ESSAYS ON DISPOSITIONAL GREED

THE EFFECT OF INSATIABILITY ON CONSUMER BEHAVIOR

Goedele Krekels

2015

Advisor:

Prof. dr. Mario Pandelaere

Dissertation submitted to the Faculty of Economics and Business Administration, Ghent University, in fulfillment of the requirement for the degree of Doctor in Applied Economic Sciences

FACULTY OF ECONOMICS AND BUSINESS ADMINISTRATION

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Goedele Krekels, 22 mei 2015

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SUMMARY OF DISSERTATION

Greed as a concept hardly needs an introduction. It has been used throughout our history to denote the morally frowned upon behavior of taking more for oneself, thereby possibly causing shortages for others. It is part of our cultural heritage, both in religion and in literature and art. Moreover, as it has been so often highlighted and criticized in our society, we all recognize it in others, but less so in ourselves. In the last few decades, research has caught up with the importance of greed, and has studied greedy behavior in a variety of contexts. However, contrary to lay people who see individual differences in greed proneness, academic research has disregarded these individual differences and focused solely on situational determinants of greedy behavior. Furthermore, research on dispositional greed is hampered by the fact that up to recently no scale existed to measure greed as an individual difference trait, as a part of one's personality. Therefore, this research was set up to gain more insight into individual differences in greed and to investigate how this influences consumer behavior.

In chapter II, "Development of the Dispositional Greed Scale", we will start our investigation into dispositional greed by developing a way to measure this greedy motive. Extant research on greed has focused on situational determinants of greedy behavior, ignoring individual differences in greed. However, given that there was up to now no way to measure greed as an individual difference variable, research on greed as a personality trait was severely hampered. Therefore, in this chapter we start by given a clear definition of dispositional greed as an insatiable desire for more resources, monetary or other. Next, the present paper introduces a six item Dispositional Greed Scale. Two studies demonstrate convergent and discriminant validity and test-retest reliability. Specifically, they demonstrate that greed is related to but different from materialism. It is also positively related to entitlement, egoism, social comparison, envy, competition and productivity orientation and negatively related to impression management and satisfaction with

life. The Dispositional Greed Scale enables researchers to disentangle the impact of personality from that of the situation on greedy behavior.

In chapter III, "Greed as Adaptation to Resource Uncertainty", we will examine why people differ in how greedy they are. As lay people have focused on greed as a personal difference variable throughout history and we now have a way to examine how greedy people are in general, the question arises where these individual differences come from and what purpose a greedy disposition serves. This paper focuses on dispositional greed as an adaptive strategy to ensure future access to resources. If greed indeed serves this purpose, one reason why people might differ in how greedy they are is because they have different needs of this purpose. More specifically, in this chapter we examine childhood resource uncertainty as a possible cause for such individual differences in greed. Indeed, previous research has shown that acquisitive behavior can be triggered by uncertainty in environment or upbringing. In a first study we show that there is indeed a link between dispositional greed in adulthood and childhood resource uncertainty, measured through childhood socio-economic status. In a second study we demonstrate that these harsh childhood environments lead to an intensified sensitization to environmental uncertainty later on, in turn triggering greedy behavior to ensure resources. Finally, we demonstrate that when there is no difference between greedy and non-greedy people's perception about resource certainty, there is no difference in greedy behavior either. Thus dispositional greed serves an adaptive purpose of ensuring future resources, which is triggered by perceived uncertainty in the environment. However, this also means that in times of abundance, this acquisitive behavior becomes maladaptive.

In chapter IV, "The Effect of Greed on Thinking Style", we examine whether greed not only influences people's behavior but also how they get to this behavior, in other words we examine how dispositional greedy people process information and how this influences their decision making. Since the 1960's, two thinking styles have been put forward to explain choice behavior:

absolute and relative thinking. Though the first is more in accordance with rational economic theory, the second has been more predictive of real-life economic behavior. Research has adequately examined how relative thinking influences decision making and the resulting behavior, but less effort has been conducted to investigate what situational or personal influences trigger these different processing styles. In this paper we focus on dispositional greed as one type of individual difference variable that influences thinking style. Three studies show that dispositional greed indeed affects thinking style, in such a way that it enhances more absolute thinking over relative thinking. We also indicate that this difference in thinking style is due to a difference in diminishing marginal utility, in such a way that this stronger affects non-greedy people than greedy people. Finally, we show that although absolute thinking has often been linked to more rational decision making, for greedy people this is not the case. Their absolute thinking is just a different type of heuristic, which in specific situations leads them towards suboptimal decisions.

In our final chapter V, "Retention versus Acquisition: A Greedy Paradox", we examine whether greed is necessarily always tied to insatiable acquisitive behavior as it is often portrayed. Though most research and lay understanding focus on greed as acquisitive behavior, we propose a retention motive as a second aspect of a greedy disposition. To attain more, greedy people might first have to focus on retaining their current possessions. Four studies show that retention or loss aversion is an important concept in explaining greedy behavior, showing that greedy people are not only focused on attaining more but also on retaining their current possessions. Furthermore retention might even be a stronger predictor than acquisition in certain situations, showing that the typical stereotypical portrayal of greedy people as excessively desiring more might be partially incorrect. Additionally we show that acquisitiveness does direct greedy behavior when there is competition with others, but that a retention motive is more explanatory of greedy behavior when there are no others involved and there exists the possibility of psychological ownership. Finally,

we show that incorporation of this retention motive in research on dispositional greed allows us to link greed to previously unrelated behavior. This new focus on dispositional greed as foremost retention focused not only enhances our understanding of greed, but also broadens its applicability in consumer research.

To conclude, this research shows that people indeed differ in how greedy they are, and that these individual differences stem from differences in their childhood circumstances. Furthermore, we show that dispositional greed also influences people's thinking style, which may explain behaviors beyond those caused by insatiability. Finally, we demonstrate that greedy people are not only driven by acquisition motives, but are also keen to keep what they already have. Thus, this dissertation provides novel insights and understanding of individual differences in greed, and opens up new research possibilities.

NEDERLANDSTALIGE SAMENVATTING

Vanaf het begin van de financiële crisis in 2008 kwam het woord hebzucht vaak aan bod in de media en de publieke opinie. Hoewel het concept hebzucht even voordien minder curciaal geacht werd om economisch gedrag te verklaren, kan dit moeilijk een nieuw fenomeen genoemd worden. Hebzucht is immers deel van onze geschiedenis en cultuur en is al die tijd een moreel bedenkelijke term gebleven, gebruikt wanneer mensen meer voor zichzelf willen en daardoor mogelijks tekorten voor anderen creëren. In de laatste decenia is hebzucht ook meer aan bod gekomen in academisch onderzoek naar economische fenomenen. Waar gewone mensen echter verschillen zien tussen mensen in hoe hebzuchtig ze zijn, heeft onderzoek zich vooral gefocust op het beschrijven van situaties die hebzuchtig gedrag uitlokken. Onderzoek naar hebzucht werd verder ook beperkt doordat er tot voor kort geen manier was om hebzucht als persoonlijkheidskenmerk te meten. Deze dissertatie werd dan ook opgezet met als doel inzicht te verwerven in individuele verschillen in hebzucht en te onderzoeken hoe deze verschillen consumentengedrag beïnvloeden.

In het tweede hoofdstuk starten we met het ontwikkelen van een hebzuchtmeting. Bestaand onderzoek naar hebzucht had zich eerder vooral gefocust op situationele verklaringen voor hebzucht. Aangezien er echter geen manier bestond om individuele verschillen in hebzucht te meten en onderzoekers verschillende definities gebruiken, was onderzoek naar hebzucht als persoonlijkheidskenmerk moeilijk. Daarom begon ons onderzoek met een duidelijke definitie: dispositionele hebzucht of hebzucht als persoonlijkheidskenmerk is een onverzadigbaar verlangen naar meer middelen, financiële of andere. Op basis van deze definitie ontwikkelden we de Dispositionele Hebzucht Schaal, bestaande uit 6 vragen, waaronder 2 omgekeerde vragen. Twee studies demonstreren dat deze schaal betrouwbaar en valide is. Verder tonen ze aan dat hebzucht positief gelinkt is aan materialisme, egoisme, sociale vergelijking, jaloezie en productiviteit, en

negatief gerelateerd aan impressiemanagement en algehele tevredenheid. Dankzij deze nieuwe schaal kunnen onderzoekers nu de invloed van situatie en persoonlijkheid onderscheiden van elkaar.

