

A Paradigm Shift in Economics

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Abstract

The aim of this paper is to highlight and discuss a recent paradigm shift in economics which mainly arose after the 2007 global financial crisis. This shift is particularly based on a re-thinking of two neoclassical views: on a micro-level the rationality of human beings and on a macro-level the accuracy of market prices. It also fundamentally affects the macro-level question of finding a balance between the state and market. Given the paradigm shift in economics, the paper concludes with suggestions on how to reform it.

Key Words: rationality, efficient market hypothesis, financial crisis

“The crisis has in many ways put us in doubt about what we know about the economy.”
Barry Eichengreen, UC Berkeley

In a rare occasion, the 2013 Nobel Prize for Economics was shared amongst three people with very diverse views on economics: E.F. Fama, L.P. Hansen and R.J. Shiller. Fama and Hansen are from Chicago, while Shiller is from Yale University. This selection can be considered interesting in two aspects. Foremost, Fama and Shiller work primarily on finance. In other words, the fact that these two scholars won the Nobel Prize may infer that economics slowly comes to terms with finance. For a long time economics had turned their back on other sciences, especially finance. Second, the choice of recipients is also interesting as Fama and Shiller advocate diametrically opposite finance theories.

Shiller explained this phenomenon during an interview with the New York Times, in which he states: *‘It’s like having a good friend who is a devout believer in another religion. You can learn a lot from a friend like that, even if you don’t pray in his church.’* (19 October 2013). The selection is in a sense an external reflection of a paradigm shift in economics. This is because the global financial crisis, which started in 2007, resulted in a process of reflective questioning of the teachings of both capitalism and modern economics.

The financial crisis had an immense impact on the real economy. As an example, according to the Fed², the total value of homes people lived in within the USA was 22.7 trillion dollars in the first

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² www.federalreserve.gov/releases/z1

quarter of 2006. By the end of 2011, this value dropped by 29.7% to 16 trillion dollars. During this period, economists and economic theories were exposed to harsh criticisms which emphasized that along with the failure of economists to predict the upcoming crisis, some theories might in fact have caused or at least contributed to the crisis and, more importantly, none of them has put forth any solutions to it. While Fama represented the conventional view, Shiller stood for the voice of a peripheral paradigm. Hence, when the Nobel Prize in Economics Committee were making their selection, they indirectly pointed out that the peripheral paradigm should have more room in economic theory and practice.

After the crisis, the legendary former chairman of the Fed, Alan Greenspan, stated in the US Congress that he was mistaken for so firmly believing in economic theories.³ The 2008 Nobel Prize in Economics winner Paul Krugman has gone up a notch during the annual Lionel Robbins memorial lecture at the London School of Economics in 2009, criticizing economics by stating that most work in macroeconomics in the past 30 years has been useless at best and harmful at worst. Over 75 years earlier, John Maynard Keynes was quite critical about the capitalist system in an article at the Yale Review Magazine: *“The decadent international but individualistic capitalism, in the hands of which we found ourselves after the war (WWI), is not a success. It is not intelligent, it is not beautiful, it is not just, it is not virtuous--and it doesn't deliver the goods. In short, we dislike it, and we are beginning to despise it. But when we wonder what to put in its place, we are extremely perplexed.”* This paper intends to illustrate the need to respond to this perplexity by considering reforms and revisions of economic theory and also formations and formulations of new economic theories.

The controversies are even more important, as they are primarily centered on hypotheses that form the basis of capitalism. The crisis in 2007 pulled the trigger for this, and the Nobel Prize for Economics that was presented six years later will probably stimulate the debates further. The main concerns of the debates are economic models. While building their models, economists have to make a choice between reality and simplicity. While simple models are easy to figure out and solve, models that are close to reality are difficult to understand and solve.

In this balance, economists predominantly preferred simplicity over reality. For this reason, many of the models used in academic research, claiming to analyze an average person, moved away from reality too much by ignoring the most basic flaws of humans. Keynes (1976) has constantly pointed out that psychology is the most important factor that affects the economy. Adam Smith (1759), who is considered the founder of modern economic teaching, states that emotions, feelings and morality are diverse and essential aspects of human behavior, and thus it is not right for economists to ignore (or worse deny) these. On the contrary, these are attributes and subjects that are worth researching about.

