A MASS PSYCHOLOGICAL PERSPECTIVE ON FINANCIAL MARKETS

Thomas Fenzl, Dr.
Alpen-Adria University Klagenfurt, Austria
Thomas Brudermann, Dr.
Karl-Franzens University Graz, Austria
Constantin Malik, Dr.
Malik Management Zentrum St. Gallen AG, Switzerland
Linda Pelzmann, Univ.Prof., Dr.
Alpen-Adria University Klagenfurt, Austria

Abstract

Numerous research works indicate that the cycle of boom and crisis can be regarded as a natural element in financial market history. On the other hand, there is a rich discussion among practitioners and academics on the origins of the recent global economic and financial crisis, which led the world into the deepest and most severe downturn since the Great Depression in the 1930s. An explanation solely based on the collapse of the U.S. housing bubble and its effects seems far too short-sighted. In addition to economic elucidations and rationalizations, there are also behavioral and socio-economic explanations, which take into account the powerful social and psychological forces at work in financial markets. This article approaches the discussion from a mass psychological perspective. Starting from the shortcomings of mainstream economic approaches in predicting market trends and their underlying trading behavior realistically, the paper elucidates postulated mechanisms behind mass phenomena and provides a concise review of literature on collective dynamics in financial markets. We then delineate previous research on the distinction between mass phenomena and attempt to transfer this theoretical framework to financial markets. Consequently the final section discusses directions for future research to extend the foundations of the theoretical frame of reference.

Keywords: financial markets; mass phenomena; consumer behavior; savings behavior; debt; socio-economic trends

1. Introduction

A total of over forty-five different major crises in various regions of the world, which resulted from preceding euphoric and speculative booms in some market activity and which spread either locally or internationally, have struck the markets since the beginning of the seventeenth century (Kindleberger, 1978/2005; Galbraith, 1994). Historical examples include the Dutch Tulip Bulb mania in 1636 and 1637, the Mississippi / South Sea bubble, which peaked in 1720, the late 1920ies stock market mania or the New Economy bubble from 1995 to 2000. The review of financial market history indicates that recurrent episodes of speculative booms and their reversals in the form of crashes and panics can be regarded as a natural element in financial market history.

Compared to the crises and recessions observed in the past decades, such as the banking and loan crisis of the 1980ies, the Asian crisis in the 1990ies or the collapse of the Dot.com bubble in March 2000, the recent crisis reflects the deepest and most severe financial and economic crisis since the Great Depression in the 1930s. Hence, there is an extensive discussion among practitioners and academics on the origins of the recent global crisis. In addition to economic elucidations and rationalizations, there are behavioral and socio-economic explanations, which take into account the powerful social and psychological forces at work in financial markets. For example, Shiller (2008) draws the attention to the process of social contagion and Deutschmann (2008) views the recent financial crisis in light of long-term structural socio-economic changes in advanced industrial societies.

This article approaches the discussion from a mass psychological perspective. Starting from the shortcomings of mainstream economic approaches in predicting market trends and their underlying trading behavior realistically, section 2 of our paper elucidates postulated mechanisms behind mass phenomena and provides a concise review of literature on collective dynamics in financial markets. We then delineate previous research on the distinction between mass phenomena in section 3 and attempt to transfer this theoretical framework to financial markets in section 4. This part of the paper specifically addresses the question, whether the events related to the recent global crisis can be characterized applying the concept of first and second order mass phenomena (Fenzl, 2009; Malik, 2010). Importantly, the presented framework is intended to serve as a starting point for upcoming work in this area. Consequently the final section discusses directions for future research to extend the foundations of the theoretical frame of reference.

2. Theoretical background and state of the art:

2.1 Failure of traditional economic and financial models

The mainstream economic approach in asset pricing, which crucially depends on utility maximization and rational expectations of a so-called "homo oeconomicus", can neither explain why asset price bubbles and overreactions in short-term market price movements arise in first place, nor rule them out in general (Stracca, 2004). Populated with rational market participants an economic market does remarkably well in coordinating and integrating the efforts of millions of self-serving individuals. However, numerous research works in Behavioral Finance have provided convincing evidence that financial market prices spend far more time deviating from the theoretical equilibrium postulated by the efficient market hypothesis (EMH) than actually tending towards it (Thaler, 1992; Shefrin, 2000; Shleifer, 2000; Prechter and Parker, 2007). Nonetheless the EMH has remained the prevailing paradigm in financial markets for many decades and some representatives of the standard economic approach to financial markets plea for sticking to market efficiency. They argue that abnormal returns are chance events, that overreaction to information is about as common as underreaction, and that apparent anomalies, which are reported with statistical significance, are most likely no more than methodological errors and disappear with reasonable changes in technique (Fama, 1998).

On the other hand, Shiller (Shiller, 1984; 1990; 2000; 2008), Shleifer (2000), Prechter and Parker (2007) and others present several reasons why traditional economic and financial theories often fail to explain and predict financial market trends and their underlying trading behavior realistically. The two predominant aspects are that the mainstream approaches do neither pay enough attention to psychological aspects of human behavior, such as systematic cognitive biases in the intuitive judgment of financial risks (Kahneman, Slovic and Tversky, 1982; DeBondt and Thaler, 2002; Gilovich, Griffin and Kahneman, 2002), nor to social issues.