In het derde hoofdstuk onderzoeken we waar deze individuele verschillen in hebzucht vandaan komen. Doorheen de geschiedenis bestond het idee dat mensen verschillen in hoe hebzuchtig ze zijn. In dit hoofdstuk onderzoeken we hebzucht als een soort omgevingsnoodzakelijke strategie, die ervoor zorgt dat ook in de toekomst toegang tot bepaalde middelen is verzekerd. Indien dit effectief het doel is van hebzucht, blijft de vraag waarom niet iedereen ditzelfde doel heeft. Het antwoord zit hem in het 'omgevingsnoodzakelijke': niet iedereen bevind zich in een omgeving die dit soort strategie noodzakelijk maakt. Meer specifiek kijken we in dit hoofdstuk naar de levensomstandigheden gedurende de kindertijd. Onderzoek heeft reeds eerder aangetoond dat kinderen die opgroeien in moeilijke omstandigheden achteraf vaker hebzuchtig gedrag vertonen, en dat dit gedrag kan veroorzaakt worden door onzekerheid in de opvoedingsomstandigheden. In een eerste studie tonen we aan dat er inderdaad een link is tussen hebzuchtig gedrag van volwassenen en de opvoedingsomstandigheden van deze personen toen ze nog een kind waren. In een tweede studie tonen we aan dat deze moeilijkere omgeving er later toe leidt dat mensen een verhoogde gevoeligheid vertonen voor situationele onzekerheid. Het is deze onzekerheid die ertoe leidt dat deze mensen hebzuchtig gedrag gaan vertonen, om er zeker van te zijn dat hun toegang tot noodzakelijke middelen verzekerd blijft. In een derde en laatste studie tonen we dan aan dat, wanneer er geen verschillen mogelijk zijn over hoe een nieuwe situatie gepercipieerd wordt, dat er ook geen verschil is in het gedrag van hebzuchtige en niet-hebzuchtige mensen. Hebzucht lijkt dus inderdaad een persoonlijkheidskenmerk te zijn dat zich ontwikkeld in de kindertijd, als reactie op een moeilijke opvoedingssituatie, met als nut om toegang tot middelen te verzekeren. Echter, dit betekent dat in tijden van overvloed hebzucht onaangepast wordt.

In een vierde hoofdstuk onderzoeken we of hebzucht ook een invloed kan hebben op de manier waarop mensen informatie verwerken. Meer specifiek kijken we in dit hoofdstuk naar de verwerking van numerieke informatie. In de literatuur over numerieke informatie worden vaak twee verschillende verwerkingsmechanismen voorgesteld: absoluut en relatief denken. Absoluut denken houdt in dat mensen enkel absolute verschillen in acht nemen om beslissingen te nemen en deze manier van denken komt overeen met de traditionele economische theorieën. Relatief denken betekent dat mensen relatieve verschillen in overweging nemen. Onderzoek heeft aangetoond dat deze tweede manier van denken beter economisch gedrag voorspelt. Het is echter niet duidelijke welke situationele omstandigheden of personlijkheidskenmerken deze twee verschillende manieren van informatieverwerking verklaren. In dit hoofdstuk focussen we op hebzucht als persoonlijkheidskenmerk die deze twee verwerkingsprocessen kan beïnvloeden. Drie studies tonen aan dat hebzucht inderdaad een invloed heeft op ons denken: hebzuchtige mensen zijn meer geneigd absoluut dan relatief te denken, en het omgekeerde geldt voor niet-hebzuchtige mensen. Daarnaast tonen we aan dat dit verschil veroorzaakt wordt door een verschillende gevoeligheid aan identieke veranderingen dichterbij of verderweg van een referentiepunt. Tenslotte demonstreren we dat absoluut denken niet per se meer rationeel is, wat vaak wordt aangenomen in eerder onderzoek. Voor hebzuchtige mensen blijkt absoluut denken eerder een heuristiek te zijn, die in sommige situaties leidt tot verkeerde beslissingen.

In het vijfde en laatste hoofdstuk onderzoeken we of hebzucht noodzakelijkerwijs gericht is op het onverzadigbaar verwerven van nieuwe objecten. Hoewel hebzucht vaak op deze manier wordt voorgesteld in academisch onderzoek en lekenkennis is dit volgens dit onderzoek onvolledig. Meer specifiek beargumenteren we in dit hoofdstuk dat het behoud van reeds verworven bezit, naast het verwerven van nieuw bezit, een tweede belangrijk onderdeel van hebzucht is. In andere woorden, we denken dat hebzuchtige mensen die gefocust zijn op zoveel mogelijk bezitten, het behouden van huidig bezit ook belangrijk vinden. Meer zelfs, dit tweede

zullen ze zelfs belangrijker vinden dan het vergroten van bezit indien hier het risico aanhangt dat er huidig bezit kan verloren worden. Hierdoor tonen we aan dat het stereotiepe beeld van de hebzuchtige die ten koste van alles zijn bezit wilt vergoten, op zijn minst gedeeltelijk incorrect is. Daarnaast tonen we aan dat de focus op meer verwerven hebzuchtig gedrag enkel verklaart indien er een ellement van competitie aanwezig is. Indien er geen competitie is en wel psychologisch eigendom, wordt hebzuchtige gedrag meer verklaard door een behoudsgezinde focus. Ten slotte demonstreten we dat deze behoudsgezinde motivatie hebzucht kan linken aan gedrag dat eerder ongerelateerd geacht werd, zoals het kopen van verzekeringen.

In conclussie kunnen we stellen dat dit onderzoek aantoont dat mensen verschillen in hoe hebzuchtig ze zijn en dat dit verschil onder andere wordt veroorzaakt door de omstandigheden tijdens het opgroeien. Daarnaat demonstreren we dat hebzucht niet enkel gedrag beïnvloedt maar ook de informatieverwerking die tot dit gedrag leidt. Ten slotte bewijzen we dat hebzuchtige mensen niet enkel zoveel mogelijk willen vergaren, maar dat ze ook gemotiveerd zijn om hun huidige bezittingen veilig te stellen. Deze dissertatie zorgt dus voor nieuwe inzichten in en begrip van individuele verschillen in hebzucht, wat kan leiden tot nieuwe onderzoeksmogelijkheden.

CHAPTER I:

INTRODUCTION

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“Imparting Some Shame to Those Who Trade in Greed”
(The New York Times, 26/01/2009)

“The Beautiful Machine: Greed on Wall Street and blindness in Washington certainly helped cause the financial system's crash”
(The Washington Post, 29/12/2008)

“Fall of Britain's Flamboyant Financiers Fuels a Debate About Greed”
(The Washington Post, 29/09/2008)

As this limited selection of headlines in international newspapers suggests, media and public opinion attributed the recent global financial crisis mainly to the greediness of bankers, insurers, supervisors and stock brokers (Bryce, 2002). Their greed supposedly led to risky investment behavior with client’s money and excessive executive pay packages (Muolo & Padilla, 2010). The public outrage during and after the financial crisis suggests that greed still seems to play an important role in our society, especially as blame pointed towards those whose voracious behaviors causes deficits for others. In a similar vein, the excessive use of nonrenewable resources is often credited to the greediness of international corporations that put profit margins ahead of society’s welfare. On a smaller scale, greed serves to label everyday behavior, such as taking an extra cookie when others did not receive their share, cutting oneself a larger portion of birthday cake, or being the first in line at a buffet to ensure taking all items of your favorite.

Despite the view that greed constitutes a fundamental human motive, academic knowledge of greed is limited. Although many studies invoke the concept of greed, including philosophical treatments (e.g., Balot, 2001) and operational research into greedy algorithms (e.g., Zhang, Schwartz, Wagner, & Miller, 2000), relatively fewer studies investigate human greed. The most relevant research stems from psychology and economics (Cozzolino, Sheldon, Schachtman, & Meyers, 2009; Kasser & Sheldon, 2000), which addresses situations that tend to make people behave more or less greedily, rather than potential individual-level differences in greed. This type of research is limiting our understanding of greed for two reasons. First, although certain situations may compel people to act more greedily, the attribution of a greedy motive often involves circular reasoning: people are assumed to act greedily because a given situation triggers a greedy motive, but the activation of such a greedy motive is inferred from the greedy behavior. The inference of greedy motives from so called greedy behavior is thus not always straightforward.

Second, research on greed is also hampered by the fact that no scale exists to measure dispositional differences in greed. Third, given that there is no insight in individual differences in greed, we lack knowledge of what a greedy disposition constitutes, what causes such individual differences in greed and how such a greedy disposition affects behavior. The aim of the current doctoral thesis therefore is fourfold. First we will develop a dispositional greed scale and prove its reliability and validity. Second, we will use this newly developed scale to assess one specific cause of dispositional greed: uncertainty during childhood development. Third, we will investigate how a greedy disposition affects behavior through influencing people's processing style. And finally we will show that the stereotypical image of a greedy person as attaining as many resources as possible might be misguided, as greedy people's main focus is not acquisition but retention. Next, we will give a short overview of

greed in history, current society and academic knowledge, to highlight the importance of this research both in a general and economic context.

1. A HISTORICAL OVERVIEW OF GREED

Greed as concept in general hardly needs an introduction, as it has been used throughout our history. In the ancient world and almost the entire modern world it has been a term of abuse and an object of criticism, a negative notion that is generally only directed towards others. Greed has been viewed in this way within our own western culture since its definition as a cardinal sin in the 6th century (Godsall-Myers, 2003). Indeed, greed and all concepts related to it have generally been frowned upon within a Christian value system. Augustine for instance reviled the pursuit of economic self-interest and St. Jerome claimed that people who pursue economic profit might never know God. However, negative greed claims are not limited to western culture or Christianity. It is fair to say that also in Asian and African cultures, greed is frowned upon. In Buddhism for instance, greed is one of the so-called Three Poisons that lead to evil and one of the Five Hindrances to enlightenment. In China, there are dictionaries of the communist era which furthermore show greed to be part of Asian heritage. In African culture, where folklore stories are used to teach moral values and customs, greedy animals typically end up worst at the end of the stories (Ojaide, 1992). It is thus fairly accurate to state that a negative view on greed is not a western culture invention.

