Chapter 21
Financial Contagion in a Glance: Using Business Network Contagion Patterns

Bradut-Vasile VG Bolos
University of Buraimi, Oman

ABSTRACT

The purposes of this chapter are: to provide an overview over usage of financial contagion in detecting crisis; to provide a conceptual framework for investigating financial abnormalities and their potential spread; to provide a taxonomy for financial abnormalities; to provide a taxonomy of transmission channels for economic and financial abnormalities. The approach of this research is largely based on adaptation of medical sciences research to economic research, mainly the adaptation of Epidemiology to economic sciences. The chapter provides means for investigating in a systematic way cases of abnormalities like cascade business failures, cascade regional or national level economy recession based.

INTRODUCTION

Within the economic history there are a significant number of crisis situation either restricted to a sector level, or beyond, spreading to a region, country or even international level. Such occurrences have been sometimes documented and researched, sometimes not. Known cases start with the tulip mania in Netherlands in 1637, and end with the latest financial crisis in 2014 in Russia. Some occurrences are localized while others, like the Global financial crisis in 2007-2008 have wide global effects.

While confronted with crisis, the governments use a wide variety of means to help absorbing the subsequent shocks. Macro stabilization, fiscal measures, subsidies, laws, special funds and institutions have been created in order to deal with crisis situations. Some cases have quite a significant post-factum research done by researchers, government bodies or international organizations. The means of dealing with economic shocks are widely debated, as each new crisis seems to overcome or ignore existing prevention policies while the results of the intervention policies may be damaging by themselves.

When researching crisis situation, the researchers are confronted with an immense challenge. First of all data availability and the access to it seems to be an ever-present issue. Company re-

DOI: 10.4018/978-1-4666-9484-2.ch021

cords, especially for bankrupt companies, may be unavailable and distorted by administrators trying to cover-up unethical or unlawful practices in order to avoid responsibility. Statistic data is available only after a long period of time, and may also be distorted by governments attempting to keep the financial markets available.

As crisis always varies in location, size, economic branch, and as they are low frequency occurrences, it is highly difficult to use scientific methods in order to demonstrate the positive effects of policies and measures used.

In an attempt to find a sound scientific method for future economic crisis research, this chapter is based on the theory of systems, and on the assumption that there is a similarity regarding certain behavior patterns of systems. For this purpose the assumption made is that humans seen as systems generate human groups systems. So, patterns regarding humans seen as systems may be used to model patterns of the society seen as a system.

The advantage of such an approach is that there is a huge statistical population of humans, while the statistical population of social groups is much smaller. So, to some extent, the assumption is that a disease in humans may have a correspondent in a social disease. As diseases in humans are researched by medical sciences, the logic conclusion is that we need to use medical sciences as a source of subsystem patterns in behavior. When studying transmission of economic systems abnormalities, the best medical science source is Epidemiology as its focus is the transmission of diseases within human population. Actually even the expression "financial contagion" uses the assumption of an epidemic behavior.

So, within this chapter we focus on using some epidemic patterns in order to find possible crisis development patterns.

BACKGROUND

The economic system is a highly complex system generated by humans and including humans as parts. Humans themselves can be defined as systems. In a systemic approach, humans are subsystems of the economic system. While researching the transmission of diseases among humans one of the issues that are noticeable at the beginning are the variability of humans in size (height, weight), gender (male, female), race, food habits, religion and subsequent behavior, feeding habits, sleeping habits, education, work, exposure to environment, and the list can go on, down to genetic level differences. Humans as systems are themselves highly complex systems, programmed to some extent by their DNA, to some extent by education, to some extent by individual experience to behave in a certain way. The environment humans are facing is also immensely complex. A disease defined as an abnormality occurring within a human, can have a wide variety of causes, and determining them is not an easy process.

Some abnormalities in humans have damaging effects, being defined as diseases. As there are many humans, such abnormalities sometimes can be found in large number of humans, creating identifiable patterns. Flue, cancer, cold, diabetes, beriberi, plague, AIDS, and all other diseases are patterns of human body behavior. There are also other abnormalities, which do not damage the body such as abnormal memory, abnormal height or muscle mass. Medical sciences are divided into sub-sciences that research such diseases and their cure. There is a science that researches the transmission patterns of diseases among human population, the Epidemiology.

Epidemiology as a science is a relatively new topic in medicine. It already is connected