they feel envy, their self esteem is damaged because they feel they missed an obvious profit opportunity. So, they pile into the market, and that only reinforces the price increases for a while…

GC: The bond market is quite different from those aspects; whether or not these prices make sense, that's a good point.

RS: I think there's a little bit of that even in the bond market, though, because people will say: "Look how well the bond market has performed." In fact, for the 30 years ending in 2010, a corporate bond total return index outperformed the S&P 500 total return index for the stock market. The bond market, for 30 years, outperformed the stock market, which is quite stunning. But it does create, among some people, a little bit of excitement that the bond market is a better investment than we ever thought. On the other hand, they ought to reflect that long-term bond yields can't keep going down – they are close to zero now – so maybe it's time for a correction.

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GC: In terms of the nonbubble aspects, it is interesting that we have incurred massive expenses over the last decade or two: military activity, the banking/housing crisis, etc. We've taken on a lot of obligations; the US government, in particular, has racked up a lot of debt, and the question is, how can one pay for this debt?

The people working at minimum wage obviously can't pay much of these expenses; there's not much to tax. The people at the high end are obviously very resistant to high taxes. Hence, this seems to be a nice, quiet way of taxing people who have a lot of savings, but are unwilling to risk it on investments. They get this tiny return – 1 percent or less. Meanwhile, with all due respect to the government's inflation indexes, many older people assess their personal inflation rate as considerably higher. Healthcare costs, college costs are all going much higher, so this is a shift, or a transfer of wealth, it seems, from one group to another, with the aim of having governments restore their balance sheets and get their deficits under control at the expense of, perhaps, the only group that could pay it. What do you think of that concept?

RS: Well, this comes back to our monetary institutions; institutions of government debt were developed over the centuries – it wasn't actively designed by some great designer, really. It's been discovered that monetary policy can help stabilize the economy if pursued appropriately. But, you know, the central banks emerged out of earlier banks, private banks, and before that, goldsmiths, and so the policy tools that they use can have certain unfortunate effects. So, as you were saying, it doesn't affect people equally, so if they pushed the interest rates way down to stimulate the economy, it causes all kinds of changes that affect different people differently. So, for elderly people who are living off interest on their bonds, if they were investing short, their interest rate would go down immediately and they wouldn't have much to live on. On the other hand, if they had long-term bonds, the value of those would go up. Some of them benefit and some of them lose; it's kind of unfair – that's the problem with our system. As you say, when our government debt gets high, that generates an incentive for certain people to see inflation go up. If the national debt is high relative to GDP, and there are people who are advocating this publically, that we need to inflate this away, so we take money away from these elderly people, say, who are retired on government bonds, the real value would go down, and it would benefit debtors. This is a famous conundrum; this is the system we have and there's no perfect way to do it. It reminds me also of during the financial crisis, our government thought there was no alternative but to bail out the rich bank because if they failed it would bring down the whole economy. This must seem so odd to other people, that these bankers who they thought were responsible for the crisis were getting gifts from the government.

GC: Yes, of course. Another aspect of low interest rates is the slow growth. If growth were very robust, then interest rates would go up simply because corporations would want to borrow more. So, of course, one aspect that has to be considered in terms of very low interest rates over a long period is that growth has been very slow in the US, and even slower in other major centers like Europe and Japan. Perhaps, then, one needs to examine this issue of slow growth. Is this a permanent or semi-permanent set of affairs? We've become accustomed to much higher growth, but some people are saying that very slow growth is the new normal. If that's the case, then it means that a lot of younger people trying to enter the jobs market in Europe and the United States have a much harder time, and it creates a number of problems for various sectors of the population. So, to some extent, is slow growth a problem and, if so, what are some of the underlying causes of this problem?

