



University of Akureyri

School of Humanities and Social Sciences

Faculty of Social Sciences

May 2010

The Disenchantment of Mainstream Economics:

Behavioral Economics and The Icelandic Financial Crisis

Benedikt Sigmar Emilsson

&

Davíð Freyr Jónsson

Submitted for a B.A. degree of
The School of Humanities and Social Sciences



University of Akureyri

School of Humanities and Social Sciences

Faculty of Social Sciences

May 2010

The Disenchantment of Mainstream Economics:

Behavioral Economics and The Icelandic Financial Crisis

Benedikt Sigmar Emilsson

Submitted for a 180 ECTS B.A. degree in Social and Economic
Development

Davíð Freyr Jónsson

Submitted for a 180 ECTS B.A. degree in Psychology

Supervisors:

Dr. Joan Nymand Larsen

&


Dr. Ragna Benedikta Garðarsdóttir

Statements

a) "We hereby declare that we are the only authors of this assignment and it is the result of our own observations".

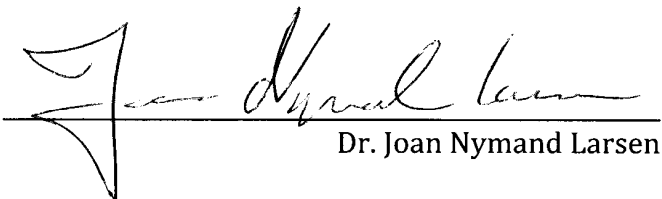
a) "Við lýsum því hér með yfir að við erum einu höfundar þessa verkefnis og að það er ágóði okkar eigin rannsókna".


Benedikt Sigmar Emilsson


Davíð Freyr Jónsson

b) "It is hereby confirmed that in my opinion this thesis satisfies the requirements for a B.A.- degree with the School of Humanities and Social Science".

b) "Það staðfestist hér með að verkefni þetta fullnægir að mínum dómi kröfum til B.A. – prófs við Hug- og Félagsvísindasvið".


Dr. Joan Nymand Larsen


Dr. Ragna Benedikta Garðarsdóttir

Abstract

This paper aims to explore a number of premises held by mainstream economics that might benefit from the insight provided by different academic fields, such as psychology and notably that of behavioral economics. That insight will be used, where applicable, to examine the Icelandic economic environment. Our findings indicate that policy making could improve from the view provided by behavioral economics, which appears to complement and enhance mainstream economics, resulting in a more pluralistic approach.

Útdráttur

Þessi ritgerð er ætlað að kanna og gagnrýna ýmsar forsendur sem hin ríkjandi hagfræði gerir ráð fyrir. Við sýnum fram á hvernig hagfræði gæti notið góðs af rannsóknarniðurstöðum úr atferlishagfræði (e. *behavioral economics*). Tekin eru dæmi úr íslenska efnahagsumhverfinu til útskýringar. Niðurstöður okkar renna stoðum undir þá skoðum að almenn stefnumótun muni eflast með því að taka mið af þeirri þekkingu sem atferlishagfræði hefur fram að færa, sem virðist geta auðgað hina almennt ríkjandi hagfræði og leiða til víðsýnni efnahagslegrar nálgunar.

Acknowledgments

We are very grateful for the wisdom and help we received from our supervisors Dr. Joan Nymand Larsen and Dr. Ragna Benedikta Garðarsdóttir. We would also want to thank Jón Sigurðsson, Ólafur Darri Andrason and Gísli Tryggvason for their honest interviews.

The writings of Joseph Schumpeter, Thorstein Veblen and John Kenneth Galbraith were the initial inspirations for this thesis.

Table of Contents

INTRODUCTION	2
1. THE ICELANDIC ECONOMIC ENVIRONMENT	3
2. BEHAVIORAL ECONOMICS.....	8
3. LIMITATIONS OF THE <i>HOMO ECONOMICUS</i>.....	13
3.1 RATIONALITY	14
3.1.1 <i>Heuristics</i>	15
3.1.3 <i>Anchoring</i>	21
3.1.4 <i>Prospect theory</i>	22
3.1.5 <i>Endowment effect</i>	24
3.2 MONEY ILLUSION	25
3.3 CONFIDENCE AND TRUST.....	30
3.4 HERD MENTALITY AND BAD FAITH.....	34
3.5 FAIRNESS AND HONESTY	36
3.6 ADVERTISING EFFECTS AND THE MEDIA	40
4. POLICY IMPLICATIONS	42
5. CONCLUSION	48
APPENDIX - INTERVIEWS	50
BIBLIOGRAPHY	55

Introduction

When trying to simplify the complex nature of humans and their interaction, economists might have gone a bit too far. In their quest for functional models, simplified assumptions were duly required, yet there is an emerging field of behavioral economics that draws upon psychological research in order to enhance and improve these assumptions without sacrificing the productivity of the economic models. In this paper we present the major research and findings in behavioral economics, compare them with dominant theories in mainstream economics, as well as provide examples of how they could be relevant to the Icelandic financial crisis.

We begin with a chapter that gives a general description of the Icelandic economic environment, in particular for the years around the financial crisis of 2008. Next we have a chapter about behavioral economics, its key players, the origins of the field and its major findings. In chapter three we explore the assumption of rationality and the limitations of economic actors. We introduce features of human behavior that psychologists have detected that appear to act against rational thinking, and provide examples of common rational errors that occur on all levels of everyday life. Chapter four discusses possible policy implications of advances in behavioral economics, as well as a more general pluralistic approach to economic policy. The concluding chapter of this paper reviews the major points of interest that we have introduced, stressing the importance of a more holistic approach to economic research and policy. Finally, we describe the interviews we took to provide a more vivid account of the Icelandic economic situation.

1. The Icelandic Economic Environment

The Icelandic economy has grown quite steadily since the end of World War II. In the sixties, the seventies and the eighties, GDP rose on average by 5% per year. Then the growth decreased in the last two decades but was still around 2,5%. Fishing has been the main industry in Iceland where sea products form over half of the nations exports. After fishing, aluminum is the second biggest export. In the late 20th century, systematic steps were taken to improve manufacturing processes and to reduce public expenditure. Domestic and foreign commerce was increased and financial markets established. Iceland joined the European Economic Area in the last decade of the 20th century and soon after a privatization process began. The government adopted a more *laissez-faire* policy and moved towards deregulation in the financial sector. The Icelandic national banks were sold in 2002 and 2003 while other public firms were privatized in the following years (for example the national phone company). The treasury got 184 billion ISK from the privatization process. Government used the prosperous time to pay off foreign debts. In the beginning and before the final privatization of the banks the government had sold small parts of the banks in restricted tender offers. Their plan was to have the ownership of the banks spread over many smaller investors. But in 2002 and early 2003 they diverged from that path and sold the rest of the banks to large investor groups¹. Some of the groups that took major hold of the three biggest banks had questionable background and reputation² (S.I.C.³, 2010; Statistic Iceland, 2010). The importance of the banking sector was well articulated in 1993, when an economic professor of the university of Iceland stated that:

No society can, for instance, allow its banking system to crumble, because the banks would then drag businesses and families down with them. Because of this,

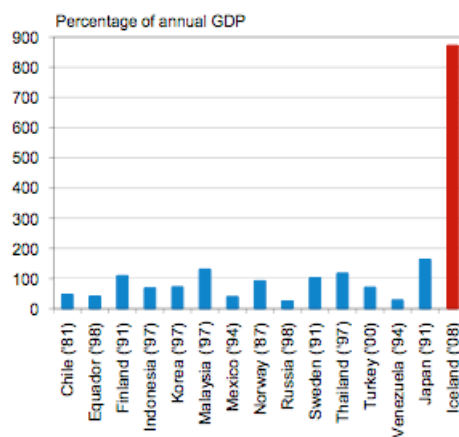
¹ Later it was clear that the two groups had lent each other for the purchase of the banks, with loans from the banks they just bought. When the banks were taken over by the government in 2008, the loans taken for the purchase had not been fully paid off (S.I.C., 2010).

² One group, the Samson group, was mainly owned by a father and son. The father Björgólfur had been convicted for bookkeeping offences, having faced over 400 charges, when running one of the nations biggest shipping companies to bankruptcy. His son had become rich from selling beverages in Russia. All the owners were inexperienced in running banks and many people were skeptical of their intentions. Now the evidence has confirmed that their goals were not in line with the interest of the Icelandic nation (S.I.C., 2010).

³ Special Investigation Commission

the public authorities have a special obligation with regards to the banking sector, above and beyond its general obligations to individual industries and a general responsibility of their economic environment⁴ (Þorvaldur Gylfason, 1993, p. 134 [own translation]).

The new owners of the banks immediately began using their new banks to boost other assets in their portfolios. Following the privatization and deregulation of the banking sector, the Icelandic banks grew 20 fold from 2003 to 2008. In 2008, when the banking crisis began, the Icelandic banking sector had outgrown most other national banking sectors in history compared to their respective GDP. Figure 1 shows a comparison between countries that experienced banking crises, in the last decades, and the size of their total commercial bank assets as a percentage of the nations annual GDP.

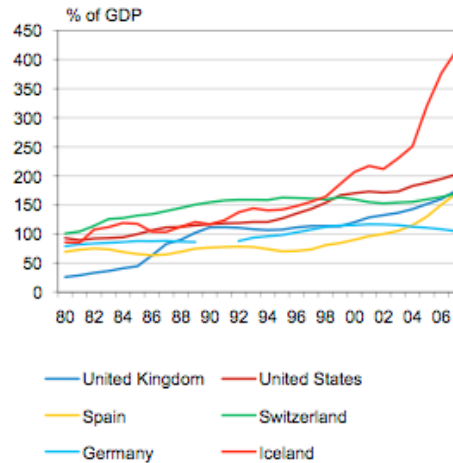


Source: Bank of England; Central bank of Iceland, in Þorvarður Tjörvi Ólafsson, 2009.

Figure 1 Commercial banks' assets in percent of GDP a year before the onset of a crisis.

The banking sector boosted most other aspects of the economy both through direct loans, where the availability of credit increased dramatically, and through confidence and optimism. As the boom years grew in number so did also the private sector debts (see figure 2).

⁴ "Ekkert þjóðfélag getur til að mynda leyft bankakerfi sínu að ramba til falls, því að bankarnir myndu þá draga atvinnufyrirtæki og fjölskyldur niður með sér í fallinu. Þess vegna hefur almannavaldið sérstökum skyldum að gegna á vettvangi bankamála umfram almennar skyldur þess við einstaka atvinnuvegi og almenna ábyrgð á efnahagsumhverfi þeirra."



Source: Bank of England; Central Bank of Iceland, in Þorvarður Tjörvi Ólafsson, 2009.

Figure 2 Private sector debts in selected countries from 1980-2007.

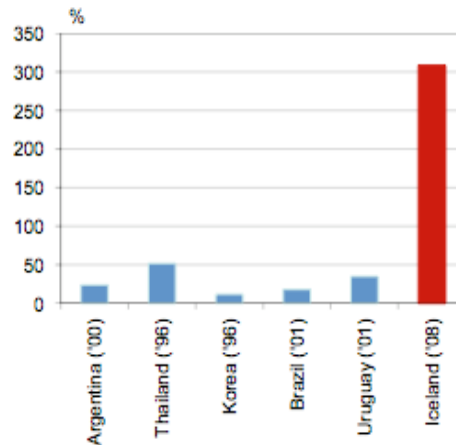
The Central Bank of Iceland noted concerns about the economy in 2004, that the economy was showing signs of increased credit and borrowing, which in particular culminated in higher asset prices⁵ (Icelandic Central Bank, 2004). Macroeconomic imbalance was mentioned regularly, by the Central Bank, where the government was pushing expensive constructions on the east coast, laying the necessary foundations for more aluminum smelters (Icelandic Central Bank, 2004). Unemployment was almost non-existent and foreign workers rushed to fill the demand for labor. Despite all the warnings both from foreign officials and academics, Icelandic officials believed that the financial sector could withstand the dangers coming its way. As the years passed the Central Bank and others, such as the IMF, dismissed their prior concerns and started stressing their admiration of the positive qualitative aspects of both the economy and the banks in Iceland. All coverage of the warning signs faded as the danger of a crisis gained momentum. Meanwhile, the Central Bank's ultimate concerns were of inflation. The bank started raising interest rates in 2004 and kept raising them until the crash. The effects of increasing the interest rates so much, was that investors⁶ took advantage of the interest margin from the Icelandic currency and the exchange rate grew stronger⁷. Both the financial sector and investors as well as the general public escaped the high interest rates by financing

⁵ There was an explosion mainly in stock and real estate prices (S.I.C., 2010)

⁶ Both foreign and domestic investors took advantage of the margin (S.I.C., 2010).

⁷ The market for, so called *jöklabréf* (e. glacier bonds), was blooming.

their investments with cheap foreign capital. In the shadow of the Central Bank's battle with inflation, corporate foreign debt grew substantially (see figure 3).



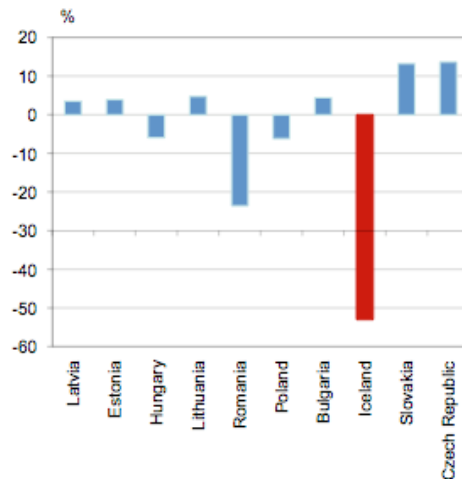
Source: IMF; Central Bank of Iceland, in Þorvarður Tjörvi Ólafsson, 2009.

Figure 3 Corporate foreign currency debt to GDP compared to other crises countries⁸.

The omens of a crash were not heeded. The Icelandic government praised the Icelandic bankers and criticism from foreign sources was scoffed away with prejudice. Some critique⁹ did however manage to shake the future prospects of the banks. They were forced to secure their position when their access to cheap credit had expired. Foreign Central Banks warned the Icelandic Central Bank and some offered solutions and help to reduce scale of the Icelandic banking sector. No such offers were accepted. The Central Bank, then isolated, spoke of and promised reforms but no actions were taken. No single, clear answer has been provided to this date, for the seeming inaction of the Icelandic government. Many evidence in the S.I.C. (2010) report point to individual mistakes and miscommunication or confusion at the highest levels. The depreciation of the currency started in 2007. Foreign investors dumped the currency and many facts suggest that both the Icelandic banks and pension funds did hedge against the currency. With enormous pressure the currency tumbled (see figure 4) (S.I.C., 2010).

⁸ Þorvarður Tjörvi Ólafsson, 2009.

⁹ In 2006 two reports from Danske Bank and Fitch did question the true standing of the Icelandic Banks (S.I.C., 2010).



Source: BIS; Central Bank of Iceland, in Þorvarður Tjörvi Ólafsson, 2009.

Figure 4 Nominal exchange rate changes from July 2007 to August 2009.

After an “information vacuum”, as noted in a report from Richard Thomas (2008) at Merrill Lynch¹⁰, the trading partners of the Icelandic banks lost confidence in the banks’ solvency and ability to refinance short term debts ultimately leading to the nationalization of the banks. In October 2008, Glitnir was nationalized by the Icelandic government. Icelandic officials attempted frantically to save the other two banks, Landsbanki and mainly Kaupthing. The futility of these efforts finally became evident when the United Kingdom used their Anti-terrorism, Crime and Security Act from 2001 to freeze the banks’ assets in the United Kingdom. Important is to note that most evidence show that the banks would not have survived the crisis without substantial assistance from the Central Bank as a lender of last resort. The question remains of how much the Icelandic nation lost in the process of trying to save them (S.I.C, 2010).