2.2 Social influence: the impact of others

The second aspect, which our work focuses on, includes the fact that market participants are socially embedded in an environment, which influences their decisions, behaviors and preferences; vice versa this environment is also affected by their actions and choices. Individuals do not just interact with their environment, which includes other individuals, groups of individuals, the collectivity and other entities, but their interactions have consequences for the choices they, and others, make. As a result of these interactions people adjust their behavior to the behavior of friends, peers, family and other acquaintances in their social environment, or even to models provided by the mass media (Cynamon and Fazzari, 2008). This is particularly true when environmental complexity is overwhelming and when individuals have little or no experience and information. Even in everyday life we often choose cars, fashion, stores and restaurants depending on how

popular they seem to be among others around us. Hence, what we often observe in economic behavior is not necessarily utility-maximization or rational choice on the micro-level, but behavior that depends on what others are doing or on how others are expected to behave and decide.

Figure 1: 3-year-chart for West Texas Intermediate Crude Oil
(**Source:** OnVista Media GmbH http://rohstoffe.onvista.de, 17th January 2009, Data: Interactive Data Managed Solutions AG)

Already Keynes (1936) suggested in his metaphor of the market as "beauty contest" that traders often behave in the very same way in asset markets. Most notably Shiller (1984) pointed out that market speculation is a social activity, as investors spend a substantial part of their leisure time discussing investments, reading about investments or gossiping about others' successes or failures in investing. Consequently it's often not facts and fundamentals, which drive market prices, but rumors, speculations and people's expectations on future trends. This fact can best be illustrated with the considerable price movements of crude oil after the collapse of the U.S. housing bubble in July 2007: The market price for West Texas Intermediate Crude Oil (WTI) reached a new record high of over US$ 140 in summer 2008 on the New York Mercantile Exchange (NYMEX) before the price tumbled within a short period of time to new bottom territories (see figure 1). Fundamental data on crude oil consumption, supply, production and deposits did not sacrifice such irrational price movements in either direction.

Hence it is a fallacy to argue that "financial" markets are efficient and that trading behavior of people is rational all the time and under all circumstances. Instead market prices are often driven away from fundamental values at least for some time (Prechter and Parker, 2007).

Particularly when a market gets crowded with traders and investors, whose focus is not on what an asset will produce but what the next market participant will pay for it, an asset becomes worth whatever you can sell it for.

2.3 Micromotives and macrobehavior

Moreover one has to consider that individuals may belong to a collective, which they possibly do not understand and sometimes do not even notice at all; comparable to a community of ants, which builds an architecturally impressive anthill in the collective although not a single individual ant intends that. In a similar way humans often show collective behaviors which exceed the horizon of an individual. In particular, individual incentives and the micromotives of millions of people, who exert social influence on each other through interactions in the environment, may lead to collective results that the individuals neither intend nor need to be aware of. For example a bank run, in which people believe that a bank is on the verge of insolvency and hurry to withdraw their deposits, may cause a bank failure, although there is no universal desire for the bankruptcy of the bank.

The aggregation of this type of behavior often entails dynamics that cause exuberant rise or fall in market prices. What goes on in the hearts and thoughts of millions of traders and investors, who participate in financial markets, often has little to do with the massive results that they can generate. Financial market panics, where securities and other assets are being sold on a massive scale, are such an example. Behavior which appears rational for the individual creates danger to the entire community, as attempts made by individuals to save themselves contribute to everyone's downfall. Such situations, in which individual choices and actions depend on the choices of other people, don't permit any simple summation or extrapolation to the aggregates. This is an often little-understood point not only in financial markets but also in many other settings where social dynamics emerge. In particular financial market booms and crises are aggregate results that often have no recognizable counterpart at the level of the individual, making them hard to unveil at an early stage. In order to make the connection between micromotives and macrobehavior in such situations one has to study the system of interactions between individuals and their environment, which includes the interactions between individuals and other individuals as well as between individuals and the collectivity (Schelling, 1978/2006). Consequently the macrobehavior associated with recurrent patterns of asset prize bubbles and crashes has micro-foundations, which among others involve heterogeneous propensities to herd as well as interdependency of speculative behavior on the individual level.

2.4 Herding behavior

In the attempt to explain the phenomena of synchronized exuberant rise and fall in financial market prices and the underlying behavioral patterns of traders and investors, the concept of herding has been established in Behavioral Finance over the past decades. The essence of herding is that unconscious herding impulses sensed by market participants in situations of uncertainty, which are reinforced by strong affective feelings produced in the limbic system and which have evolutionary origins, lead to mass psychological dynamics in the patterns of human aggregate behavior, which produce non-mean-reverting dynamism in financial markets (Prechter and Parker, 2007). The disagreement of mainstream economists on whether empirical research has failed to provide convincing evidence of herding in financial markets can be contrasted with the works of Scharfstein and Stein (1990), Trueman (1994) and Welch (2000). More recent evidence for the theory of herding is provided by the works of Prechter and Parker (2007), Sias (2004) or Blasco and Ferreruela (2008). And Menkhoff and Nikiforow (2009) even found in their investigations that herding is by far the strongest behavioral finance effect perceived by professional fund managers, regardless of whether they are endorsers or non-endorsers of Behavioral Finance.

However, aggregate outcomes in the social sciences (e.g. product hypes, mass hysteria, riot or revolt, etc.) involve not merely a sufficient number of market participants following a herding impulse. In particular they often entail complex social dynamics, which are among others based on the propensities for emulation and other-directedness in human behavior, and which imply contagion processes. The research on Mass Psychology (Le Bon, 1895/1982; Canetti, 1962/1984; Pelzmann, 2002), an important sub discipline of Social Psychology, accounts for this fact, that is, individuals exert social influence on each other through interactions in the environment. Moreover Mass Psychology considers that people may belong to a collective, which they possibly do not understand and perhaps do not notice at all. Hence the concepts of Mass Psychology can play an important part in the description of the emergence and of the dynamics of asset price bubbles and financial market crashes. Several postulated mechanisms behind, and specific characteristics of, mass phenomena are briefly outlined in the following two subsections.

