Investors and valuers:
Similarities and differences from a behavioral perspective

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**Abstract**

This thesis is an explorative analysis of the commercial real estate actors. The behavioral theory has revealed many flaws in the neo classical assumptions. This includes models of rationality and prescribed behaviors. Research suggests both appraisers and investor act in ways that can be seen as irrational. Appraisers amongst other things anchor to figures that are not part of the valuation theory and investor invest on bases that are not fundamentally sound. Both also exhibit biases, such as confirmation bias and loss aversion. If valuation does not reflect the way market participants behave then they fail to give us a correct market value. We use interviews to try and understand how appraisers try to reflect the market and to understand how investors and other market actors value properties by comparing their use of the DCF-method. Our results suggest that there are many technical differences between how methods are used by different actors and that appraisers have a too close connection with the market actors.
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1 Introduction

1.1 Background

Behavioral research have after, much resistance from the mainstream economics, finally been accepted as a legitimate and practical useful research (Rabin, 2002). It’s acceptance has lead to to focus on many aspects of economy with basic psychological traits as explanatory variables. Appraisals and the real estate community is not an exception. Over the years many studies have been conducted by serveral researcher in the way appraisers behave. Julian Diaz III is the most prominent man in this field and almost single handedly brought to the attention of the world about behavioral aspects within valuation. These aspects had their roots in work such as Tversky and Kahnemanns “Judgement under uncertainty: heursistics and biases.” Many studies conducted revealed many “defecting” type of behavior by appraisers. Anchoring, confirmation biases etc (Diaz III, 1999) (Geltner, Bokhari 2010). This has lead to question concering proper market value. The valuers are not following the appraisal process in a recipe-like fashion, which is how it should be conducted (Diaz III, 1989). Expert appraiser develop their own heuristics or “production rules”. While this behavior is efficient, it can lead to missing out on important information and an less than an optimal valuation ensues (Diaz III, 1990) . Investors are also not free from scrutiny. Investor sentiment have been found and been claimed as the cause of rising prices. Investor sentiment means; "a belief about future cash flows and investment risks that is not justified by the facts at hand.” (Baker & Wurgler, 2007). Behavioral research has highlighted too many “deviation” from the mainstream economics with respect to both investors and appraisers.

1.2 Aim

The aim is to shed some light on the thought process in valuation and how the appraiser are using these modified valuation methods to reflect the market value/actors in the market. The usage of valuation methods by investors and banks are also investigated. This thesis is an explorative study of the behavioral aspects impact on valuation methods for investors, banks and appraisers.

1.3 Limitations

The interview method is very subjective and dependent on who is answering. We have not had any requirements of our interviewees other than experience in the field. Moreover, this
study was conducted in two different countries, Lithuania and Sweden; cultural differences will impact the results. Time restraint has also lead to questions not being deep enough.

1.4 Method

This thesis is using qualitative research method since it is the best method when venturing in uncharted territory. Interviews held should help us understand how appraisers reflect the market and how investors and other market participants value properties. Interviews are held in Lithuania and Sweden for practical reasons and are not based on any reasons from theory. Seven appraisers, five investors and three bankers were interviewed. The interviews lasted between 30-60 min. We had no special requirements regarding the interviewee’s background; however, everyone was made sure to have had enough experience in the field of commercial real estate. This study is a comparative study where several appraisers/investors receive the same type of question to reveal differences/similarities and more direct questions are used directly at specific interviewees. The interview format was open. Data is then collected and analyzed in two sections, one being of a more technical nature regarding way-of-using standard valuation methods. Other section is more focused thought process and attitudes.
2 CRE Valuation Theory
The purpose of this part is to provide the theory on Commercial Real Estate (CRE) and real estate valuation in general. First of all, the purpose and definitions of valuation are presented in this chapter. Secondly, the existing valuation methods are presented – income approach, comparable sales approach and the cost approach. Lastly, the connection to the market is presented and discussed.

2.1 Purpose of valuation and valuation definitions
The definition of real estate and real property is essential to define before we get in to valuation. According to Appraisal institute (2008) the distinction between real estate and real property is fundamental to appraisal. Real Estate is defined a physical land together with the tangible appurtenances affixed to the land (e.g. structures). It is immobile and includes the following tangible components (e.g. Land, trees, minerals, buildings, site improvements). Real property is the interests, benefits, and rights inherent in the ownership of real estate. Appraisal is the act or process of developing an opinion of value. Usually, appraisals of Market Value are the most common assignments. Otherwise the appraisers are requested to develop opinions on other types of values. The planned use of an appraisal is the appraiser’s intent of how the client and other possible users will use the appraisal report. According to the future use of the appraisal report the appraisal problem has to be defined. The possible uses of the appraisal are transfer of ownership, financing a credit, litigation, investment counseling, decision making, and accounting (Appraisal institute 2008).

According to International Valuation Standards Committee valuations are developed on the basis of Market Value of an asset or on the bases other than market value. Furthermore, central to all the valuations is the concept of market, price, cost and value. Price pertains to the actual exchange of the good or service; cost reflects the expense of producing the good or service; value represents the price most likely to be concluded by the buyers and sellers of a good or service that is available for purchase. According to Appraisal institute (2008) the Market value is defined as follows:

*Market value is the most probable price, as of specified date, in cash or in terms of equivalent to cash, or in other precisely revealed terms, for which the specified property rights should sell after reasonable exposure in the competitive market under all conditions requisite to a fair sale, with the buyer and seller each acting prudently, knowledgeably, and for self-interest, and assuming that neither is under undue duress.*

However, there are three broad valuation methods to that are used to determine the market
value: Sales comparison approach, income approach and cost approach Appraisal Institute (2008). According to Norlund and Lind (2008) valuations are usually done in several steps and the method used in the first basic step has to be distinguished from the method used for making adjustments for remaining difference in characteristics. Authors claim that in the first step two dimensions are used for categorization of the valuation method – the strategic values used (price, income or cost) and in what way is the connection to the market made (using transactions or the knowledge about the actors on the market):
-Price: a forecasted price is linked to the hypothetical price in the market (very similar transacted objects or through normalization with a physical measure like area)
-Income: an income variable and prices on the market are used
-Cost: a link between cost and prices is used in the valuation

Authors Norlund and Lind (2008) claim that the connection to the market can be made in two basic ways. First way is through observed transactions. In other words it is called “sales comparison approach”. Second way is through the knowledge about the actors on the market.

2.2 Valuation methods

The income approach

Geltner, Miller Clayton, & Eichholtz, (2007) claims that in order to understand fundamentally the situation in the micro level in most real estate activity, the return expectations, the investors goal, and the prices or values of assets has to be analyzed.

The prices investors pay for properties determine their expected returns, because the future cash flow the properties can yield is independent of the prices investors pay today for the properties.

Relationship between investor return expectations and asset prices

The analysis of the link between asset prices and returns that are based on the operating cash flow potential gained an acceptance between academia and the professionals. Also, it might protect from the common boom and bust cycles in the real estate market. Furthermore the process consists of three steps:
• Forecast the expected future cash flows
• Ascertain the required total return
• Discount the cash flows to present value at the required rate of return

DCF and how to use it where:
= Net cash flow generated by the property in period T
= Expected average multi-period return (per period) as of time zero (the present), the opportunity cost of capital (OCC) for this investment, expressed as the going in IRR
T = The terminal period in the expected investment holding period, such that would include the resale value of the property at that time, in addition to normal operating cash flow.

Proformas and cash flow projection
Geltner, Miller Clayton, & Eichholtz (2007) claims that cash flow forecast has to be taken seriously. The fundamental earning potential of a property is essential for making investment decisions. However, since nobody can accurately forecast the future the estimate can be biased and unrealistic. Nevertheless, the cash flows are still projected usually for 10 years due to the fact that properties are long lived and investors hold properties for long periods in order to minimize the transaction costs. Furthermore, even if the property is being sold shortly it has to generate operating income over the long term. A complete proforma in real estate investment analysis includes two categories of cash flows:

- Operating cash flows - results from normal operations of the property
- Reversion cash flows - occurs at the time of sale of an asset

Potential gross income and market rent projection
Geltner, Miller Clayton, & Eichholtz (2007) potential gross income is usually the operating income that the property can earn if it is fully rented. Although, in practice it is same as rent roll, especially for properties with long-term leases. The projection of the potential gross income will involve two different calculations in case of existing and expired leases:

- Revenue will be calculated according to the existing leases
- Revenue will be a function of the future leases

Thus, the supply and demand of the space market has to be taken into consideration to project
a rent roll as well as the circumstances of a particular building. Therefore, it is essential to estimate the current and future market rents levels for property valuation. There the rent comps analysis is important, where the recent signed leases are compared to the leases signed in a similar building.

**Vacancy Allowance and effective gross income (EGI)**

Geltner, Miller Clayton, & Eichholtz (2007) no one can realistically expect that a property can be fully leased, thus vacancy allowance is a ratio that shows the expected effect of vacancy. Usually it is a percentage of the potential gross income (PGI). It can be calculated by forecasting the possible vacancy period that is associated with every lease of the space of the building. Furthermore, the projected long term average vacancy percentage calculated has to be compared to the typical vacancy in the local market of the similar buildings and adjusted accordingly if it differs much. Moreover, the existing vacancy allowance tends to increase as the building age. Lastly, to get the effective gross income (EGI) the potential vacancy allowance has to be subtracted form the potential gross income (PGI).

**Operating expenses**

Geltner, Miller Clayton, & Eichholtz (2007) proforma is a cash flow statement but not the detailed an accrual income statement. Thus the depreciation is not a cash outflow per se. However, operating expenses typically include: property management and administration, utilities, insurance, regular maintenance and repair, and property taxes.

**Net Operating Income (NOI)**

Geltner, Miller Clayton, & Eichholtz (2007) due to the common use the net operating income (NOI) and net cash flow (NCF) or operating profit (OP). It calculated by subtracting operating expenses (OE) from the possible revenues such as rental revenue, other income, and expense reimbursement). However the net cash flows are calculated by subtracting capital improvements (CI) from the net operating income (NOI).

**Capital Improvement Expenditures (CapEx)**

According to Geltner, Miller Clayton, & Eichholtz (2007) capital improvement expenditures refers to the expenditures for long-term improvements to the physical quality of the property. Usually it is replacement of heating, ventilation, cooling (HVAC) system, roof replacement, and adding a parking lot. Furthermore, there are other capital expenditures such as leasing
costs that include improvement expenditures (TIs) and leasing commissions that are pay for leasing brokers. Capital expenditures are typically 10-20% a year of the net operating income (NOI). Moreover, it will be less in the new buildings and more in the old and will increase as the building age as well as very old buildings are close to redevelopment and not worth of major capital improvements.