As greed has a long history in our culture and literature, it is difficult to determine where it first started. Some historians claim greed to have started with the rise of capitalism or, even earlier, with the rise of a money economy, and is thus characteristic to human society. Indeed, certain scientists focus on greed as part of human history. They claim that every era had its excessive desires to accumulate (Faust, 2006). Plato and Aristotle in 300 BC ancient Greece

already framed greed as a natural tendency for certain people and that it accounted for the drive to obtain more (Balot, 2001). However, neither of these authors considered greed to be a positive driver, denoting it as immoral (Shklar, 1990).

This notion of greed as a pejorative, denoting a morally culpable attitude started in ancient times and lingers through its history. The negative view on greed in our society was firmly established in the Middle Ages by St. Thomas Aquinas, who clearly marked greed in Christian doctrine as negative, not only for the love of money, but for preferring own needs above those of people around them. This negative view on greed kept arising for the following centuries. Kant (1796) for instance also warned against greedy acquisitions, reminding people to not intentionally adopt it as a basic principle for living as it would diminish the enjoyment of goods acquired. The pessimistic outlook on greed left its trace in literature as well, for instance Shakespeare condemned greed in its Othello, and Tolstoy clearly linked it to death in his parable "How Much Land Does a Man Need?". Furthermore greed became a primary focus for many 19th and 20th century novels (e.g., Dickens, Balzac, Wolfe, and Mailer).

Greed not only left its trace in literature, but also became a central concept for philosophical scholars who studied society's welfare. Hobbes for instance had an explicit dark view on greed. He feared that it would lead to war if left unbridled, concluding that greed and self-interest were amongst the most destructive human motives. Hume (1739) shared his pessimistic ideas and claimed that greed would lead to the destruction of society if left unchecked. Indeed, political scholars have often regarded greed as one of the driving forces behind war. Herodotus for instance claimed greed to lay behind Persian imperialism, and Thucydides did the same in his analyses of Athenian imperialism (Balot, 2001). The famous political thinker Machiavelli also argued for greed as one of the causes for war (Viroli, 1998).

The same reasoning lingers in contemporary analysis of war, in explaining the Thirty Year's War in Europe (Kegley & Raymond, 2002) and current civil wars (Collier & Hoeffler, 2004).

It is important to note that although greed may suffer from social restraints and is culturally frowned upon, this is not the all-encompassing viewpoint. Certain philosophers have emphasized greed as a positive driver, claiming that we need more because we grow and growth is our justification for expansive acts: having kids, farming an extra acre, raising an army for imperial expansion. This branch of philosophy and research highlights the positive effects of greed, claiming greed to not only be natural, but useful and necessary (Engler, 1995; Greenfeld, 2001; Ludwig, Hilborn, & Walters, 1993). Though the idea of positive greed might seem misdirected by criticizers, it is a view expressed since the Middle Ages. Bracciolini for instance in his work on greed (De Avaritia, 1429) stated that "avarice is not only natural, it is useful and necessary in human beings". However, until the 16th century, this view of greed as positive driver of progress and human wealth remained an infrequent and unpopular opinion.

The overall negative view on greed received its first general shift with Bernard Mandeville, who stated that private vices were in fact not as abhorrent as often claimed, as they could also yield public benefits. At the time, which he shared with early economics such as Adam Smith, this was still an objectionable statement. Smith himself for instance still made sure that his theory of the invisible hand clearly stated that though the secondary effects of greed might be positive, the primary intentions of greed itself were still morally objectionable (Stigler, 1971). However, he opted to redefine greed from the self-interested pursuit of more, as it had been defined by the Church up to then, to the illegitimate pursuit of these wants. Thereby he distinguished legitimate economic self-interest and the resulting gains from the illegitimate greed, freeing economics from its negative connotations (Heilbroner, 1980). This new distinction between positive self-interest and negative greed was

famously embodied by Benjamin Franklin, who found no shame in aiming for richness and wealth, previously frowned upon, by assuring they were turned towards broader purposes. From this point forward, the pursuit of more gained a more optimistic evaluation, only designating greed as a negative force when it precludes positive consequences for others (Robertson, 2001).

By the early 20th century, although greed itself was still regarded as a vice, many of its components that were rejected earlier where now freed from their negative connotations and allowed to be expressed publicly without causing offence (Friedman, 2009). These redefined parts of greed became essential to economic development and business management, portraying companies as groups of self-serving individuals who could only be aligned with societies' aim for higher wellbeing through the love of money. Furthermore, some scholars stood up who claimed that greed, even in all its negative effects, was still a positive driver that should not be restrained. Ayn Rand (1963) was one of the pioneers of this greed-positive movement, aiming to free greed of any moral blame. She stated that an acquisitive instinct should not be bridled by ethics but supported greed as a type of rational egoistic self-interest and condemned altruism.

2. GREED IN CURRENT SOCIETY

Such a clear and absolute endorsement of greed nowadays has not become mainstream, as most people still regard greed in a negative light. However, greed-positive philosophers and researchers have left their mark mainly in the redefinement of greed, such that currently only excessive greed is still morally frowned upon, and that most of its less extreme triggers and consequences are tolerated in current society. This is visualized in all parts of human culture: movies, books, cartoons, political, economic and religious rhetoric. It is a favorite

topic for modern art, popular and fine arts. Moreover, greed has become partly institutionalized in consumerism, as shown in marketing techniques and advertisements. People are told that in this modern culture, they have the right to be a bit greedy. "You have a certain amount of money. You would like more. This is the American way." reads an advertisement for the Bank of America. (Los Angeles Times, November 11, 1997).

Interestingly enough, the fact that greed became a positive driver for progress in economics has led to certain economic strategies which have recently sparked a new public debate on greed. For instance, accepting love for money as a driver of workforce effectiveness has led to the raise of payment structures such as stock options, performance pay and other executive compensation strategies (Johnson, 1995). Ironically, recently it is exactly this type of employee payments that came under scrutiny. For instance, in 2009 after the outbreak of the financial crisis, public outrage was directed at AIG employees who were to receive approximately $218 million in bonus payments, although AIG had to receive bailout funds from the government to prevent it from going bankrupt. These bonus payments were deemed excessively offensive as part of this money came from the bailout, which in turn was paid by taxpayers who struggled to maintain their houses and jobs after the crisis. A few years earlier, Fortune spread an article causing similar public debate, describing how executives and directors of more than 1000 American corporations were paid a total of $66 billion and in the top 25 almost 500 executives received 23$ billion from stock sales, while their stock prices had declined by more than 75% in that same year (Gimein, 2002). Around the same time corporate scandals emerged involving more than two dozen major US firms, most famously those surrounding Bernard Madoff, Enron and Merrill Lynch (Patsuris, 2002).

The fact that greed found itself one's more at the center of public debate the past decades can be further illustrated by the fact that in a few years' time, the word greed appeared hundreds of times in national newspaper headlines in the US (Robertson, 2001). In Belgian

newspapers it was mentioned more than 5000 times and appeared more than 250 times in newspaper and magazine headlines since the outbreak of the financial crisis in 2008 (Queries included 'hebzucht', 'hebzuchtig' and derivatives thereof, GoPress academic, 2014). Indeed, the economic recession climate following the recent financial crisis has caused public scrutiny of perceived greed (Sarna, 2010) and prompted business press coverage of greedy behavior (Gilliland & Anderson, 2011). Even the chairmen of the Federal Reserve Board contributed to this debate, stating that corporate greed had exploded simply because the ways to satisfy this greed had grown immensely (Cassidy, 2002).

3. EMPIRICAL RESEARCH ON GREED

The concept of greed also lingers in modern science and is used to study diverse events. Given that in our society greed has been so tightly linked to morally problematic behavior and the development of our economy, many studies have focused on the link between greed on the one hand and borderline illegal or unethical economic behavior on the other. Lunt and Livingstone (1991) for instance related greed to impulsiveness when it comes to spending money, causing individual financial debts. Others found that greed was also linked to lying and deception when this serves people's economic interest (Cohen, Gunia, Kim-Jun, & Murnighan, 2009). Though these types of behavior are problematic or unethical, they still reside at the individual level, causing few issues for society. However, research has also uncovered more broad ranging consequences of greed. Smith (2003) for instance showed how a greedy motive might drive people to commit fraud. Caudill (1988) linked greed to employee theft in corporations and Rose-Ackerman (1999) explained how a greedy motive might lead to government corruption. Others have even directly linked the recent global financial crisis to the greediness of bankers and stockbrokers (Mazumder & Ahmad, 2010; Muolo & Padilla;

2008). Also the unsustainable uses of unrenewable resources have been linked to greed, such as overfishing and logging behaviors (Jackson, Kirby, Berger, Bjorndal, Botsford, Bourque, & Warner, 2001).