2.5 Other-directedness and emulation

People have a strong tendency to behave other-directed and to emulate other people's behavior, meaning that they use other people's behavior to align themselves and to evaluate what is correct or prudent in a particular situation, where the best course of action is unknown. This proposition, which implies that contemporaries and peers are an important

source of direction for the individual, has a solid backing in social psychological theory and research, ranging from conformity experiments (Asch, 1951) and the concept of other-directedness (Riesman, 1961/2001) to the social comparison theory (Veblen, 1899/2002).

Especially in the financial market setting, where risk and uncertainty are pervasive and cause increased emotional arousal, many traders and investors tend to become other-directed and act on or react to other people's behavior while facts and fundamental data become negligible and irrelevant. They often act along the lines: everybody else can't be wrong. The application of this behavioral rule is not irrational but "ecologically rational" to the degree that people are using the structure of information provided by their environment (Pelzmann, 2005). As a consequence genuine individual decision-making processes on investment and trading are often displaced by responses to other market participants' behavior. Thus people's behavior and actions relate directly to other people's choices, dependent on perceived risk. The higher the uncertainty and the greater the arousal in a situation, the more market participant's choices, actions and reactions depend on the behavior of other traders and investors. Shiller (1990), for example, found in his investigation of the crash on Black Monday in October 1987 that in absence of any relevant news and under the influence of increased emotional arousal traders simply overreacted to each other, trying to figure out what the others are doing or what they are likely to do. Even professional money and portfolio managers, financial analysts and institutional investors may follow others in such an environment and select stocks that others select to avoid falling behind and looking bad (Trueman, 1994; Shleifer, 2000; Welch, 2000; Sias, 2004; Menkhoff and Nikiforow, 2009).

However, according to Schelling (1978/2006) we have to be aware of the fact that it is not necessarily constraints of conformity that account for assimilation and adaption to other peoples' behavior. It often simply is the observed result or outcome of the application of a certain behavior by others, their triumph or their failure, which makes people decide one way or the other (Fenzl and Brudermann, 2009). Moreover, the propensity for emulation is – with the exception of the instinct of self-preservation – probably the strongest, most alert and persistent motive in economic behavior (Veblen, 1899/2002). Among others this tendency in human behavior is caused by people's concerns about their social status, which is a signal of non-observable abilities. Keynes (1936) grasped this aspect as a rational motive for herd behavior, when he mentioned that worldly wisdom teaches that it is better for reputation to fail conventionally than to succeed unconventionally. For example emulation leads to a trend in consumer behavior towards conspicuous consumption, since the consumption of more excellent goods serves as a signal of wealth. Similarly emulation is one of the driving forces

behind mass psychological dynamics in financial market behavior. This suggestion is supported by the fact that money derives its origins not only from the search for a means of exchange but also from people's aspiration towards reputation and prestige (Schmoelders, 1996). Hence perceived success or failure in investing, which results from capital gains and losses, becomes an essential signal among market participants, as traders habitually gossip about others' trading successes or failures.

2.6 Social contagion

Social influence on, and contagiousness of, behavior and behavioral attitudes play an important issue in the formation of aggregate outcomes in the social sciences; they are central to mass phenomena (Schelling, 1978/2006; Shiller, 1984; Pelzmann, 2002; Dodds and Watts, 2004; Salganik, Dodds and Watts, 2006; Salganik and Watts, 2008; Brudermann and Fenzl, 2010). Contagion processes can be found in very diverse phenomena, such as the diffusion of innovations (Bass, 1969; Rogers, 2003), the spread of fads and rumors (Banarjee, 1992; Bikhchandani, Hirschleifer and Welch, 1998; Kelly and O'Grada, 2005), the outbreak of political or social unrest (Granovetter, 1978), and many others. Latest findings in the research on societal trends and behavioral traits suggest that contagion processes even appear to be relevant in health and health care (Fowler and Christakis, 2008; Smith and Christakis, 2008).

Social contagion is the transmission of social or psychological influence in direct or indirect contacts between individuals and their environment. The essence of a social contagion process is that susceptible individuals are influenced by the preferences, behavioral attitudes or the behavior of other people in single or multiple social interactions; as a result they adopt a certain behavioral pattern or refrain from doing so, depending in part or in whole on the previous or expected choices and actions of others.

Behavioral Finance has identified contagion as one of the underlying mechanisms of booms and panics in financial markets, where contagious entities such as rumors, profit expectations, trading rules and others are transmitted via social interactions. Shiller (1984, 2000, 2008) eminently emphasizes the impact of social contagion processes on the synchronization of trading behavior. Contagion is of particular importance from the mass psychological perspective, since it is not restricted to cognitive processes but may also include emotional contagion. In this process individuals and groups of individuals influence each others' emotions or behavior in social interactions through the conscious or unconscious induction of behavioral attitudes and emotion states (Barsade, 2002). Hence the concept of contagion can provide an explanation for the rapid diffusion of euphoria and fear among individuals in the financial market setting, where pervasive uncertainty leads to increased emotional arousal, and where other-directed

market participants continuously monitor the behavior and consequences of actions of others in the environment.