**Reversion Cash Flows**
According to Geltner, Miller Clayton, & Eichholtz (2007) the best way to forecast the resale price of the property is to apply direct capitalization to the end of proforma projection period. For example for the 10 year proforma period analyst projects 11 NOI which then will be divided by reversion cap rate (also known as going-out cap rate). This process allows to calculate the resale price if the cap rates and NOI projections are realistic.

**Discount rates: The opportunity cost of capital**
According to Geltner, Miller Clayton, & Eichholtz (2007) the higher discount rate should be applied to more risky cash flows. The main reason is that such cash flows has higher cost of capital in the asset markets. The discount rate or total return which was earlier labeled $r$ can be divided into a risk-free (and risk premium (RP) component:

- risk free - accounts for the time value of the money
- risk premium – accounts for a risk investing in the certain property, it can also be called opportunity cost of capital (OCC)

**NPV investment decision rule**
Geltner, Miller Clayton, & Eichholtz (2007) claims that the discounted cash flow valuation procedure can be combined with net present value (NPV) rule. Net present value in an investment object is defined as the present dollar value of what is being obtained minus the present dollar value of what is being lost. According to the authors, in order to make a good investment decision the steps have to be taken:

- Maximize the NPV across all mutually exclusive alternatives
- Never choose an alternative that has: NPV<0

The beauty of the NPV rule is that it is based on the fundamental wealth maximization
principle. To better understand the relation between discounted cash flow (DCF) and net present value (NPV) by applying it to the simple decision:
If buying: NPV = V – P
If selling: NPV = P – V
Where: V = Value of property at time zero (e.g. based on DCF)
        P = Selling price of property (in time – zero equivalent $)

The sales comparison approach
According to Appraisal Institute (2008) an appraiser develops an opinion of value by analyzing the properties that are similar to the subject property. He usually analyses closed sales, listings or pending sales of properties. Moreover, the comparative analysis is fundamental to the valuation process. Usually the estimates of rents, expenses, land value, cost, depreciation and other parameters may be derived using comparative analysis. According to Pagourtzi, Assimakopoulos, Hatzichristos & French (2003) the comparable sales approach is the most widely used.

Unfortunately, according to Pagourtzi, Assimakopoulos, Hatzichristos & French (2003) the sales comparison approach is heavily dependent on availability, accuracy, completeness, and timeliness of sale transaction data. However, when conducting the comparable sales analysis the appraiser selects few recent similar properties from the recent transaction data. Since real estate is heterogeneous no two properties are exactly the same. In this case an appraiser must adjust the price of each comparable to account for differences between the subject and the comparable such as size, age, quality of construction, selling date, surrounding neighborhood.

It is viewed as a four-part process:

- Finding most of the comparable sales
- Adjusting the prices of the comparable to match the characteristics of the subject property
- Using several estimates of value to arrive at an estimate of market value
- Presenting the results according to the standards

DCF shortcut - direct capitalization
Lind (2008) claim that the connection to the market can be made in two basic ways. First
through direct capitalization or Gross Income methods where a relation between net operating income and price, or between rent and price is found in a set of transaction of similar properties. Second, discounted cash flow (DCF) analysis where data in the cash flow is derived from knowledge of the actors on the market. Third, direct capitalization based on knowledge of yields demanded by actors.

**The cost approach**

Appraisal Institute (2008) in the cost approach is a process where the set of procedures to calculate a value indication. First, the cost to construct a reproduction of (or replacement for the existing structure is estimated. This estimation also included the margin for the contractor. Secondly, the depreciation is taken to the account. Thirdly, the cost of land has been added. Lastly, to indicate the free simple value of the subject property the adjustments may then be made in order to reflect the value of the property interest to be appraised. The cost approach is applied when the properties are specialized and rarely sold on the open market and it would impossible to access its value by referring to similar properties (Pagourtzi, Assimakopoulos, Hatzichristos & French, 2003).

**Relation to appraisal principles**

**Substitution**

According to Appraisal Institute (2008) a knowledgeable buyer will not pay more for a property that costs to buy a similar property and improve it to the required state. Furthermore, in the cost approach the existing properties as substitutes of property being appraised. And their value is measured according to the value of the new, optimal property.

**Contribution**

According to Appraisal Institute (2008) the value of an individual component of the property is measured in terms of property’s value increase as a whole. Furthermore, the value of the component can be also measured as the amount its absence would detract from the value.

**Externalities**

According to Appraisal Institute (2008) there can be positive and negative externalities for the value of the real estate. The inflation or natural disasters can drive the cost of building a property. The value of the real estate will not necessarily rise. However, a completion of the sewer line may increase the value of the property, but would not the affect the cost.
**Highest and Best Use**

According to Appraisal Institute (2008) a vacant site can have one highest and best use, while the site with existing combination of site and improvements may have different highest and best use as improved. Moreover, the value of existing improvements is as much as they contribute to the overall value of the site. However, it may panelize the value if they have outlived their usefulness. Furthermore, the poor design of the building is worth less than its cost simply because of the functional obsolescence in it design.

**Stabilization**

According to Appraisal Institute (2008) the cost approach is a free simple value for those properties that are leased. It assumes stable income and vacancy. Also, the appraiser takes to the account the holding costs that are applicable through the holding period. Although, if the rents of the property are higher or lower than the market rents the occupancy of the property would be stabilized, but the value of the property itself may still require adjustment.

According to Lind (2008) there are two ways of how the cost approach connects to the market. First, through comparing the recently transacted properties. When the stable relation is found in observed transactions between (replacement) cost (increases) and price (increases). Secondly, through knowledge about what actors on the market think about the relation between cost (increases) and price (increases).

The appraiser himself will have to use his common sense and opinions of certain matters for dealing with issues like this. This gives the appraisers a certain freedom to create their own ways of handling this ambiguity. This also means that two appraisers valuing the same property at the same point of time will not come up with the same value. The valuations carried out by appraisers should reflect the market value. This means that “the appraisers are estimating the contract price that a willing buyer and seller would agree in an arm’s length transaction on the open market”(N. Bywater 1998).

Before the investment is made investors are concerned about the major characteristics of an asset that is being considered as an investment. Investments also differ in their level of risk that the investors are willing to take. Usually, less and more risky investments bring possibility of less and more return. Investments can be divided into growth and income. The
categorization of the approaches to valuation will bring more transparency to the valuation. And uncover what are appraiser are doing in the valuation process. It will also uncover and clarify what really is done when the property is being appraised using DCF method. This is really important for the appraiser in Europe, because it is perceived as the most popular appraisal method for the income producing properties (see e.g. McParland et al 2002, and Bellman 2012).
3 Behavioral economics

The mainstream economy assumes two important things; people are selfish and people are fully rational. Using these assumptions mainstream economics created the perfect economic man. He maximize his utility, has a strict budget, no psychological or social issues, no cognitive limitations like heuristics and biases and he is fully aware of not only his own consumption but also the consumption of others. Theories and models were then created according to the behavior of the economic man. Even in a complete complex and uncertain environment the economic man was able to correctly analyze and optimize. Obviously, this is not any kind of behavior observed in the real world. However theories are mere a model of a simplified reality to help us in our understanding and the assumptions of full rationality and selfishness has been the ground for many useful theories/models. Over time models and theories change or at least should change when new evidence come to surface. And that’s what the behavioral economists have discovered, evidence of a less than rational and self-serving economic man. These evidences have been hard to accept for the mainstream economics. Over 60 years ago came one of the first papers questioning the axioms, this was in the 1950s. However, it is only in recent times recognition of these discoveries has been taken seriously by mainstream economics. 1978 the Nobel Prize went to Herbert Simon, but still acceptance was weak and only in 2001 has the behavioral economics been widely accepted. George Akerlof managed to win his Nobel Prize by implementing psychology and sociology to the field of economics and in 2002 the psychologist Daniel Kahneman for his paper that “having integrated insights from psychological research into economic science, especially concerning human judgment and decision-making under uncertainty.” (Azar & Fetchenhauer, 2011).

3.1 The beginning of Behavioral Economics.

"Following the Money, But Also the Mind: Some Economist Call Behavior a Key" was an article published in the spring of 1994 in the financial the essay shouted out to the world that behavioral had finally arrived. At that time, the Department of Economics at Harvard University hired David Laibson who had written a dissertation including as much psychology as standard economics. MITs own Economic department followed Harvard’s initiative as well as others. At this time students also turned to psychology in economics and the essay that was written by Louis Uchitelle says that 20% among the graduates in economics can now be referred to as Behaviorists. The essay was written and published in 2001. To compare this
20% in 2001 with the number in 1990 which was at 0% puts the whole thing in perspective. The behavioral economist might be seen as a rebel since the established rational and maximizing assumptions was being challenge by a more humanistic approach. The truth is the opposite, established economists like Richard Thaler teamed up with two psychologists in the 1970s to explain the dynamic behavior. Out of this collaboration came the earliest steps for behavioral economics. Psychology is not the only principles used either, even sociology and anthropology have aided in explaining the complexity of economics (Hosseini, 2001).

The starting point for behavioral economics goes even further back then what is suggested by the essay of 2001. George Akerlof, Richard Thaler and Robert Frank are names that made contributions worth mentioning but several authors has partaken in the rise of behavioral economics. Two other giants are George Katona and Herbert Simon. During the 1950s and early 1960s George Katona and Herbert Simon were among the first economists to use survey methods to gather empirical data. These methods were focused on the expectations and intentions the actors in the market had about the future. This led Simon to the notion of bounded rationality which was the starting point for the rational expectation hypothesis which was created by John Muth, all from the Carnegie-Mellon University, back then it was known as Carneige Tech. The Carnegie-Mellon University was back then at the 50s-60s a very stimulating climate which inspired many authors who all contributed to the development of behavioral economics. But it was until Daniel Kahneman and Amos Tversky wrote the paper "On the Psychology of prediction." in 1973 that the economic profession recognized the usefulness of behavioral economics. The paper tested the axioms that were the foundation of the rationality in economics using psychological experiments. This demonstrated that human beings are poor Baysians. George Katan remains however the pioneer in the field although a great number of authors had made comments and published papers about the psychological aspects of economic behavior before Katan, his work stands out (Hosseini, 2001).