Given that greed was related to these negative economic issues, more research was executed to examine what triggers these acquisitive behaviors. In a first earlier line of research, greed was the explanation for a specific behavioral result: the effect of wanting more of a certain object after a manipulation. These researchers wanted to examine whether situational temptations that encourage greed might have a general effect on people's behavior. Scholars have attempted to measure this type of situational greed in a variety of behavioral and economics games, including prisoners' dilemmas, social dilemmas, dictator games and resource exploitation (e.g., Insko, Schopler, Hoyle, Dardis, & Graetz, 1990; Poppe & Utens, 1986; Rapoport & Eshed-Levy, 1989). Dawes, Orbell, Simonson and Van de Kragt (1986) for instance found that greed-like behavior was triggered by expectations of higher rewards when one behaved uncooperatively. Similar experiments by the same authors (Van de Kragt, Orbell, & Dawes; 1983) showed that greedy behavior was also enhanced by a lack of communication before playing these games, by matching people with strangers. Research has also found situational and personal effect such as environmental uncertainty (Ludwig et al., 1993) and an inability to recognize unfair offers (Forsythe, Horowitz, Savin, & Sefton, 1994). Others have focused on less straightforward situational effects. Mazar, Caruso, and Zhong (2011) for instance tested whether people behave more greedily when primed with the color green.

After these situational greedy behaviors were adequately established, new attempts were made to distinguish the psychological factors that drive this behavior. Therefore more recent research has focused on two concepts: intrinsic versus extrinsic value orientation and reactions to death awareness. For instance, Sheldon and McGregor (2000) showed participants with greater extrinsic values to reveal greater levels of greedy behavior. The

second factor that received attention, mortality salience, was also shown to effect greedy behavior. Kasser and Sheldon (2000) showed that those asked to face their death had higher financial expectations for themselves in the future and expected to spend more money for pleasure. More importantly, they also showed a greater propensity for avarice. Research combining these two psychological factors suggested that for people who endorse extrinsic values, reminders of their own mortality will lead to an even stronger embracement of a greedy motive (Cozzolino, Staples, Meyers, & Samboceti, 2004).

4. DISPOSITIONAL GREED

However, these and other researchers have limited their focus on greed as only a behavioral effect, equal or at least comparable to all participants in specific contexts. This stands in sharp contrast with lay people's opinion of differences between people in how greed they are, not only between situations. Indeed, many important states like anger, anxiety (Spielberger, 1989) and happiness (Stones, Hadjistavopoulos, Tuuko, & Kozma, 1995) have both a situational and a dispositional counterpart. Where greed as a situational state is widely studied, there has been limited to no research about dispositional greed, which denotes relatively stable individual differences in greed proneness. A more recent study sheds more light on this unexplored part of greed where individuals vary in their greediness. Haselhuhn and Mellers (2005) asked respondents to report the pleasure they imagined feeling for possible payoffs in ultimatum and dictator games. This showed certain players to gain more pleasure from larger payoffs than others, and showed these same individuals to make fair offers in ultimatum games and selfish offers in dictator games, thereby maximizing their outcome. From this research it seems fair to conclude that greed does not only have a behavioral part, but that there exists an underlying specific greed tendency that varies among

individuals, not just among situations. Thus, more insight in dispositional greed is needed, investigating what it means to be greedy, why people differ in how greedy they are and how this dispositional greed affects people's behavior.

A starting point in research on dispositional greed would be to define the construct. The various definitions of greed in general, available across philosophy, sociology, psychology, and economic research, differ in their applicability to specific contexts and situations. For instance, in some of these academic definitions greed is mainly focused on self-interest, obtaining the best possible outcome for oneself (Kollock, 1998), or self-interest as an immoral standpoint, where greed occurs at the expense of or out of disregard for others' well-being (Balot, 2001). Other definitions look at the comparison to others as well. For instance, Kelley and Thibaut (1978) define greed as either maximizing outcomes in an absolute sense, relative to an opponent (Cozzolino et al., 2009), or both. Dictionary definitions on the other hand adopt lay perspectives: "a selfish and excessive desire for more of something (as money) than is needed" (Merriam-Webster.com, 2013), "a strong desire for more wealth, possessions, power, etc. than a person needs" (Online Oxford Advanced Learner's Dictionary, 2013), and "when you want a lot more food, money, etc. than you need" (Online Cambridge Learner's Dictionary, 2013).

Across all these definitions though, insatiability is a consistent concept: no amount of a given commodity is ever sufficient. Therefore, we define dispositional greed as a personality trait that entails an insatiable, self-centered desire for more, whether of monetary or nonmonetary items. This definition eliminates several concerns related to prior definitions. First, by excluding the notion of excessive desire, we avoid a negative connotation, as the question of greedy morality is not inherent to the motive but part of the behavioral outcome. Indeed, though the notion of excess may suggest that greedy behavior often comes at the expense of others, which may be true in many cases, this negative externality constitutes a

consequence of greed, not an intrinsic feature of it. Furthermore the believe in negative consequences for others often stems from a fixed view of outcomes as zero-sum, where the gains of one person by definition are the losses for others. For many real-life situations this is not the case. Second, we view greed as self-centered, in the sense that greedy people exclusively focus on outcomes for themselves. Third, we avoid the idea of wanting more than needed, because it requires an external, normative perspective. This external perspective might be affected by individual differences in norm perceptions and an ability to judge oneself from an external vantage point. This means that the external normative perspective might not be generalizable and is therefore not part of the definition.

To further understand the concept of dispositional greed, we also need to consider how it relates to other variables. With most definitions of greed focusing on hyper-acquisitive behavior, and given that greed is often synonymous with excessive behavior, it is particularly important to consider how greed relates to materialism. A link between consumerism on the one hand and greed and materialism on the other was first emphasized by Belk (1985), who considered greed an essential element of a materialistic lifestyle. In subsequent studies, the two concepts have appeared as close substitutes. For instance, Kasser and Sheldon (2000) use a desire for more profit as a measure for greed and also a proxy for materialistic desires and behaviors. However, both conceptually and theoretically, there are clear differences between both concepts. Materialism is associated with the desire to display social status and wealth through conspicuous consumption (Belk, 1985) and for materialistic people acquiring goods plays a central role in their lives and happiness. Dispositional greed instead is an inner desire to gain more, which is not necessarily focused on luxury products or symbolic value but instead spans all kinds of items, as was portrayed in the lay perspective definitions (Tickle, 2004). We thus propose that materialism and greed are related but different concepts.

Another potentially relevant variable is egoism or selfishness. Self-interest and egoism

are central to several definitions of greed (Batson, Ahmad, Yin, Bedell, Johnson, & Templin, 1999), as manifested in phrases such as "without regard for others" (Cozzolino et al., 2009). Definitions focusing on the negative effects of greed for others further suggest that greed is a fundamental motivation of self-interested people: greedy people focus only on themselves, with limited attention to what others around them might need. Even scholars who consider greed to be a positive driver of economics and human evolution base their claims on its self-centered focus (Engler, 1995; Wang & Murnighan, 2010). In classic economic theory greed and self-interest are central concepts, where both drive economic progress and growth through the creation of new products and industries (Smith, 1776; Williams, 2000). Though greed on the one hand and egoism and self-interest on the other are clearly related, we still expect these to be different concepts, where egoism and self-interest are central to greed but not equal to it as those concepts have no insatiable driver behind them.

Greed also has been linked to envy (Engler, 1995), the unpleasant feeling that typically results from social comparison (Salovey, 1991) when a person feels inferior with respect to some important life aspect (e.g., income, exam results; Smith & Kim, 2007). Both greed and envy embody so-called mortal sins in Christianity (Godsall-Myers, 2003) and both are regarded as dark traits (Veselka, Giammarco, & Vernon, 2014). Although both greed and envy seem to embody the idea that a higher level of a given commodity may lead to greater well-being, it is important to note that their origins differ. Envy stems from social comparisons and a feeling of inferiority compared to others; greed likely focuses more on absolute, rather than relative, improvements (Maijala, Mannukka, & Nikkonen, 2000). In other words, whereas greed is driven by an internal motive, envy is driven by external comparisons. Thus envious people's comparison to others may focus more on not lagging behind, rather than wanting to be ahead. Therefore, we also expect greed and envy to be related but different concepts.

Finally, other variables appear more relevant to greedy people's evaluations of their lives. Many studies have found negative consequences for the greedy person himself, such as higher debts (Lunt & Livingstone, 1991) and impulsivity which might lead to later regret (Johnson, 2008). People's evaluation of their own lives and the derived happiness from it can be summarized in the concept of subjective well-being, which relates to people's satisfaction with family, friends, fun, income, and life as a whole and involves both cognitive and affective evaluations. Well-being is often negatively linked to so-called dark traits, such as a lack of generosity, envy, or materialism (Belk, 1984, 1985; Pieters, 2013). Furthermore, though acting in accordance to one's motivations can create short-term happiness, reflecting on these greedy behaviors may cause guilt and other negative emotions (Detert, Treviño, & Sweitzer, 2008). Researchers routinely find that people who focus on acquiring objects indeed exhibit reduced life satisfaction (Richins & Dawson, 1992), diminished levels of happiness (Belk, 1985), and more depressive symptoms (Kasser & Ryan, 1993). Greedy people thus may show a lower subjective well-being than less greedy people.