RS: Yes, this is something that I emphasize in my new book. My first thought is just to pull back and take a look at this 'new normal' – that's a term coined by Bill Gross. It means a normal where unemployment stays high or growth remains sluggish for the foreseeable future. It's actually a new term replacing a term that came in in 1937, after the great depression, called 'secular stagnation.' They are actually kind of synonyms: low interest rates, slow growth, a weak economy that might go on for a long time. By 1937, it was already eight years after the Great Crash, things weren't coming back and people were getting pessimistic. The same thing is happening now; the crisis was in 2008 – that's seven years ago – we've had a long, slow period and people are getting pessimistic. The thing I like to emphasize first is that 'new normal' is a trope; it's a new name for an idea that itself is depressing – there's like a social epidemic spreading worry. Franklin Delano Roosevelt said: "We have nothing to fear but fear itself;" well, 'new normal' is a name for a fear, and unfortunately Roosevelt was right: if people are fearful for the future, then they won't spend, they won't start as many new businesses, and they won't hire as many people. It becomes a self-fulfilling prophecy – also, the term 'self-fulfilling prophecy' was coined by the sociologist Robert K. Merton in the 1940s, right after the Great Depression. So, of course, it's a concern, but I tend to think of it not as an objective thing for an econometric modeler to come to grips with; it's a theory that is growing in popularity, and the theory itself creates fear and weakness in the economy.

GC: To what extent is this slow growth caused by income disparity? As we have increasing income disparity, those who have the needs don't have the money to buy the goods, while those who have the money don't really have the need for more material goods and services, and would prefer to accumulate the additional money. This is partly, as you say, from fear that the times may not be as rosy far out in time, so people who have the money tend to invest it, while those who have the needs don't have the money. It's like the logistic equation that you mentioned in your book, for epidemics and communication. To some extent, this can be applied to the economy, and we have used it as a model for various things in business calculus and things like that for many years. For example, in an epidemic, if you look at the peak, in terms of the number of people who are currently sick or the ones in the hospital, it occurs when you have half the population who have the disease and half the population not having the disease. In terms of economic activity, one can view it from this perspective, which is that, to have economic activity, you need a balance between people who have the goods and people who have the money. Hence, income disparity, some say, is the cause of slow growth. Do you buy that?

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RS: I think income inequality is the issue of our time and may continue to be that for some time. You seem to be emphasizing one channel, whereby income inequality produces weakness and that's the channel where high-income people don't consume as much – they just pack it away and save it. So, if the income distribution is tilted toward high-income people, then desired saving will tend to go up and the economy will weaken. But there's another dimension to inequality as well, which I stress in the third edition of Irrational Exuberance, and that is that, with inequality rising, there is more fear for the future – people are worried that their job won't last, fearing that they will end up looking for a new job in a very bad job market, and also fearing for their children, that when their children grow up there won't be any jobs for them. That means that people become tight fisted and choose not to spend – that's for a different reason – and they can also invest in very high-priced bonds; they feel, "I don't trust my own earning power," even if interest rates are zero.

GC: Another aspect of this that I don't see much discussion about is that if we look at the last 50 years, there have been a couple of major changes. One is that large segments of the population on Earth have entered the free-market system. For example, many of the people who were living under communism, for the most part, are now producing goods and services that enter the worldwide market: people in China and the Soviet Union, etc. So, we've had this influx and we also have a broader range of people in the workforce – women, the elderly, etc. So, we've had a large influx of workers but at the same time, because of the technology, more and more jobs are being eliminated. If you look at the productivity gains rate of about 2 percent, we need about 2 percent less working time for the same task every year. So, it seems like an inevitable movement toward needing fewer workers, while more workers are interested in attaining jobs. And this has the effect of depressing wages and salaries, which, of course, has the vicious cycle effect of diminishing demand for goods. It seems that one way around this would be to gradually cut the work week, so instead of 40 hours, 38 hours and so on. But politicians are actually advocating an increased work week, partly because it favors the company, in that they have to pay health benefits for fewer people etc. We got rid of the gold standard for reasons that are, in a way, similar: you have more people chasing the same finite amount of gold, and this would lead to a depression. In this case [increased workers, coupled with automation], I would say that one solution might be a gradually shortened work week – except, of course, for students! What do you feel about these ideas – what is your perspective on it?

RS: Well, you are emphasizing the cut in the work week. A free-market person would say that the work week should be a matter of individual choice, not national policy. There are, however, some stories of work sharing as you have described which have been described as efficacious.