³ <http://www.theguardian.com/business/2008/oct/24/economics-creditrunch-federal-reserve-greenspan>

However, in time economists drifted away from these subjects opening the doors for incorrect and harmful conclusions. Hence, this article's primary aim is to argue that the economic doctrine, which has forgotten the human aspect, needs continuous reform. The examination of problematic concepts and various models are at the core of this article. Thus, we form this article around a critical engagement with the Efficient Market Hypothesis (EMH) with its assumptions of rational individuals and the accuracy of prices.

Efficient Market Hypothesis

1. Rational Individuals
2. The Accuracy of Prices and the Power of Balancing the Market

Efficient Market Hypothesis

In 1956, while Paul Samuelson –according to another reports his student Richard J. Kruizenga– was strolling around the library, he came across a doctorate thesis written around the 1900s. The Efficient Market Hypothesis (EMH) first emerged in 1965 by examining this thesis that bore the name “Théorie de la spéculation” by Louis Bachelier and was developed and incorporated into the literature of economics and finance by Eugene F. Fama. Fama (1965) defines an efficient market as a market where there are rational profit-maximizers competing and thus the place where the actual price of a security is the correct estimate of its intrinsic value. Thus, EMH can be summarized in two parts:

- **There is no Free Lunch:** Since all the information is included in the price, there is no information outside the realm of knowledge which money can be earned from. For that reason, it is not possible to earn systematically more than everyone else.
- The price is right: The prices reflect the real value of things; they are right and the formation of price bubbles is not possible.

Michael Jensen, an Emeritus professor in Harvard, has praised the EMH in 1978: “...*there is no other proposition in economics which has more solid empirical evidence supporting it than the Efficient Market Hypothesis.*” While the assertion of “there is no free lunch” has faced many criticisms, it is not the subject of this paper. We would rather like to focus firstly on, the underlying assumption of rationality, and secondly the statement that “prices are right”. We will consider each of them separately.

How Rational are we?

The rationality of individuals can be summarized as the trait of continuously and consistently analyzing all available alternatives and making an informed decision based on this full analysis. For this reason, rationalism has a loose relationship with consistent preferences.

Herbert Simon was among the first scholars who objected to the rationality axiom. He was a deviant academic who started his academic life studying politics and continued with studies in public administration. He then wrote several articles on physics and later on worked on a wide variety of subjects in organization theory, economics, management and even psychology. Simon states that human beings are not as rational as economic theory assumes, and that it is not possible to accurately predict their responses by asserting that people calculate and act on the probabilities and the probable results from their experiences. He framed his idea as “bounded rationality”. According to this concept, when people make a decision among multiple options, they tend to eliminate the various options through irrational criteria and invent short cuts, called heuristics. Simon provides the example of a chess game. During such a game of chess there are approximately 10^{120} (yes, 120 zeros after 1) options, but people generally only make a choice contemplating three to four moves instead. According to Simon, the rest of the options are eliminated through somewhat arbitrarily constructed methods. In 1977, Simon spoke about bounded rationality during the annual American Economic Association (AEA), and a year later he was awarded the Nobel Prize in Economics.

There have been many research projects and experiments regarding the irrational behavior of humans. For example, in one experiment, the psychologists Carter (1999) asked women, which nylon socks they liked out of 12 pairs and why. Some of the popular reasons were the texture, “feeling” and color. However, the socks were all the same. The cause-effect relation of humans is not as rational as economics assumes.

Daniel Kahneman and Amos Tversky became famous with their studies about how humans use heuristics in their decision making. Kahneman and Tversky (1974) confirm Simon through experiments that show that humans have simpler and more irrational decision mechanisms than economics presumes. However, they went a step further than Simon: Kahneman and Tversky (1979) showed how humans can systematically violate rationality under uncertainty. The article showed the contradictions of the Expected Utility Theorem that explains how humans decide under uncertainty based on rationality. They thus formed a new theory. The article, which has been cited approximately 13000 times since its publication in 1979 until 2008, has continued to be cited more than 14000 times from the start of 2008 until September 2013. Thus, the article has received much more traction after the crisis. One example they use:

What would you prefer?

- A. *Flipping a coin and getting 200\$ if it is heads*
- B. *Getting 100\$ without betting*

Most of the subjects prefer the guaranteed money (B). However, when you change the bet, the selection proportion changes:

Which would you prefer?

- C. *Flipping a coin and loosing 200\$ if its heads*

D. Loosing 100\$ without betting

While a rational person who chose B in the first experiment is expected to choose D in the second experiment, they often choose C instead. When you look at the two experiments from the perspective of probability, both of the experiments look the same. Yet in practice, some people prefer gambling in the second experiment, but not in the first. In the literature, this is called Loss Aversion. In other words, humans do not make rational choices when faced with probabilities.