After the crash, unemployment soared and reached 9%. Inflation was measured over 18% in the year 2009 (Statistics Iceland, 2010). Now the Icelandic nation is left with the burden of the irresponsible management and failure to properly regulate the banking sector. As a result of the crisis, Icelanders find themselves in an international conflict against the UK and Netherlands. The diplomatic dispute is centered on Landsbanki and its saving accounts, “Icesave”, which Landsbanki offered

¹⁰ Mr. Thomas and his co-workers at Merrill Lynch, would soon have to deal with similar problems they described for the Icelandic banks and Merrill Lynch was sold three months later to Bank of a America after significant losses and drop in value.

in the UK and Netherlands¹¹. The debate is still ongoing as this is written. From the report of the Icelandic parliament Special Investigation Commission (S.I.C.) on the banking collapse in 2010, it is evident that officials in Iceland and the owners of the banks as well as the bankers lacked professional work ethics, acted recklessly under great risk, and failed to recognize the imminent risks. The report also suggests that corrupt and self-serving intentions brought the banks to their knees. The supervision of the government and the regulatory performance of their officials failed to detect hardly any of the questionable doings of the bankers and the bank owners¹². In some incomprehensible order, every warden of the system failed, both official and public. The general public was goaded on by the promising reports offered by the financial sector and most people either did nothing, participated, or tried to keep up with the Joneses (although, presumably few will admit it) (S.I.C., 2010).

2. Behavioral Economics

Mainstream economics has its share of critics. Many of its theoretical premises seem to be overly simplistic and improvements could be sought out from those outside the ivory towers of mainstream economic textbook writers. The assumptions made by neoclassical, mainstream economists about competitive equilibrium, and the rational, self-serving economic actor, the *homo economicus*, have been questioned by other economists, who place themselves in different schools of theory, generally referred to as heterodox economics. The components that make up the *homo economicus*¹³ further include that he/she has stable preferences and strives to maximize his/her gain in every economic decision.

Neoclassical economics reached such a dominant position in the field of economics, that it became practically synonymous with mainstream economics. The Chicago School, with scholars such as Milton Friedman and Gary Becker at the

¹¹ We recommend reading the S.I.C. for further information on “Icesave”. Also for more information about the interesting debate on what part of the delay of the IMF program in Iceland, is traceable to a political pressure from the Netherlands and the UK through the IMF.

¹² To this day examples of this are still being unveiled.

¹³ Numerous theories in economics built on the theory of *homo economicus*, for instance it is claimed in traditional microeconomic textbooks (Perloff, 2009) that more is always better than less, people knows there preferences and they are stable and etc. For further reading Bazerman and Malhotra (2006) provide thorough analyzes of the definition of *homo economicus*.

forefront, is generally considered to have reached its peak of dominance in the 1970s (Davis, 2006). The Sonnenschein-Mantel-Debreu results¹⁴ gave many economists cause to question the general equilibrium theory, previously held in high regard among neoclassical economists (Kirman, 1989). By the 1980s, a significant rise in economic research stemming from game theory was recommended as the next logical advancement of explaining economic behavior. Behavioral economics, experimental economics, new institutional economics and other schools of economic thought also started to appear at this stage while the neoclassical dominance of economics started to falter, giving way to "...a more pluralistic mainstream economics." (Davis, 2006, p. 8). Such a change does not come overnight and heterodox economics is still contrasted against mainstream economics, though times of financial instability may further this development and strengthen the pluralistic position. The public looks for explanations and as economic debate becomes more public, the views from different schools of thought should diversify economic ideology (Davis, 2006).

Davis (2006) offers a word of warning about pluralistic mainstream economics. Instead of having one dominant ideology, which might suffer from a lack of self-examination and reproduce itself through introverted teaching material, research programs and methods, a pluralistic mainstream economics might become prone to territorial debates within the discipline itself. This could result in scholars using ideas and concepts without being fluent in their origins and application, i.e. biting off more than they can chew.

There are generally three different explanations on the decline of the neoclassical dominance. First the *breakdown view*, holds that the neoclassical model has run its course and that its reliance on the general equilibrium model was also a major source of its decline, for instance with the Sonnenschein-Mantel-Debreu results. The second view proposes an *outside takeover* view, that economics will adopt content and methods from different disciplines, as has happened in the absence of a dominant ideology within the field. Finally, there is the *maturity view* that is similar to the breakdown view, except it remains neutral to the theoretical problems facing neoclassical thinking and claims that the neoclassical approach has served its purpose (Davis, 2006).

¹⁴ The results claimed "...that the arbitrariness of aggregate excess demands in general equilibrium models ruled out almost all standard comparative static reasoning in economics..."(Davis, 2006, p. 14).

We subscribe to none of these explanations in particular. We believe that economics, in general, will benefit from the influx of ideas and methods from other academic fields and that the disenchantment of mainstream economics is but the realization of the limitations of neoclassical theory and the need to expand and improve economic research and policy making. Psychology could help with such improvements, for instance, by bringing existing economic models closer to actual, observed behavior. “The results of any theory depend on its assumptions- and if the assumptions depart too far from reality, policies based on that model are likely to go far awry” (Stiglitz, 2006, p. 28).

Behavioral economics looks to bridge some of the gaps that appear in mainstream economics. Having a reputation of being sound mathematicians, mainstream economists seem to view subjective questions as a major nuisance and tend to ignore things that are hard or seemingly impossible to quantify and measure directly. This leads to an interesting dilemma, a certain trade-off between efficiency and actuality. Economists are of course, no simpletons. They would be the first to tell you that their models are an approximation and that in order to analyze the complex phenomena, such as the economy, you need to be able to get numbers, work with them and produce some findings. That does not mean, however, that they are infallible. In the end, the economy boils down to people. People exchanging goods and services, paying taxes, saving or consuming, etc. People are fickle creatures and their decisions and reactions are evidently not as rational or self-serving as the mainstream economics would have you believe - even as an approximation.

Behavioral economics has a long past but short history as a distinct field. Human nature and behavior was a topic of great importance to most of the scholars that modern economics draws upon. Smith (1892) wrote on it extensively in his *Theory of Moral Sentiments*. Jeremy Bentham, Karl Marx, Thorstein Veblen, Ricardo and Malthus were all well aware of the complex nature of man. Psychology was part of economics from the very start, even though it did not have its own specified field for yet some years to come (Camerer & Loewenstein, 2004). Psychology, as it was in those days, became a perceived hindrance to the practical advancement of economics, especially with the increased popularity of positivism and the demand for cold, hard scientific results.

As is the case with most academic fields, behavioral economics has no single distinct birthplace. If we accept Schiller’s (2005) statement that “The discovery of

behavioral economics in the past decade or two is really a return to reality from an untenable position that the rational optimizing model is the only framework for economics” (p. 271), we might be best able to trace behavioral economics through some of the scholars who ventured outside the model – and looked back in.

The writings of George Katona, Harvey Leibenstein, Tibor Scitovsky and Henry Simon on the boundaries of rationality and the importance of psychology, were well received in the later part of the 20th century, but not employed at any significant level. Daniel Ellsberg (1961), Maurice Allais (1943) and Harry Markowitz (1952) wrote important papers that affected the expected- and discounted utility models, for instance by examining decision making under uncertainty (Camerer & Loewenstein, 2004). Daniel Kahneman and Amos Tversky have contributed seminal papers, both collectively and individually, and Kahneman was awarded the Nobel Prize in economics in 2002¹⁵. It would of course be impossible to include everyone of significance in this brief overview, but other current, notable scholars in this field would include Richard Thaler, Eldar Shafir, Max Bazerman and Georg Akerlof, also a Nobel Prize winner in economics (2001)¹⁶.

One of the main critiques that economists have with psychology is their lack of providing alternative models to replace the existing ones¹⁷. Kahneman comments on that critique and writes that “This complaint is only partly justified; psychological theories of intuitive thinking cannot match the elegance and precision of formal normative models of belief and choice, but this is just another way of saying that rational models are psychologically unrealistic.” (2003, p. 1449).

Lunn (2008) explores a couple of other persistent critiques of behavioral economics; first that people act differently in labs than in real life - the market, and secondly, evolutionary logic as applied to the market, i.e. not the survival of the fittest, but the most rational. Various data is available to refute the first criticism, by comparing experimental results to actual market data, researchers have detected similar behavior that appear to validate the original findings. The second critique has,

¹⁵ Daniel Kahneman was the first psychologist to be awarded the Nobel prize in economics.

¹⁶ For a few papers of interest see, “The market for lemons” Akerlof 1970, where he explores the competitive equilibrium theory, information economics and goes into the problem of asymmetric information. “Prospect theory: Decision making under risk” (1979) where Kahneman and Tversky examine anomalies in the expected utility theory.

¹⁷ It can be easy to criticize models but harder to present functional alternatives. Behavioral economists seek not to replace existing models but to enhance them and present them, as the alternatives to such models.

interestingly enough, been less dealt with. Regardless of the claim that evolutionary logic applies to the market, rationality is not the only trait required for continued survival on the market, that is, while it might be favored, the natural selection of the market would not only weed out those guilty of irrationality. The *natural selection* of the market would probably not result with the emergence of the *homo economicus*.

The criticism of economic theory and policymaking brought forth by academics, both economists and psychologists are meaningful, mainly since it confirms the complexity of the task; inventing functional models that come as close to observed reality as possible. Behavioral economics might be able to shed some light on important questions facing mainstream economics and bring much needed qualitative perspective to a quantitative dominated field. The models that modern economists are using today are good only as far as they go. They are meant to model a simple world and they do so efficiently. However, when they are applied to the real world everything becomes more complicated and sadly they have to be tight down from many different directions. For instance Gunnar Haraldsson (2009), then a chairman of the Financial Supervisory Authority, mentioned in a mathematical lecture at the University of Iceland, there he described the effort done at the time to revive the recently broken models. He describes how, if not bound, the models show, for instance, unemployment of over 100% and other confusing results.

Early papers in this field appear to have established guidelines for behavioral economic research, guidelines that many have adopted. Camerer and Loewenstein (2004) have astutely identified these guidelines to be as follows;

First, identify normative assumptions or models that are ubiquitously used by economists, such as Bayesian updating, expected utility, and discounted utility. Second, identify anomalies-i.e., demonstrate clear violations of the assumption or model, and painstakingly rule out alternative explanations, such as subjects' confusion or transactions costs. And third, use the anomalies as inspiration to create alternative theories that generalize existing models. A fourth step is to construct economic models of behavior using the behavioral assumptions from the third step, derive fresh implications, and test them (p. 7).

Recent advances in behavioral economics seem to highlight this position. By focusing on enhancing existing models and theories with a psychological basis that adds realistic depths to economic assumptions on human nature, using existing

economic methodology, such as experiments, field data, computer simulations and various field experiments, economics as a discipline will benefit (Camerer & Loewenstein, 2004). Economics and psychology are two different disciplines, yet there is no reason why they cannot benefit from inter-disciplinary cooperation, as the emergence of behavioral economics seems to show.

3. Limitations of the *Homo Economicus*

The research of behavioral economists over the last decades has brought forth evidence for the limitations of human rationality. To many, those findings may seem insignificant, simply because most people have seen how irrationally people can act. However, when trying to predict and explain the movements and behavior of the masses, economic theory and policy making has built onto the foundations of rational human behavior¹⁸, i.e. the *homo economicus*.

For further development and understanding regarding the prospect of the society, it is essential to straighten out the foundations of economic theory and policy making. We argue that in many cases the behavioral patterns of the individual can be the underlying reasons for economic movements. Important to note is that the individual does make different decisions under different circumstances, such as in a group or when advised by someone he or she thinks is an authority figure (Milgram, 1963). Even though it is important to study the behavior of individuals in economic situations, it is also important to bear in mind that such individual characteristics and behavior can not immediately be expected to apply to the behavior of macroeconomic entities (Kirman, 1989).

This chapter aims to show *where* the underlying indications of economic movements are to be found through the behavioral function of the individual. In our argument we use the evidence from psychological research to question the traditional economic assumptions about the *homo economicus* in a wide perspective, and how that critique can enrich some simplified or even errant assumptions that exist in mainstream economic models.

¹⁸ For instance “the hypothesis of *rational expectation* assumes that, on average, people guess the future correctly” (Begg, Fischer & Dornbusch, 2001, p. 382).

3.1 Rationality

Whether economic agents are always rational in their economic decisions or not has been debated for decades. The *homo economicus*, like we have mentioned, is rational hence irrational economic decisions are not generally considered in the mainstream economic theory. Psychology claims people to be irrational on numerous occasions (Khaneman, 2003, Desvouseges et. al., 2003, Johnson et al., 1992, Wilson et al., 1996, List, 2002). In other words psychological research have shown that people make bad economic decisions for various reasons. Psychologists and behavioral economists have identified factors that cause agents to make irrational decisions.

To begin with it is important to look at how the cognitive mechanism works that governs our way of thinking. Kahneman (2003) offers a model of the cognition operating when we make decisions. He suggests that the human mind has two systems, the first being intuition, which produces solutions fast, automatically and without effort based mostly on our habits, emotions and our previous experiences. Reasoning, or the second system is however slower, requires more effort and is more easily controlled. Intuition system, or “intuitive thinking”, is the system we most often use when we are confronted with a problem. The operation of intuitive thinking is difficult to control or modify. Reasoning, however, is based on rules and is therefore more flexible. When we respond to a given problem we either have a solution at hand through intuitive thinking or we take more time to evaluate our options with reasoning. It has been suggested that the difference in effort would provide the clearest indications of what system to use for a given problem (Kahneman, 2003). In other words for an economic agent to become rational, which they are assumed to be, he or she needs to experience the problem as complicated or challenging. However, in reality, in most cases decisions or reactions to a given problem will be swift and not necessarily rational (Kahneman, 2003).

The economic agent can make fully rational decisions and sometimes even predictions of future economic movements. We are not arguing that people are always irrational, we are arguing that our cognitive mechanisms can often work against rational thinking. We are however, not interested in examining how intelligent and rational agents can behave. Our interest lies in the shortcomings of *homo economicus*, where the system of intuitive thinking hinders him/her from making the rational choice.

Intuitive thinking produces problem solving quickly. What comes intuitively to one is not necessarily true to another individual. Behavior is built on habits, emotions and our previous experiences. Training and ones life experience can shape the way people react to a certain situations. Athletes for instance, train to react immediately to numerous situations where others would need much more time to cope with the same situation. Whether intuitive thinking does help or damage depends on the interaction between the task at hand and our habits, emotions and previous experience. Psychologists have identified many of the psychological functions involved in problem solving and decision making as well as the biases that effect them. All of the biases contribute to the irrational behavior which, for instance, can be seen in peoples evaluation process. Where on occasion, monetary numbers seem to be shaped by the biases we cover in this paper, rather than only from the traditional economic factors, such as supply and demand. The relevant functions discussed that we will be introducing in this paper are; heuristics, framing, anchoring, prospect theory and endowment effect.

Like we will demonstrate, every individual is likely to make systematic biases in every day life. Jón Sigurðsson (personal communication, 19 April, 2010), a former governor of the Central Bank of Iceland, said in an interview for this paper, that in general, most of the important decision-making in the official system tends to lead to a single individual, whoever that may be. Therefore we can assume that leaders, such as the bank executives or the politicians and other officials, can and will be influenced by those biases when making drastic decisions. We believe that both as individuals and as members of groups, Icelandic executives and other leaders or members of society have shown signs of the biases described in this paper. In the following subchapters we aim to discuss an important theoretical network of biases that underlie most of systematic irrationality. Obvious examples from the Icelandic financial crash will be outlined either in those chapters or will be described more precisely later.