3.2 What is behavior economics?
This question might seem easy but surprisingly it seems difficult to answer. As the philosophy of science will tell you there is no strict list of methods for doing good science. However one should use rhetoric’s by using both facts and logics but also stories and metaphors which speaks to all the parts how you conceive, as means of proving the relative truth to fellow researchers and truth-seekers. Mainstream economics and behavioral economics need to be separated from each other to make it possible to answer this question.

The mainstream economics and behavioral economics have to be looked from how they
regard economics as a science. This includes using different scientific methods when investigating economic phenomena’s. What the author of the paper "What is behavior economics" J.F Tomer has come up with is six dimensions from which to identify and separate the two disciplines apart. These dimensions is extracted from the behavioral economists own critique against the mainstream economics (Tomer, 2006). The dimensions are as follow;

1. Narrowness
2. Rigidity
3. Intolerance .
4. Mechanicalness
5. Separateness
6. Individualness
(ibid).

### 3.3 The sub-disciplines of behavioral economics.

Although his name has been mentioned before Herbert Simon contribution to the works of behavioral economics requires a more thorough rundown. Simons work challenged the assumptions that were undisputed by neoclassical economics, namely rationality and self-interest. Also the use of mathematic models in his explanation was at a minimum, in his own word he states that mathematic formulas should not be used more than to make the argument and achieve clarity, which should be said that, many of today’s formulas does not bring clarity about. Simon did not want disciplines to be separated from each other but to be interdisciplinary (ibid).

George Katona, another pioneer in the field, a couple of years later than Simon and in the University of Michigan had his study of behavioral economic take the psychological approach. His way was very little based on theory and almost exclusively on the observation that he made. Rational decision making was something George felt little for, he like Simon felt that the axiom needed more scrutiny. His methods mostly consisted of interviews where poking in to the interviewees thoughts, attitude, aspirations, and many more aspects which was the foundation of his conclusions. No translations to mathematical formals were involved. George Katona a man with psychologist training used it and sociology to study the economic actors (ibid).
Psychological economics

This brand focuses much on cognitive psychology to reveal a more realistic pattern of behavior than what mainstream economics suggest. As with most of the behavioral economics they undermine the assumptions of rational decision making which can be found in the neoclassic economics. Amongst them are the well-known Daniel Kahneman and Richard Thaler who we already mentioned. Psychological economics has a standard procedure which goes as follow; "(1) identify normative assumptions or models used in mainstream economics; (2) identify anomalies, clear violations of the assumptions or models; (3) use the anomalies as inspiration to create alternative theories that generalize existing models; and (4) construct models of economic behavior using the revised assumptions, test them, and derive new implications."

This sub-division of behavioral economics does challenge the rationality and self-interest axioms, whoever it does not try to alter the view of economics entirely; instead it seeks to enhance mainstream economics models, giving the models more "psychological realism". The conclusions are often explained using mathematics. Mathematics are considered a necessary evil since they allow beautiful and simplistic ways of measure and testing and retesting. Also what is interesting to note with psychological economics is that they embrace the full spectrum of empirical methods which include everything from field experiments to brain scans! The work with brain scans is leading towards another sub-division dubbed neoroeconomics! The world holds it breath (ibid).

Behavioral finance

The theory is based on Kahneman, Tverksy and others. The point behavioral finance make is that financial markets aren't as efficient as mainstream finances would lead on. Systematic deviations from what are rational, efficiency maximization is not reality and deviations that exist for an extended period of time have been found in financial markets. These "deficiencies" has their root, according to behavioral finances, in the psychology related to beliefs and valuations and that real world arbitrage is limited. Robert Shiller, Andrei Shleifer and Hersh Shefrin are some of the leading practitioners in this field (ibid).
4 Recent trends

4.1 Progress of behavioral economics

The behavioral economics and mainstream economics might have been off to a bad start where mainstreamers thought behaviorists were trying to undermine the neoclassic economy. What is truly the purpose is to build on the neoclassical by new assumptions that have their roots in the real world. For example, the neoclassical way never investigate the fact that people might under-save or over-borrow, since in the neoclassical assume fully rationality and hence such a scenario does not even exist in theory, but this is the case of the real world. (Rabin, 2002)

The mainstream assumption; "People are Bayesian information processors; have well-defined and stable preferences; maximize their expected utility; exponentially discount future well-being; are self-interested...; have preferences over final outcomes...; have only "instrumental"/functional taste for beliefs and information." (Rabin, 2002) have been the foundation for economic theory has all proven to be useful in its own regard. Many psychologists have never seen the purpose of such axioms and directed much criticism towards them. Mainstream economists has however their own criticism towards psychological findings about behavior that affect economics. From the mainstream economics point of view these psychological evidences lack simplicity and but more importantly standardize methods and practical tools for them to be used in a feasible way. However, with the latest trends being some sort of unification of the two factions the point of view has changed. Even psychologists agree on some axioms, not as being true but as tools from where to create reference points and methods of their own. This is what mainstream economics have been criticizing the behavioral economics for, for being too imprecise and without any practical values. Behaviorists have realized that and this has as mentioned changed in recent years with the Nobel Prize going to behavioral economics etc as proof, that the axioms provides a solid ground from where to "measure" behavior, a reference point if you will.

The quirky behaviors

The economic man’s departures from the mainstream assumption has been found by many and many over a time period stretching back to at least 1950’s. So what are these findings?
4.2 Prospect Theory

You are asked to choose between a lottery offering 25% of winning 3000 and another lottery with 20% of winning 4000. Which one would you chose? Now suppose you were asked to choose between two other sets of lotteries, one with a 100% chance of winning 3000 and 80% chance of winning 4000. Which one are you going to choose now? The former or the latter? Subject chose between these two games and the result was in violation against expected utility theory. 65% of the subjects had chosen the latter lottery in the first game and 80% choose the former lottery in the second game. Why is this in violation? Because the two games are equal in all regards except that the probabilities have been multiplied by the same constant. The subjects should choose equally between the two games. That 80% choose the former in the second game tells us that people have a preference for certain outcomes and hence does not maximize utility in every case. This lead to the mathematical construct of prospect theory; where weights of 1 were given to extremely high probabilities and a weight of 0 to extremely low probabilities capturing the phenomena found in the experiment. The financial use of such an understanding can be found in option pricing, where stocks that are deep out-of-the-money and deep in-the-money have prices that theoretically cannot be accounted for using the Black-Scholes formula. This phenomenon is more commonly known as “option smile”. Another important derivation from the prospect theory is the discovery of the reference point. The reference point is an individual’s own point of comparison. Alternatives are compared to this subjective reference point to value the alternative, suggesting that absolute values are not used as benchmarks. However, how the reference point is calculated by an individual is still yet unknown. Theories suggest it is constructed using arbitrary means such as a point the investor finds convenient/easy visible (Shiller, 1998). Another thing derived from the Prospect theory is "myopic loss aversion". People take risks when it comes to losses. Myopic loss aversion can be divided in to two sub-divisions. One called Loss aversion and the other one called mental accounting. Loss aversion refers to the fact that people feel a loss more than an equal amount of gain, in other words, a 100 kr loss will feel worse than a 100 kr gain will feel good. The estimated difference in the "feel" between a loss and a gain is 2 and 1 respectively. So for people in general to take a bet with 50% of winning or losing 100 kr is not a option, the odds will have to be 2:1. Mental accounting is the implicit method we use to evaluate financial outcomes. Since our cognitive power is not unlimited we use some aggregated rules to evaluate things like transactions, investments etc making life easier. This in combined with loss aversion creates myopic loss aversion. The mental accounting should be neutral but since we are loss averse they are not and that’s why mental accounting matters.
A famous example to illustrate this point is the case where Samuelson asked a colleague; Will you be willing to accept a bet that gives you 50% to win 200kr and a 50% to lose 100kr? - No, answers the colleague. I would take 100 of them bets (Thaler & Benartzi, 1995). The story goes something like that. The irrationality of Samuelsson’s colleague is due to loss aversion. He would "feel" the 100 loss more than the 200 gain. But why would he take 100 such bets? The weights are still the same. He had one condition; as long as he didn't have to watch. Does this make sense? Yes, if you consider mental accounting. We do not like to watch loses, and every time we observe a loss we become more risk averse. Strictly logically you should take the bet, one or hundreds of them, but we are not fully rational and we have feelings that guide us (Thaler & Benartzi, 1995). Myopia means narrowing of the view. The conclusion you can draw from this is that risky bets or investments are considered less risky if you plan to hold them for a long time and if you do not monitor the progression of the investment, watching the stock go up and down etc. "Given that investors feel the pain of losses far greater than they feel the joy of gains, they are likely to not only experience disappointment if they check their portfolios with great frequency, but they are more likely to panic and sell as the pain of losses becomes intolerable." This phenomenon has been sometimes used to explain the equity premium puzzle (Thaler & Benartzi, 1995). The heavy usage of internet has made portfolios extremely easy to access and monitor, giving this trait of human behavior stronger impact than before. The unease from when a loss is monitored by respective investor can cause the investor so diverge from an investment plan that still might make sense (L. Swedroe 10/15/2002).

4.3 Regret and Cognitive Dissonance

We humans feel pain when we’ve done something wrong. We blame ourselves when making error giving ourselves negative feelings. We fail to put the error in perspective, we fail to forgive ourselves and from that, the error defines our future actions. Should one not want to experience negative feelings one may alter his way, causing them to make irrational choices. Regret is suggested by the Kahneman-Tversky work about prospect theory, (Loomes & Sugden, 1982)also indicate that regret causes people to create what they call a “modified utility function” consisting of; a mix between the expected value of a choice made but also the other choice that was considered but not taken. The expected utility of these two choices is then maximized. The financial value of regret theory can be found in the stock market. The fact that investors do not sell stocks that have gone down in value and that they sell stocks that have gone up in value quicker than what is suggested by mainstream economics can be
explained by Regret Theory. What this obviously suggests is that investors do not want to have to finalize their losses. Stocks that have gone down in value are not loss until sold. There is still hope right? Maybe, maybe not. It is like pulling the trigger when you yourself are the target. At the opposite end investors like to sell their winning stocks cause of the fact that they choose to avoid possible future regret that might come from a downfall in the stock. This behavior does exist in the market as documented by Ferris, Haugen, & Makhija (1988) and Odean (1999).