The concept of *Anchoring* emerged from another experiment by Kahneman (2011): the subjects were asked to turn roulette and then answer a question. Normally the roulette should be able to come up with a number between 1 and 100; however the roulette in this experiment was biased to only come up with the numbers 10 or 65. After the subjects spun the roulette, they were asked the following question:

“What percentage of countries in Africa are members of the United Nations?”

It is apparent, that this question has got nothing to do with the roulette. However, while the average estimate of those that got the number 10 was 25 %, the average of those who rolled the number 65 was 45 %. In other words, Kahneman and Tversky show that irrelevant things affect us when we are making a decision in irrational ways. Another reason why people make irrational decisions is overconfidence. For instance, most people believe that they drive better than the average. (Svenson (1981))

Sunk-cost fallacy is also a type of fallacy that concerns economists. Let's presume that you are an owner of a company and your company invested 100 million TL in Tokyo and did not bring a very successful profit. In order to fix the company, you need 50 million TL. But at the same time, there is now another 50 million TL investment opportunity in İstanbul, which you think will be equally profitable. Will you spend your 50 million on the factory in Tokyo or in the new investment in İstanbul? Most people would want to recover their first investment. If both of the companies are equally profitable, why do people not equally think about the new investment in İstanbul? Trying to save the sunk money, is not a rational action. The important thing is to use the 50 million TL in the most profitable way possible. This is just like a movie that you have begun watching for 30 minutes and did not like it but you stay for the next hour so that your money is not wasted. However, that hour of stay will cost you, and hence trying to save that money is useless.

Various other academics are also critical about the rational choice assumption. Berger (2007) carried out an experiment with regard to voting habits: a survey was carried out in 2000 in Arizona concerning whether “school budgets should be increased or not”. When the survey was conducted in schools, it showed a higher rate for increasing school budgets than in other places. This reveals that although a rational person's vote should be independent of the location in which the voting occurs, voting in different places affects the outcome of the selection.

Irrational behavior is commonly seen when the number of choices increases. Iyenger and Lepper (2000) carried out an experiment in two separate stands. In the first stand, people had to

choose from 6 jams while in the second stand people had to choose from 24 different selections. The subjects were allowed to choose how many jams they wanted to taste and were given 1\$ discount for the jam they chose to buy. At the end of the experiment, although the second stand attracted more customers, they did not buy any jam. They simply could not decide.

Another instance where human beings do not act rational is when they are faced with social effects. Solnick and Hemenway (1998), carried out an experiment in which they asked “*Would you like to earn 50.000\$ where everyone earns 25.000\$, or would you like to earn 100.000\$ where everyone earns 250.000\$?*”. Given our previous examples, you may already guess the results: most of the subjects preferred 50.000\$ rather than 100.000\$.

The studies mentioned above have all been carried out before the crisis. However, although there have been many arguments opposing the rationality concept, these views did not receive much attention – until the crisis in 2007. Potentially through this crisis, we became aware that certain irrational behaviors of CEOs and governing boards more generally of both banks and other financial institutions are not an exception but rather part of human nature. The statement in July 2007 by Citibank CEO Chuck Price, regarding the undeterred loans that the bank gave to attract customers, is sadly a nice phrasing of herd psychology: “as long as the music is playing, you’ve got to get up and dance.”

It is important to add, that the above-mentioned studies do not prove that human beings are irrational all the time, but merely show that human beings sometimes act irrationally. The presumption that human beings are rational is hence a mistake.

Do prices always reflect the intrinsic value?

Krugman (2009) stated that EMH was one of the most important reasons of the crisis: “*The belief in efficient financial markets blinded many if not most economists to the emergence of the biggest financial bubble in history.*” The hypothesis in question states that the prices are always right and that it is not possible to form an entity bubble. Although this idea often appears in theory, its deficiencies have been shown and emphasized several times in practice.