To summarize, from a theoretical point of view we might start by picturing a greedy person in the following way: greedy people are inherently motivated to obtain more than they currently have. This 'more' does not only refer to money, material possessions or power but spans across a wider array of domains such as food, the amount of friends and knowledge. Their drive for more is self-centered, which does not mean that they intentionally disregard others but are simply only focused on themselves. Though they might notice what other people possess, this will only encourage them to obtain more than they currently have, not necessarily more than what others have. However, their constant striving for more and discontent with their current state might cause them to have a lower general wellbeing.

5. DISSERTATION OUTLINE

In chapter II, "Development of the Dispositional Greed Scale", we will start our investigation into dispositional greed by developing a way to measure this greedy motive. Extant research on greed has focused on situational determinants of greedy behavior, ignoring individual differences in greed. However, given that there was up to now no way to measure greed as an individual difference variable, research on greed as a personality trait was severely hampered. Therefore, in this chapter we start by introducing the six item Dispositional Greed Scale. Two studies demonstrate convergent and discriminant validity and test-retest reliability. Specifically, they demonstrate that greed is related to but different from materialism. It is also positively related to entitlement, egoism, social comparison, envy, competition and productivity orientation and negatively related to impression management and satisfaction with life. The Dispositional Greed Scale enables researchers to disentangle the impact of personality from that of the situation on greedy behavior.

In chapter III, "Greed as Adaptation to Resource Uncertainty", we will examine why people differ in how greedy they are. As lay people have focused on greed as a personal difference variable throughout history and we now have a way to examine how greedy people are in general, the question arises where these individual differences come from and what purpose a greedy disposition serves. This paper focuses on dispositional greed as an adaptive strategy to ensure future access to resources. If greed indeed serves this purpose, one reason why people might differ in how greedy they are is because they have different needs of this purpose. More specifically, in this chapter we examine childhood resource uncertainty as a possible cause for such individual differences in greed. Indeed, previous research has shown that acquisitive behavior can be triggered by uncertainty in environment or upbringing. In a first study we show that there is indeed a link between dispositional greed in adulthood and childhood resource uncertainty, measured through childhood socio-economic status. In a

second study we demonstrate that greedy people show an intensified sensitization to environmental uncertainty later on. Finally, we demonstrate that when there is no difference between greedy and non-greedy people's perception about resource certainty, there is no difference in greedy behavior either. Thus dispositional greed serves an adaptive purpose of ensuring future resources, which is triggered by perceived uncertainty in the environment. However, this also means that in times of abundance, this acquisitive behavior becomes maladaptive.

In chapter IV, "The Effect of Greed on Thinking Style", we examine whether greed not only influences people's behavior but also how they arrive at this behavior, in other words we examine how dispositional greedy people process information and how this influences their decision making. Since the 1980's, two thinking styles have been put forward to explain choice behavior: absolute and relative thinking. Though the first is more in accordance with rational economic theory, the second has been more predictive of real-life economic behavior. Research has adequately examined how relative thinking influences decision making and the resulting behavior, but less effort has been conducted to investigate what situational or personal influences trigger these different processing styles. In this paper we focus on dispositional greed as one type of individual difference variable that influences thinking styles. Three studies show that dispositional greed indeed affects the processing of numerical information, in such a way that it enhances more absolute thinking over relative thinking. We also indicate that this difference in thinking style is due to a difference in diminishing marginal utility, in such a way that this stronger affects non-greedy people than greedy people. Finally, we show that although absolute thinking has often been linked to more rational decision making, for greedy people this is not the case. Their absolute thinking is just a different type of heuristic, which in specific situations leads them towards suboptimal decisions.

In our final chapter V, “Retention versus Acquisition: A Greedy Paradox”, we examine whether greed is necessarily always tied to insatiable acquisitive behavior as it is often portrayed. Though most research and lay understanding focus on greed as acquisitive behavior, we introduce a retention motive as a second aspect of a greedy disposition. To attain more, greedy people might first have to focus on retaining their current possessions. Four studies show that retention or loss aversion is an important concept in explaining greedy behavior, showing that greedy people are not only focused on attaining more but also on retaining their current possessions. Furthermore retention might even be a stronger predictor than acquisition in certain situations, showing that the typical stereotypical portrayal of greedy people as excessively desiring more might be partially incorrect. Additionally we show that acquisitiveness does direct greedy behavior when there is competition with others or no psychological endowment, but that a retention motive is more explanatory of greedy behavior when there are no others involved and there is an opportunity for psychological ownership. Finally, we show that incorporating this retention motive in research on dispositional greed allows us to link greed to previously unrelated behavior. This new focus on dispositional greed as foremost retention focused not only enhances our understanding of greed, but also broadens its applicability in consumer research.

CHAPTER II:

DISPOSITIONAL GREED – SCALE DEVELOPMENT AND VALIDATION

CHAPTER II: DISPOSITIONAL GREED – SCALE DEVELOPMENT AND VALIDATION

In spite of the intuition that people differ in how greedy they are, extant research on greed (Cozzolino et al., 2009; Kasser & Sheldon, 2000) has focused exclusively on the impact of specific *situations* on greedy behavior (e.g., Mazar, Caruso, & Zhong, 2011; Stanley & Tran, 1998). Although this research has yielded important insights into when people may behave greedily, it fails to appreciate that behavior is often the outcome of the joint influence of situational triggers and personality (Wright & Mischel, 1987). In addition, the focus on a very limited set of situations that make many, if not most, people behave greedily implies that research on greed has ignored to consider how greed plays out in more mundane situations like taking a last cookie from a plate when others have not yet received their share. Finally, investigating greed from a purely situational perspective eliminates the possibility of understanding what causes some people to act greedily in certain situations while others do not.

The lack of research on individual differences in greed may stem from the fact that until recently no relevant measure existed. Recently Veselka et al. (2014) proposed a Vices And Virtues Scale (VAVS) measuring the seven sins, including greed. They define greed as "a tendency to manipulate and betray others for personal gain". This definition deviates considerably both from a lay understanding of greed and from various definitions of greed proposed in the academic literature. Although definitions of greed proposed in philosophy, sociology, psychology and economics differ in some respects, they all center on insatiability: no amount of a given commodity is ever sufficient. Insatiability also features in the Merriam-Webster (2013) definition of greed as "a selfish and excessive desire for more of something (as money) than is needed".

Although the greed subscale of the VAVS does include two insatiability items, it also includes items about power, membership in exclusive groups and not sharing one's ideas. In addition, most other items focus on money and wealth. In this paper, we restrict the definition of dispositional greed to "a personality trait that entails an insatiable self-centered desire for more resources, monetary or other". This definition extends the range of phenomena and situations the concept of greed applies to and allows the inclusion of mundane greedy behaviors, some of which do not involve other people or financial gain.

Our definition also eliminates several potential concerns for scale development. First, excluding the negative connotation of excessive desire and of deception should reduce the impact of socially desirable responding. Second, excluding the impact on others from the definition also eliminates the possibility of spurious relations with perspective-taking and related constructs. Third, we exclude the idea of wanting "more than needed" in our definition because this requires an external, normative perspective which could cause responses to the greed scale to be affected by individual differences in norm perceptions and ability to judge oneself from an external vantage point.

1. STUDY 1: DISPOSITIONAL GREED SCALE

Our first study develops a measure for individual differences in greed and relates it to other constructs. First and foremost, we consider the relation with materialism. Belk (1985) considers greed an essential element of a materialistic lifestyle and, in subsequent studies, greed and materialism were often used interchangeably (e.g., Kasser & Sheldon, 2000). Still, not all greedy behavior qualifies as materialistic (e.g., taking a last cookie) nor can all materialistic behaviors (e.g., conspicuous consumption) be considered greedy. We thus propose that greed and materialism may be strongly related but not identical.

We also relate greed to egoism, which also features in many definitions of greed

(Batson et al., 1999), and to feelings of entitlement, which may justify one's greedy behavior. Because it is not clear whether greed inherently implies a focus on other's resources, we measure social comparison orientation and envy, the unpleasant feeling that typically results from upward social comparison (Smith & Kim, 2007). Not only has greed been linked to envy (Engler, 1995), both also seem to embody the idea that a higher level of a given commodity may lead to greater well-being. We further examine if greedy people emotionally disregard the consequences of their actions for other people by relating greed to empathy. Finally, we also consider how greed relates to satisfaction with life.

1.1. Initial Item Pool

From a thorough review of historical/philosophical, economic, political, and social psychological literature related to greed and insatiability, along with focus group research to explore lay notions of greed, we generated an initial pool of 60 items. As the scale could elicit consciously socially desirable responding, we adopted a seven-point Likert scale response format, ranging from "completely disagree" to "completely agree, to ensure sufficient variability (Cicchetti, Showalter, & Tyrer, 1985). The item pool and response format were judged by laypersons for face and content validity, and the scale items and question wording were checked by a professional copy editor to ensure wording clarity, avoid wording redundancy, and ensure the clear meaning of the items. Finally, three expert judges reviewed the item wording in the refined item pool, their level of abstractness, and their ability to refer to broad contexts. We also considered the ratio of reversed to positive items, to balance the final scale. After deleting or reformulating items, we obtained a reduced pool of 25 items.