People hold beliefs about things and when evidence is presented that contradicts that belief people react funny. Cognitive dissonance is the mental conflict that occurs when ones beliefs and assumptions are under attack. It is sort of a pain similar to the regret theory that you might regret holding these false beliefs. You do not want the evidence to be true and you might even reject it. It has been found that people even take actions to prevent the mental conflict to even occur. One may actively avoid the evidence but also, once confronted, develop twisted arguments which dismiss the evidence. Behavior that confirms the existence is the fact people who had recently purchased a new car were suddenly uninterested and even avoid commercials about other cars and favoring the advertisement of their own car. This is one example. Another one is that people have a tendency to forget contrary evidence (McFadden, 1974). A third one is that the money that flows out from bad mutual funds is relatively low when compared to the inflow of money towards good mutual funds. (Goetzmann & Peles, 1995).

4.4 Anchoring
Anchoring is a well-known phenomenon that has been confirmed by numerous studies in many different ways. When people are on the task to make a quantitative estimation they are influenced by their environment, where it be other people or something else. Like the fact that people who had to choose an income bracket to where they belonged were influenced by the number shown in the brackets. Anchoring might be rational, people might think; these income brackets shown are created by the researcher using knowledge about people’s income. Hence, I can withdraw information from these brackets when making my choice. Alas, this was not the case, the numbers were random. This also demonstrates the danger with anchoring. Anchoring occur even when the information affecting a person is totally unrelated and even when the person knows that it’s unrelated! This was demonstrated in an experiment by Tversky and Kahneman 1974 where the question to the subjects went something like this;
how many percentages of the African Nations are with the United Nations? At the same time a wheel of fortune was spinning for all subjects to see, with numbers 1-100. The subjects were also told to answer whether their estimate was higher or lower than the wheel of fortune, (assuming) to get subjects to pay attention to the wheel. After they answered that they gave their own estimate. The wheel of fortune had an immense impact on that answers. The median estimate for subjects who had received a 10 on the wheel were 25 and those who had received the number 65 had an estimate of 45. This does not make much sense if you do not consider anchoring. Now, would an expert behave in this irrational manner? As a matter of experimental research, yes! Northcraft & Neale (1987) conducted such a research experiment with appraisal in the real estate sector for housing units. The appraisers were told to appraise a house for 20 min and was then handed information about the house, the area, comparable and other necessary information for an appraisal to be made possible. Everyone got the same information except that the square foot price and current asking price were different between the appraisers. The appraisers were asked for their own opinion of the value in four aspects including purchase price. The manipulated asking price was 119,900$ and 149,900$ respectively. The median differences between those who were given the lower asking price and higher asking price were 11-14%. This was later conducted on amateurs who ended up in the same range. Now one might be inclined to argue that the asking price should have a relevant effect, but one as high as 11-14%? After the appraisals were handed in the appraisers were told to rate the importance of the pieces of information they were given, 8% of the experts said that asking price was among the top three most important. The same number was 9% for amateurs. This rating of importance was too low to cause the asking price to have such an effect on the valuation (Silberman & Klock, 1989). Many economic phenomena’s are a direct effect of anchoring. Anchoring can be broken down into a few sub-categories to clarify the problems of anchoring. One of them is known as insufficient adjustment. It has to do with the same problem describe above with the African nations in the United Nations. Another anchoring problem is known as biases in the evaluation of conjunctive and disjunctive events. Conjunctive events might have high probability in every single element but together the probability is lower but people tend to overestimate that probability. The opposite goes for disjunctive events where the single element is has a low probability of occurring but put the whole event together and the probability is high which people tend to underestimate. The anchoring for the biased probabilities occurs because the single elements are considered high/low and affect judgment regarding probability of the whole event. The third and last anchoring problem is called Anchoring in the assessment of
subjective probability distributions which will not be discussed.

4.5 Representativeness

In the same field as anchoring we have something called representativeness. With the same field I am referring to situations where one is predicting an outcome. Beliefs about matters are used to predict uncertain outcomes. These beliefs are determined by a set of heuristics. When facing uncertainty people chose to simplify the situation by using heuristics. Heuristics which are mental shortcuts due to cogitative limitations in human beings, heuristics are applied all the time subconsciously, necessary and most of the time useful. The reason they are useful most of the time is that with all simplification, parts of reality gets ignored. This leads to systematic behavior and which evidently leads to systematic error. One can compare the process of assessing probabilities with other quantitative assessments such as size or distance. Assessing something is by definition a judgment based of data which cannot be attributed full validity. If the data was 100% valid no assessment would be necessary. To demonstrate the errors which can occur in the process of using heuristics; you are trying to judge how far away an object is. Part of your judgment is how clear you can see the object, the closer you perceive it, the closer you experience it to be. This is a fairly reasonable assumption since objects closer to oneself is perceived in greater detail. But when visibility is poor you would overestimate the distance of the object since it would appear less clear. Same problems occur when using heuristics in judging probabilities in uncertain outcomes. Representativeness is one of those heuristics that might cause trouble. To answer a question of probability the process often involves the causality of two items/events. "What is the probability that object A belongs to class B? What is the probability that even A originates from process B? What is the probability that process B will generate event A?" How do we judge the impact of B on A? By how much B is similar to A. An example to illustrate the point comes from a classic example of Steve. Steve is "a very shy and withdrawn, invariably helpful, but with little interest in people, or in the world of reality. A meek and tidy soul, he has a need for order and structure, and a passion for detail”. Here is a list of possible occupations Steve might have; farmer, salesman, airline pilot, librarian or physician. What occupation do you think Steve is engaged in?

Most people answer librarian which seems to be representative of Steve’s personality. However if you did chose librarian you might have fallen victim to a series of judgment errors;

*Insensitivity to prior probability of outcomes.* There are more farmers than librarians in the
population. If you did use representativeness to answer the question regarding Steve’s occupation you most likely did not take into account the fact state above. Say there is 3 librarians for every 30 farmers. Would you chose differently now? A test conducted proved that people who were given information about personality disregard prior probabilities. 

There are 70 engineers and 30 lawyers. What are the probabilities that Dick is an engineer and respectively a lawyer?

According to simple probability we can say that there is a 0.7 chance for Dick to be engineer and 0.3 chances he is a lawyer. This is reasonable (Bayes' rule) assumptions given the information. And this was also the answer the subjects had given. However, the experiments go on and bring forth new information:

"Dick is a 30 year old man. He is married with no children. A man of high ability and high motivation, he promises to be quite successful in his field. He is well liked by his colleagues."

The subjects took in the information who clearly states nothing that would indicate what occupation the man has. The answers of the subjects has been changed thou. The chances of him being an engineer had suddenly fallen to 0.5. This experiment showed that even worthless evidence does affect judgments and prior probabilities were ignored due to the use of representativeness.

The next one in line is; Insensitivity to sample size. When judging the whole population based on a sample it is important to realize that the larger the sample the more accurate the estimation will be. This error is best described with the following example;

"A certain town is served by two hospitals. In the larger hospital about 45 babies are born each day, and in the smaller hospital about 15 babies are born each day. As you know, about 50 percent of all babies are boys. However, the exact percentage varies from day to day. Sometimes it may be higher than 50 percent, sometimes lower.

For a period of 1 year, each hospital recorded the days on which more than 60 percent of the babies were boys. Which hospital do you think recorded more such days?

• A) The larger hospital
• B) The smaller hospital
• C) About the same.

This was asked to a bunch of undergraduate students which 21 percent answered A, 21 percent B and 53 percent C. The answers shows that people are unaware of a fundamental notion of statistics; the larger the sample the closer to the population it becomes. The answer should be B.

Another error that representativeness reveals is misconceptions of chance. Tossing a coin
infinite time should end up with the result 50 percent head and 50 percent tails. However in small sets like 8 tosses people still expect that it would end up at the same percentages and that the coin ends up on head every other toss. Moreover, people who gamble and observe the roulette wheel which ended up the last few times on red expect now that it will be black. In truth the preceding result has nothing to do with the future. The nature of chance is not fully understood. This is just not in gamblers; even experienced researchers have fallen into the trap of misconception as proven by Tverksy and Kahneman. Other errors caused by representativeness include; Insensitivity to predictability, the illusion of validity and Misconceptions of regression. (Kahneman & Tversky, 1974).
5 Behavior of Appraisers

Previous behavioral deviations have been more of a general nature. The study of appraisers themselves has in recent years been somewhat in focus, much thanks to Julian Diaz II who is the leading man in this field. He started investigating what appraisers actually do and find very interesting results. Following section will present the findings of Diaz among others.

5.1 Experts altered appraisal process

The appraisal process, the method that is taught is supposed to be used in recipe like fashion. It’s a normative process, a process which has been studied by researchers such as Julian Diaz and where he found evidence of appraisers not following the normative process when performing routine tasks. How the tasks of valuation usually are conceived is through a deductive reasoning, where a big as possible picture is painted and then draw conclusions from that. Instead appraisers were found to have used a inductive process with the subject property as a starting point (Diaz III, 1999). A study which was conducted in USA by Diaz was focusing on the decision-making process in real estate valuation. What is been prescribed and what is actually the behavior of appraisers were studied. When the expert appraiser is doing a routine task he is unconsciously solving it, he is in auto mode. This subconscious procedure is called production rule which builds up over time and with experience. When a novice is faced with the same task, he consciously goes through every step and considers what to do next. The novice follows the appraisal process in a recipe like fashion; he is less efficient compared to the expert. In the process of becoming an expert and acquiring production rules some steps in the original appraisal process, the one taught in schools, may be eliminated, altered or recombined. The result from this could be that the appraiser deviates from the appraisal process. Indeed, research showed that the behavior of experts deviate from the appraisal process. Even in unfamiliar settings, which caused unique problems i.e. not routine tasks, the appraiser did not conform to the appraisal process (Diaz III, 1989). Further studies investigating appraisers have found they do not act as other market participants in the sense that property characteristics were valued differently by appraisers (Adiar, Berry, & McGreal, 1996). These findings question the normative valuation procedures. Moreover, behavior of expert investors differs from amateurs in another aspect; finding comparable sales. An experimental study was conducted by Julian Diaz III who tested the component of the appraisal process. It was concluded that the experts used fewer sales and also differed in the nature of the search process. This article creates questions that are important from an
educational point of view but also about transparency. Has the appraiser way of using methods been altered as experience has been gained through the years? From the works of decision making literature; Self-esteem and experience seem to be related to the amount of information used declines. Even when the data is available experts leaves them out, confident that they have enough to make an optimal decision. Indeed the experiment revealed that 71 % of the amateurs looked at all available information, postponed judgments about comparability until information on all available sales was compared. This method is highly demanding cognitively speaking. Other students used some elimination behavior and others used all sales as part of the valuation analysis. For the expert, they examined all the sales in 46% of the time. Less cognitive demanding and less information, when between 3 or 6 comparable sales were identified the search process was terminated and the valuation process started. Experts were more cognitive efficient but danger in missing out on important information, despite the fact that little effort was needed to examine the last pieces of information the experts declined to do so. This cogitative efficient behavior produced sub-optimal results and in worst case, the results could become biased (Diaz III, 1990).