3. Theoretical framework: first and second order mass phenomena

Our contribution to a socio-economic understanding of the recent global economic and financial crisis originates from previous research on the distinction between mass phenomena. In particular we present an existing concept in mass psychology in this section, which we will apply to financial markets later in the paper.

Already in the early beginnings of the investigations of mass movements and crowds Le Bon (1895/1982) recognized the distinct meaning and differing impact of visible and invisible mass phenomena. He found that the remarkable historic events are visible and recognized impacts of invisible and unrecognized shifts in human thinking, which take place over the long haul. For instance the biggest historic shocks, which led the way to cultural transformations, seem to be determined by revolt, destruction, invasion and others. The French revolution at the end of the 18th century is such a pattern. A proper investigation of these remarkable historic events however reveals gradual but substantial changes in people's ideas and thinking as their true causes. In the case of the French revolution these changes are reflected by a new set of ideas and values originating from Enlightenment, which already peaked in the mid 18th century. Nonetheless it took almost another half century until apparent revolt and unrest emerged as a visible consequence.

Based on the studies of Le Bon and on the analysis and investigation of numerous mass phenomena in the social, political and economic context, a distinction between subtle, unrecognized first order mass dynamics and their visible and recognized outbreaks in the form of second order mass phenomena can be drawn (Fenzl, 2009; Malik, 2010). First order phenomena continuously shape and influence human thinking and social mood trends and thus determine the character of social actions manifested as economic, political, or cultural events. Second order mass movements, which compared to first order phenomena only last for a rather short period of time but usually produce an intense and visible effect, include phenomena such as political revolution, revolt, mass hysteria, and others.

To give an overview of the concept of first and second order phenomena, we developed following conceptual scheme (see figure 2):

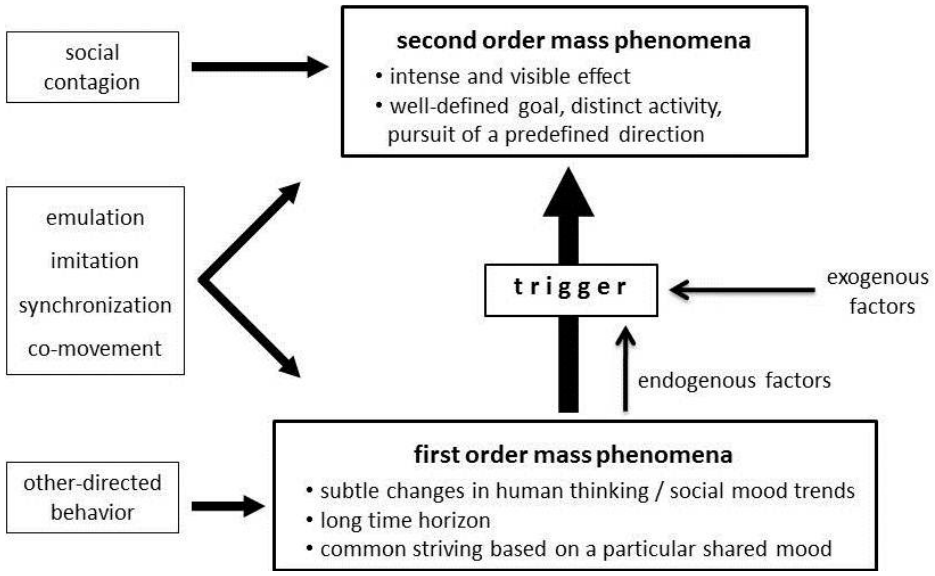

Figure 2: The concept of first and second order phenomena

The postulated mechanisms underlying second order phenomena include other-directed behavior, emulation and imitation, synchronization of individuals and co-movement (Fenzl, 2009; Malik 2010). They have been discussed in the previous section.[55] First order phenomena partly entail the same mechanisms, but they also involve several other mechanisms and properties, which are non-existent in second order phenomena:

- Long time horizon: Changes in social mood or human thinking due to the dynamics of first order mass phenomena typically evolve slowly over a long period of time. By contrast the intense and visible effect produced by second order mass phenomena takes place within a comparatively short timeframe.
- No pre-defined goal or direction: While the primary focus of interest in a second order phenomenon usually is a well-defined goal, a distinct activity or the pursuit of a predefined direction (e.g. selling shares immediately, escaping the fire, overthrow of the dictator, deportation of the Jews, etc.), the common striving in a first order phenomenon is based on a particular shared mood and/or a gentle, slight and abstract idea (Malik, 2010).
- Subtle change in social mood, missing awareness: First order phenomena generally involve a shift in social mood or human thinking, which most people are usually not consciously aware of (Fenzl, 2009). A better

[55] For the further purpose of this paper we already discussed these mechanisms with respect to the financial market setting in the previous section.

understanding of the missing awareness for first order phenomena can be attained by considering following example: A frog is placed into a bowl of water with room temperature. When the water is heated up considerably all of a sudden, the frog will instantly jump out of the bowl, as he perceives the imminent danger. If the water however is heated up slowly but steadily, the frog will not recognize the life-threatening condition and will be boiled alive.

By way of illustration the two kinds of mass movements can be compared to the waves of the ocean (Malik, 2010). The shorter and smaller waves, which break, have a white crest and attract our attention, correspond to second order mass phenomena. The longer, bigger and less violent waves, which continuously shape and define the character of the sea, correspond to first order mass phenomena. Similar to the long waves of the ocean these phenomena often serve as hotbed for second order mass movements, as already indicated in the example of the French revolution.