1.2. Participants and Procedure

A total of 317 fully employed U.S. citizens (151 men, *M*age = 44.8, *SD* = 11.9) responded to the 25 greed items, along with additional scales to examine nomological validity. These measures included two measures of materialism (Ger & Belk, 1996, Cronbach's α = .79, *M* = 3.53, *SD* = .66; Richins & Dawson, 1992, Cronbach's α = .91, *M* = 3.51, *SD* =.96), psychological entitlement (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004, Cronbach's α = .89, *M* = 3.46, *SD* = 1.11), egoism (Machiavellianism scale, Weigel, Hessing, & Elffers, 2008, Cronbach's α = .82, *M* = 3.36, *SD* = .96), the Empathy quotient 8 (Loewen, Lyle & Nachshen, 2010, Cronbach's α = .76, *M* = 4.96, *SD* = .88), social comparison orientation (Gibbons & Buunk, 1999, Cronbach's α = .83, *M* = 4.26, *SD* = .86), and satisfaction with life (Diener, Emmons, Larsen, & Griffin, 1985, Cronbach's α = .90, *M* = 4.45, *SD* = 1.38). Furthermore, we measured social desirability (Balanced Inventory of Desirable Responding, Paulhus, 1988, Cronbach's α = .88, *M* = 3.86, *SD* = .69). On all scales, participants indicated their agreement from 1 (*completely disagree*) to 7 (*completely agree*) (see Appendix A).

1.3. Scale structure

An exploratory factor (principal axis) analysis shows sufficient sampling adequacy: KMO value is .884, and Bartlett's test of sphericity is highly significant at $p < .001$. We eliminated all items for which the anti-image correlations were lower than .5, exhibited high inter-item correlations through item wording redundancy, or revealed high cross-loadings on different factors (> .35) or low factor loadings (< .35) from the factor solution. Though the initial factor solution showed 5 different factors, these analyses excluded factors 3, 4 and 5 due to an insufficient amount of items or high cross-loadings, which resulted in the deletion of these specific items.

Factor 2 on the other hand seemed to represent a method factor rather than a content factor, showing high factor loadings for the reversed items. However, these items were retained for the next step. Despite the problems associated with reversed items, we decided to keep them for several reasons. First, many well-known scales contain a method effect, without having consequences for their validity, reliability, or applicability (DiStefano & Motl, 2009). Though the method effect created by including reversed items has implications for structural equation modeling analyses that explicitly model the method factor (Fornell & Larcker, 1981), for other analysis the scale can be treated as a single-factor version, because the method effect is alleviated by taking the average of all items. Second, we do not observe method effects in our final scale (cf. further). And third, eliminating all reversed items could produce a scale that appears very reliable, simply because it masks non-substantive responding Thus, including reversed items may increase validity (though at the cost of an apparent loss in reliability) (Weijters & Baumgartner, 2012).

Afterwards, the content of each item was re-evaluated to check their wording clarity and redundancy, and to remove overly specific items (see Appendix B); this resulted in a final Dispositional Greed Scale (DGS) with six items (Cronbach's $\alpha = .81$, $M = 3.38$, $SD = 1.10$, see Table 1, see Figure 1 for distribution). Confirmatory factor analysis in an independent sample (211 fully employed U.S. citizens, 106 men, Mage = 45.6, $SD = 11.7$) shows that a one-factor model without method effect (Cronbach's $\alpha = .84$, $M = 3.31$, $SD = 1.24$, see Figure 2 for distribution) yields a very good fit as indicated by a χ^2/df ratio of 1.15, comparative fit index of .99, Tucker-Lewis index of .98, standardized root mean residual of .028, and root mean square error of approximation of .022. The single factor explains 48% of total item variance and Cronbach's α is .81.

Table 1. The Dispositional Greed Scale

Items	Factor Loadings
No matter how much I have of something, I always want more.	.82
One can never have enough.	.75
Even when I am fulfilled, I often seek more.	.73
The pursuit of more and better is an important goal in life for me.	.71
A simple basic life is sufficient for me. (R)	.64
I am easily satisfied with what I've got. (R)	.43

Figure 1: Distribution of the Dispositional Greed Scale (Sample 1)

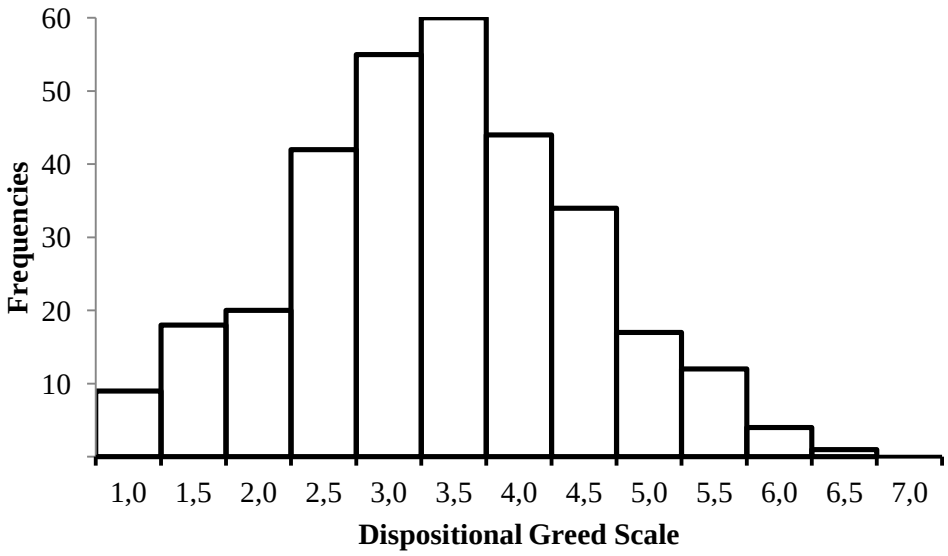
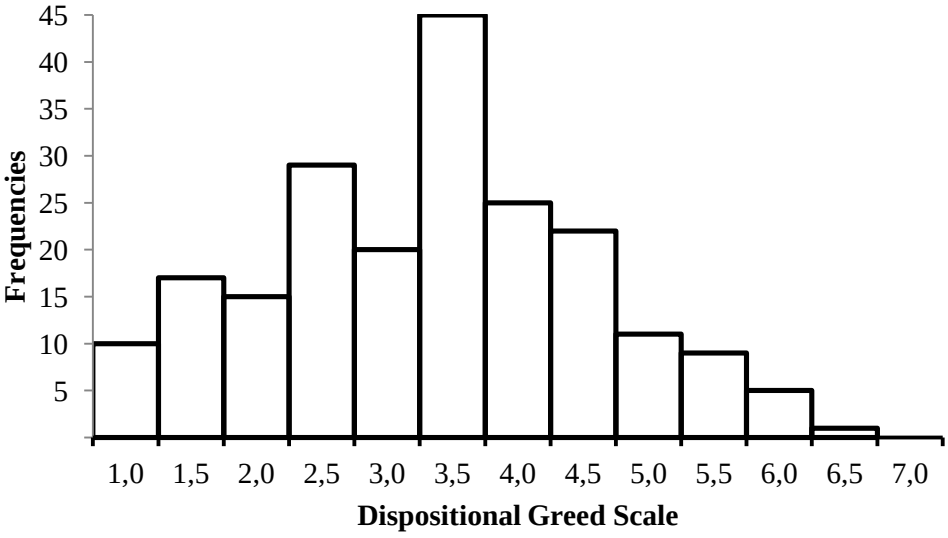


Figure 2: Distribution of the Dispositional Greed Scale (Sample 2)



1.4 Nomological validity and social desirability

Table 2 shows the correlations between greed and the other measures. The highest correlation is observed with Richins and Dawson's (1992) materialism scale (r = .71, p < .01). The correlation with Ger and Belk's (1996) materialism is more moderate (r = .45, p < .01) and highest with its envy dimension. Furthermore, greed relates strongly to entitlement (r = .59, p < .01) and moderately to social comparison (r = .40, p < .01) and egoism (r = .32, p < .01), and slightly negatively to satisfaction with life (r = -.19, p < .01) and empathy (r = -.13, p < .05). Finally, greed is not related to the self-deception aspect of socially desirable responding (r = -.05, p = .49) but it is negatively related to its impression management aspect (r = -.31, p < .01). This modest correlation with socially desirable responding is not problematic. Correlations with dark traits often range from -.20 to -.30 (Mick, 1996). Moreover, after controlling for socially desirable responding, most correlations remain significant and nearly identical, suggesting that most relations with greed are not due to a common social desirability bias.