3.1.1 Heuristics.

Heuristics are the rules of thumb we use in everyday life as guidance when we make decisions or try to solve problems. Everyone has his unique heuristics, where “people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general these heuristics are quite useful, but sometimes they lead to severe and

systematic errors” (Tversky & Kahneman, 1974, p. 1124). Heuristics play a central role in shaping our intuitive thinking. Psychologists have identified a few types, we will discuss the ones we consider the most consequential.

Availability Heuristic

When reacting to a given situation we use heuristics to come up with a response.

“Availability heuristics” is a systematic bias that influences our intuitive responses through what comes most naturally to mind at any given moment. Highly accessible features will influence this process more than others (Kahneman, 2003; Camerer, Loewenstein & Rabin, 2004). This bias is witnessed on many occasions through every day life. Advertising, political debates, marketing and regular arguments, all show signs of when people try to bring forth the most favorable image of any given phenomenon. When agents are stating their argument they frame¹⁹ the situation to their benefits. The method of framing is then used to draw forth the effects of availability heuristics, intentionally or not (Camerer, Loewenstein & Rabin, 2004).

Availability heuristics also contributes to many other biases. One is called the *hindsight bias*: it is easier to imagine events that have actually occurred than events that the beholder has not yet witnessed. “This bias leads to ‘second guessing’ or Monday –morning quarterbacking and may be partly responsible for lawsuits against stockbrokers who lost money for their clients (the clients think that the broker ‘should have known.’)” (Camerer, Loewenstein & Rabin, 2004, p. 10). The bias of availability heuristics is possibly one of the factors behind the emphasis of the Icelandic Central Bank, before the fall of the banks. The Central Bank was focusing too much on the inflation objectives that had been their number one goal for a few years. Afraid of the unemployment rates and the fiscal expansion that would follow the construction of Kárahnjúkar²⁰ they pushed the interest rates too high. Causing the exchange rate to strengthen from interest margin, which led to heavy borrowing in foreign currency. The fact that officials did not recognize the integral threat, may be partly because they were focusing on what was highly accessible to them, the taming of the inflation. Additionally it is clear that *hindsight bias* plays a significant role in the fall of the banks, where experience in the banking sector was very limited, both from the owners and the executives. Therefore it was hard for them to foresee the effects of a severe

¹⁹ See more about “framing” later in this chapter

²⁰ Hydroelectric plant on the eastern part of Iceland, built to support aluminum plant in Reyðarfjörður.

market downturn, since they had never experienced one. Keeping the spirit and optimism high seems to have been the main method to get them through the difficulties (S.I.C., 2010).

Prototype Heuristics

“The prototype of a set is characterized by the average values of the salient properties of its members” (Kahneman, 2003, p 1463). People make their life easier by placing entities in groups, or mental sets. For instance we categorize people by their profession or their level of education. This makes the world simpler to understand. However, this way of “stereotyping” leaves us vulnerable to making mistakes since our assumptions are based on the average values of a group, rather than on facts or rational founding, such as probability²¹ (Kahneman & Tversky, 1973). Prototyping helps make judgments in the following examples (Kahneman, 2003): (i) Finding a category for predictions (when one tries to place a person to the left or right based on their political opinions). (ii) Pricing goods (e. g. how much, a given type of Toyota should cost). (iii) Evaluation of a past experience that extended over time (Predicting if an economic downturn is just a minor setback or an omen for a severe crisis). (iv) When assessing the support that a sample of observations provides for a hypothesis (for instance hearing stories about lottery winners, makes one overestimate the probability of winning the lottery²²).

Intuitive thinking leads us to use prototyping for fast evaluation of situations; sometimes the system works efficiently and smoothly and sometimes it does not. Prototype heuristics entails two major biases. The first is a *violation of monotonicity*. “Adding elements to a set may lower the average and cause the judgment of the target variable to decrease, contrary to the logic of extensional variables” (Kahneman, 2003, p. 1464). This bias can be seen when people are asked to name a price for the same goods named differently (List, 2002). Ariely (2008) demonstrates this with students at MIT where he offers them a subscription of the magazine *The Economist*. He showed two sets of offers to separate groups of students (see figure 5.).

²¹ This bias is also often named *base rate fallacy* or *base rate neglect*.

²² “By publicising winners, they make winning foremost in the minds of potential buyers of tickets and hence make them believe that they are more likely to win than they really are” (Sutherland, 2007, p. 15).

Economist.com	SUBSCRIPTIONS
OPINION	Welcome to
WORLD	The Economist Subscription Centre
BUSINESS	Pick the type of subscription you want to buy or renew.
FINANCE & ECONOMICS	<input type="checkbox"/> Economist.com subscription - US \$59.00
SCIENCE & TECHNOLOGY	One-year subscription to Economist.com. Includes online access to all articles from <i>The Economist</i> since 1997.
PEOPLE	<input type="checkbox"/> Print subscription - US \$125.00
BOOKS & ARTS	One-year subscription to the print edition of <i>The Economist</i> .
MARKETS & DATA	<input type="checkbox"/> Print & web subscription - US \$125.00
DIVERSIONS	One-year subscription to the print edition of <i>The Economist</i> and online access to all articles from <i>The Economist</i> since 1997.

Source: www.predictablyirrational.com

Figure 5 The Economist subscriptions, stimulus used in Ariely (2008).

One of the sheets offered was like the one shown in figure 5. The other was only missing the “print only subscription” option. The first group got the offers listed above; 16% of the students selected the online subscription, 0% for print only and 84% for both print and online. In the second group, where “print only subscription” was not available, the preferences changed significantly; 68% selected the online only and 32% the print and online subscription. Note that no one selected the option “print only subscription” in the first group. Therefore the option should not effect the other options but that was not the case. Participants’ evaluation changed significantly between groups, which suggests that the manner of presentation does affect the evaluation process. Here it is important to note that those findings violate the *stable preferences* assumed in the neoclassical economic model. Psychological studies have shown that economic agents can get confused in their evaluation if their environment is variable. This bias also interacts with other biases that derive from intuitive thinking. The second bias evolved from prototype heuristics is *extension neglect*. Kahneman (2003) defines extension neglect thus “Other things equal, an increase in the extension of a category will increase the value of its extensional attributes, but leave unchanged the values of its prototype attributes” (p. 1464). Significant neglect has been observed in many psychological studies. For instance it has been discovered in the willingness to pay for public goods, where people were willing to pay average X\$ to save Z amount of birds from drowning in oil. The estimated amounts that household were willing to pay to save (a) 2,000, (b) 20,000 or (c) 200,000 birds were

(a) \$80, (b) \$78 and (c) 88\$. The results show that the amount of birds saved does not affect the amount people were willing to pay for their rescue. People prototype the concept, that saving birds is worth around \$80, how many birds is clearly not the main issue but the emotion of saving birds is what is truly being measured. This type of *extension neglect* is often also called *scope neglect* (Desvouseges et. al., 2003).

Another bias similar to prototype heuristics is *duration neglect*. It stipulates that the duration of an experience is a measure of its extension. The length of an episode shapes the experience taken from a given event. The evaluation is similar to the other heuristic biases in the way that it is measured as the average, of a trait of a group or emotions from a given event. Rather than using total emotion, median trait of a group, or the highest value of pain from a procedure, the bias makes people look at the average. Research on pain evaluation has shown that it is possible to mystify patients' evaluation of pain, by extending the procedure. Patients reported the intensity of pain every 60 seconds during a procedure with two different time lengths. One episode had minor pain distributed over a short time and the other had more pain distributed over a longer time. Patients reported the shorter episode as being more painful than the actually more painful episode (which was distributed over a longer time). They then reported the episode, with more pain (but distributed over a longer period) as being less severe (Redelmeier & Kahneman, 1996). If this experience transfers to other evaluations like the experience of an economic crisis, it might be possible that severe economic shocks, which are experienced over an extended period of time, could be evaluated wrongly as having been less severe.

3.1.2 Framing.

Psychological research has shown that our evaluation process is very sensitive to many biases we cover in this paper, including framing (Ariely, 2008). Framing is one of the biases that affect our intuitive thinking. Kahneman (2003) defines the basic principle of framing as "...the passive acceptance of the formulation given" (p. 1459). Framing basically means that the manner in which things are presented affects how they are evaluated. Framing affects almost all aspects of both intuitive thinking and reasoning. When agents do take the time to evaluate their position and reason the known facts through rules and experience, framing still has its effects even though they are greatly reduced. When decisions are made with the system of intuitive thinking, framing can make a huge impact on the results. Note that we believe that

framing is a manifestation of relativity. In other words, relativity brings different frames of reality, the difference of those frames produce different intuitive conclusions.

In the process of evaluating any type of good, real or financial, framing seems to play a significant role. Thinkers of the last generations have fought countless battles while trying to grasp a satisfactory conclusion about value. Most of the famous economists have marked the path of searching for the meaning and proper measurement of value. Like the Harvard economist Dorfman (1989) wrote about Robert Malthus and David Ricardo “I believe if there is a corner in heaven where good economists go, they are there to this very day getting no closer to an agreement about the meaning and proper measurement of value” (p. 162)²³. Understanding value is still a difficult task for the academic field. Adam Smith wrote about value in the wealth of nations. There he claimed that any value of any good was determined by the market and derived from the balance between the supply and the demand of that good (Smith, 1776). Marx argued in the communist manifesto that value was determined by the amount of labor used in the making of any given good (Engel & Marx, 1886). Evaluating goods is something we do every day and is an essential part of our economic reality.

Johnson et al. (1992) found that different framing of disease-specific insurance led to rather irrational contrast in price valuation. Participants were asked to name the price they were willing to pay for insurance for a given reason, which was different between groups of participants. The insurance would pay them 100\$ for every day, while they had to be hospitalized. The price for four different insurances was examined and the results of the mean dollar value participants were willing to pay for the insurance can be seen in table 1.

Table 1 Disease- Specific Hospitalization Insurance (Johnson et al., 1992)

	Mean
Any disease (followed by any accident)	\$89
Any accident (followed by any disease)	\$70
Any reason	\$42
Any disease or accident	\$47

²³ We can only hazard to guess, where late scholars of different academic fields conduct their debates on the topic.

The results clearly show that the valuation relies heavily on framing in each case. Observe that the total price of the insurance for *any disease (followed by any accident)* and for the insurance for *any accident (followed by any disease)*, is almost four times higher than the price participants were willing to pay for an insurance that covered *any reason*; whatsoever. The above examples illustrate that the *framing* of a given product does shape our evaluation process significantly. Framing effects might therefore play a more significant role than previously thought. In Iceland, asset prices and other financial products rose exceedingly (perhaps irrationally) beyond their true value, as witnessed in the aftermath of the financial crisis (S.I.C., 2010).

3.1.3 Anchoring.

Decisions can be unconsciously affected by previous experience. The past can unconsciously muddle our decision making process and generate irrational behavior. Our background can affect our intuitive thinking for instance through some of our heuristics. When former experience causes our intuitive system to produce biases it is called *anchoring*. “Anchoring effects are among the most robust observations in the psychological literature” (Khaneman, Ritov & Schakde, 1999, p. 229)²⁴. The necessary conditions for the emergence of anchoring effects are a) uncertainty about the correct response, and b) a procedure that causes the individual to consider a number as a candidate answer. Studies have shown remarkable findings. Participants are asked to write down a random numbers before they valuate goods. That number was shown to influence the participants’ answer. The results show up to 346% difference between the valuations, where the anchor (random number) is forging the price that people are willing to pay for a given good (Ariely, 2008). Other research has shown comparable results when people are asked to write the last four digits of their social security number, and then to state whether the number of physicians and surgeons listed in the local yellow pages, was higher or lower than the number written (Wilson et al., 1996). This means that the higher the random number (anchor) is, the higher the price people are willing to pay. Stories have been and are thought of in marketing of how to anchor goods to other high value goods or ideas, with the objective in mind to increase the consumers’ willingness to pay (Ariely, 2008). *Homo economicus* should not be influenced by random numbers or other unrelated figures.

²⁴ The effects of sunk costs, when people can’t avoid making previously lost money affect their future decisions, are for instance manifestations of anchoring. Sadly some economists think that simply telling people about it makes the effects disappear (Flynn, 2005).

According to traditional mainstream economics his preferences or evaluation process should be unbiased (Perloff, 2009). Given the examples and evidences mentioned above we suggest that anchoring is one of the forces behind unrealistic evaluation of the financial sector assets in Iceland.

3.1.4 Prospect theory.

Traditional economic theory assumes that utility of decision outcomes under risk are determined entirely on the final state of endowment. That is, the total amount of wealth is the sum of ones utility or the determinant for ones happiness or satisfaction. Two economic agents that, at any time given time, have the same total amount of wealth should therefore experience²⁵ the same total utility, no matter if they recently gained or lost most of their total wealth. The reference point of agents present wealth should not affect his utility.

Prospect theory was brought forth in 1979 by psychologists Kahneman and Tversky, in order to advance the theory of expected utility²⁶ to include a more psychologically realistic base. The terms of *utility* and *expected utility* each have theoretical applications. *Utility* is the amount of pleasure or satisfaction you get from, for instance, eating one ice cream cone. *Expected utility* is, for instance, when you try to calculate whether you should try to evade some taxes. When making this decision a person weighs the expected gain or loss based on the probability of getting caught and the size of the fine etc. “The hypothesis of rational expectations assumes that, on average, people guess the future correctly” (Begg, D., Fischer, S. & Dornbusch, R., 2001, p. 382). Prospect theory claims that people systematically overweigh the small probability and under-weigh the large probabilities (Kahneman, 2003). Utility theory holds that the total amount of utility is the only aspect that affects experienced utility (Begg, D., et al., 2001). With prospect theory the approach around the emotions involved in utility valuation is reshaped. Emotions rise when changes occur, therefore they proposed that the main carriers of utility were gains or losses. Utility evaluation

²⁵ Note that the utility from any given wealth such as \$100 is taken as the being the same for both agents.

²⁶ Expected utility theory is part of mainstream economics.

is raised on changes of wealth rather than states of wealth. Behavior of real economic agents has provided support for the theory (Kahneman, 2003)²⁷.

Definition for the value function on gains and losses, was offered by Khaneman and Tversky (1992). The definition is based on three features (See figure 6):

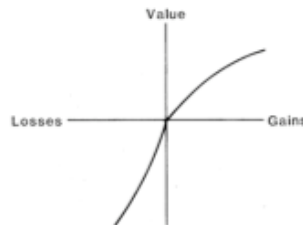


Figure 6 A hypothetical value function (Tversky and Kahneman, 1981).

(1) The function is concave in the domain of gains, and therefore favors risk aversion²⁸. (2) The function is convex in the domain of losses, and therefore favors risk seeking²⁹. The third point is probably the most important one, (3) the function is sharply curved at the reference point, and because of that, loss-averse, and steeper for losses than for gains by a factor of about 2-2,5. In other words, risk assessment of agents is forged by their recent economic movements of gains, losses or status quo. The theory also states unequal weighting of probabilities. Small probabilities are over weighted and large probabilities are under-weighted. The overweighting of a small probability could, for example, partially explain gambling. Another central concept of prospect theory is loss aversion, like mentioned above; people seem to experience more dissatisfaction when wealth is lost than the satisfaction experienced by corresponding gains (Kahneman, 2003). In light of the risk seeking attitude of the Icelandic banks where the executives kept making fairly risky investments almost to the last day before he crash, it is likely safe to assume that the forces described by prospect theory (such as risk seeking when one has been losing capital) played their part. For that matter supervision must be increased on banks that have been suffering

²⁷ Kahneman was handed the Nobel Prize in 2002 for the paper the *Maps of Bounded Rationality: Psychology for Behavioral economics*. Amos Tversky had recently passed away, most of the work was their joint effort.