5.2 Anchors
The initial values appraisers start with can be inappropriate but also lack of adjustments from the initial value can cause systematic errors when appraising a property. We humans employ cognitive shortcuts when solving problems, due to limited processing capacity. These shortcuts are known as heuristics. The upside of these heuristics is efficiency but the downside is the potential to cause biases. Anchoring is one of these heuristics, which have been described above. The literature in this field suggest that; .." an arbitrarily chosen reference point (anchor) will significantly influence value estimates, and (b) value estimates will be insufficiently adjusted away from the reference point towards the true value of the object of estimation)" (Northercraft & Neale, 1987). Studies have been made that confirmed the use of anchoring by expert appraisers:
Listing price is the first attempt to try to appraise the value of a real estate and this is attempt is usually done by the seller. According to the quote above this listing price will be anchored to insufficiently adjusted away from. Neale and Northcraft conducted the study to find if anchoring to listing price did exist. They argued that the listing prices effect would impact the result less if the number was to out-of-bounds. The "zone of credibility" as they called it would be based on the systematic components that exist in the appraisal process. The listing price should be somewhere in this zone for it to have impact. If the listing price does not land
in this zone it will be less anchored to. However while anchoring by expert appraisers were found the unreasonable listing price still had the same impact on the appraisal estimate (Northcraft & Neale, 1987) Which raises the question about our subconscious process i.e. the work of Tversky and Kahneman mentioned above with African Nation and Wheel of fortune. Another one of the cases and anchor; the value opinion of another anonymous expert. Two studies were conducted to study this phenomenon, and it turns out that the expert operating in a geographic familiar area did not use the value opinion of anonymous experts. However, those who were operating in an unfamiliar area did indeed anchor their value to the anonymous experts value opinion. The hypothesis here is that under uncertainty the risk of anchoring increases, the uncertainty in these two studies were reflected by the location of subject properties, although other variables can create uncertainty and hence lead to anchoring (Diaz III, , 1997) (Diaz III & Hansz, 1997). Also, other references points do exist. The completed transaction price of a comparable property for example, however this reference is part of the appraisal process and should be used as such. Others like the one found in the studies mentioned above is not "sanctioned" by the appraisal process. Yet another group of anchors are those who are implicit sanctioned by the appraisal process, here one can count in; contract prices for the subject property which has not been closed yet and the same for comparable properties. A study was done to test these anchors with the expectations that those anchors sanctioned by the appraisal process would exert greater influence than the other types of anchors. Results showed that the appraisers indeed were anchoring to value opinion of others, unclosed contracts on subject and comparable properties. However, this was under geographic uncertainty conditions. The study of different kinds of anchor (if they were sanctioned by the appraisal process or not) also revealed that sanctioned anchors had a greater impact than non-sanctioned anchors. The power of the anchor was found to be exerting influence to the degree of which the appraisal process accepts it (Diaz III & Hanz, 2001) (Diaz III & Hanz, 2010).

5.3 Biases
"Valuations are a function of the way in which valuers’ process information" (Gallimore, 1996) Confirmation bias is a well-known phenomenon in human behavior that makes look for evidence that confirms our view of things. Confirmation bias is considered to be a very strong trait of human beings (Nickers, 1998). We as human beings have trouble accepting/seeing evidence that goes against our view. Bias does not stem from incompetence. The confirmation bias is likely to be found in at least two parts of valuation process; selecting the information and using it. Usually a valuer has an idea of what the value should be, not a
exact figure but around some number. This is a prerequisite for confirmation bias. Valuers also have a tendency for a "recency effect" where greater weight is given to information received most recently, but only when that information is positive. The time when information is given to appraisers and also when in the appraisal process information is accessed might have an impact on how the appraiser chose to interpret that information (Gallimore, 1994). Weak evidence was found in a test by Paul Gallimore that confirmation bias does exist the method had its downside however and any clear conclusions could not be drawn (Gallimore, 1996). What was however found is that opinion of values was formed earlier then what is suggested by the appraisal process and the limitation in the search of comparable. This means that appraisers form beliefs about value and search for evidence support them claims. If these two factors do prevail in the real world the valuers fail in processing available information and the likelihood of arriving at the correct market value declines (Gallimore, 1996).

Building societies in England and Wales seems to be aware of the effect a pending sale price have on valuations and appraisers themselves since 29/32 asked organizations had a deliberate policy of disclosing the pending sale to valuers. One of them had a deliberate policy to not disclose (Gallimore & Wolverton, 1997). The pending sale price is a exogenous variable to the valuation process. If it enters the valuation process it will create bias. The bias is affecting the processes in two ways; the choice of comparable and bias judgment when estimating value. Appraiser was found to be affected by the pending sale price, they avoided the highly comparable sales when those comparable had low prices and chose those who had higher prices but who were less comparable (Gallimore & Wolverton, 1997).

Another form of bias is the client pressure. Many appraisers have felt the pressure of clients to alter their estimates, mortgage banks and commercial banks being top two worst. The client’s size is a significant factor when using pressure to alter valuations. One might even say that it has gone so far that the appraiser’s job is to validate the client’s assessment. Studies have been made to test feedback from client (Wolverton, 2000). The study was conducted to test coercive feedback which includes implicit/explicit threats and pressure and also to test positive feedback: thanks and rewards. The study also captured what kind of behavior the pressure altered, i.e. role perception, these were; "the appraisers perception of the lenders appraisal achievement criterion and the appraisers self-perception of the appraisers role in the market for appraisal services" What was found was that client feedback indeed affected appraisers perception. Negative feedback changed the appraisers view from objective to validating and the opposite holds true for positive feedback (Wolverton & Paul, 1999). The study of client feedback is quite complex and has to do with the characteristics of the client,
the appraisal and the appraiser himself, where the size of client matter among other things.

Figure 1 Structural Model of Role Modification Environment (Wolverton & Paul, 1999)

Feedback affects not just the current valuation but also future ones. Feedback also can come from the market itself, by transaction prices for example. When an appraiser has finished appraising a property and the market moves it, it lets the appraiser see how he did, kind of like getting back your test result. If the transaction price of appraised property is lower, this will affect the appraiser’s future values. The appraiser will be more likely make lower valuation in the future, and vice versa for when the transaction price of appraised property is higher than appraised value. This seems to be logical; the appraiser is learning from his past and hence earns experience. However, the problem here is that the appraiser does not react equally to lower transaction prizes and higher transaction prizes. He weights the feedback differently depending if it is "more" or "less". The question is why do they react differently? One theory is that when the appraiser estimate a "too high" value in real life, it is not a problem. Clients are more reactive "to too" low valuation than "too high". This creates a subconscious understanding of the consequences involved which leads to a greater weight is given to "too low" feedback. Other explanations for asymmetrical response to transaction price feedback might be that appraisers have a "love" for the real estate sector and chose to see it as positive as possible; after all, they chose the profession. However, evidence of reasons for asymmetrical response is yet to be determined. (Diaz III & Hanz, 2001).

5.4 Investor behavior
The standard model of finance tries to explain pricing, these models predicts rational present
values of expected future cash flows. The Great Crash of 1929, the Nifth Fifty bubble of early 1970s, the Black Monday crash of October 1987 and our latest crash were unpredictable. The models could not capture this dramatic behavior of price. The behavioral research has tried to explain what standard model cannot. The research has led to an augmented standard model, which is the standard models mainstream economics use with the two added assumptions of; Investor sentiment and limits to arbitrage (Baker & Wurgler, 2007).

Investor sentiment is a behavioral condition found in investors themselves. Sentiment meaning: "a belief about future cash flows and investment risks that is not justified by the facts at hand." (Baker & Wurgler, 2007). The limit to arbitrage assumption comes from the fact that betting against sentimental investors cost too much and has a high risk. No arbitrageurs, people who "correct" mispricing, would be bold enough to act in the way that the standard model suggests. Investor sentiment in stock markets has been measured and factors that increase sentiment have been found to be: "stocks that are difficult to arbitrage or to value are most affected by sentiment." (M. Baker 2007). This finding is interesting in commercial real estate since these two characteristics of high sentimental risk stocks are what defines the commercial real estate asset. The limit to arbitrage assumption is also enhanced within the commercial real estate market by the transaction costs that also reduce arbitrage. Also the fact that you can’t short sell and the illiquidity of makes the commercial real estate more susceptible to overvaluation. We have seen that small frictions in the stock market can cause overvaluation for a long period of time; the same can be true for real estate since those frictions are not so small (Clayton, Ling, & Naranjo, 2009). The short-sale constraint implies that when irrational investors (i.e. sentimental investors) have a negative view of the market, they will sit idle by. However, if they believe the market is rising or has positive views they will enter the market and force the rational investors to sit idle by (Baker & Stein, 2004).

The sentimental component can be measured and has been done so by several researchers. Results show that investor sentiment, even after controlling for factors such as: "expected rental growth, equity risk premiums, T-bond yields, and lagged adjustments from long run equilibrium." affects prices significantly within commercial real estate business (Clayton, Ling, & Naranjo, 2009).

Loss aversion also resides within investor behavior. It has been thought that loss averse behavior was only to be found in the decisions of inexperienced investor, however research have found evidence contradicting this belief. "...loss aversion plays a significant role in the behavior of investors in commercial real estate." (Geltner & Bokhari, 2010). The same study also found anchoring effects to asking price with no sufficient adjustment.
6 Results
This part of our thesis presents the summarized interviews that were conducted. Three different parties where polled – investors, appraisers (asset management companies) and banks.

6.1 Commercial real estate appraisal as perceived by different parties
The purpose of this part is to present the results of the interviews conducted between different stakeholders that are involved in the commercial real estate appraisal process. Approaches of how different stakeholders perceive the appraisal process is distinguished in order to highlight the different commercial property appraisal approaches. This section shows how theory matches and differs from the practice.