Importantly, not every second order phenomenon is driven by an underlying first order phenomenon. For example a fire in a soccer stadium may cause a panic among the crowd of visitors, although there is no underlying first order dynamics. While the first order phenomenon usually sets the stage for a second order phenomenon, the presence of an endogenous or exogenous trigger eventually provokes the visible outbreak. An example is National Socialism in Germany, which was initially propelled by disastrous sentiment and discontent in the German public. Germany had to overcome its defeat in World War I and people were confronted with bleak future economic prospects as well as poor living conditions. Additionally anti-Semitism, which emerged in the aftermaths of the "founders' crash" at the end of the 19th century, took on greater significance (Hanloser, 2003).[56] The combination of the depressed public mood as the first order phenomenon with the appearance of a new political leader, who promised a better future and a superior German identity, triggered one of the most fatal political mass movements in history; a second order mass phenomenon that eventually resulted in World War II and the holocaust.

4. First and second order mass dynamics in financial markets:

In this section we address the question, whether the concept of first and second order mass phenomena may be applied to advance the understanding of the recent financial and economic crisis and its underlying

[56] The period after the "founders' crash" or "Gruenderkrach" in 1873 is also known as the "Long Depression" and shows some astonishing parallels with the crisis of 2008, for example a boom resulting from market liberalizations, over-expansion in credit markets as well as flawed collateralization and a financial market panic accompanied by bank runs and dried out capital markets.

processes. We therefore firstly discuss socio-economic developments in the past decades. In a second step we analyze if the concept of first and second order mass phenomena is applicable to financial markets and to which degree.

4.1 Socio-economic developments

When looking at prevailing socio-economic trends in the past decades, first and foremost a significant increase in private consumption can be observed in western industrialized countries. Global consumption rose by 28% in the 10-year-period from 1996 to 2006 and even tripled since 1960 in due consideration of population growth (Worldwatch Institute, 2010). The trend was eminently distinct in the United States, where domestic consumption not only became the major economic engine but also reduced the severity of recessions in the past decades (Cynamon and Fazzari, 2008; Keen, 2009). Importantly, one has to keep in mind that the increase in consumption evolved rather slowly, with an average annual increase of 2.5% during 1996 and 2006.

As Yamada (2008) points out, accumulation of capital is seriously hampered in an economic setting, where consumers have status preference and where the economy is characterized by consumerism and a bandwagon type social norm. His research points the direction to another socio-economic trend coming along with the increase in consumption, namely a significant shift in savings behavior, which brought about a private household debt binge. For example, the average U.S. personal savings rate had slowly turned into negative territory starting from +9% in the mid 1980s while the U.S. household mortgage debt gradually decupled during the past three decades[57], as depicted in figure 3. Simultaneously the U.S. private household debt to Gross Domestic Product ratio had risen from around 50% in the mid 1980s to its peak of 98% in 2008. However, private household debt did not only surge in the United States but also in many other developed countries of the world, for example in the UK or Australia (Girouard, Kennedy and André, 2006; Keen, 2009). This unrestrained accumulation of debt in private households, which led to the highest private debt to income ratios in decades, was favored by the constant relaxation of standards in bank lending, which will be discussed in section 4.3.

[57] Meanwhile the number of households in the U.S. had only risen from around 80 million in 1980 to about 111 million households in 2007.

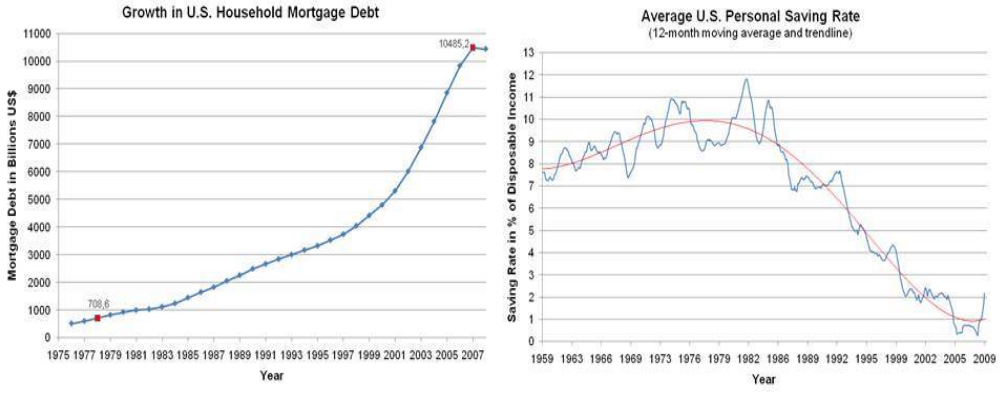

Figure 3: U.S. household mortgage debt and U.S. personal savings rate
(**Data:** Federal Reserve Board http://www.federalreserve.gov)

To sum up, the most prominent socio-economic trend during the last decades involves a continuous process of change in consumer and savings behavior. Traditional savings behavior and conventional consumer behavior were gradually and slowly replaced by a subtle trend in society towards conspicuous consumption and living on tick, which strengthened steadily in many advanced industrial countries and throughout various social classes in the past century. For the benefit of signaling status and wealth to ones social environment by consuming more excellent goods, and conversely for avoiding the failure to consume in due quantity and quality, more and more people accepted progressively rising financial burden.