²⁸ Risk aversion is when people over estimates risks, therefore they look for safe investments rather than high gains in risky investments.

²⁹ Risk seeking is the tendency to under estimate risk, were one selects risky investments in the hope of large gains.

losses, where investments involving high risks must be contained³⁰ (S.I.C., 2010). However after the collapse of the banks we could describe the Icelandic banking sector as being risk averse. The attitude of the banks has changed from lending substantial amounts to almost anyone, including children³¹, to being extremely careful where substantial amount of the capital in Iceland has been stored safely in the Icelandic Central Bank and is therefore not readily available to the private sector.

3.1.5 Endowment effect.

Economic agents have been shown to have a tendency to stick with the goods they currently possess rather than trading them for other comparable goods or monetary notes. Knetsch and Sinden (1984) asked participants, who either had been given money or a lottery ticket (either good was worth the same on the market) if they were willing to trade one for the other. They found out that those who were given the lottery tickets liked them more than those who got the money. That is the value of the lottery tickets seemed to be higher for those that owned them than for others. Psychologists believe that this tendency is caused by what is called the endowment effect (Kahneman, et al., 1991). That is the tendency to value what you own more favorably than what you don't have.

In microeconomics it is assumed that consumers' endowment does not affect the so-called indifference curve map³² (Perloff, 2009). Psychologists have challenged this assumption, saying that if loss aversion³³ is present, the indifference curves are not reversible. In other words there is not a fixed exchange ratio between the goods. Kahneman, Knetsch and Thaler (1991) point out an experiment by Knetsch (1990) that shows that people will value the good presently owned more than others, so that when the exchange ratio of each good is analyzed and compared, the curves will intersect. To clarify see figure 7. If preferences are stable the lines should not be able to intersect. However studies of endowment effects have shown them to intersect. This means that preferences are not stable. In the study, participants got either pens or dollars and were offered to trade one for the other at different ratios. Researchers

³⁰ This is not something new, specially for economists. However it seems to be never too often mentioned and is furthermore backed up with psychological findings (Kahneman, 2003).

³¹ Glitnir provided children the so called "children's loans" [own translation] (isl. Barnalán) which their parents used to buy stocks in one of the smaller banks (Byr) (S.I.C, 2010).

³² Perloff defines it as follows: "Indifference curve is the set of all bundles of goods that a consumer views as being equally desirable" (Perloff, 2009, p a-44).

³³ Note that loss aversion is one of the main forces behind endowment effect.

found out that their preferences were not stable. This affects our evaluation of assets, in a way that what we own is often valued higher than the market is really willing to pay for it. However, *homo economicus* is not meant to make such “mistakes” as he should have no feelings for his belongings beyond the utility he gets from them.

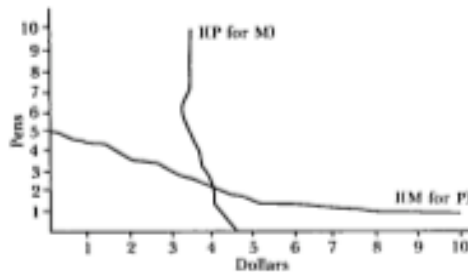


Figure 7 Crossing indifference curves (Kahneman et al., 1991)

3.2 Money Illusion

The theory of *money illusion* holds that people demonstrate a significant tendency to underestimate or fail to realize their actual best monetary interest. This failure could be due to a real cognitive bias – *illusion* – but can also be explained in terms of systematic confusion or general ignorance about nominal versus real value. In their paper on money illusion, Shafir, Diamond and Tversky (1997), offer this definition: “The term money illusion refers to a tendency to think in terms of nominal rather than real monetary values” (p. 341), and emphasize the importance of “...the interaction between money illusion and other decision factor such as *loss aversion*, risk attitude, and fairness considerations... (p.342). “Money illusion has significant implications for economic theory, yet it implies a lack of rationality that is alien to economists.” (p. 341).

The issue of money illusion has been debated within mainstream economics for a long time, even as early as 1928 when Fisher published his book titled, *Money Illusion*. Other renowned economists have been followers of the theory such as J. M. Keynes, Paul Samuelson, Robert Solow, Franco Modigliani and James Tobin (Akerlov and Schiller, 2009). Keynes (1936) wrote in *The General Theory Of Employment, Interest and Money*:

Now ordinary experience tells us, beyond doubt, that a situation where labor stipulates (with limits) for a money-wage rather than a real wage, so far from

being a mere possibility, is the nominal case....It is sometimes said that it would be illogical for labor to resist a reduction of money-wages but not to resist of reduction of real-wages.... But whether logical or illogical, experience shows that this is how labor in fact behaves (p.9).

The notion of *money illusion* was commonly accepted until the 1960s when Milton Friedman introduced the natural rate theory and changed the mainstream ideas on the interaction between nominal and real values. In the debate on the trade-off between unemployment and inflation according to the Philips curves, Friedman claimed that workers did not bargain for nominal wages. Instead they bargain for real wages. This meant that workers were not affected by money illusion and therefore it really didn't exist (Akerlov & Schiller, 2009).

The critics of this theory of money illusion, notably monetarists, have to face increasingly sophisticated arguments and research about its existence. With increased prominence of heterodox economics, a lot of interesting studies have provided ample results that seem to add serious leverage to the argument in favor of its existence (Lunn, 2008). These results show that in many instances human decision making is not as calculating as the mainstream economic theory holds. However it is important to bear in mind that labor unions do help reduce the impacts of money illusion and in the case of Iceland, Andrason (personal communication, 15. April, 2010)³⁴ mentions that the effects are not likely as sharp in Iceland as they may be in other economies.

Studies on salaries provide a good example of money illusion; as long as nominal wages stay put, or just under inflation, people will not feel treaded on, despite their actual purchasing power having decreased; their sense of fairness has not been offended (Lunn, 2008). Shafir et al. (1997) have shown that people fail to detect the most profitable outcome out of two very simple options, where wage increases are entangled with inflation calculations. They asked people who were better off in economic terms; A. Ann who got 2% increase in wages when inflation was 0%, or B. Barbara who got 5% increase in wages when inflation was 4%. The 71% of participants noticed that Ann is better off, but 29% fail to calculate the best economic outcome. These results show that people (29% in the example above) demonstrate

³⁴ See the appendix, *Interviews* for further readings about Mr. Andrason views on the Icelandic unions and money illusion.

money illusion, even with the most basic situations regarding the interaction of nominal and real value comparisons.

This has not been lost on mainstream economists who list it as a benefit of moderate inflation. Money illusion therefore improves the labor market by allowing firms to execute real wage cuts, while either holding the nominal wages intact, or increasing them just under the inflation rate (Mankiw, 2007).

When comparing the earnings of people, the framing of their situation can manipulate the total utility calculations for observers, causing a sense of money illusion. Tversky and Griffin (1991) showed that people's degree of satisfaction with their income is not merely based on the buying power. In their research they asked participants to compare and consider two individuals, Carol and Donna. They had the same background and were starting to work for identical firms.

A. Carol's starting salary was \$36,000 where the average starting salary was \$40,000.

B. Donna's starting salary was \$34,000 where the average starting salary was \$30,000.

When participants were asked who they thought was happier with their job situation, 80% chose Donna. Also 66% said Donna would be more likely to leave her position for a job with another firm. From the view of money illusion both results indicate that people do fail to realize their actual best monetary interest (real value), for it interacts with their relative position (nominal value). If however we would accept that money illusion is for real, making those "mistakes" every now and then is simply just part of being human.

Money illusion shapes our decisions in many ways directly when we evaluate our options in economic terms, like mentioned above. Observations show that some effects on our judgment of others are evident where the illusion invades our interpretations of fairness. Kahneman, Knetsch and Thaler (1986) conducted various surveys in which they assessed fairness and money illusion. Participants were asked to evaluate the fairness of a store-owner who had, several months before stocked up on peanut butter, and when he hears that the market price has risen, he immediately raises the price of his stock of peanut butter. Most of the participants or 79% found the mark up "unfair" (we will get back to those findings from the view-point of fairness later in the paper). The store-owner is merely adjusting the price to the real value of his goods; this appreciation of the goods is the mere essence of inflation.

This finding among the others mentioned above show that people do tend to have trouble with the effects of money illusion.

Also we would like to examine one of the classic prevailing economic models that assume fully rational agents, the original Solow's model of *efficiency wages*. The model does not include money illusion. The model assumes that effort is a function of real wages, $e(w/s)$. Where e is the effort, w is the nominal wages and s is consumption price for the worker and the output price of the firms³⁵. In the Solow model, effort should increase comparative to increases in real wages, other factors remaining the same. In the previously mentioned research, persisting money illusion gives us a reason to question the theoretical premises of that model. Behavioral economists have provided alternatives for the Solow models where changes in nominal wages are taken into account rather than relying on the assumption that effort can only be affected through changes in real wages (Shafir et al., 2004).

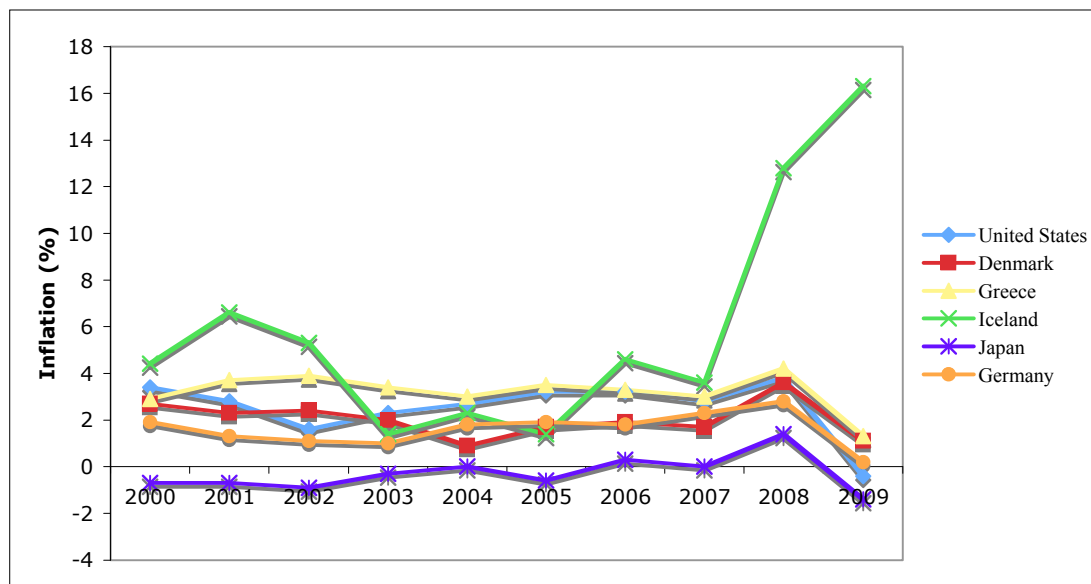
To summarize, we have built an argument that money illusion does exist in the economy. Historically speaking, the boundaries of money illusion are not always clear. The core of the notion is that economic agents generally think in terms of nominal value rather than real value. In this paper we presume that money illusion has a wider area of effect, where it includes most cases when agents fail to realize their actual best monetary interest. For instance failing to adjust for inflation or letting relativity cloud ones judgment is the effects of money illusion. In times of high inflation the impact of money illusion becomes substantial. However, awareness of money illusion increases in proportion to increased inflation. We have shown that money illusion interacts with other behavioral economic theories and topics such as framing, loss aversion and fairness. Defining the main cause or diagnosing the scale of each effect in the many cases of irrational thinking is not done here, but might be a challenging task for future research to analyze. However, researchers have offered interpretations as to why the human mind does not act as rationally as previously assumed. Kahneman (2004) offers the explanation that the fallacy is made because most of our measures are fixed and steady through time and because nominal thinking is intuitive and effortless.

Iceland has a long history of a small and unstable currency, the Icelandic Króna (ISK). The vast fluctuations of the currency coupled with the small size and

³⁵ The firm profits are written as $sF(e(w/s)L) - wL$. Where L is labor or amount of workers.

homogeneity of the economy in regard to the balance of trade among other things³⁶ has frequently resulted in high inflation. Given that money illusion truly does exist, one would assume that the volume of inflation gives rise to the magnitude of the impact of money illusion. That is, in times of high inflation, money illusion has significant impact and when inflation is zero money illusions cease to matter (Schiller, 2005).

Money illusion is a double-edged blade in the Icelandic economy. Firstly, in recessions, purchasing power is rapidly reduced, through both the devaluation of the currency and inflation directly. The change between nominal and real values in such economies can be abnormally great, thus leading money illusion to work well for the economy so that it recovers faster than otherwise. Secondly, money illusion in Iceland may be significant in scope since inflation is unusually unstable in Iceland (see figure 8).



Source: Statistics Iceland 2010.

Figure 8. Inflation comparison of selected countries 2000-2009.

Debtors are pounded with unexpected increases of their loans capital stock through price indexation of savings and loans, while the lenders get their capital secured.

Additionally, in economically prosperous times when investment is high, like in the

³⁶ To name more things that lead to high inflation is the index used to measure inflation, where in Iceland the fluctuations in the real estate market are taken into account. Most of the savings are in retirement pensions, and the investments of the pension funds have required rate of return of 3,5% bound by Icelandic law from the parliament, Alþingi. Some economists have argued that the rate is causing higher interest rates and therefore we would expect it to increase inflation.

period from 2004 – 2007 in Iceland (S.I.C., 2010) and when inflation is at least moderately high in comparison with other countries, the reduced effects of loss aversion have been shown. Thaler and Tversky (1996) showed with experimental evidence that, mean allocation to risky funds rose with the level of inflation. In comparison to the two groups of investors, one with no inflation the other with inflation, the non-inflation group invested 42,3% of their shares in risky funds, while the inflation group invested 71,5% of their shares in risky funds. The evidence of Icelandic risky financial dealings is best shown by the list of the world's biggest bank bankruptcies see table 2. For a nation of around 300.000 citizens and with no history of a large financial sector yet having three of the biggest eleven bankruptcies in history does suggest that risky investments might have been involved. And if so money illusion could be one of the forces behind the risk seeking behavior of the Icelandic investors, were unstable and high average inflation can help increase the required rate of return. Additionally, prior to the crisis the high value of the ISK meant lower prices in Iceland, which gave people an incentive to spend and invest without much consideration of the consequences (S.I.C., 2010).

Table 2. World's Biggest Bankruptcies in Billions of Dollars.

<i>Bank</i>	<i>Bankruptcy in bn \$</i>
Lehman Brothers Holding INC	120.483
Worldcom INC GMAC LLC	33.608
Gmac LLC	29.821
Kaupþing*	20.063
Washington Mutual INC	19.346
Glitnir*	18.773
NTL Communication Corp	16.429
Adelphia Communication Corp	16.256
Enron Corp	13.852
Tribune Company	12.674
Landsbankinn*	12.162

* Icelandic Banks

Source: Jón F. Thoroddsen, 2009.

3.3 Confidence and Trust

In economics, confidence reflects predictions about the future, where positive predictions represent confidence and negative predictions represent little or no

confidence. "The notion of confidence corresponds to a psychological state in which people do not sufficiently utilize the information that is available to them. They are too trusting - a state of mind that leads to overinvestment." (Benabou, 2008, in Akerlof & Shiller, 2009, p. 179). The merits of the level of confidence reflected by the market can thus be called into question; that sometimes, little confidence is actually unwarranted and high levels of confidence can be overly optimistic.