Maybe there could be a national policy … traditional free-market economics sees no point in that, but maybe there is something to do there. But, in listening to your question, you really are pointing out serious problems that have occurred over the last 50 years, but I didn't really hear you stress the automation part of that…

GC: … In other words, the technology is increasing our productivity and, of course, automation first got rid of a lot of the blue-collar jobs, and now it's getting rid of a lot more of the white-collar jobs – the clerical, accounting, secretarial types of job.

Each year, perhaps, we are getting rid of the need for a few percent of that or, stated differently, productivity is increasing, so one needs fewer workers to do the same job, fewer people for xeroxing, and all of these jobs that used to be done by nonfactory workers are getting eliminated. In fact, some of the restaurants are starting to talk about getting rid of waiters…

RS: … I know! Bars getting rid of bartenders, we just live in an automat! Remember the automats? Whole restaurants that took the form of giant vending machines! That was a century to a half century ago and they ultimately disappeared, but now they are really coming to the fore again with better technology.

GC: With these changes, the increase in automation reducing the need for labor, combined with more people joining the labor force, there doesn't seem to be any discussion of the fundamental problems introduced by these that can't really be handled by monetary policy.

RS: Right, I think this also helps to explain other things; one trend you see in much of the world is that more and more people want to go to college and they also want to go to an elite college – and they are willing to pay huge amounts of money and go into debt to do that. It comes out of fear … it used to be that: "My dad was a plumber, maybe I can be a plumber…" Maybe plumbers are safe from the risk of unemployment? Perhaps not a good example – there might be robot plumbers before long – but I think that the sense of security that I am just going to do what my parents did is gone, and it's right: the technology is replacing things that we thought were intrinsically human. You know, these machines that we are developing are becoming even more considerate than people! There was a story recently about 'The Invisible Boyfriend,' which is a website that you sign up for – assuming you are female and want a boyfriend – and they will email love letters to you every day. The story was that, for young girls, other people observing their emails would think that they had someone – girls were doing it so as not to be embarrassed. They start to like it – there's a boyfriend writing them every day – and it's easy to forget that this thing is just a machine talking to you, and it's scary what we might be coming to.

What it seems to mean is that income inequality is tilting toward an entrepreneurial elite and people with the right connections, who go to the right colleges and meet people who are up and coming, and this is the fear – a deep fear which is characteristic of our time, and I don't think it is going to go away soon.

I think there's a lot of mystery, the idea that we could quantify everything, which seemed to be holding sway in academia – the econometric model era – seems to have passed

GC: Getting back to the markets, we have had relatively calm equity markets and we hear talk about the banking system still having considerable risk and so on. How do you see these two issues – the risk in the system, in terms of the banking and the market system, and the relative calm that we've experienced? Is the banking system less risky? Are equities on firmer ground than they used to be?

RS: I think there's a lot of mystery, the idea that we could quantify everything, which seemed to be holding sway in academia – the econometric model era – seems to have passed. Unfortunately, it is a matter of human nature; now that behavioral economics is coming in more … even neuroeconomics, how does the human brain work and how does it sometimes get us alarmed and at other times not? Now, in terms of the risk in the banking system, well, we have all of these new regulations – we have Dodd–Frank, for example, we now have routine stress tests of banks. The Fed recently said that it's all okay and we'll be in for some minor fixes. But do people know whether that is right? Of course not; it's a matter of what you believe. In terms of the volatility of markets, I don't think there's any good theory of that – it seems to be something to do with sociology. Sometimes people get worked up and trade a lot and move prices around, and at other times they don't. One thing that I think is significant about volatility is that there is some sort of volatility feedback: people react to volatility in such a way that it often creates more volatility. You can quantify the changes in volatility but what generates it is people reacting to having seen some volatility; that creates new ideas and theories which encourage people to feel as though they need to jump into the market and react. So, why have stock markets been quiet since the financial crisis? I don't know – it's illogical … perhaps it's a sigh of relief…

GC: One possibility, I think, is that generally we have some forces that move markets; for example, gradually, the economy is getting better, at least in the United States, and that should be pushing markets up eventually. The reason we see ups and downs is that when people see an uptrend, they borrow money at a low interest rate and they speculate; this pushes markets up too far and then they go down – in other words, there are more people playing that type of game. Perhaps after the great recession and the volatility we had in 2009, a lot of people have been scared off. I don't have any data for this, but my guess is that the fraction of people involved in hedge fund speculation – to try to do what they call 'carry trades' – borrow in Japanese yen, for example, then buy emerging markets or Western markets. That money, perhaps, is not as readily available, so when I see a market moving up gradually, to me it suggests fewer speculators. And the reason for that is that the money the speculators would use is owned by ordinary wealthy people and is no longer there in abundance.