When talking about the efficient market, Fama sees a price as the best prediction for value of any good. As an example, the income valuation or discounted cash flow method discounts the future profits of a firm including a risk premium. Shiller, who shared the 2013 Nobel Prize in Economics with Fama, made a striking study regarding the subject and put forth counter-evidence to Fama’s theories. In his article, Shiller (1981) calculates the current values of S&P 500’s stock bonuses, compares them with the prices of stock certificates and proves that the prices were five to thirteen

times more volatile than what EMH asserted. Shiller's perspective regarding the subject is very clear: *"The efficient-market hypothesis is the most remarkable error in the history of economic theory."*⁴ If the EMH were correct, financial institutions that are currently transacting in the market should not be earning money. However, some sustain a profitable business model by determining price anomalies in the market.

Despite everything, this phenomenon should not frighten us. Mathematician Mandelbrot contemplates on the situation of the discipline: "Financial economics, as a discipline, is where Chemistry was in the 16th century: a messy compendium of proven know-how, misty folk wisdom, and unexamined assumptions and grandiose speculation." Considering that the science of finance and economics emerged only a few centuries ago, there is much more to research. Economists have already commenced this endeavor of new theory development. The most prominent of these are probably Behavioral Economics and the Adaptive Markets Hypothesis. The common ground of both is to integrating psychology into the theory. Individuals are not fully rational and do make mistakes.

Conclusion

The aim of this article was to point out some imperfections of economic theories and to contemplate on the paradigm shift that is slowly emerging. We suggested three points:

1. Humans do not act as rational as economic theory presumes.
2. The markets do not necessarily work efficiently and may not be come to equilibrium. From painful experience of the mortgage crisis we have learnt that consumption through loans may create bubbles in prices. As a result, when the bubbles burst, humans and institutions that have bought their welfare through credits can be left with huge debts or go bankrupt.

These fundamental mistakes show that although economics is a social science, it has completely ignored the human psychology itself. Humans are complex creatures that make mistakes and are affected by their environment. Analyzing such a complex creature with simple and mechanic presumptions and simplistic mathematical equations does not seem plausible. Many of the realities regarding humans that we have re-confirmed through the crisis and the re-questioning of the above-mentioned hypotheses were already known and taken into account by many scholars, especially psychologists. However, they were not included in economic theories. This may be part of a broader problem of isolation and silo thinking of a discipline. Nassim Nicholas Taleb (...) pointed out that "out of all the disciplines, economics is the most isolated the one who least makes use of other areas."⁵

⁴ <http://www.business.uconn.edu/users/jgolec/invwsj/6EFFICIENT.html>

⁵ Black Swan part 10. Öngörü Skandalı "Gerçeklik? Ne için?"

Akerlof and Shiller (2009) also emphasize that macroeconomics must make use of psychology. Through the painful experience of the crisis, it is seen that the economic theory desperately needs other (social) sciences. In the last 4-5 years, some economic articles are written with medical doctors, sociologists, and psychologists. This can and should be encouraged and developed further. So, what can be done now? Let us offer three suggestions:

- a) Keynes interprets humans as sometimes acting with “animal spirits”, as creations that are not always rational. Hence economic theories need to be more realistic and human centered. In other words, the new economic models that will be constructed should emphasize aspects such as cooperation rather than competition, moderation rather than greed, as well as the role of ethics. In Shiller’s words, finance is for a better society.
- b) Although this stream of research is not new, Behavioral Finance and Behavioral Economics have only really become popular after the crisis. Those that study Behavioral Economics begin by accepting that many of the irrationalities mentioned above are very human. For this reason, incorporating psychology into economics looks very promising. However, excluding Kahneman’s “Prospect Theory”, Behavioral economics lacks full- models. This area needs to be addressed more in academic research.
- c) The 2007 financial crisis, the 2010 European debt crisis and the 2013 US debt-ceiling crisis have illustrated that crises can come from the most unexpected places, in the most unexpected ways to the most unexpected states in different forms and severity (as in Talep’s (2007) expression, they are unexpected Black Swans). No matter how much science develops, anticipating these crises is generally not possible. Even prominent scholars such as Shiller, who guessed the emergence of the financial crisis, presumed that the crisis would have occurred one or two years earlier. It should not be forgotten that just as there are those that estimated the crisis correctly; there are also those who may have made correct presumptions before but were mistaken with regard to the happenings in the crisis. It is impossible to estimate who will correctly anticipate future crises. Hence, just as it is stated in the narration of Prophet Yousuf⁶, if we cannot predict the future, it may be wise for states and systems to prepare for the worse in good times.

Existing economic theories are not completely false, but they should be developed, improved and complemented in order to adapt to new conjectures and considerations.

⁶ Old Testament, The creation 41 (29-36); Quran, Surah Yousef

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