The economy is built on human interaction. In the everyday dealings with other people, we often find ourselves in the situation where we need to trust other people. Information plays a vital part of such decisions, and when it comes to other economic actors, such as companies, our confidence in them is typically built on their respective reputation and other general market signals. The dynamic nature of the market requires a level of trust among the economic actors. You trust that the product you buy is the one promised to you by its vendor. It can be hard to gather all the required information you would need to make a decision, so the value of reputation can be quite significant, especially for companies. Stock market prices typically reflect a level of confidence in companies and expectations for their future prosperity and general value. Stock markets play an integral part of the modern economy and the performance of such markets can influence the economic wellbeing of nations (Shiller, 2005).

Drawing on Minsky's *Financial Instability Theory* (1977), Friedman and Laibson (1989) have shown "...how the behavior of investors trying to allocate their portfolios as best they can, using whatever information they have available at any time, can cause the overall financial system to become more fragile with the passing of time after the most recent market crash..." (p. 141). This highlights the fact that the market can be influenced by investors' behavior; risk aversion, risk seeking and confidence are significant factors to deal with in examining the dynamics between the market and economic agents. The subject of stock markets and investors behavior is far more extensive than this paper would allow. The macro-economic implication of investors behavior is, however significant and it is a subject that should fit well in the realm of behavioral economics and would warrant a further detailed analysis.³⁷

The financial "wonder" constructed in Iceland was driven on high expectations. The confidence of their owners and executives was infectious, where

³⁷ Robert J. Shiller has a very interesting article about the stock market, titled "From efficient markets theory to behavioral finance" *Journal of Economic Perspectives*, 17, 2003.

foreign banks seemed to have faith in their abilities to grow immensely. The banking sector as well as the public sector did, however, not produce much real growth; most of the investments were done with borrowing. Prices were artificially kept on high levels where the banks lent other companies to buy stocks in the banking sector. Either they lent each other to invest in each other or they made direct loans from, for instance, the headquarters to a daughter company to buy stocks in the headquarters. Fueled with the overconfidence in the banks and their executives, as well as with questionable loan practices³⁸, they managed to outsmart experienced veteran foreign bankers (as well as most of the Icelandic officials) to lend them credit. With this credit they managed to produce one of the biggest bank crashes of all times relative to GDP - leaving behind an equivalent mountain of problems and losses (S.I.C., 2010).

Although perfect information in markets is an assumption in the models of neoclassical mainstream economists, they are fully aware that such conditions are never quite there. It is therefore interesting to see how *homo economicus* fares while dealing with imperfect information and how that affects the theory of general equilibrium. In a famous paper, titled *The Market for Lemons*³⁹, Akerlof (1970) brings the example of the market for used cars, identifies the problem with *asymmetric information*⁴⁰ and examines the economic cost of dishonesty. As the only person to really know the quality of the product, the used car in question, the seller has the advantage. The buyer can not accurately distinguish between a good and a bad used car. The cars are nevertheless sold at the same price. So it follows that the sellers of bad cars can drive the sellers of good cars out of the market. An owner of a good used car would not sell his car under the value representing the quality of the car. Buyers would not risk paying too much if it turned out to be a “lemon”⁴¹. The economic cost of dishonesty can be significant as the presence of economic agents that are willing to misrepresent the quality of their product can possibly eliminate such markets. In economic terms, this would be an example of market failure, where a mutually beneficial transaction between two economic actors, fails to occur.

³⁸ Where many of the artificial loans are suggested to be illegal in the S.I.C. (2010), and are currently under investigation when this is written.

³⁹ This is a seminal paper for Information Economics, that has been widely accepted into mainstream economics. Akerlof was awarded the Nobel prize, along with Joseph Stiglitz in 2001, where this article played a significant role.

⁴⁰ The term *asymmetric information* claims that on the market, economic agents do not always possess the same information.

⁴¹ “Lemon” being a car of low quality.

Cooperation experiments (such as prisoner's dilemma, public goods game and trust game) have been conducted for many years and in most parts of the world and seem illustrate a "relationship between the existence of formal institutions and the form of norms and social preferences that dictate behaviour. Societies in which formal institutions are missing or weak, develop and rely on pro-social norms and preferences as behavioral benchmarks more than other societies in which institutions are strong"(Cardenas & Carpenter, 2008, p. 345).

Trust and co-operation play a central piece in the micro-credit model, as developed by the economist Muhammad Yunus. In order to facilitate access to credit in impoverished rural areas, Yunus (1997) came up with the business model where the key idea was that small loans with an easy, clear weekly repayment schedule and a collective responsibility based on familiar connections, would bring credit to markets where the risk of default had previously been deemed too high. The business model was a success and gave small communities the necessary starting capital for small promising, sustainable projects.

Attempts have been made to measure confidence among consumers. An index devised to provide future expenditure estimations, such as the Michigan Consumer Sentiment Index⁴² have been applied and widely used. Research suggests that these indicators feed into GDP measurements. Behavioral economists are however skeptical about the validity of these indicators, in the sense that they not quite measuring confidence, rather they measure expectations about future and current income, and serve their purpose as such. Behavioral economists have suggested a confidence multiplier of sorts, in line with Keynesian economics⁴³. Although the very concept of confidence is hard to analyze, let alone quantify, its impact is very real. The confidence of investors can, for instance play a significant role on the credit market. Many have attributed the credit freeze, and the resulting financial crises of 2008, to low confidence by investors (Akerlof & Shiller, 2009; Schiller, 2005).

Jón Sigurðsson (personal communication, April 19th, 2010) mentions in an interview for this paper, that how at first the increased risk and warning signs of a

⁴² In Iceland the expectation index (ísl. væntingarvísitala) serves a similar purpose and gives an indication of the public's economic expectations.

⁴³ Multipliers are central to Keynesian economics. The basic principle behind multipliers is that any expenditure by the government will result in a multiplied income and thereby consumption. These multipliers are measurable. The development of a *Confidence Multiplier* is an ambitious idea and is likely to be proven a very challenging, if at all possible, task.

crisis did not affect the market, since it was generally believed that the Central Bank would save them. However creditors were loosing their faith in Iceland, markets and access to credit were drying up⁴⁴ and that this sentiment became global with the fall of Lehman Brothers. Sigurðsson (*Ibid.*) talks about fear being the strongest human emotion and when the herd becomes afraid the tide is quick to turn.

Stiglitz (2001) wrote about exchange rates and in respect to the case of Iceland he offers this warning about investor sentiments:

As Iceland's economy becomes more diversified, particular pieces of news (e.g., the size of the fishing quotas or the price of fish) are likely to have less marked effects, or at least have less marked effects on the underlying fundamentals. Yet swings in investor sentiment may still be out of proportion to the true importance of such news on the economy; and, unless the country is somewhat insulated from these swings in investor sentiment, they may to a large extent be self- fulfilling prophecies (p. 11-12).

3.4 Herd Mentality and Bad Faith

Like we mention in the chapter *Confidence*, markets can be greatly influenced by confidence and expectations. This chapter explores this notion further in light of group behavior because we must always bear in mind that people are social beings and are as such influenced by their fellow citizens and environment. Research on group behavior, conformity and obedience to authority has yielded quite alarming results. People *internalize* the roles assigned to them and act accordingly. They appear willing to put aside their normal qualms about seemingly irrational or even immoral behavior as long as they are told to do so by authority figures, or even if it is expected or implied in their job/role description (e.g. Asch, 1951; Milgram, 1963; Zimbardo, Maslach & Haney, 2000). The minimum group paradigm, as put forth by Tajfel (1970), shows that belonging to a group can change people's behavior. People favor other individuals within their groups, however arbitrary such groups come to be. People have a tendency to imitate or adapt their behavior to that of their fellow man. "It is more natural to join a group of strangers running in a particular direction than to

⁴⁴ See, "information vacuum" in the Richard Thomas report on *Icelandic Banks: Distress and Default* (2008).

adopt a contrarian destination”. (Khaneman & Tversky, 2003, p. 1469). It could hardly be described as a great leap of logic to draw analogies between the behavior of investors on the stock market and the previous statement.

The term *herd mentality* immediately conjures up an association with a docile flock of sorts, falling in line with any given direction. It implies a lack of reasoning and critical thought, which might be the case but there is probably more to it than that. The proverbial messenger does not risk being shot if he does not deliver bad news. As Janis (1982) points out, persons who continually express doubt or less than optimistic views about the capabilities of an organization, can be perceived as being disloyal. Such “negativity” is more often than not relegated to obscurity, while the building tidal wave of optimism rises unchecked. So if we follow our messenger further, we see that he has dodged the bullet but we can argue that he has displayed *bad faith*, going along with behavior that he ultimately knows is questionable. Leaving the bullet out of the equation, people do not require threats, to display *bad faith*.

We would like to think that people generally follow the laws and the norms of society. We know however, that people do not always do so. Most of us know of at least few examples of common behavior that violates the letter of the law. When driving on an open highway, people can zoom past a sign that states the maximum speed, glance at the meter and adjust their speed. How accurately they adjust the speed can be different between persons. If it looks like everyone is driving over the speed limit by 5 or 10km/hr and apparently getting away with it, why should you lag behind? Akerlof and Shiller (2009) bring our attention to the work of two scholars on this topic. The first is that of Sah (1991) who suggests that adherence to the law may be linked to information about the probability of punishment. Lower standards might indicate a social osmosis of sorts where this information is construed through ones contacts. The second is that of Becker (1968) who argues that such behavior might even be the rational thing to do. The implication of this line of reasoning could, for instance warrant a further, detailed research about accounting practices, that could arguably have been compromised in an era of lax conformity of regulations⁴⁵.

When it comes to *herd mentality*, it is interesting to note the role of the media. Generally considered to reflect public opinions and keeping “the pulse” of society, many indications of the general bearings of groups can be gauged with the media. In

⁴⁵ For a very interesting book about accounting practices and fraudulent business practices see Black (2005).

the seminal report by the *Special Investigation Committee* (S.I.C.) on the Icelandic financial crises, the media receives its share of criticism for insufficiently following up on the various warning signs that were signaled in the prelude to the ultimate crash of the Icelandic banks. Yet an interesting attitude can be seen in the course of their investigation. Both politicians and prominent people in the business environment were highly critical of negative reporting by the media when it came to Icelandic business interest. “You should be on our side. You should not be criticizing the banks and making remarks about the banks, you should be on our side” (S.I.C., 2010, vol. 9, p. 201-202)⁴⁶. We could therefore claim that the *conditioned power*⁴⁷ of the Icelandic banks was substantial, which is again evidenced through the words of Jón Sigurðsson (personal communication, 19 April, 2010), former Central Bank of Iceland manager, when he reflects on the lowering of the reserve requirements. “Everyone loved the banks. We would have been shot on sight and the hut burnt to the ground [If they had not lowered it.]”⁴⁸(p. 51).

It could therefore be safe to ascribe a general sense of “We’re in this together” mentality to the Icelandic community, even though the benefits and the (ultimate) cost of such a communal bearing, would prove to be disproportionately divided⁴⁹. Which, inevitably leads us to the issue of fairness, which is the topic of our next chapter.

3.5 Fairness and Honesty

One of the most essential parts of society is fairness. Most of our actions take fairness into consideration, both when we make rules or in our early upbringing. When politicians address their policies they often emphasize their underlying fairness.

“Almost all economic models assume that all people are exclusively pursuing their material self-interest and do not care about ‘social’ goals per se” (Fehr & Klaus, 2004, p. 271). Some traditional economics generally mention fairness as being an important

⁴⁶ “Þið eigið að standa með okkur. Þið eigið ekki að vera að gagnrýna bankana og gera athugasemdir við bankana, þið eigið að standa með okkur.” This quote is attributed to Birna Einarsdóttir, then the head of the marketing and sales division of Glitnir, now the bank’s manager in 2006, through the testimony of the editor of *Morgunblaðið*, Styrmir Gunnarsson before the S.I.C..

⁴⁷ As defined by Galbraith (1983), the *conditioned power* of big companies refers to their propaganda methods to promote a benevolent view of their activities.

⁴⁸ “Allir elskuðu bankana. Við hefðum verið skotnir á færi og það hefði verið kveikt í kofanum.” Jón Sigurðsson commenting on the EU mandated lowering of reserve requirements. See the chapter *Interviews* later on in this essay.

⁴⁹ We believe that the issue of “Iceasave” and its ultimate cost for the Icelandic society highlights this division.

part of the economy, “however important economists may consider fairness, it has been continually pushed into a back channel in economic thinking” (Akerlof & Shiller, 2009, p. 20).

The role of fairness in the economy is presumably much larger than has previously been taken into account. Many experiments have shown that people do not exclusively pursue their material self-interest (Camerer & Thaler, 1995; Fehr & Klaus, 2004). We now describe the example of the peanut butter previously mentioned only now with snow shovels instead of peanut butter. Kahneman, Knetsch & Thaler (1986) did an experiment of fairness where it was examined if participants would rate it fair or unfair if an owner of a hardware store would raise his price of snow shovels after a snowstorm, from \$15 to \$20. A large majority found this act of the hardware store owner unfair or 82% of the participants (similar to 79% in the case of peanut butter markup). Note that the owner is merely reacting to an increase in demand in the same manner that mainstream economic models assume. Those results lead to the question: Does it matter if the consumer finds the action of the storeowner unfair (even if he is merely acting as a rational economic agent)? Studies have provided evidence that it truly does matter. Now let us introduce a tool used to demonstrate how fairness is involved. In many research of fairness the “ultimatum game” is commonly used to examine the effect of trust and fairness in economic situations.

The ultimatum bargaining is a game with two players. The first player receives, say \$100, and he has to make a decision how to split the money with the second player. The second player has to choose between accepting the offer from the first player or reject it. If he accepts, both players can keep the money according to the split determined by the first player. However if he rejects the split offered by the first player neither gets anything. Let’s examine the position from *homo economicus* point of view. He finds that more is always better than less, he knows all the information and he knows that the other player is a fellow *homo economicus*. Therefore they are not impacted by the notion of fairness or other emotions. The *dictator* can safely suggest any offer to the other agent, as long as he offers him any money at all. All offers including any split should be accepted since more is always better than less and the *homo economicus* is certainly not puzzled over how much money the other agent is receiving. However in the real world we have both the sense of fairness and plenty of emotions.

Studies, using the ultimatum game, have shown that people appear willing to sacrifice monetary gain for a more “fair” conclusion and reject small offers. Some scholars have suggested that envy and unfairness motivate the rejection (Roth, 1995; Mitzkewitz & Nagel, 1993; Schmitt, 2003). If we accept the results, we can see that the *homo economicus* is in a complex situation. To make his situation even worse, evidence from social psychology has shown that people enjoy punishing unfair offers (Bolton, 1991) and they are backed up with results from neuropsychology where participants were shown to derive satisfaction from observing cooperative norm violators being punished (Singer, et al., 2006). The indications provided from these experiments are not part of the habits of *homo economicus*, his complex situation now turns into chaos. Leaving him in confusion we come onto the idea that if real people (like the storeowner) make those kinds of judgments, do they know about it and play upon the expectations? Research shows evidence of that being the case. That is, people try to be fair and fear that they can be seen as unfair, so when the other player has incomplete information it minimizes that fear. This leads to both significantly lower offers and the acceptance of lower offers by responders (Mitzkewitz & Nagel, 1993; Croson, 1996). Building on the evidence given, the storeowner looks to be in a dilemma between his economic and social reality.