4.2 A growing crowd of speculators

Another long-term development is reflected by the dynamics of a growing crowd of speculators flooding financial markets. The middle class has already been heavily involved in financial market speculation since the nineteenth century (Kindleberger, 1978/2005) and originally benefitted from the postwar booms in the past century. However, caused by the progressive globalization of financial markets as well as the achievements of modern trading and information technologies and due to structural socio-economic changes in society evermore people crowded the markets with the intention of increasing their capital and wealth. In particular due to a structural upward social mobility the upper social classes enlarged within advanced industrial societies, while the lower classes diminished (Deutschmann, 2008). As a consequence the volume of financial assets looking for profitable investments rose as the social reservoir of solvent debtors – hard working people longing for social advancement – and promising investment opportunities declined. Deutschmann (2008) concludes that this trend negatively affected the middle class and impelled capital market instability in the past decades.

Moreover, the vast majority of people lose when they trade and speculate in stock markets. While the market boom is under way, they feel unconfident about the trend and behave risk-aversive, that is they refrain from buying stock, constantly trade in and out or buy too late and too high. By contrast they often panic too late in a crash and then behave loss-aversive and hold losing assets too long, hoping that the prices will rebound anytime soon, eventually leaving the markets with huge losses. The psychological principle, which primarily accounts for this kind of trading behavior, states that "losses loom larger than gains" and derives its origin form Prospect Theory (Kahneman and Tversky, 1979). Shefrin and Statman (1985) place the behavioral pattern of selling winners too early and riding losers too long into a wider theoretical framework, which includes mental accounting, regret aversion, self-control and others.

In contrast to the more experienced investors, who made huge profits during the boom-bust cycles of the past decades by entering and leaving markets at the right time, a large population of "amateurs" lost a fortune or even went bankrupt from investing and trading in stocks and funds. To make up for their losses, some of them even took out loans and mortgages to finance future financial market speculations, which often resulted in even higher losses and increasing financial burden. Similarly, Keen (2009) suggests that borrowing to finance speculation on asset prices, rather than productive investment, was the overwhelming purpose of the growth in household debt since 1990, not only in the United States but also for example in Australia or the United Kingdom. Eventually, this pattern, which could be observed during the boom-bust cycles in financial markets of the last 25 years, did not only result in a massive redistribution and extinction of personal wealth, but also contributed to the accumulation of debt in private households.

4.3 Availability of credit and the illusion of economic long-term stability

So far only the borrowers' and speculators' side has been highlighted in our discussion. But the trends towards undersaving and conspicuous consumption, which led to unrestrained accumulation of debt in businesses and private households, would have been impossible without generous practices on the side of the credit giving actors and institutions. In particular the financial system tended to provide as much credit as businesses and private households were willing to accept (Keen, 2009). Generous credit-creation practices of lenders were encouraged by the policies applied by national banks and governments during the periodic financial crises of the past decades. The research of Keen (2009) suggests that by rescuing Wall Street from its excesses in 1987 and thus forestalling a mild depression back then, the Federal Reserve set up the scene for a far more serious problem. Crisis management during the Asian crisis, the collapse of the dot.com

bubble and in the most recent crisis rather intensified this problem than contributing to its solution. In particular, crisis management by central banks and governments during the periodic financial crises of the past decades primarily focused on regaining growth in markets as quickly as possible and on preventing a breakdown in the financial system.

Conversely, discontinuing the gold-standard for the U.S. Dollar in August 1971, continuous removal of barriers and restrictions in financial markets, gradual lowering of collateral standards during the past decades (Heinsohn, Decker and Heinsohn, 2008) and very low official discount and prime rates by the largest central banks of the world as well as economic stimulus packages impelled a subtle long-term development, which may be characterized by the following aspects: Firstly, risk-awareness among market participants was reduced and a shift in human thinking was promoted, as people became convinced that the economy and financial markets had entered an extended period of stability. Secondly, markets were supplied with cheap capital for new speculations while the moral hazard phenomenon in financial institutions was encouraged, as market players' expectations, that is to say they expected to be bailed out in case of a crisis, repeatedly got confirmed. And thirdly, the applied policies and measures led to a long-term trend of expansion of credit and thus favored the accumulation of debt. Increased availability of credit and social dynamics in consumer behavior seduced more and more people to buy, consume and live on tick.

4.4 Socio-economic trends as a first order phenomenon

In a next step our work attempts to establish the bridge between the properties of first order mass phenomena and the interrelated socio-economic trends and developments discussed above. Referring to the underlying mechanisms of first order phenomena, we argue that people's concern about their social status coupled with the propensity for emulation in human behavior entail some kind of "social competition". This competition elicited and intensified this subtle trend towards conspicuous consumption and living on tick over the past decades. Research on the Economic Psychology of debt supports this suggestion. For example, Livingston and Lunt (1992) and Kirchler, Hoelzl and Kamleitner (2008) argue that consumption, savings, and indebtedness patterns of individuals and private households cannot fully be explained solely based on economic criteria, e.g. disposable income. Psychological and social aspects have to be taken into account as well. More specifically there is evidence that the tolerance and prevalence of debt and credit use in ones social environment considerably influence a person's debt status (Lea, Webley and Walker, 1995). Debtors, for example, describe themselves as being in a social environment where debt is more common and more tolerated. Likewise households often imitate the consumer behavior they observe in their social reference – neighbors, co-workers, friends,

relatives, etc. – and in reference models provided by mass media (Cynamon and Fazzari, 2008).