6.2 Commercial real estate appraisal practice without borders
Due to the globalization in the world, investment companies employ their money internationally. Usually, the investment process may require either local or international appraisers. Moreover, foreign banks may finance the investment project that does not have a local subsidiary. Due to these reasons different parties related to commercial real estate activities were interviewed such as representatives of banks, investors and appraisers. Their operations is spread across the Nordic and Baltic region. The stakeholders were interviewed in two countries Sweden and Lithuania. The interviews where conducted via skype, phone or in person and lasted from 30 minutes to 1 hour. This approach uncovered the reality of the appraisal process. Also, it shed some light of how different parties are interlinked. Thus we where were able to recognize the positions that each stakeholder holds throughout the commercial real estate appraisal process. The stakeholders that contributed are sorted and listed below:

Stakeholders that specialize in investment activities:

David Neil - chief executive officer (CEO) at Genesta property Nordic,
John Davison - senior associate at Pembroke Real Estate,
Julius Niedvaras - country manager at East Capital,
Saulius Merkys - partner at Zabolis and partners,
Antanas Anskaitis - fund manager at Baltic Property Trust (BPT).
Stakeholders that specialize in banking activities:

**Martynas Zibuda** - managing director at Ektornet Management Lithuania (Swedbank group),

**Giedre Saveikiene** – head of Real Estate clients sub-department at Large Corporates Department at Swedbank AB,

**Beata Dzenkauskiene** - head of Industry and Corporate Analysis at SEB bank.

Stakeholders that specialize in appraisal activities:

**Mindaugas Kulbokas** - head of research and analysis at Newsec and Resolution,

**Saulius Vagonis** - valuation and market research group manager at Ober-Haus,

**Fager Torbjörn** – business development at Fabege,

**Andrius Sespaukis** - head of valuations at In Real.

**And 3 other anonymous interviewees**

6.3 Outcomes of the interviews

**Investors’ perspective**
Throughout the interviews most of the investors claimed that they invest according to their business plan. Some investors shared that they use discounted cash flow (DCF) procedure; some said that it is not compulsory for them. Especially in cases when partially empty properties were being bought. However, a typical investor applies DCF method to forecast the probable value of the property in the case of an entrance or an exit. Often, the DCF method was used one year after the property has been bought already. The purpose of the property valuation after one year after purchase is a way to prove to the bank that a good deal was made. There were investors that claimed that a good comparable of recently transacted properties makes direct capitalization for property possible. However, all market actors agreed that it is complicated to recognize and trust the comparable property. Usually, investors set the discount rate depending on their experience and their view of the market place.

Majority of investors believed that they have an advantage in the investment process. Thus they know the value of the commercial real estate (CRE) better. Simply, they buy, renovate and lease the building, thus they have a better view than appraisers. Also, they believe that
pricing is set up depending on supply and demand in the market. If there is capital increase prices go up if capital leaves the market, prices go down. Investors usually act opportunistically. They seek for some upside. They usually are trying to search for properties where they can charge higher rent. Also, they are constantly analyzing the operating expense optimization opportunities. However, majority of the investors associated the value of the property to the length of the lease contracts and the forecast of the market situation after the current leases has ended.

Investors interviewed argued that they are in difficult situation. Some of them raise money externally. They highlighted that it is essential to raise enough money and use it all in case it is raised. Thus they are on the high pressure due to the fact that they are responsible for the money raised. Also the tendering process nature is complicated. Investor that bids the highest price is allowed to acquire the property. For the reasons above investors sometimes over-pay.

**Appraisers’ perspective**

An appraiser defines the market value. For every empty space the appraiser calculates the market rent. Also, takes to the account the investment needed to reach the market rent. They do not set the price per square meter and other parameters higher than the market average. Subject property can be explained not just by the analysis of the current contracts, but also as empty. In some countries the rent contracts are not a guarantee. During the crisis a lot of contracts were dropped, and cash flow lost. Thus, appraisers are in difficult situation. He cannot be sure if a building is over rented or under rented. They simply do not perform the technical due diligence procedure. However, investors interviewed claimed that they usually win the disputes due to the fact that they have actual business experience and know the building from the buyers’ perspective.

**Risk profiles of the properties and standard time period for discounted cash flow (DCF) method**

Investors interviewed usually have different risk profiles that they set and appraise properties on the basis of defined risk profile. They claimed that core properties are valued 7-10 year basis, value add or mid risk 3-5, opportunistic 2-4 years. While, appraisers usually listen requirements to their customers – banks or property owners. Usually the standard time period of discounted cash flow (DCF) is 5-10 years. For growth is fixed to CPI with some corrections due to the possible change in competitive environment.
Most important characteristics of the building for the banks
Banks research the business of the tenants in the property. They usually make corrections depending on lease expiration date, the stability of the tenants business, tendencies and possible market rent.

Problematic capitalization process
However, the big issue in property appraisal according to the actors unregulated capitalization process. Stakeholders in the market are capitalizing different things. For example, Investors claimed actors in the market are capitalizing NOI. But that raised the question “What is NOI to different actors in the market?” Some market actors highlighted the importance to regulate and define the capitalization process. The issue is the capitalization process of the fixed and variable rents. For example, retail properties may have up to 15% net operating income (NOI) as variable rent. This means that part of the commercial property is leased for the tenant that pays a fixed rent and variable rent which depends on its turnover. The advantage of such solutions is that the owner of the property is more flexible to attract a well know brand. However, the disadvantage is that the capitalization of such property is questionable. Investors usually struggle to prove that variable rents are sustainable. Simply, the appraisers are looking at the history of the net operating income (NOI). Thus, they can capitalize the turnover rent as constant if the history proves that. But appraisers cannot capitalize the rent instantly after the contract has been signed.

Ease to manipulate the discounted cash flow model
Investors highlighted the ease to manipulate the discounted cash flow method. There have been cases when the property appraisal has been carried out and the prices defined by the method where compared to the actual transaction prices. It turns out that values of properties defined by investors where more accurate comparing to the actual transaction than values defined by appraisers. However, under complicated market conditions an investor might ask appraiser to use different appraisal method than what was initially chosen. During the financial crisis there was a case when the appraiser was pushed to use the replacement value of the logistics property. Since, other methods where yielding very low value.

Premium of the portfolio of the properties
The interviews revealed that investors and appraisers do not always agree on the prices defined. Then the portfolio of properties can contain variety of assets. Thus, the premium is
quite speculative. Portfolio’s that has commercial real estate (CRE) in primary and secondary towns has its specifics. Therefore, discussions with appraisers about premium of the portfolio are a grey zone.

**Loan to value covenant**
Investors noted that less liquid market are specific because that the value of the property is not as transparent. Under such conditions the appraisers might miss-price properties, break the loan to value (LTV) covenant. This can lead to the problem with the banks. They can refuse to finance the property.

**Investor and appraisal disagreements**
Interviews revealed that sometimes appraisers and investors do not agree on facts. Appraiser might not see the opportunities that an investor has due to it lobbying power. Also, he can see that the vacancy is higher and rent level is lover in the market than perceived by the investor. Under such conditions the appraiser would set a lower value for a property. However, appraisers interviewed claimed that the value appraised can be discussed with the price but it can vary just how much the market will grow 2-5%. They see the value of the property is how much the one that purchases can pay for that. They believe that an appraiser has to think as the typical investor thinks. They claim that if both sides did the same mistake and the assumptions are wrong, the price is right.

**Overview of the property values by the banks**
The banks that were interviewed generally concluded that nowadays all of the parties – investors, appraisers and banks agree on the value. However, the most important is that coefficients and rent prices has to rationally correlate to the comparable sales in the market. Moreover, it has to align to the business expectations and competition requirements.

**Property appraisal by the foreign appraisers**
The interviewees did not have a common opinion about the fact that foreign appraisers might define incorrect value of the property. There was an investor that highlighted the importance of the policy of the property fund. According to this investor, the asset managers have to act according to the rules that are stated in the funds policy. For example if there is a requirement that a foreign appraiser has to appraise properties. These requirements have to be met. Otherwise, the same investor claimed that he would rather choose a local appraiser, since they
are more flexible. They simply have more business. Moreover, there has been a case that fund investor sends foreign appraisers to the country and even rotate them. They do this to eliminate the possibility that an appraiser can fall in love with the property.

**Most important property features for the appraisal process**
Different actors in the market where asked to describe the most important property features that they focus their attention to. Both the investors and appraisers highlighted that the most important characteristic is rent level of the property. They claimed that property features like location, vacancy, commercial attraction and historical data of the property are aligned in the rent level. The second most important feature was the life cycle of the building. Whereas, appraiser highlighted the importance to collect the sinking fund. He takes to the account if the sinking fund is being collected or not. If the property is not being maintained then the income forecast is being assumed to be lower. Also, it was noted that under the higher competition the capital expenditures are usually higher. Thus, according to the investors properties are being appraised depending on the asset managers’ competence. If the asset manager does not have competence then the forecasted value might be lower.

**Effect of optimizing operating expenses on property value**
Another issue that was discussed with different parties that are involved in the appraisal process is optimization of the operating expenses. The investors and appraisers that were interviewed clearly stated the market will not pay for the owner for too much of optimization. The market usually applies standard operating expenses. Thus the longevity of the low operating expenses is important. Otherwise, if the energy efficiently of the building is improved then the value of the property would have to increase.

**Effect of charging higher rents than market rent to property value**
The investors and appraisers that were interviewed clearly stated the market will not pay for the owner for charging higher rents than the market rents. Moreover, it is the same with rents. If the owner of the property will manage to charge higher rent temporary the market will not pay him for that since the capitalization goes to perpetuity.

**Effect of charging the function of the premises to property value**
Change of function is another story. The prospected cash flows may be improved if the current rental are is turned to the more attractive are for possible tenant. However, investors
claimed that change is a big risk. If they do change the function, they usually apply he cost to the future rent for the prospective tenant.

**Effect of business cycle to property value**

When asked about the business cycles and their approach of how to deal with that investors and appraisers where discussing the issue lag. They claimed that it is complicated to forecast the position of the economic cycle. However, investors claimed that in the down market prices of properties are too high and in the up market they are too low. The prices start changing when the comparable sales start to prove that. In this case banks and appraisers interviewed rely on how the GDP development is forecasted. They support their forecast by states and regions financial stability.

**Effect of manipulating appraisers**

Interviews revealed that an appraiser is in such position that they can be manipulated. Especially, when an owner of the property is motivated that an appraiser would output the higher value than the property is actually worth. This is a usual case. Then in case of a need to refinance the loan banks avoid these possible circumstances. Banks usually order independent property appraisal, sometimes even without informing an owner.
7 Analysis
This work was designed to find differences in actors in the real estate market from the point of view of behavioral economics and asymmetrical information and with focus mostly on appraisers themselves. The definition of an appraisers work is to find the market value by reflecting the market. Appraisers, investors and banks have been questioned to try and reveal how they are thinking and how they are using the models available to them in assessing commercial real estate property values. We try to map out the thought process of these actors in the analysis. The analysis starts off with a more technical part, next follows an analysis of the underlying thought process.