With a fragile world economy after the ongoing financial turmoil there is an opportunity to take a look at the system of salaries in the financial sector. Finding the right salary for a worker can be a difficult task. Economists offer the theory of supply and demand where the labor market moves the price up and down depending on how many people apply for a given job (Perloff, 2009). With little doubt, supply and demand does play a huge role in the wage determination. However, some have suggested that fairness also plays an important role and could help explain why, for instance, identical jobs within many different sectors can be unequally paid (Akerloff & Shiller, 2009). In modern business schools, financial motivation is a key element in eliciting the most out of workers. The economic theory approves that the motivations or the bonuses do increase productivity and focuses the employees on the given task (Mankiw, 2007). Monetary incentives have been and are still heavily relied upon in the financial sector. As mentioned before, fairness could be one of the shaping factors when dealing with wages. In the case of bonuses and motivation, the most widespread system does not seem to be working properly. Results from behavioral economic studies Ariely, Gneezy, Lowenstein and Mazar (2005) for the Federal Reserve Bank

of Boston have shown that “relatively high monetary incentives can have perverse effects on performance” (p. 12). In their study, higher incentives led to worse performance in eight tasks of nine they examined. Important is to note that tasks, that involve only effort,⁵⁰ are likely to benefit from increased incentives. The tasks they examined included a cognitive component, tasks that were usually not very easy to solve and demanded creative and critical thinking. If the financial sector involves not only effort and includes cognitive components, i.e. thinking, it appears obvious that monetary incentives reduce performance⁵¹.

The issue of fairness has received much attention in Icelandic society, especially in the wake of the financial crisis. We see that mainstream economics “emphasizes probability of being caught and the magnitude of punishment as the only ways to overcome dishonesty” (Mazar & Ariely, 2006, p. 28). From this point of view, greater punishment and increased regulation seem a suitable rectification. However, Icelanders could do well to pause and reflect on further approaches. Psychological research has shown that honesty and dishonesty is also influenced by internal rewards, with internal rewards being a good feeling when a person does well for society (Mazar & Ariely, 2006). This could be a good example of the different approaches complementing each other rather than being mutually exclusive, as both punishment, regulation and internal rewards may influence honesty.

The financial sector seems to have lost track of fairness in the Icelandic economic boom. For instance honesty was clearly not part of the operation and marketing of the money market funds (S.I.C., 2010). As evident in Iceland at that time the brokers of the banks did the very best to outsmart the general public. They appear to have deceived the public to put money into funds⁵² that later were used in ill-founded business. Some of the funds even participated in buying stocks in the banks right before the banks were taken over by the government. In Iceland, the legal system faces a huge burden over the next few years from the lawsuits following the crash directly, not to mention that the level of debt, both for companies and homeowners is a major issue which has not yet been solved (S.I.C., 2010).

⁵⁰ Typically simple tasks that require little consideration on the employees behalf.

⁵¹ To see more about incentives and interesting tasks often used to examine them we recommend the lecture given by Dan Pink at TEDGlobal July 2009 (http://www.ted.com/talks/lang/eng/dan_pink_on_motivation.html).

⁵² For instance “Sjóður 9” of the Glitnir bank (S.I.C., 2010).

When external rewards, such as money, outweigh the possible punishment people are likely tempted to sway the rules and the norms. For the *homo economicus*, that balance is the fundamental scale, for which he either obeys the law or not. However, by including internal rewards to the system, society could get more help from the honest members. Reducing dishonesty could be based on increasing the long-run effectiveness of internal rewards (Mazar & Ariely, 2006).

3.6 Advertising Effects and the Media

Consumer confidence is unstable, and is highly susceptible to suggestions. In the times of high economic *real* growth where purchasing power is growing, consumer consumption is therefore often high. In the United States for instance the average person “saves just about 0% of personal income” (Akerlof & Shiller, 2009, p. 116). However, in economic downturns, confidence and therefore consumption can fall dramatically (Shiller, 2005). Many economies have faced the difficult task of trying to restore consumer confidence when fear, doubt and panic have settled in. Advertising is an important aspect of the functional economy, in the sense that they inform consumers about prices, new companies and products and when the economy lacks confidence, advertising can help to push the general public to start consuming.

Advertising is often split into two groups, informative and persuasive advertising. *Informative advertising* has the goals mentioned above and can in most cases lead to a better economic environment. *Persuasive advertising* however, can be treacherous, especially since they are effective through our intuitive thinking. Two models offer explanations of how we process persuasive messages. One is the Elaboration-likelihood model offered by Petty and Cacioppo (1986). According to the model, people think about the arguments when they receive a persuasive message. However, they usually don’t think deeply about the argument, “people are, after all, cognitive misers who are motivated to expand cognitive effort only on issues that are important to them” (Hogg & Vaughan, 2005, p. 213). The model claims that people either process information carefully or not, and if the message is not carefully noted, the evaluation depends on the presence of the persuasion cues. Another model is the *Heuristic-systematic model*; it claims a slightly different approach. Information is either carefully and systematically processed, or processed by using heuristics or mental shortcuts (Chaiken, 1980; Chaiken & Maheswaran, 1994). Both of these models are in line with our earlier description of intuitive thinking. The models

assume that people either reason in some form or try more carelessly to effectively fast-process the information given. When the messages are not systematically reasoned and people rely on their intuitive thinking, all the biases previously mentioned in this paper can make their appearance. Social psychologists have argued that the emotional state of a receiver of any message can influence his/her valuation. For instance, if a person is happy, the processing can become impulsive (Hogg & Vaughan, 2005).

An inseparable part of marketing is to use almost anything that can boost the sales of a given product, or the image of a company. In that manner, mental biases are often exploited to try to mystify a product. *Anchoring* has, for instance, been used where new products have been latched onto other desirable products. Some companies have also been known to make delusive frames of reference for new products by altering the prices skillfully (Ariely, 2008). A more obvious case of marketing through intuitive thinking is *advertising blitz*⁵³, where companies bombard consumers with persuasive messages in hopes of boosting and thus shaping the consumption. A truly misleading way of advertising is when journalists are writing about companies, products or political issues in the frame of news. Recently in Iceland there are many cases of journalist that have compromised their integrity by selling what seems to be a deceptive service (S.I.C., 2010).

Most people believe that they are less likely to be influenced than others by advertisements, and this has been called the third person effect (Hogg & Vaughan, 2005). It is reasonable to say that the marketing and advertising of the Icelandic banks got out of hand. In a interview for this paper the consumer spokesman Gísli Tryggvason (personal communication, 20 April, 2010) said that the advertising of loans from the banks where in many cases deceiving. It is evident that lending practices in Iceland got out of hand, in part because of the high foreign credit access of the Icelandic banks, the vast amounts of money that poured into the economy and ever growing asset prices. Therefore, the banks pushed money to all those that could possible pay them back. One of the bankers supposedly said in the briefings for the S.I.C.: “I remember that at sometime in 2004 it was said: Has not the last credit

⁵³ *Advertising Blitz* and *Pecuniary Emulation* make up what Galbraith (1998) named *dependence effects*, where our wants come to depend on the output of producers.

worthy man yet been found?”⁵⁴ Also, Sigurjón Þ. Árnason the bank president of Landsbankinn said, in a briefing for the S.I.C., that the home mortgages of the banks were “pure nonsense”⁵⁵. The loan’s interest rates were too low for the banks, said Sigurjón and adds, “I was always surprised that Moody’s didn’t say to us: Are you crazy? I was always hoping they would put some sense into the madness.” The banks ran their advertising propaganda efficiently and they focused mostly on home mortgages and car financing. As well as they promoted the turn of phrase “spend in saving”⁵⁶ which is obviously supposed to appeal to the consumption madness that was rampant. Sigmundur Ernir Rúnarsson⁵⁷ who was manager of one of the biggest news agencies describes in the briefing for S.I.C. how the walls between news and marketing crumbled (S.I.C., 2010). Advertising and the media does affect consumer behavior and is probably more effective when fraudulently framed as news, rather than traditional commercials. It might be a good step in the right direction to regulate them for the benefits of the supposed free minds of the consumers.

4. Policy Implications

Economics is an academic field that arguably has to deal with the most challenging aspect of society. This is something important for everyone to bear in mind, not only economists or politicians but also for the general public. Many renowned writers have commented on how demanding economics are. One is Henry Hazlitt (1952), who summarized the political conundrums of economics in this ingenious passage;

Economics is hunted by more fallacies than any other study known to man. This is no accident. The inherent difficulties of the subject would be great enough in any case, but they are multiplied a thousandfold by a factor that is insignificant in, say, physics, mathematics or medicine—the special pleading of selfish interests. While every group has certain economic interests identical with those of all groups, every group has also, as we shall see, interests antagonistic to those of all other groups. While certain public policies would in the long run benefit everybody, other policies would benefit one group only, at the expense of all other groups. The group that would benefit by such policies, having such a direct interest in them, will argue for them plausibly and persistently. It will hire the best buyable minds to devote their whole time to presenting its case. And it

⁵⁴ “Ég man eftir því [sem var] einhvern tíma sagt 2004: Er ekki búið að finna síðasta manninn sem á veðhæfi?”

⁵⁵ “tómt rugl”

⁵⁶ “Eyddu í sparnað”

⁵⁷ Sigmundur Ernir Rúnarsson is now a member of the parliament for the Social Democratic Alliance (*Samfylkingin*).

will finally either convince the general public that its case is sound, or so befuddle it that clear thinking on the subject becomes next to impossible.

In addition to these endless pleadings of self-interest, there is a second main factor that spawns new economic fallacies every day. This is the persistent tendency of men to see only the immediate effects of a given policy, or its effects only on a special group, and to neglect to inquire what the long-run effects of that policy will be not only on that special group but on all groups. It is the fallacy of overlooking secondary consequences.

In this lies almost the whole difference between good economics and bad. The bad economist sees only what immediately strikes the eye... (p. 3-4).

The process and finer nuances of how public policy is formed are beyond the scope of this paper. We can however claim as general knowledge that economics, by its very nature, has been a dominant force in policy making so the proposals and policies derived from it have vast and significant impacts. Now the penultimate question must be stressed; why have we been demonstrating all of these shortcomings of the *homo economicus*? We know that he/she is but an ideal, meant as a point of departure in the economic models. Traditional economic teachings start off with these assumptions and then go on to elaborate on how far from it we are at any given time or place. Our purpose with this paper has been to bring a psychological approach that has hopefully added depth to these human propensities, which may have many potential effects on key mainstream economic assumptions. This inevitably leads us to what this might mean for policy making.

It has been suggested that policy makers will probably not spend much time reviewing behavioral research to look for policy implications. Researchers, especially psychologists, who wish to see their theories implemented in public policy must become more vocal, interpret their results with this in mind and even design their experiments in a manner that would be a closer fit to the real life issues they are exploring – even if they would have to “...face a difficult tradeoff between providing an accurate and vague answer that offers no clear recommendations, or an inaccurate and precise answer that offers a clear policy and might bring about at least some change.” (Amir, et al., 2005, p. 447). Psychologists could learn a great deal from economists and how they have adapted and construed their research to provide policy recommendations, for they have had quite some experience with the difficult tradeoff, that is mentioned above.

In economics, *Pareto improvements* refer to “changes in policy that make some people better off and no one worse off” (Bazerman & Malhotra, 2006, p. 24). Economists see *Pareto optimality* as an ideal. It is not likely that they can reach it but

by formulating it in theory they can design policies that can come closer to that ideal. Stiglitz (1998) has emphasized the quest for “near Pareto effects” which we believe to be of paramount importance in policy making. Behavioral economics will hopefully aid the quest for these *near Pareto improvements*.

Consider *framing* in this respect; if people would have an easy “opt out” possibility when it comes to the issue of organ donation instead of an default “opt in” system that many countries still maintain today (Figure 9., Ariely, 2008), the respective health care system could benefit greatly (Johnson & Goldstein, 2003). Research has shown that people tend to stick with default settings when confronted with certain choices that require reflection on their part, such as the decision to start saving. Benartzi and Thaler (2004) have developed a savings policy⁵⁸ that takes into consideration some of the limitations of the *homo economicus*, namely the *status quo bias* and *temporal discounting*. Participants in this saving program, “Save More Tomorrow”, are enrolled by default but can opt out. Their savings come not from their current salaries, but from a portion of their upcoming pay raises. The framing of such decisions can alter the situation greatly. By switching the default system to an “opt out” instead of an “opt in” and still provide an easy, clear method for the “opt out” option, any paternalistic issues would have been dealt with and the probability of a *near Pareto improvements*, would increase. In Iceland, the default system for organ donation is based on an “opt in” policy, and the system relies upon its Nordic neighbors (Landlækni, 2006). We fail to see any obvious hindrance to implementing such a policy change that would make the Icelandic health care system more self-reliant and likely raise the number of organ donors. Amir et al. (2005) remind us that “...it is important to note that with or without intention to use framing, and with or without the knowledge of their effectiveness, framing is inherent. The question therefore is not whether to have framing or not, but rather whether it should be considered as a part of the policy or be allowed to be determined outside of the control of the policy making process” (p. 448).

⁵⁸ In Iceland the pension funds system is by default “opt in”. The only option is “in which”.

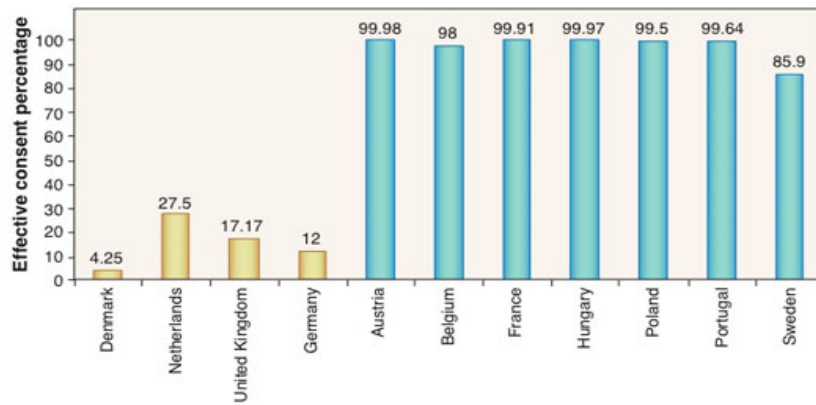


Figure 9 Effective consent rates, by country. Explicit consent (opt-in, gold, countries to the left) and presumed consent (opt-out, blue, countries to the right).

We have demonstrated the effects of *confidence* and *herd mentality* on markets. Should policy makers have a more concise and clear method of affecting these matters? How far should they go in adjusting the market climate? Should lying become a tool for monetary policy⁵⁹? The issue of value could be due for some further re-examination. We have seen how expectations influence market prices and thereby value. Value appears to be ever less substantial⁶⁰, e.g. the phrase *Casino Capitalism* is often used to describe the vast and instantaneous flow of money through the globalized economy. Jón Sigurðsson (personal communication, 19 April, 2010) claims that a “central bank really only does one thing or fails to do so: shape expectations. Trust is number one, two and three on his balance sheet”⁶¹. This should not be surprising as it is even implied in the general description of the role of central banks – as lenders of last resort. The Central Bank failed miserably in fulfilling this central mandate to ensure a safe financial system and price stability. Behavioral economists could provide significant insights in such policy making⁶². We have already introduced the concept of a *confidence multiplier* of sorts and its implementation would probably rely upon sound basics in human behavior. Only time

⁵⁹ We have often wondered about the statements made by officials, such as central bankers, where they downplay signs of fragility in the economy. In many cases their claims are soon after proven wrong, possibly with their trust discredited. Krugman (2009) mentions for instance when George Soros depreciated the UK pound in 1992, contrary to the statements made by the Central Bank of England. Krugman claims that Soros did the UK a favor by correcting the currency.