As in the shift in consumer and savings behavior, the underlying mechanisms of first order phenomena can also be found in the slowly emerging mass speculation: Blinded by the prospects of high profits as well as triumph and prosperity of others in their environment, more and more other-directed people entered the stock markets emulated other participants' behavior. They simply followed others, although the inherent risks were widely unknown and unfamiliar to them. Importantly, people often take such non-rational financial risks not only due to overconfidence and an unrealistic appraisal of consequences of their behavior (Friedman and Savage, 1948), but also due to a lack of awareness, which is an important property of the dynamics of first order mass phenomena.

Additionally the discussed socio-economic trends and developments also reflect other properties of first order mass phenomena: their time horizon was rather long, changes in human thinking and behavior happened slowly and subtle[58] and a pre-defined goal or direction cannot be recognized. What it all amounts to is that conventional consumer, savings and investment behavior were gradually replaced by subtle trends in society towards conspicuous consumption, living on tick and mass speculation. Most traders, consumers and policy makers did not consciously recognize these changes, since they took place rather slowly. The combination of these societal trends and behavioral patterns on the micro-level with increased availability of credit, particularly to low and middle income households, and weak crisis management, which provoked the illusionary idea of economic long-term stability, led to the accumulation of debt in governments, businesses and private households. Therefore we postulate the presence of a first order mass phenomenon, which may be identified as the emergence of a "self-sustaining culture of indebtedness" on the macro-scale that eventually resulted in the formation and expansion of a "debt bubble".

Recalling the theoretical framework presented in this paper, long-term processes of change in human behavior and thinking may be linked to apparent mass phenomena that only last for a short period of time. Given the existence of a first order phenomenon, which may be related to the area of finance, we now may proceed with our work and identify corresponding second order phenomena in financial markets.

4.5 Second order phenomena in financial markets

Before identifying second order phenomena in financial markets, let's take a brief look at the common view of the financial market crisis of 2008-

[58] This is best illustrated by the average annual increase in global consumption being only 2.5% during 1996 and 2006.

2009. This view is closely related to the exuberant rise and fall in market prices in the U.S. housing bubble and its effects. Based on the expectation of continuously and rapidly rising housing prices in the United States, risk-taking by financial institutions was increasingly stretched out and a tumor-like boom in badly collateralized credits took place. The possibility of reselling the risks of these credits to other investors and traders using collateralized debt obligations (CDO) accelerated the growth in Subprime credits and earned financial institutions large profits. As a result badly collateralized securities were distributed nearly across the entire global financial system.

The collapse of the U.S. housing bubble at the beginning of summer 2007, when the annual growth rate of returns in the U.S. residential housing market, which is measured by the S&P Case-Shiller U.S. National Home Price Index, fell into negative territory for the first time after fifteen years of continuous positive annual growth (see figure 4), sparked off a downward spiral and led to panic reactions of trading participants. Partly through direct financial linkage and partly through psychology the crisis nearly seized the entire world. In a circular process a credit market crunch, negative reports, loss of confidence as well as financial market turmoil and slumping national economies were fueled by each other.

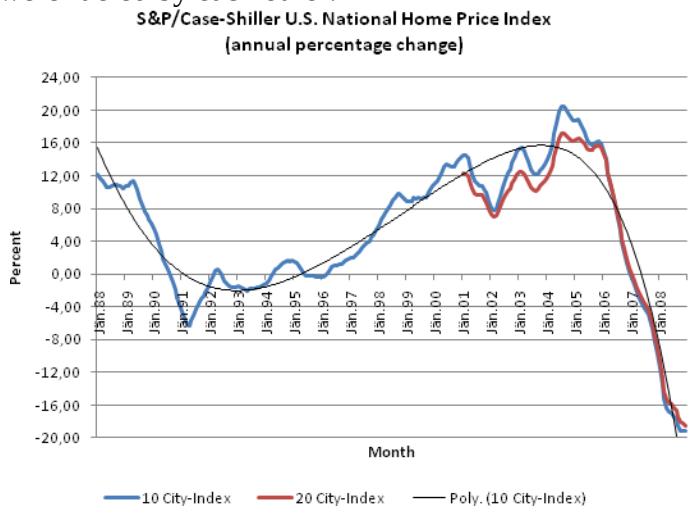

Figure 4: S&P Case-Shiller U.S. National Home Price Index
(**Data:** Standard & Poor's http://www.standardandpoors.com/home/en/us)

Keeping in mind the properties and underlying mechanisms of second order mass phenomena (see section 2), we find that the boom-bust cycle in the U.S. housing bubble involves visible mass dynamics, which we may consciously observe. The comovement phenomenon in financial markets (Barberis and Shleifer, 2005) refers to decreasing variance in behavior and illustrates the underlying dynamics of this kind of mass phenomena, in which

other-directedness of market participants and social contagion processes become apparent: prices continue to go up in a boom, because noise traders and speculators are chasing the trend. With the rising number of market participants asset prices raise as well, causing traders to become even more confident, bullish, euphoric and less picky. In such an environment their expectations strengthen that any stock will be profit-bearing and exuberant rise of market prices becomes likely. Likewise prices continue to fall in a crash because losses and bad news lead to panic reactions of trading participants and reinforce a downward spiral, where more and more traders leave the markets driven by an increasing desire to disown stocks and other assets.