7.1 Connection to the market
Discounted cash flow analysis is a one of the most common methods for valuing commercial real estate. It uses the concept of the time value of the money. First of all the future cash flows are forecasted and projected to the future. Then the sum of cash flows is discounted. This procedure gives the net present value on an asset. However, another commonly used, but opposite process is when the cash flows are taken in the market and the discount rate is inferred. The interviews with different parties in the market revealed that discounted cash flow process are more used by property appraisers and banks, while yield or direct capitalization are used more by investors. An investor interviewed claimed that they set the discount rate, in other words yield depending on their experience. Usually, the relation between the price and rent or net operating income (NOI) is set. However, investors mentioned sometimes, when there are no comparable sales they use discounted cash flow method (DCF) to define the discount rate or in other words yield. Nevertheless, it is noted in theory (Norlund and Lind, 2008) that actors in the investment process connect to the market using their own perception of the possible rent prices, knowledge of the other actors in the market, or applies the direct capitalization method where comparable sales data is used.

Prices that investors pay for their properties directly relates to their expected return (Geltner, Millerm Clayton, & Eicholtz, 2007). However, there is big variety of investors, which can have variety of liabilities applied by their own policy. One of the most common policy measure applied by the investors internally is target return. Usually, such policy measure are applied within value add funds. Moreover, due to the return target, funds have property type limitations. Since it is of high importance to reach the target return expectations, investment are strictly defined location wise. For example if the property comes up in the market with the
required expected return, but it is located in the downtown and the funds policy states that it has to be bought in a uptown location, the fund manager is not allowed to buy.

Appraisal process is carried out by the appraisers by applying the market rent in their models. In other words the appraisers will not set the price higher than the market average. He assumes that the property will be purchased by an average investor. However, investors diversify their portfolios to the core properties, value add or mid risk and opportunistic. The return target for each of the property is different. Due to this fact there is a scissors effect. Appraisers motivate the price of the property by typical investor’s thinking. In other words, if an investor pays the higher price than appraiser recommended the latter assumes that investor over-paid. These reasons makes us believe that perception by these parties differ due to the fact that investors forecast the expected future cash flows while the appraiser generalizes and sets market average.

Moreover, the investors buy, renovate and lease the building, thus they have a better view than appraisers. Moreover the pricing of the properties is set up depending on supply and demand in the market. If there is capital increase the prices go up and if capital leaves the market prices go down. Investors usually act opportunistically and seek for some upside. In other words, they are looking for properties where they can increase the cash flows. The can do it in variety of ways. For example, investors can break contracts with tenants that pay a low rent or they can divide up the building to the smaller areas and charge higher rent.

7.2 Capitalization of NOI

According to the investors surveyed in the continental Europe everyone are capitalizing different things. In theory net operating income (NOI) is company’s operating income after operating expenses are deducted, but before income taxes and interest are deducted. However, in practice it is not strictly defined by the standard what is the net operating income (NOI). Nevertheless, investors highlighted that different parties in the process capitalize the renovation, administrative and other cost in their own way. For example, brokers are trying to push up the net operating income (NOI) as high as possible and put the expenses outside the NOI. This might affect the value of the property perceived by the appraiser. Nevertheless, investors and appraisers agree that a good method to define the value is to apply the price per square meter and in this way compare different properties.
7.3 Capitalization of fixed and variable rents

A normal practice in the commercial retail properties is fixed and variable rent. Under such circumstances the issue is the capitalization decision. Investors and appraisers usually have an argument whether the appraiser can capitalize the variable part of rent at the same level as they are capitalizing the fixed part. Usually it depends. Both the invertors and appraisers agree that the variable part of rent can be capitalized at the same level if the trend of 5-7 years can be seen by an appraiser. Otherwise, if there is just 2-3 years of data the sustainability of such cash flows are questioned. Thus the property can be appraised by the lower value than it is.

7.4 Pressure on investors

The relation between the asset prices and expected future cash flows presented by (Geltner, Millerm Clayton, & Eicholtz, 2007) not necessarily rationally hold in real business environment. Simply, investors can be affected by the external pressure and specificity of the real estate asset class. Real estate is heterogeneous and has relatively low liquidity. There are investors that are using their own money, but some raise funds externally. The latter are on the big external pressure due to two factors. First, if such investor decides to buy a property, but he do not manage to raise enough money or raised the money and did not spend it all. Under such circumstances the brand of the investor is affected negatively. Second, each fund has a policy to distribute the money raised after a certain period with expected return for its investors. It can happen that part of the money raised was not used and given back to the external investors earlier than expected. Under such circumstances the reputation of the asset manager is troubled. All in all, the investors affected by these circumstances might invest money irrationally.

7.5 CAPEX or life cycle

Capital improvement expenditures refer to the expenditures for long-term improvements to the physical quality of the property (Geltner, Miller Clayton, & Eicholtz, 2007). In theory it is sated that it usually accounts for 10-20% a year of the net operating income (NOI) of the property. Capital expenditures can be used for physical improvement of the property, but also it can be used for leasing commissions for the brokers. However, the actors in the market highlighted that capital expenditures are lower and stands at 5% for the new building and increase as the building age. Moreover, the rent level has a tendency to decrease and vacancy
increase as the building age. In other words in new buildings the rent level will be higher and
vacancies lower in the new buildings. Another influencing factor for higher capital
expenditures is competition. According to the actors in the market, capital expenditures for
renovation increases in a competitive environment.

Nevertheless, both investors and property appraisers react to capital expenditures in their own
way. First of all, appraisers tend to appraise buildings depending on the asset managers
competence. If the asset manager is not experienced then the property will be appraised more
conservatively. However, according to the investors the appraisers are in difficult situation,
since there are different approaches towards property maintenance. One asset manager may
have a policy to wait and invest a bigger amount of money at the end of the properties life
cycle and another can invest money systematically. Under such circumstances appraisers are
in a difficult situation since the property that is being prepared for sale can be worn out, but
disguised as well maintained. In such case according to investors the property can be
overvalued or undervalued by an appraisers since he does not do the due diligence analysis
and does not know the real conditions of the property both technically and legally. Otherwise,
capital expenditures can be used for change of the function of a building. Investors claimed
that change is always risky. They usually try to forecast the future value after the function has
been changed and then the cost are subtracted. The risk is eliminated by adding it to the cost
for the possible tenants. Investors usually plan the capital expenditures to be 20% higher than
what they will be. It is due to uncertainty. However, appraisers do not want to yield a higher
value due to the change of the function.

Moreover, another factor that has significant and direct influence on the value of the property
is operating expenses. Property investors were asked if the optimization of the operating
expenses has an effect on value of the property. They noted that usually the market does not
pay for too much of optimization. The temporary contract with a company that does the
cleaning or other services does not influence the value of the property. The investors claimed
that longevity of the operating expenses is what matters. They claimed that if an owner or an
asset manager would be able to sign a contract for 10 years with lower price than the market
price then the value of the property could be raised. However, there were appraisers that
claimed that value of a property can be increased due to scale economies. A facility manager
that has a good position in the market can offer lower prices for services. He simply have
more business, thus can offer better prices.
7.6 Banks position in Investors and appraisers relationships (LTV covenant)

According to investors appraisers have a great influenced on the loan to value covenant. Since the value of an asset can be highly dependent on the appraiser’s judgment. Investors interviewed noted that in less liquid markets, where there are few or no comparable sales the value spread might be big. Under such conditions there are cases when the covenant is broken. It means that additional equity should be contributed. The debtor might be in a situation where he cannot provide more equity. Thus investors mentioned that there are cases when they are “fighting” with the appraisers. Moreover, if breaking the covenant, the creditor can impose restrictions on how the debtor should conduct business. Thus, debtor freedom for conducting business can be at risk.

Nevertheless, under the geographical uncertainty an appraiser’s judgment can be influenced by the reference point (Julian Diaz III, J. Andrew Hansz, (1997). Most of the investors agreed that this might be the case, but did not have any supporting information. They argued that in future forecast and thus real estate appraisal is highly speculative. However, investors gave an example which revealed the problematic of the property appraisal conducted by the international appraisers. It turned out that some appraisers may assume the credit ratings of the property tenants inappropriately. According to an investor interviewed, there has been a case when an appraiser assumed very low credit rating for a well-known retail chain in the region. This assumption significantly affected the outcome of the property appraisal. Then that same investor spent time to argue and prove for the appraiser that the credit rating was better and finally they reached the compromise. Moreover, the banks can take a lower LTV financing possibility if there is no mutual agreement between them and investors.

However, there are cases when fund investors have a practice to send international appraiser to appraise properties under geographical unfamiliarity. The argument for such practice that the investors and appraisers highlighted are solid. They claimed that an international appraiser know the supply and demand of a specific commercial properties globally. In other words, he knows the market better than the local appraiser. Nevertheless, there have been cases when investor’s focuses to the investment value, but not market value. An investment value refers to the value for a specific investor; based on that investor’s requirements, tax rate and financing. Whereas the market value is the most probable price of property would bring in a
competitive and open market under all conditions requisite to the fair sale (Appraisal institute, 2008). Moreover, the investor claimed that they are having their own opinion of how much the property can trade for. Thus if the market shows that the yield for such property is 7, 5-8% the investor might think that its investment value is 6, 25%.

7.7 Business cycles

Investors claimed that the value of a property lags behind throughout the economic cycle. For example when there is a crash in the market there are no comparable sales, because nobody is trading. Then the appraisers avoid dropping the price to the level where they think it can be supported hypothetically. Investor thinks that in the down markets the values are too high for a while. Then the prices start to fall and the comparable sales start to prove that. In the up markets the values are lagging behind. There can even be comparable sales, but the appraisers are not willing to change the value to reflect that.

