

Chapter 1

Theory and Modelling

ABSTRACT

In this chapter, I discuss the dominance of the neoclassical theory. The effort here is to highlight the importance of studying economics as an adaptive complex system where the fractal structure and interaction play a fundamental explanatory role and individual details are largely relevant. To discard equilibrium in the standard sense and to move on to study out of equilibrium dynamics is surely the right way to proceed but is perhaps too big a step for economics at this time. Inspired of the Newton's model of the universe, economists developed an economic model that had the same formal properties. So, once economics and finance made it their goal to develop the concept and the idea of the elegant model form, they go along with the simplified assumptions of that form. Therefore, financial models can leave us unable to see many of the most important aspects of financial markets.

INTRODUCTION

Research is a continuous intellectual process, which is done to find and report new knowledge and understanding of the world around us. In this chapter the task is to make clear how the economists used the scientific research in order to generate the economic and financial theory. Inspired of the Newton's model of the universe, economists developed an economic model that had the same formal properties. The problem is that the model is used too often, at any time and place. In doing so, we keep economics disconnected from

DOI: 10.4018/978-1-5225-3259-0.ch001

reality. It is essential to realize that system's properties are not constant over time; they are changing and constantly adapting to the environment.

People enjoy reading stories, so, I will tell you the story where finance sector damages the economy because it does not function as well as the models content. In 1998 a financial investment company, hedge fund called Long-Term Capital Management (LTCM) faced almost-instant bankruptcy. It used the methods and risk expertise of two "Nobel economists," Myron S. Scholes and Robert C. Merton who were called "geniuses" for developing the "new method to determine the value of derivatives". Using bell curve-style mathematics they convince themselves and major players on Wall Street that it was great science and thus turning the entire financial establishment into big losers, or as Taleb (2007) wants to say suckers.

Now, was an equation to blame for the financial crash? No. The equation was just one ingredient and the main reason is that the entire financial system is poorly understood and highly unstable. The complexity, interaction and extreme event were not taken into consideration at all. But my concern is that we do not see this story as a lesson, or as a reason to implement more rigid financial reforms. A major change didn't happen, except some people had less money.

Today we are still allowing our politicians to derive inappropriate policies without any recognition of their shallow foundations. Our students are still taught How to think, not What to think, and the academicians are either unaware or pretend to be unaware. The neoclassical theory dominates the economics curriculums and there is never time or need to present other viewpoints. It is time to seriously rethink how the economics is taught, because students working only with mainstream economic tools forget to ask broader questions. They do not know as Thompson (1997) stated, that the capital cannot be measured; that utility is metaphysical; that optimisation is non-falsifiable; that capitalism is inherently unstable. Or that, as Ricardo discovered, when we say 'supply and demand' we are explaining nothing (Dobb, 1975).

Today economic students should study applied mathematics and statistics, sociology, history of economic thought, psychology, statistical physics and political science. The paradigm won't give away until there is one to replace it. What we need is not reformed neoclassical economics, but rather a new approach. As you can see it is not easy to be a good economist.

I will close this section with the letter of French graduate students in economics, in a manifesto, criticizing their academic education in economics naming it as "autistic" and "pathologically distant from the problems of real markets and real people":

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