RS: Again, you are talking about things that are hard to quantify. There is a long historical tradition talking about how market price changes redistribute wealth from optimistic to pessimistic people or the other way around, or from risk takers to risk avoiders, so these are ideas that I haven't seen laid out quantitatively. We don't know who is a risk taker and who is a risk avoider – not on a national scale. I think it must have some flavor like that. Recently, hedge fund operators have been getting a bad rap. They haven't, as a group, outperformed the market in the last five years. People overreact to these stories, even though five years of underperformance doesn't prove anything about their methods. The underperformance could be just random.

GC: Another thing that has come into the news is that on May 6, 2010, we had the famous "flash crash" where the Dow dropped 1000 points in a matter of minutes. Recently, there was an arrest in London based on the idea that a small trader caused it. In Barron's this weekend, there was a cartoon that asked, if one trader operating out of his basement can cause a 1,000-point crash, should I be more worried or less worried? What do you make of the 'flash crash'? Have you looked into that, and what the implications of that are?

RS: I think one person can only cause the crash when there's some instability already in the market. The lesson to me is generally never to leave a market order because it can happen to you.

GC: It seems to me, at that time at least, there must not have been that many orders to buy just below the current value. That means that whatever the immediate cause was, it would not go down that far if there were lots of orders prepared to buy the Dow at 100 points below, 200 points below. In other words, if there were lots of value-based investors with orders sitting there, it would not have gone that far and so you wonder exactly what the mechanism is. Once again, there may be so many people trading on such a small timescale and looking at the very short-term trend, that perhaps it overwhelms the traders who have bids in there at particular prices hoping to buy at slight undervaluation.

RS: This reminds me also of the 1987 crash, if you look at the Brady Commission report about that. There were apparent arbitrage opportunities between the stock index futures and the underlying stock market. Huge profit opportunities. It seemed as if the opportunities weren't being exploited. The reason why they weren't being exploited was because nobody knew what was happening! I'm talking about October 19, 1987, when the stock market fell over 20 percent. Again, there will be rare events where people will feel that something strange is happening and say to themselves: "I am just going to sit on the sidelines because I don't understand it." Because they don't understand it, they've never seen this before, so suddenly liquidity can dry up.

GC: On the issue of the finance industry, and some of the efforts to regulate it differently ... I know this is something that President Obama has been working on, more or less, since he was elected, where he tried to put more brokers, retirement managers etc. under fiduciary duty. Particularly for retirement funds, it seems that there are some new regulations on that. What measures should be taken so that the finance industry serves people better? Do we need reform, do brokers need to have fiduciary duty toward their clients, or should they be viewed as salesmen selling a product with their primary duty to themselves? How do you feel about that?

RS: Well, these are complicated questions – that's why we have to hire a lot of professional regulators. They don't have easy answers, so we have ... one concern is that we have too many sales people in this economy working on commission, who just want to make a sale, and not as many really trustworthy financial advisers as we'd like. I think there might be something to that. On the other hand, we still need sales people because they are providers of knowledge; without them, there wouldn't be much impetus to create new products. But I think there are steps to be taken. We've already seen a lot of steps taken; look at Dodd–Frank, for example, which created the Consumer Financial Protection Bureau, which is doing a lot to protect individuals against devious practices – so that's a good thing. But there's still a lot more that can be done. In my 2015 book with George Akerlof, *Phishing for Phools: The Economics of Manipulation and Deception*, we talk about the large amount of trickery purveyed, and the need for more truth-telling and loyalty to clients. We already do subsidize financial advisors, because it's tax deductible. I'd like to see the subsidy trickle down to low-income people better; it could be a tax credit instead of a deduction – there could be other ways of subsidizing it. But I'd like to see – and the government can do this – the subsidy for people who have a code of ethics and procedures that are documented that will help prevent the abuse of clients that sometimes happens.