Table 2. Correlations with the Dispositional Greed Scale - Study 1

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Dispositional greed	.81														
2. Materialism (R & D)	.71**	.91													
3. Success	.65**	.89**	.86												
4. Centrality	.57**	.86**	.68**	.78											
5. Happiness	.59**	.80**	.57**	.50**	.83										
6. Materialism (G & B)	.45**	.56**	.47**	.42**	.53**	.79									
7. Possessiveness	.20**	.25**	.21**	.19**	.26**	.59**	.80								
8. Non-generosity	.31**	.41**	.40**	.30**	.34**	.81**	.32**	.60							
9. Envy	.44**	.54**	.43**	.34**	.62**	.70**	.19**	.43**	.58						
10. Preservation	.21**	.22**	.13*	.26**	.17**	.43**	.17**	.03	.16**	.78					
11. Entitlement	.59**	.50**	.50**	.34**	.43**	.36**	.13*	.31**	.42**	.03	.89				
12. Egoism	.32**	.40**	.34**	.28**	.41**	.56**	.18**	.53**	.50**	.14*	.39**	.82			
13. Empathy	-.13*	-.14**	-.13*	-.03	-.20**	-.45**	-.13*	-.48**	-.32**	-.09	-.09	-.45**	.76		
14. Social comparison	.40**	.50**	.52**	.35**	.39**	.23**	.07	.09	.32**	.16**	.29**	.12*	.07	.83	
15. Satisfaction with life	-.19**	-.26**	-.14*	-.08	-.56**	-.35**	-.19**	-.24**	-.41**	-.06	-.04	-.22**	.18**	-.11	.90

* $p < .05$. ** $p < 0.01$. Note: Numbers on the diagonal are Cronbach's α values.

Because greed strongly correlates with the Material Values Scale (Richins & Dawson, 1992), we tested the discriminant validity of both constructs using structural equation modeling. A model with a perfect correlation between greed and materialism (indicating identical constructs) fits worse than a model with a freely estimated correlation (χ^2 = 87.90, df = 1, p < .001). Furthermore, the average variance extracted for dispositional greed (= .615) is greater than the squared correlation between dispositional greed and materialism, indicating both reliability and discriminant validity.

1.5. Test-retest reliability

To assess test–retest validity, we contacted participants again three weeks later, receiving responses from 184 employed U.S. citizens (58% response rate, 91 men, *M*age = 44.9, *SD* = 11.8); participants' wave 1 greed scores do not predict whether they participated in the second wave, $\chi^2(1) = .016$, $p = .90$. The DGS scores from both waves are highly correlated ($r = .83$, $p < .001$), and the Spearman-Brown coefficient is .91. In addition, the mean difference in scores between the two waves is .42 (*SD* = .44). This indicates that greed is a stable disposition rather than a state.

2. STUDY 2: VALIDITY AND RELIABILITY

This study aimed to further our understanding of greed by relating it to self-esteem and the Big Five. We also included a different measure of envy. Finally, though greed is generally considered as negative, some consider it not only natural, but even useful (Engler, 1995) and a driver of progress and human evolution (Wang & Murnighan, 2010). As such, greed may be related to other drivers of individual progress. We focus on two such aspects: competitiveness and productivity orientation. The latter measures individuals' focus on productivity and efficiency in all aspects of

their lives (Keinan & Kivetz, 2011).

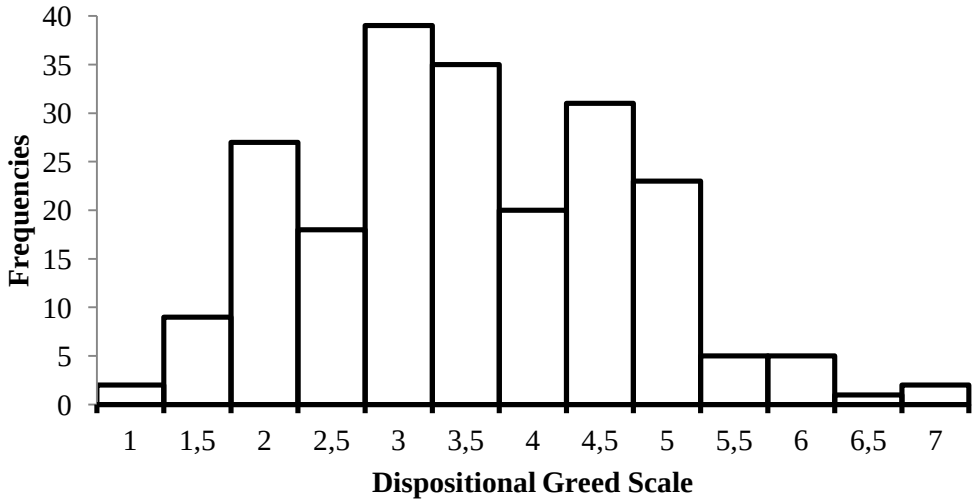
We also tested known group validity. We focus on gender, profession, and religiosity groupings. Women endorse less positive views of greed and feel worse after greedy behavior than men do (Cadsby & Maynes, 1998a; Eckel & Grossman, 1998; Seguino, Stevens, & Lutz, 1996). We also expect differences in professions, between typical management and financial professions on the one hand and service professions on the other hand. People with an economics education are less cooperative and free ride more than other groups in several types of economic games (Carter & Irons, 1991; Frank, Gilovich, & Regan, 1993; Kahneman, Knetsch, & Thaler, 1986; Marwell & Ames, 1981). Economists also keep more money in economic games and have a more positive attitude towards greed and their own greedy behavior (Wang, Malhotra & Murnighan, 2011). People in service professions on the other hand tend to cooperate more than economics students (Cadsby & Maynes, 1998b). Finally, religions teach followers to balance greed with virtues, master it, or oppose it (Lastovicka, Bettencourt, Hughner, & Kuntze, 1999), and studies show that religion links negatively to extravagant acquisition oriented behaviors such as gambling (Diaz, 2000).

2.1. Participants and procedure

A total of 218 U.S. citizens (MTurk, 107 men, M_{age} = 38.5, *SD* = 11.5) responded to the Dispositional Greed Scale (Cronbach's α = .86, *M* = 3.56, *SD* = 1.21, see Figure 2 for distribution), dispositional envy (Smith, Parrott, Diener, Hoyle, & Kim, 1999, Cronbach's α = .93, *M* = 2.50, *SD* = 1.24), the Big Five Inventory (John, Donahue, & Kentle, 1991) and the Rosenberg Self-Esteem scale (Rosenberg, 1965, Cronbach's α = .93, *M* = 5.45, *SD* = 1.18). The competitiveness measure used was the Competitiveness Mastery Questionnaire of Franken and Brown (1995, Cronbach's α = .85, *M* = 4.23, *SD* = .76). Finally respondents

revealed their productivity orientation (Keinan & Kivetz, 2011, Cronbach's α = .77, *M* = 5.18, *SD* = 1.05). On all scales, participants indicated their agreement from 1 (*completely disagree*) to 7 (*completely agree*) (see Appendix A). To test known group validity, respondents answered three questions regarding their gender, profession (20 options, ranging from mining to finance or insurance to health care or social assistance), and religion (Christianity, Islam, Judaism, Buddhism, Hinduism, other, or no religion, as well as how religious they were on a five-point Likert scale from 1 (*not at all*) to 5 (*very much*).

Figure 3: Distribution of the Dispositional Greed Scale



2.2. Nomological validity

Dispositional greed is moderately, positively correlated with dispositional envy (*r* = .40, *p* < .01). As for their general focus on progress or getting ahead, higher levels of greed are associated with greater competition orientation (*r* = .50, *p* < .01), a stronger desire to win (*r* = .55, *p* < .01) and higher effort motivation (*r* = .44, *p* < .01). They also score higher on productivity orientation (*r* = .37, *p* < .01). Finally, most relations with the Big Five factors are modest at best (see Table 3).

Table 3. Correlations with the Dispositional Greed Scale - Study 2

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Dispositional greed	.86														
2. Dispositional envy	.40**	.93													
Big 5: 3. Openness	.06	-.04	.84												
4. Conscientiousness	-.03	-.34**	.25**	.87											
5. Extroversion	.22**	.01	.19**	.23**	.86										
6. Agreeableness	-.35**	-.37**	.07	.30**	.10	.84									
7. Neuroticism	.15*	.56**	-.22**	-.55**	-.34**	-.43**	.90								
8. Self-esteem	-.03	-.51**	.13*	52**	.31**	.33**	-.63**	.93							
9. Competition	.50**	.21**	.17*	.16*	.31**	-.08	-.08	.08	.85						
10. Satisfaction from performance	.32**	.19**	-.23**	-.14*	.16*	-.23**	.05	-.02	.57**	.88					
11. Desire to win	.55**	.39**	.00	-.08	.26**	-.22**	.14*	-.13	.86**	.51**	.91				
12. Effort motivation	.44**	.17*	.13	.04	.26**	-.05	-.05	.01	.83**	.35**	.74**	.87			
13. Good performance	-.12	-.18**	.42**	.54**	.12	.36**	-.25**	.29**	.19**	-.42**	-.08	.09	.84		
14. Difficult tasks	.04	-.22**	.42**	.41**	.08	.14*	-.38**	.30**	.32**	-.07	-.05	.08	.40**	.78	
15. Productivity orientation	.37**	.05	.24**	.39**	.34**	.09	-.12	.24**	.44**	.00	.34**	.37**	.41**	.24**	.77

* $p < .05$. ** $p < 0.01$. Note: Numbers on the diagonal are Cronbach's α values.