⁶⁰ The immaterial assets of Icelandic businesses grew eightfold between 2003-2007 (S.I.C., 2010).

⁶¹ “Seðlabankinn gerir í raun bara eitt; mótar væntingar. Traust er númer eitt, tvö og þrjú á efnahagsreikningi hans.”

⁶² For a comprehensive paper regarding corporate governance in light of behavioral economics and the regulatory perspective, see Kordel (2008).

will tell if the development and adoption of such a multiplier will be viable, yet it can not be denied that *confidence* and *herd mentality* have and will continue to play a part on the modern markets.

The significant role of expectations has not been lost on economists. In what has become known as the *Lucas critique*⁶³, the economist Robert E. Lucas Jr. (1976) identifies one of the most crucial variables that affect expectations, namely the policies that governments adapt and the announcements coming out of the Central Bank. “When policymakers estimate the effect of any policy change, therefore, they need to know how people’s expectations will respond to the policy change. Lucas has argued that traditional methods of policy evaluation –do not adequately take into account the impact of policy on expectations” (Mankiw, 2007, p. 411). The critique also serves as a vital reminder that large models with many variables, based on historical aggregated data can become too complex to serve their purpose. Behavioral economists will of course be faced with the same challenge as mainstream economists when constructing and advancing their models, the challenge of how to balance the scale of simplicity and actuality.

Finally when constructing a new framework for the financial sector as well as the regulation, it is important to implement our limitations into the system. In their chapter, *Economics Wins, Psychology Loses and Society Pays*, Bazerman and Malhotra (2006) maintained that, auditors have failed to act as fail-safe in many if not most of the corporate crashes in recent years. This strikes a chord in regard to the case of Iceland, as the performance and integrity of the audit firms has been called into question. The scale of the collapse suggests that the dubious banking practices should not have passed continuously through an impartial inspection (S.I.C., 2010). In the real world, we notice and prepare us for our limitations where we, for instance, use safety measures at a construction site. In the economic world we seem to expect more from ourselves. We don’t suspect or seem to accept that our cognition is limited. For instance, some of our limitations influence the decision making process when we have significant interest of viewing information in a specific perspective. For example, say an auditor for a big bank, which is his main customer, is in a demanding situation if he suspects that the bank might fall because of temporary liquidity problem. He might

⁶³ This argument was proposed in his article titled “Econometric Policy Evaluation: A Critique,” (1976). The article, along with more of his work, would later provide him with a Nobel Prize in Economics in 1995.

be tempted to sway away from his suspicions, or he might not even be capable of making independent or objective judgment. Bazerman and Malhotra (2006) point out a few studies where doctors (Kassier, 2005), lawyers (Issacharoff, 2005), investment bankers (Moore et al., 2003) and accounting firms (Bazerman et al., 2002) sway all to what serves them best⁶⁴. Results from the studies mentioned above suggest that we are not always aware of our adjustments. Therefore it looks clear that policy makers need to go beyond the usual system of penalties and prosecution with its reliance on deterrence effects, and deal directly with the cognitive limitations, by changing the environment so the system is not as vulnerable as evident.

⁶⁴ Many *self-serving biases* have been claimed to have widespread effects on our decision making and our awareness, for further reading we recommend any social psychology text book.

5. Conclusion

So what about the ultimate question in this paper? What is this disenchantment of mainstream economics and how does it relate to the Icelandic financial crisis? We have demonstrated that many of the assumptions about human nature that standard economic theory is based on, are at the very least, fragile. We have emphasized that most economists view these assumptions, not as an absolute truth, but as an ideal starting point for further analysis, yet this point cannot be stressed enough; these are assumptions and should as such only benefit from continuous scrutiny. We believe that there is definitely a margin for enhancement in many of the mainstream economic assumptions, without compromising the efficiency of the economic models. Complexity does not necessarily mean chaos (Ostrom, 2009). Furthermore, the uncertainty that characterizes our economic environment and decisions is not generally included in these assumptions. Decision-making under uncertainty is not random guesswork, nor the simplified version of the *homo economicus*⁶⁵; that process is guided by social and biological factors that need to be addressed and explored. We cannot explain the Icelandic financial crisis only in terms of mainstream economics. The limitations of economic actors are too substantial and complex to only fit in their explanations. With the added depth that behavioral economics aims to provide, a richer and hopefully more thorough explanation can be given.

It is our conclusion that economics will benefit from adopting a more pluralistic mainstream approach, to which behavioral economics could make a significant imprint. The disenchantment of mainstream economics refers to its theoretical and practical failure to prescribe and predict a salient social and economic policy, due in part to the over-simplified assumptions that it is based on.

We have purposefully avoided the well known debate about the failure of free markets, or the *Laissez-faire* policy. Any interested reader of social affairs should be at least familiar with the basics of that discussion. We will rather choose to speculate that, in addition to the chronicled challenges that the free market faces, the aggregated

⁶⁵ For the sake of keeping this paper more concise we have only offered the traditional economic model of rationality. However, psychologists have suggested more elaborate versions of rationality such as Etzioni's normative affective model (for further reading on those models see Etzioni's book from 1988; *The Moral Dimension*).

limitations of the *homo economicus* renders the free market incapable of solving many of the current, pressing economic problems, by itself. All of which seems to point towards the same solution; moderate government regulation and informed, prudent guidance will be required. Such policies need to be derived from a holistic point of view that utilizes all available knowledge, no matter from which discipline they stem from. The dynamic nature of society requires continual vigilance and realistic self-assessment. A better understanding of how people actually behave in economic situations and organizations could be invaluable to prevent another crisis, or at least reduce the ultimate damage that such economic turbulence entails for the society.

Iceland was caught in a wave of an overzealous optimism. Determined to make a stand on the international market, the policy makers were unprepared for the rapid ascent and its captains of finance⁶⁶ were ill suited for the excess afforded to them through cheap credit, lax regulations and the general challenges posed to them in the *long run* of major international capitalism. Through a mutually re-enforcing network of goal orientated optimism⁶⁷, the Icelandic market rose fast and dropped as sharply when the market realized that the “emperor had no clothes”.

⁶⁶ As used by Thorstein Veblen (1921).

⁶⁷ Hulda Þórisdóttir brought our attention to goal orientated optimism (S.I.C., 2010 vol. 8).

Appendix - Interviews

Former governor of the Icelandic Central Bank, and a member of the Central Bank board from 2003- 2006.

Jón Sigurðsson is a former governor of the Icelandic Central Bank. He left office when the former Prime Minister, Davíð Oddsson, was appointed in October 2005.

Mr. Sigurðsson sets the tone of the interview by reflecting on the increased risk that follows the fast-paced modern world. The inherent complexity in a more densely populated world is well reflected in systems of governance. He maintains that most decision-making leads in one direction and ends up with a single individual.

When asked about how well the economic models and assumptions reflect reality he answers: “The models are simplifications of a complex reality”. The data that the Central Bank works with are never more recent than two or three months old. Therefore they are always working with dated figures. That is important to keep in mind when we have seen that banking crises can occur in a single week. He further adds regarding statistics, that in theory you need at least 32-33 participants for statistical analyzes to be reliable, but in the Icelandic financial market there are only seven or in fact three, which makes the analyzes insignificant. In his view there are unrealistic expectations made about the capabilities of the models. The models are fine as far as they go, they serve their purpose but that may not necessarily be what people expect of them. Given this, it would be hard to blame the central bankers for their “mistakes” at any given time, except we assume them to have some type of a sixth sense.

On the topic of expectations and confidence, especially regarding the role of the Central Bank, he states that “a Central Bank really only does one thing or fails to do so: shape expectations. Trust is number one, two and three on his balance sheet”⁶⁸. Today, money merely represent expectations and “has become as aerial in nature as possible”⁶⁹. Precise prediction of money supply has become nearly impossible. When we bring up the issue of markets and if herd mentality could have played a role in the financial crash, he says that “without a doubt. Herd mentality. Always expect herd

⁶⁸ “Seðlabankinn gerir í raun bara eitt; mótar væntingar. Traust er númer eitt, tvö og þrjú á efnahagsreikningi hans”.

⁶⁹ “peningar eru orðnir eins loftkenndir og getur orðið”

mentality in any phenomenon we would call a market”⁷⁰. We ask him if he believes the Central Bank to be sufficiently independent, which he believes is the case. However, he goes on to say that the Bank had to institute legislation from Europe e.g. reserve requirements, that presented them with a dilemma. It was his belief that if the Central Bank had not lowered the reserve requirements, the commercial banks would have left (moved their headquarters) abroad within a year. Such a drastic decision would have been beyond their social authority. He articulates the general sentiment by stating that “Everyone loved the banks. We would have been shot on sight and the hut burnt to the ground”⁷¹ if the bank had not lowered the requirements. The Central Bank had some issues with the government before Davíð Oddson took office. Mr. Oddson, then a prime minister, and the foreign secretary Halldór Ásgrímsson, seemed to have their inflation objectives around the upper limits (4%) of the inflation objectives of the Central Bank. At that time the objectives were 2,5% so when the inflation rose they had to act. The staff at the Central Bank expected that unemployment would drop following the constructions on the East Coast but foreign labor increased so much, that the negative effects were not as bad as expected. Mr Sigurðsson claims that the Central Bank did in fact raise interest rates too late and by too little. He adds that the inflation objectives are merely just expectations, and back then they did not include the short-run effects⁷² on the exchange rate, like they do now.

Finally we ask Mr. Sigurðsson if he had anticipated anything like the crash. He points out that he wrote an article about the possibility of a banking crisis and in it he suggests that the European Union (EU) would be best suited to aid us. However, people believed that the article was a political propaganda for joining the EU. Increased uncertainty and warning signs of a crisis did not affect the market since it was believed that the Central Bank would save them if they would get into trouble. Creditors were however, loosing their faith in Iceland. Markets and access to credit were drying up. This sentiment became global with the fall of Lehman Brothers. Mr. Sigurðsson describes that fear is the strongest human emotion and when the herd becomes afraid, the tide is quick to turn. He describes that he has always thought that, individuals are themselves best suited to invest their own money and therefore he

⁷⁰ Enginn vafi á hjarðhegðun. Alltaf gera ráð fyrir hjarðhegðun á öllu því fyrirbæri sem við köllum markað.”

⁷¹ “Allir elskuðu bankana. Við hefðum verið skotnir á færi og það hefði verið kveikt í kofanum.”

⁷² The short run effects of higher interest rates on the exchange rate.

believed that “there must have been somewhere some sense in what they [the executives of the banks] were doing”⁷³. Now it seems that “the market is not to be trusted to regulate it itself”⁷⁴. Mr. Sigurðsson concludes the interview by mentioning that since the gold standard was abolished and we got *fiat money*, it has been nearly impossible to control inflation and other aspects of the economy efficiently. “It is in fact a house of cards in mid air”⁷⁵.

Icelandic Confederation of Labour

Ólafur Darri Andrason is the chief economist for the *Icelandic Confederation of Labour*, ASÍ.

Mr. Andrason started working at ASÍ in 2002 and says that in all of the yearly reports he has worked on they have all included an introduction that describes an “unusually high uncertainty” in their prediction. ASÍ works mostly with statistical models and base their predictions on collected numerical data. He describes a general feeling of “living in the now” and a lack of foresight in the Icelandic society. If things are going well, people seem to think that things will always be good, and vice versa. He is of the opinion that financial education should start early on, in the school system and is continually surprised at how some people lack an understanding of common, general financial terms and economic workings, even people who should know better.

When asked about money illusion and how much he has become aware of it in his interaction with people, he offers an interesting point of view. He has not witnessed it among his colleagues and maintains that people in Iceland are generally more aware of the effects of inflation because of the price indexed housing loans that Icelandic homeowners deal with every month. He also points out that since the *Þjóðarsátt*⁷⁶ of 1990, discussion about wages has mostly been in terms of purchasing power, rather than nominal wages.

Mr. Andrason says that the Icelandic job market is more downward flexible than he expected. This was evident in the aftermath of the crisis where there was practically a freeze on wage increases on the market, and even wage cuts. On the issue of bonuses, and especially in the banking sector, he critiques that they had

⁷³ “Það hlaut einhverstaðar að vera einhver glæta í þessu... sem þeir voru að gera.”

⁷⁴ “Markaðinum er ekki treystandi til að reglulera sjálfan sig.”

⁷⁵ “Þetta er í raun spilaborg í lausu lofti”

⁷⁶ The “National Settlement” refers to a famous agreement between labor unions, the government and the managers of the pension funds about reducing unemployment and inflation.

reached such extreme figures and were completely out of proportion to expected gains. The bonuses led to increased risk taking and the banks overvalued the individual contribution instead of attributing the perceived success to favorable circumstances and a prosperous business climate. The bonuses only worked upwards, because they were usually not pure monetary bonuses, but bonuses in the form of shares and stock options that infused the success and decline of the company to the employees interest. This meant that the employees could not sell their stocks without negative effects for the company as other investors would probably follow their lead, i.e. the employees would undermine the confidence in the company, by selling their shares.

The economic models that the ASÍ works with definitely needed some adaptation during the financial crises of 2008. New factors such as the currency restrictions needed to be addressed. The results from the model were never taken immediately as the final result, they reviewed the assumptions, checked if the results were probable and then re-ran the model until a probable conclusion was reached. The predictions of a model often achieve the goals of the one who runs it, and they tend to be only as good as the assumptions they are based on.

Consumer Spokesman

Gísli Tryggvason is the Consumer Spokesman in Iceland.

The office of the Consumer Spokesman was formed July 2005 by law from the Icelandic parliament.

When asked about the position of consumers after the fall of the banks Mr.

Tryggvason reminds us that shareholders in the banks are consumers and they should therefore have been under the protection of the FME⁷⁷. The FME have an obligation to supervise any trades with securities, “I felt like I was alone with little resources, trying to assist people to diversify their capital, while other larger institutions were messed-up”⁷⁸. As spokesman he was both trying to calm consumers as well as trying to prevent a run on the banks, being careful not to lie but still trying to prevent a run on the banks.

⁷⁷ The Financial Supervisory Authority – Iceland.

⁷⁸ “Mér fannst ég vera einn með litla “resourca” að reyna að aðstoða fólk að dreifa fé, á meðan aðrar stærri stofnanir voru í ruglinu”.

Finally he claims that the advertisings of loans from the banks were deceiving. Mr. Tryggvason points out that there is a proposition going before parliament in the weeks to come where he is hoping for the approval of group-lawsuits⁷⁹, especially for consumers, whose rights were violated by the money market funds, such as “Fund 9”⁸⁰ which was supervised by Glitnir.

⁷⁹ In Iceland only individuals can press charges against the funds for instance.

⁸⁰ Sjóður 9.