Moreover investors usually calculate and define their position in the business plans. They believe that if the business plan does not hold a 5-7 year swap it is a speculation. Interest rate swaps often exchange a fixed payment for a floating payment that is linked to an interest rate (most often the LIBOR). A company will typically use interest rate swaps to limit or manage exposure to fluctuations in interest rates, or to obtain a marginally lower interest rate than it would have been able to get without the swap (Investopedia, 2014)

7.8 Thought process

The appraisers questioned had some different takes on how to survey the market. The method used, almost exclusively, to value commercial property is the discounted cash flow method; this was the case with all the appraisers. However, the use of the discount cash flow method is a modified one. This modified approach is very similar to the one discussed in Lind and Nordlunds "A more transparent two-step categorization of valuation methods" where it is summarized that the DCF- method used consist of three fundamental inputs; estimated net-operating income, value at the end of the time horizon and the discount rate. This is derived from two separate studies Nordlund (2008) and also Bellman (2012). However the way of order and how the appraiser actually thinks is still in the dark in these studies. As an experienced appraiser our interviewee does not follow the valuation method in a recipe-
like fashion, which is how the methods are taught. Over time the appraisers methods in conducting valuation has changed, from thinking, "the first thing I need to do is a discount count flash valuation" to "What is this property worth?". The appraiser revealed that he went on experience instead of using the DCF as a base. "Ryggmärgskänsla" is a Swedish word that translated directly means "Spinal Cord feeling", not the best wording, however the meaning of this word is intuition. Intuition is what separates the expert from the beginner. (Tanner & Benner, 1987)

The first step in evaluating a commercial property is not proceeding with a DCF method; it is to get an idea of the value with just one look at the property. The appraiser gives an example regarding a hypothetical building revealing that if you know the location and you know what kind of type it is, offices/industry/etc. then you also know what kind of cash flow it have or should have. And then after that you ask yourself what kind of discount rate does a building like this have depending on who buys it? And then you do a quick calculation, income/discount rate. And this is done automatically. “It is in my Spinal cord feeling.

The appraiser therefore knows what the market value should be before any kind of valuation is done. This is a prerequisite for bias and more specifically confirmation bias. However, the appraiser seems to be very aware of this process but does not see any downside to this.

As mentioned in Lind and Nordlund (2013), the valuation should reflect how the market perceives the value of a property (market value) and this is done by connecting to the market. Two approaches are identified; Sales comparison approach and Actor based approach. Sales comparison approach is derived from direct observation from sales in the market and actor based approach is based on the appraisers knowledge about the actor and his willingness/ability to pay. The appraiser is connecting his market knowledge which includes both types of approaches to his current task through his intuition. The pinpoint of the market value is still done through a standard discount cash flow method as stated by the appraisers. This is where trouble in the process through bias can ensue. The bias works in two ways: the selection of information and process of information.

In the standard procedure for DCF method you look up the necessary components such as rents, costs etc and then you find comparable to either find price and adjust it or/and a discount rate through actors.

Where does he look to find the information necessary to has been flipped and he is starting from the end and works his way to the beginning of the appraisal process. The appraiser is very aware that this figure that popped up is a rough estimate and it needs to be fine-tuned by employing the discount cash flow method. However, there are cases where the fine tuning of figures such as discount rate is edited so that the price ends up where the appraiser thinks the
value should be. This the appraiser followed with the quote:"-I know it sounds sick"(a better representative of the word sick in this context would be "strange")

The definition of the discount rate is defined as "-The willingness to pay for a property". The willingness to pay is derived from asking the question: Who wants to buy this property? Do they need financing? What will they pay? And the last question is based upon the actor’s earlier purchases. Here the combination of both a sales approach and an actor knowledge based approach is evident. The discount rate derivation goes as far as to analyze the banks position in the matter, since they will most likely finance the purchase. Other aspects include the rental contracts, what kind of tenants and if there is mix of tenants, and location. The appraiser concludes that the market value can be identified from a multiple perspectives and every time you can end up with another figure, he goes on and says:-"The important thing is what the transaction price is really going to end up with". Appraisers interviewed all talked about the close connection they had with the market, which includes all types of actor, from banks to sellers to developers. The information they got from interactions with the actors leading to knowledge about underlying facts regarding the transactions is what they stated was the key to a good appraisal. Knowing the price of a transaction was not enough, far from it, you need to know what causes the price to end up at a certain value to really be able to use that transaction as source of information.

However, when indications of bigger movement in prices are revealed, appraisers are reluctant to take out the curves accordingly. They are "-afraid to be the first one to take the step, nobody wants to take on the consequences of a downturn.. Since a lot can be riding on it... like financing from banks... You become unconsciously cautious". Why would an appraiser who has the information telling him/her that the value has gone in a certain way not chose to act upon such information? Taking the first step and be proven wrong later is not worth the reward for being proven right. This is what defines myopic loss aversion. One avoids potential gains in favor of being free from risk. Myopic loss aversion might explain this form of behavior by appraisers. It is a well-known phenomenon that appraisals lag behind in cycles. Theory states that this is due because market gives feedback late and appraisers need to go back in time to retrieve the information necessary for a appraisal, causing the appraisal to be built on "old" data if one does not wants to deal with transaction noise. This is not confirmed by the appraisers themselves. They deny that they are somehow "behind". They state as mentioned earlier that they are very close to the market with direct interactions with all parties. With firsthand information, appraisers are very much up to date regarding actors beliefs about the market. Should this be true, disproves the assumption of "old" data and
leaves the phenomena in the hands of a non-technical explanation, namely myopic loss aversion.

The fact that open communication occurs with actors, even such straight communication as telling directly to the appraiser that this is what we believes that a certain property is worth or this is how we value these types of rents etc raises a lot of question concerning the objectivity of appraisals. The market value definition is based on what actors on the market would purchase/sell a property for, and what better way to get the market value then being in contact with the actors themselves?

One potential downside of this conduct has to with the well documented investment behavior, namely, investor sentiment.

Investors are opportunistic and have a more positive view on the market than banks and appraisers. One example is the how to capitalize the rents with the investor having a more positive look on future income both regarding fixed and variable rents. They are willingly to go for risky investments, as an example, German investors love the single asset tenant buildings. They find them risky but they trade that for the long leases they have and that they are ease to manage. Of course long leases reduce risks but still they classify them as risky and invest, claiming that "love" has some to do with it. The view of the market that an investor have is a more positive one than appraisers and banks in general; market rents, vacancies, cap rates, discount rate and leasing speed. These are all components to predicting future cash flows, the NOI. The NOI which is a part of the standard valuation model DFC are according to investor interviewed, easy to manipulate. As same as the appraiser told us about "Spinal cord feeling" the investor also claimed that with experience and market knowledge follows intuition about how much a property should trade for. With the investors opportunistic views it can be hard to say if he is being rational or not. Investors interviewed claimed they have better knowledge than appraisers in general; one example was that they look at comparable and by that they get a view about how much a building goes for. They argue with appraisers and usually win the disputes due to more information. If investors are acting irrational as research suggests (in some cases such as up markets), being loss averse (S. Bokhari and D. Geltner 2011) and having "a belief about future cash flows and investment risks that is not justified by the facts at hand." (M. Baker 2007) then trouble can arise. Irrationality of certain investors can push aside the rationality of other investors in up markets (M. Baker & J. Stein 2004). Appraisers who are following investors closely to make appraisals should be aware of what kind of investors they are tracking. It might be hard to realize if an investor is being rational, if however irrational investors dominate the market, appraisals will reflect irrational
beliefs.
8 Conclusions

This thesis is an explorative research conducted through interviews with market participants. The aim is to shed some light on the thought process in valuation and how the appraiser are using these modified valuation methods to reflect the market value/actors in the market but also for investors and how investors themselves use the DCF. We have used a qualitative study to try and get a deeper understanding of the thought process and technical aspects of valuation modification.

The purpose of the theoretical and empirical part of the thesis was to identify why different stakeholders perceive value of the commercial real estate (CRE) differently. The theoretical and empirical part of the thesis consists of two strong branches. In the theoretical part the behavioral theory and valuation theory related to commercial real estate (CRE) appraisal is presented. Later this theory is used to describe the difference of the value perception between appraisers and investors.

The audience interviewees were not limited to appraisers and investors. Other, actors linked to the appraisal process was interviewed as well. The audience included representative of banks, fund managers, asset managers, developers and others. The main interest during the interviews was to figure out how sensitive the value is to changes in assumptions of the income stream. The two fundamental differences were presented to the parties involved:
- Two parties use the same valuation methods to make different assumptions about the input (because of difference in risk aversion or in knowledge/belief).
- They see the property differently – the appraiser sees the income stream from current use/design while the investor also sees various options (which they may not be willing to disclose to the bank…)

We do find that appraisers are very actor focused and even have direct interactions with investors regarding price of buildings and opinions of value. This can lead to distorted valuations if investors are irrational. Appraisers were also found to be careful to change valuation when the market starts swinging, and this might not be due to time-lag, from the interviews; appraisers themselves seemed to make a conscious decision not be the first one to take the step for fear of being wrong. Moreover, the valuation process being used is a reversed one with value of the property being “known” before DCF is employed.

The view of the actors on certain matters such as business cycles, loan to value covenant
(LTV), net operating income (NOI) capitalization have been discussed.

The interviews revealed that the appraisers might be manipulated in the appraisal process by the investors in a variety of situations. One case can be the capitalization decision. Problem is that the actors in the market are capitalizing net operating income (NOI) in their own way. Investors may simply design the net operating income in the way that would lead an appraiser to define the wrong property value. Another case concerns capitalization decision of the variable rents. It is considered normal practice in the retail properties that part of the rents charged can be variable. It means that there is a fixed rent part and variable rent part. It is of interest by the investor that own a property to capitalize the variable part of the property at least at the same level as the fixed rent level. The property owners will lobby for that and in this way the appraisers will be pushed.

Another important and challenging point for the appraisers is the life cycle of the building. Appraisers tend to appraise properties depending on their asset managers competence. If the asset manager is not experienced then he will appraise the property more conservatively. It can also happen that the asset manager might have his own decision of the capital expenditure policy implementation. Once can invest systematically, but another can wait and try to sell a worn-out property. Thus, the appraiser is in a difficult situation, because he does not conduct due diligence and does not know these aspects.

Investors are highly dependent on the appraiser’s decision when the loan to value (LTV) covenant is decided. Thus, under certain circumstances the LVT covenant can be broken and thus the owner or an investor might have to contribute with more equity. Since, the latter does not want to do that he will push the appraiser not to break the covenant. Moreover, the study has proved that under the geographical uncertainty the appraisers may not always act rationally. Nevertheless, the practice when the property is appraised by the international appraisers is used.

Some of these revelations lead to future studies or understanding by the actors that everyone has their agenda and that behavioral research in this field or any field that is based on human interactions, has much to offer.
Literature