Therefore we suggest that the boom-bust cycle in the U.S. housing bubble may be viewed as a second order phenomenon with obvious ramifications for many people. Amongst them were home-owners, who realized that their properties increased dramatically in value over the years, experts, who warned against the excesses in the housing market, and policy makers and governments, who even endorsed the housing hype and building boom. Likewise previous episodes of speculative bubbles and subsequent crashes– e.g. the oil crises of the 1970ies, the Mexico crisis in 1994, the banking and loan crisis of the 1980ies with the Black Monday on 19th October 1987, the Asian economic miracle followed by the Asian economic crisis in the 1990ies, the New Economy boom at the end of the past century with the collapse of the Dot.com bubble in March 2000 – may be identified as visible and recognized outbreak in form of second order phenomena in financial markets, as well. Their impact on stock market indices is depicted in figure 5, using the Standard & Poor's 500 Index as an example.

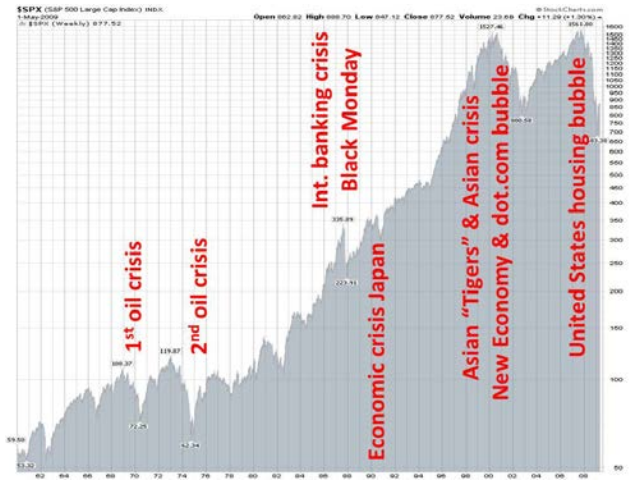

Figure 5: S&P 500 historical stock chart, 1960 – Present weekly
(**Source:** http://stockcharts.com/charts/historical/djia1960.html, accessed 28th June 2010, Chart courtesy of StockCharts.com)

4.6 Connecting first and second order phenomena in financial markets

The presented theoretical framework argues that it is unrecognized first order mass phenomena, which often set the stage for the visible outbreaks in form of recognized second order phenomena that eventually are triggered by exogenous or endogenous factors. The Financial Instability Hypothesis (FIH) (Minsky, 1975; Minsky, 1982), may serve as a bridge to set the connection between first and second order mass phenomena in financial markets. It argues that speculative booms in asset markets, which eventually lead to market crashes, start with a displacement and are fed by the expansion of credit. The displacement is a shock to the financial system and can take the form of the liberalization of new or emerging markets, the outbreak or end of a war, the adoption or the spreading of an innovation or of a new technology, and others.

Hence the endogenous or exogenous trigger in the theoretical framework may be compared to the displacement in the FIH. In fact, the dot.com bubble was triggered by the revolution of business models by means of the Internet. And the boom-bust cycle in the U.S. housing market was to a large extent linked to the most important financial innovations of the past decades (Longstaff, 2010), that is, collateralized debt obligations (CDO). Given these facts, the identified first order phenomenon, namely the culture of indebtedness and its accompanying debt bubble, which set the stage for the development of recognized boom-bust cycles in financial markets, may be viewed as a broader framing of the expansion of credit.

5. Discussion and open problems:

At this point we may return to the starting point of this paper and resume, how the mass psychological perspective contributes to the discussion on the origins of the recent global economic and financial crisis. Firstly the recent crisis is – at least in part – the result of long-term structural socio-economic changes in advanced industrial societies. And secondly our work suggests that the recent global financial and economic crisis marks the onset of the collapse of a debt bubble, which has been fueled over the last more than 25 years. Tremendous amounts of debt piled up by numerous countries in the aftermath of the recent crisis slowed down or temporarily stopped the escape of air out of the collapsing bubble. But they in turn may foster the onset of an even more severe future crisis by impelling the underlying culture of indebtedness, instead of remembering an essential guideline in market regulation stated by economist Lionel Robbins (1937) after the Great Depression: The prevention of the boom is the only effective method to avoid a depression. In due consideration of this guideline and of contemporary major problems facing humanity, like climate change and future scarcity of resources, policy makers will sooner or later have to accept

the challenge of strongly encouraging a shift from consumerism to sustainability in society. When doing so, they will not get around considering the psychological leverages outlined in this paper, which involve status seeking, conspicuous consumption and above all the prevalent sentiment in subtle first order and apparent second order mass phenomena.

Importantly, the framework presented in this paper is intended to serve as a starting point for future work in this area. Additional research is to be undertaken to back up the foundations of the concept of first and second order mass dynamics and, in further consequence, to establish the bridge between the theoretical framework and the phenomena in financial markets. A remaining difficulty in the concept of first and second order mass dynamics is to empirically test or determine the presence or absence of a first order phenomenon at an early stage. With respect to the recurrent episodes of speculative booms and crises in financial markets in the past decades we characterized a first order phenomenon at the descriptive level in the aftermaths of its emergence. However, further research is to be conducted to provide relevant empirical indicators for the alleged culture of indebtedness and for consumerism beyond general figures on disposable income, consumption, private savings and debt ratios, and others. When considering the findings of research in Economic Psychology, consumer sentiment as well as subjective norms on household financial and consumer behavior may be among the determinants. In addition attention should be devoted to the interplay between indebtedness behavior on the micro-scale and aggregate debt levels. However, when searching for empirical indicators, one has to keep the long temporal horizon of socio-economic trends and first order mass dynamics in mind. Hence an appropriate methodological design for the detection of first order mass phenomena will have to gather longitudinal data on patterns and trends in human economic behavior.

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