Bibliography

- Akerlof, G. & Shiller, R. J. (2009). *Animal Spirits: How Human Psychology Drives the Economy, and why it matters for Global Capitalism*. New Jersey. Princeton University Press.
- Akerlof, G. (1970). The Market for "Lemons": Quality, Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84 (3), pp. 488-500.
- Allias, M. (1953). Le comportement de l'homme rationnel devant le risqué, critique des postulats et axiomes de l'école américaine. *Econometrica*, 21, 503-546.
- Amir, O., Ariely, D., Cooke, A., Dunning, D., Epley, N., Gneezy, U., et al. (2005). Psychology, Behavioral Economics, and Public Policy. *Marketing Letter* 16 (3), 443-454.
- Ariely, D. (2008). *Predictably Irrational*. London. Harper Collins.
- Asch, S.E. (1951). Effects of group pressure upon the modification and distortion of judgements. In H. Guetzkow (ed.), *Groups, leadership and men* (170-190). Pittsburgh, PA: Carnegie Press.
- Bazerman, M. H. & Malhotra, D. (2006). Economics Wins, Psychology Loses, and Society Pays., in Cremer, D. J., Keith, J. M. & Zeelenberg, M. (eds), *Social Psychology and Economics* (263-280) Mahwah, NJ: Lawrence Erlbaum.
- Becker, G. S. (1968). Crime and punishment: An Economic approach. *Journal of Political Economy*, 76, 169-217.
- Begg, D., Fischer, S. & Dornbusch, R. (2001). *Foundations of Economics*. London: MacGraw-Hill.
- Benabou, R. (2008). *Groupthink: Collective Delusions in Organizations and Markets*. Unpublished paper, Princeton University.
- Benartzi, S. & Thaler, R. (2004). Save More Tomorrow: Using Behavioral Economics in Increase Employee Savings. *Journal of Political Economy*, 112(1), 164-187.
- Black, W. K. (2005). *The Best Way to Rob a Bank is to Own One: How Corporate Executives and Politicians Looted the S&L Industry*. Texas: University of Texas press.
- Bolton, G. (1991). A Comparative Model of Bargaining: Theory and Evidence. *American Economic Review*, 81(5), 1096-1136.
- Cardenas, J. C. & Carpenter, J. (2008). Behavioural Development Economics: Lessons from Field Labs in the Developing World. *Journal of Development Studies*, 44 (3), 337-364.
- Camerer, C. F., Loewenstein, G. & Rabin, M. (2004). Advances in Behavioral Economics. *Princeton University Press*.
- Camerer, C. F., Loewenstein, G. (2004). Past, Present, Future. In C. F. Camerer, G. Loewenstein & M. Rabin (eds) *Behavioral Economics: Advances in Behavioral Economics* (3-51). New Jersey. Princeton University Press.
- Camerer, C. F. & Thaler R. (1995). Ultimatums, Dictators and Manners. *Journal of Economic perspective*, 9, 209-219.
- Chaiken, S. (1980). Heuristics versus systematic information processing and the use of source versus message cues in persuasion. *Journal of personality and Social psychology*, 39, 752-766.
- Chaiken, S. & Maheswaran, D. (1994). Heuristic processing can bias system

- processing: effects of source credibility, argument ambiguity, and task importance on attitude judgment. *Journal of Personality and Social Psychology*, 66, 460-73.
- Croson, R. (1996). Information in Ultimatum games: An Experimental Study. *Journal of Economic Behavior and Organization*, 30, 197-212.
- Davis, J. B. (2006). The turn in economics: neoclassical dominance to mainstream pluralism. *Journal of Institutional Economics*, 2, 1-20.
- Dorfman, R. (1989). Thomas Robert Malthus and David Ricardo. *The Journal of Economic Perspectives*, 3(3), 153-164.
- Desvousges, W. H., Johnson, F. R., Dunford, R. W., Hudson, S. P., Wilson, K. N. & Boyle, K. J. (1993) Measuring Natural Resources Damages with Contingent Valuation: Tests of Validity and Reliability, in J. A. Hausman (Eds.), *Contingent valuation: A critical assessment, Contribution to Economic Analysis* (220) (91-159). Amsterdam: North-Holland.
- Ellsberg, D. (1961). Risk, ambiguity, and the savage axioms. *Quarterly Journal of Economics*, 75, 643-669.
- Engels, F. & Marx, K. (1886). *The Manifest of the Communists*. London. International Publishing.
- Federal Reserve Bank of Boston (2005). Research Review [Online version]. *Federal Reserve Bank of Boston* (4).
- Flynn, S. M. (2005). *Economics for Dummies*. New Jersey: Wiley Publishing.
- Friedman, B. M. & Laibson, D. I. (1989). Economic Implications of Extraordinary Movements in Stock Prices. *Brookings Papers on Economic Activity*, 2, 137-189.
- Galbraith, J. K. (1983). *The Anatomy of Power*. Boston: Houghton Mifflin.
- Galbraith, J. K. (1998). *The Affluent Society*, 40th anniversary ed. Boston Houghton Mifflin.
- Gisli Tryggvason (2010, 20, April). Consumer Spokesman. Interview with authors. Hverfisgata 33. Reykjavík, Iceland.
- Graham, C., Litan, R. E. & Sukhtankar, S. (2002). *The Bigger they are the Harder they Fall: An estimate of the Cost of the Crisis in Corporate Governance*. Working Paper. The Brookings Institution.
http://www.brookings.edu/~media/Files/rc/papers/2002/0722corporategovernance_graham/20020722Graham.pdf
- Gunnar Haraldsson (2009). *Mathematics II*. Notes from a lecture at the University of Iceland.
- Icelandic Central Bank. (2004). Monetary Bulletin [Online version]. *The Central Bank of Iceland*, 3, 1-14.
- Hazlitt, H. (1952). *Economics in one Lesson*: Special edition for the foundation for economic education. New York: Harper & Brothers.
- Hogg, M. A. and Vaughan, G. M. (2005). *Social Psychology* (4th ed.). Harlow: Pearson education.
- Janis (1982). *Group thinking* (2nd ed.). New York: Houghton Mifflin.
- Johnson, E. J. and Goldstein, D. (2003). Do Defaults Save Lives? *Science*, 302, 1338-1339.
- Johnsson, E. J., Hersey, J., Meszaros, J., & Kunreuther, H. (1992). Framing, probability distortions, and insurance decisions. *Journal of Risk and Uncertainty*, 7, 35-51.
- Jón F. Thoroddsen (2009). *Íslenska efnahagsundrið: Flugeldahagfræði fyrir byrjendur*. Reykjavík: Ísafoldsprentsmiðja.

- Jón Sigurðsson (2010, 19, April). Former governor of the Icelandic Central Bank. Interview with authors. University of Iceland. Háma. Sæmundargötu 2. Reykjavík, Iceland.
- Kahneman, D. & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47 (2), 263-91.
- Kahneman, D., Knetsch J. L., & Thaler, R. (1986). Fairness as a Constraint on Profit Seeking: Entitlements in the market. *American Economic Review*, 76, 782-41.
- Kahneman, D. & Tversky, A. (1973). On the Psychology of Prediction. *Psychological Review*, 80, 237-251.
- Kahneman, D. and Tversky, A. (1981). The Framing of Decisions and the Psychology of Choice. *Science*, 211, 453-458.
- Kahneman, D., Knetsch J. L. & Thaler R. H. (1990). Experimental tests of the Endowment Effect and the Coase Theorem. *Journal of Political Economy*, 98(6), 1325-1348.
- Kahneman, D., Knetsch J. L. & Thaler R. H. (1991). Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias. *The Journal of Economic Perspectives*, 5 (1), 193-206.
- Kahneman, D & Tversky, A. (1992). Advances in Prospect Theory: Cumulative representation of Uncertainty. *Journal of Risk and Uncertainty*, 5 (4), 297-323.
- Kahneman, D., Ritov, I. & Schkade, D. (1999). Economic Preferences or Attitude Expressions? An Analysis of Dollar Responses to Public Issues. *Journal of Risk and Uncertainty*, 19 (1-3), 203-235.
- Kahneman, D. (2003). Maps of Bounded Rationality: Psychology for Behavioral Economics [dagger]. *American economic Review*, 93, 1449-1475.
- Kahneman, D. & Tversky, A. (2009). *Choices, Values and Frames*. New York: Cambridge University Press.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. New York: Harcourt Brace.
- Kirman, A. (1989). The Intrinsic Limits of Modern Economic Theory: The Emperor Has No Clothes. *The Economic Journal*, 99 (395), 126. Retrieved April 4, 2010, from ABI/INFORM Global.
- Knetsch, J. L. (1990). *Derived Indifference Curves*, working paper, Simon Fraser University.
- Knetsch, J. L., & Sinden, J A. (1984). Willingness to pay and compensation demanded: Experimental evidence of an unexpected disparity in measure of value. *Quarterly Journal of Economics*, 99, 507-521.
- Kordel, Guido. (2008). Behavioral Corporate Governance from a Regulatory Perspective: Potentials and Limits of Regulatory Intervention to Impact the Conduct of Corporate Actors. *European Business Organization Law Review*, 9, 29-62.
- Krugman, P. (2009). *The Return of Depression Economics: and the Crisis of 2008*. New York: W.W. Norton & Company.
- Landlæknir (2006). *Líffæragjafi: Taktu afstöðu til líffæragjafar* [Brochure]. Reykjavík: Landlæknisembættið.
- List, J. A. (2002). Preference reversals of a Different Kind: The ‘More Is Less’ Phenomenon. *American Economic Review*, 95 (5), 1636-43.
- Lucas, R. E. Jr. (1976). Econometric Policy Evaluation: A Critique. *Carnegie Rochester Conference on Public Policy*, 1, 19-46.

- Lunn, P. (2008). *Basic Instincts: Human nature and the new economics*. London: Marshall Cavendish.
- Mankiw, N. G. (2007). *Macroeconomics*. New York: Worth Publishers.
- Marcowitz, H. (1952). The Utility of Wealth. *Journal of Political Economy*, 60, 151-158.
- Mazar, N & Ariely, D. (2006). *Dishonesty in Everyday Life and its Policy Implication*. Working Paper. Federal Reserve Bank of Boston.
- Milgram, S. (1963). Behavioral Study of Obedience. *Journal of Abnormal and Social Psychology*, 67, 371-378
- Milgram, S. (1974). Behavioral study of obedience. *Journal of Personality and Social Psychology*, 67, 371-378.
- Minsky, H. P. (1977). The Financial Instability Hypothesis: An Interpretation of Keynes and an Alternative to “Standard” Theory. *Nebraska Journal of Economics and Business*, 16, 5-16.
- Mitzkewitz, M. & Nagel, R. (1993). Envy, Greed and Anticipation in Ultimatum games with Incomplete Information: An Experimental Study. *International Journal of game Theory*, 22, 171-198.
- Nobel Foundation (2010). Retrived 8. March 2010 from www.nobelprize.org.
- Ostrom, E. (2009, December). *Beyond Markets and States: Polycentric Governance of Complex Economic Systems*. Price lecture delivered at the Nobel Prize presentation. Stockholm: Sweden.
- Ólafur Darri Andrason (2010, 15, April). Chief Economist. Interview with authors. ASÍ offices. Sætún 1. Reykjavík, Iceland.
- Patinkin, D. (1965) *Money, Interest and Prices* (2nd edn). New York: Harper & Row.
- Petty, R. E. & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In L. Berkowitz (ed), *Advances in Experimental social psychology* (123-205). New York: Academic Press.
- Perloff, J. M. (2009). *Microeconomics* (5th edn). Boston: Pearson Education.
- Pink, D. (2009). The surprising science of motivation. *TEDglobal*, Filmed July 2009; Posted August 2009.
http://www.ted.com/talks/lang/eng/dan_pink_on_motivation.html
- Redelmeier, D. A. & Kahneman, D. (1996). Patients Memories of Painful Medical Treatments: Real-time and Retrospective Evaluations of Two Minimally Invasive Procedures. *Pain*, 66 (1), 3-8.
- Roth, A. (1995). Bargaining Experiments. In J. Kagel & A. Roth (eds), *Handbook of experimental Economics*. New Jersey: Princeton University Press.
- Schiller, R. J. (2005). Behavioral Economics and Institutional Innovation. *Southern Economic Journal*, 72 (2), 269-283.
- Schiller, R. J. (2005). *Irrational Exuberance* (2nd edn). New Jersey: Princeton University prees.
- Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J. & Frith C. D. (2006). Empathic Neural Responses are Modulated by the Perceived Fairness of Others. *Nature*, 439, 466-469.
- Sutherland, S. (2009). *Irrationality*. [First published: 1992]. London: Pinter & Martin.
- Fehr, E. & Schmidt, K. M. (2004). A theory of Fairness, Competition, and Cooperation. In C. F. Camerer, G. Loewenstein & M. Rabin (eds), *Behavioral Economics: Advances in Behavioral Economics* (271-296). New Jersey: Princeton University Press.
- Sah, R. K. (1991). Social Osmosis and Patterns of Crime.” *Journal of Political Economy*, 88 (6), 1272-95.

- Shafir, E., Diamond, P. & Tversky, A. (2004). Money Illusion. In C. F. Camerer, G. Loewenstein & M. Rabin (eds), *Behavioral Economics: Advances in Behavioral Economics* (483-509). New Jersey: Princeton University Press.
- Shafir, E., Diamond, P. & Tversky, A. (1997). Money Illusion. *The Quarterly Journal of Economics*, 112 (2), 341-374.
- Singer, T., Seymour, B., O'Doherty, J. P., Stephan, K. E., Dolan, R. J. & Frith C. D. (2006). Empathic Neural Responses are Modulated by the Perceived Fairness of Others. *Nature*, 439, 466-469.
- Smith, A., (1776). *An Inquiry Into the Wealth of Nations*. London: W. Strahan and T. Cadell.
- Smith, A. (1759/1892). *The Theory of Moral Sentiments*. New York. Prometheus.
- Statistic Iceland (2010). *Statistics*. Retrieved 10 March from <http://www.statice.is/>.
- Stiglitz, J. E. (1998). The private uses of public interests: Incentives and institutions. *Journal of Economic Perspectives*, 12 (2), 3-22.
- Stiglitz, J. E. (2001). *Monetary and Exchange Rate Policy in small open Economies: The case of Iceland*. Working Paper. Central Bank of Iceland.
- Stiglitz, J. E. (2006). *Making Globalization Work*. New York. Penguin Books.
- Special Investigation Commission (2010). *Aðdragandi og orsakir falls íslensku bankanna 2008 og tengdir atburðir* (Report nr. 1-8). Reykjavík: Special Investigation Commission.
- Tajfel, H. (1970). Experiments in Intergroup discrimination. *Scientific American* 223 (5), 96-122.
- Thaler, R. & Tversky, A. (1996). Myopic Loss Aversion in Financial Investment: An Experimental Study. In C. F. Camerer, G. Loewenstein & M. Rabin (eds), *Behavioral Economics: Advances in Behavioral Economics* (590-605). New Jersey: Princeton University Press.
- Thomas, R. (2008) *Icelandic Banks: Distress and Default*. Merrill Lynch
- Tversky, A. & Griffin, D. (1991). Endowment versus Intuitive Reasoning: The Conjunction Fallacy in Probability Judgement. *Psychological review*, 90, 293-315.
- Tversky, A. & Kahneman, D. (1974). Judgment under Uncertainty: Heuristics and Biases. *Science*, 185, 1124-31.
- Veblen, Thorstein. (1921). *The Engineers and The Price System*. Batoche Books (2001), Ontario, Canada: Kitchener
- Wilson, T. D., Houston, C. E., Etling, K. M., & Brekke, N. (1996). A new look at anchoring effects: BaS.I.C. anchoring and its antecedents. *Journal of Experimental Psychology*, 125, 387-402.
- Yunus, M. (1997). The Grameen Bank story: rural credit in Bangladesh. In A. Krishna, N Uphoff & M. Esman (eds), *Reasons for Hope: Instructive Experiences in Rural Development* (9-24). Bloomfield, CT: Kumarian Press.
- Zimbardo, P. G., Maslach, C., & Haney, C. (2000). Reflections on the Stanford Prison Experiment: Genesis, transformations, consequences. In T. Blass (ed.), *Obedience to authority: Current Perspectives on the Milgram paradigm*, 193-237. Mahwah, N.J.: Erlbaum.
- Þorvarður Tjörvi Ólafsson (2009, September). *Balance sheet vulnerabilities and debt restructuring in the aftermath of financial crises: The case of Icelandic households*. The Nordic bank meeting, Reykjavik, Iceland.