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I'd like to see a situation where the financial profession looks more like the medical profession. I think the medical profession has a more secure sense of duty to their patients than do financial people to their clients – not to say that they don't have a sense of duty, but I think it's more reliable among physicians.

GC: Absolutely, that's a very good analogy. If a patient goes to a doctor and the doctor has two treatments, the patient expects that the treatment that is better for the patient will be the one that's used. If the doctor were to say that they preferred the other treatment because "it's not so bad and

I make more money on it," it would be laughable, outrageous! But in the finance industry, it's not really against the rules in some cases. I was reading some reports in the papers about people who got into various investments that were really bad, not suitable and so on. One of them was an architect and he said that if a person comes to him and says that they want to build a house, he doesn't expect them to know all about building a house – what's involved, what's structurally sound, and better, and so on. "They are coming to me for that," he said. In the same way, he said, "I don't know much about investments; I go to a financial advisor hoping that they are going to do what's best for me." So, this seems to be a question that will continue to be hashed out, and perhaps there will be more measures to help the public along these lines.

RS: I think that the economic system thrives on integrity. There's a wonderful book that Anna Bernasek wrote, called The Economics of Integrity, and she says that the economic system works well because people are not strict profit maximizers. There are things they just won't do, on principle. A sense of morality is a genuinely important factor in human society. Unfortunately, some people think that in a free-market system, all that's necessary for business is to stay within the letter of the law, and then beyond that business people can do anything that they want, so that's a problem. The free-market system has never functioned well without a sense of integrity. The success of a market economy depends on some sense of integrity and, ultimately, business people thinking: "You know, well, I'm not going to do this, even though it will make me a lot of money. I don't need that money, so I won't do it…"

Dan Tudball: Professor Shiller, in the biographical essay that you wrote for your Nobel Prize acceptance, you wrote that:

"*Working with other people, colleagues, and students has been rewarding as well because with them I have found more and more that our work has a moral basis, in finding ways to improve lives and our society.*"

It just occurred to me, particularly with the tangent that the conversation is taking, whether, in your early days as an econometrician, you had a sense of moral import in what you were doing, and how that compares to your position now?

RS: Well, that's interesting. I always thought of myself as a moral person, so perhaps there has been no change. On the other hand, as I have gotten older – and perhaps other people discover the same thing as they get older – first being a parent, then being in charge of students, and perhaps other people who work for you, you find yourself talking about it more and more – talking about trying to influence people's morality.

I think there has also been a change in the economics profession. The period of efficient markets theory, starting from the mid-20th century, is a period that, while not immoral in any sense, gave certain kinds of excuses to avoid moral questions, that the purpose of a business is to make profit and only that – you can see a certain logic to that. You make the profits, you distribute them among shareholders, and then it's their business to be moral, and as morality is so relative, maybe that's a good allocation of human resources. On the other hand, I think it did lead to a little bit of evasion of responsibility; the financial crisis has, perhaps, weakened the hold of that kind of thinking, and people are seeing the importance of maintaining moral standards.

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DT: Regarding the crisis of 2008–2009, in comparison to the Crash of 1929, you were saying at the very beginning of the discussion that stories are very important. And, of course, one of the great contrasts between those two economic financial events is that the access to choices of narrative was so much better in the recent example, with access to the Internet and various media outlets. I suppose that in 1929, the way to come to a sort of a confluence of opinions … the number of tributaries leading to that confluence was lower because you were talking about radio and newspapers predominantly. But now, the opportunity for narratives is so much greater and possibly that leads to the more damaging sociological effects that we witness.

RS: I think the Internet brings new possibilities and new dangers. I think of ISIS as one of those dangers. They have a narrative, don't they – the Islamic State – it's brutal and disgusting to me but it has appeal to some people, so I guess we should worry about how this new technology affects the motivations. It used to be, in the 1920s, in the days of radio, that there were just a few radio stations and that was it. Now, there's an ability to focus in, of picking people really carefully with knowledge of what they like and what they think. There's a danger of political domination, there's a danger of dictatorial governments controlling people; we don't know where we're going with this – let's hope it's good.

W