2.3. Known group validity

As expected, men (M = 3.72, SD = 1.27) are more greedy than women (M = 3.40, SD = 1.13, $t(216) = 1.99$, $p < .05$). By regrouping the 20 potential industries, we found that respondents working in financial and management sectors (M = 3.84, SD = 1.28) are significantly greedier than those working in services, or the arts (M = 3.22, SD = 1.20, $t(114) = 2.70$, $p < .01$). Whether greedy people are more likely to start a financial job or whether financial jobs trigger a greedy disposition is not clear from our results and requires further research. Finally, greed relates negatively to religiosity (r = -.19, $p < .01$), but this relation does not differ for the different religions ($F(3, 141) = .44$, $p = .73$).

3. PREDICTIVE VALIDITY

To ensure that the DGS does measure a greedy motive, resulting in possible greedy behavior, we wanted to test predictive validity. In this study we wanted to show that the DGS can predict actual greedy behavior in a popular greed research context: economic games, more specifically ultimatum games (Stanley & Tran, 1998). In this type of game the proposer has a chance to divide a specified amount of money between him- or herself and a responder. If the responder agrees to this division, both get the suggested amount of money; if the responder disagrees, neither receives anything. Classically, the more proposers deviate from a 50–50 split and claim a disproportionate amount for themselves, the more they are labeled greedy.

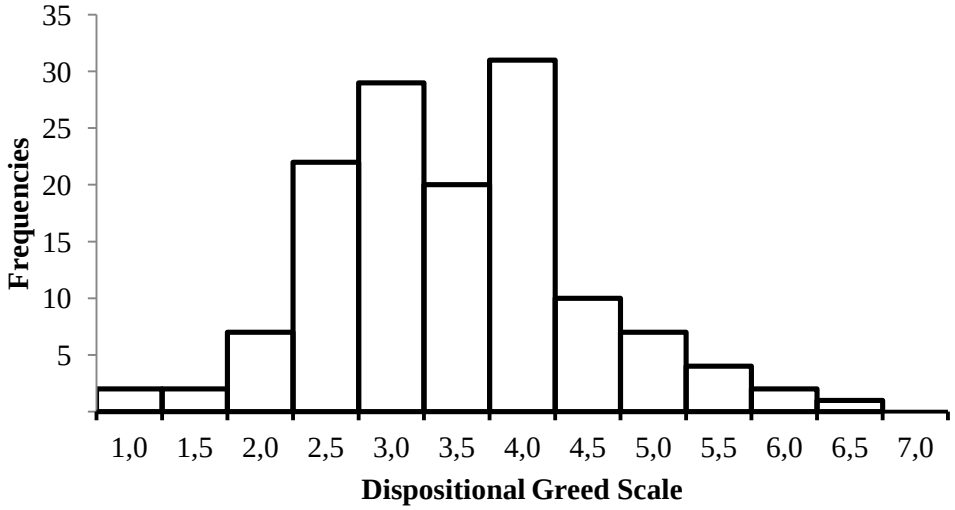
Although normatively the responder should agree to any non-zero amount, responders typically reject strong deviations from the 50–50 split (Stanley & Tran, 1998). We expect the opposite to occur for greedy people. Because disagreements about the proposed split result in both parties receiving nothing, greedy responders should be more likely to accept unfair splits than less greedy responders, because agreeing to any non-zero amount increases resources.

However, it is unclear if greedy proposers will deviate more or less strongly from a 50–50 split. Whereas a greater deviation allows them to keep more money if the proposal is accepted, higher deviations also induce a higher risk of rejection, and thus a higher risk of receiving nothing.

3.1. Participants and procedure

Participants (137 students; 48 men, M_{age} = 23.5, *SD* = 7.9) received instructions, to ensure they understood the ultimatum game. Then all students were assigned, randomly and anonymously, to a role as a proposer or responder. They answered questions about their role and also had to imagine being in the opposite role. Proposers had to decide how to divide 10€ between them and a randomly assigned responder (*M* = 5.56, *SD* = .84). Responders had to indicate their agreement with 11 hypothetical money divisions (shares starting from 0€ for them and 10€ for the proposer up to 10€ for them and 0€ for the proposer, *M* = 3.29, *SD* = 1.34), without knowing the actual division made by the proposer. From all students, we gathered both their own proposed division and their responses to all possible divisions. Finally, they completed the DGS (Cronbach's α = .81, *M* = 3.52, *SD* = .97, see Figure 4 for distribution).

Figure 4: Distribution of the Dispositional Greed Scale



3.2. Results and discussion

Results show that the DGS is indeed able to predict greedy behavior. On the one hand, greedy proposers wanted to keep more for themselves (r = .23, p < .05), but on the other hand they also tended to agree to a lower offer as responders (r = -.14, p = .075). It appears that greedy people may be more willing to accept an unfair offer, to ensure that they receive some money, but are less concerned about their chances of rejection as proposers.

4. CONCLUSION AND DISCUSSION

Although the impact of situations on greedy behavior has been amply investigated, no research offers insights into the causes and consequences of individual differences in greed. This lack of understanding can be attributed to the longtime lack of a viable instrument to measure greed. In fact, only very recently did Veselka et al. (2014) propose the VAVS scale that includes ten items to measure greed. However, as the VAVS's notion of greed differs significantly from most definitions of greed as well as from lay understanding of it, we introduce the Dispositional Greed Scale. Three studies show its reliability and validity. We find that greed occurs more often in men, in people working in financial or managerial positions, and in people who are not (very) religious.

Examining several psychological properties together with dispositional greed provides a deeper understanding of greed. The theoretically proposed links with relevant variables received support: Greed related positively to materialism, envy, social comparison, egoism, and entitlement but negatively to gratitude and satisfaction with life. These connections resonate with lay notions of greed as a dark trait. In particular, the self-focused notion of greed received support in the positive correlation with egoism and social comparison, though the latter correlation also indicated that greedy people compare themselves to others, possibly to ensure they do not lag behind. Even though we did not include greedy people's focus on

other people in our definition, these results show that greedy people do care about what other people get. This link also is supported by the positive correlation with envy. Furthermore, greedy people feel entitled to more, which might explain their lower gratitude. Finally, the positive correlations with both competition and productivity orientation show that greedy people are indeed focused on getting more within several domains, and that the construct of dispositional greed expands beyond money, material items and power.

Yet their never-ending search for more does not increase their well-being. While other dark traits often involve negative consequences for the self, this seems not so much the case for greed. Indeed, greed is not related to self-esteem and only relates very modestly negatively to life satisfaction. Possibly, although greedy people may not be happy with what they have, they may nevertheless derive some satisfaction and self-worth from previous successful attempts of securing additional resources. Finally, while the negative relation between greed and impression management shows that greedy people do realize that other people may view greedy behavior as negative, the lack of any correlation with self-deception suggests that greedy people may not consider their inclination all that negative. Indeed, greed's positive relation with competition and productivity orientation suggests that greed partly signals a desire to get ahead or to make progress in one's life; these are not necessarily negative traits.

Because greed is often considered an inherent aspect of materialism, it is especially important to consider how both constructs relate. Empirically, we find strong relations between both constructs. It is important to note here that not all scale development studies executed are reported in this chapter and that generally correlations between both variables ranged from .54 to .73. However, despite the high correlations between both concepts, there is both theoretical and empirical evidence showing that both constructs are not identical. First of all, a high correlation between greed and materialism is to be expected. Conceptually the two concepts should be related. First of all, both materialism and greed

share an interest in acquisition. Thus, given that materialism measures the value people attach to material items, and given that greedy people because of their greediness should attach higher value to both material and non-material items, theoretically both constructs should be related. However, the type of object acquisition seems to differ. Materialism on the one hand is often associated with the desire to display social status and wealth through conspicuous luxury consumption (Hudders & Pandelaere, 2012; Richins, 1994) and the attempt to construct one's identity through consumption (Belk, 1988; McCracken, 1988). Dispositional greed on the other hand is not limited to an acquisition of luxury products or products with symbolic value but rather involves the acquisition of all kinds of resources. Therefore, we propose that greed functions as an antecedent for materialism. In other words, from a theoretical point of view greed seems to be an overarching concept that encompasses materialism among other concepts.

However, these conceptual differences do not always show themselves in empirical evidence. For instance, Seuntjens, Zeelenberg, Breugelmans, and van de Ven (in press b) showed that materialism predicts both behaviors focused on material and non-material items. Thus, the material values scale seems to tap into broader constructs than just valuing material items, which makes it harder to distinguish both concepts empirically. Therefore, though not reported in the results section of this chapter, additional partial correlations were analyzed to examine how greed and materialism differ from each other empirically. Results showed that materialism predicts prestige sensitivity independently from greed (study not reported in this chapter), and it is materialism that leads to a lower wellbeing through satisfaction with life and self-esteem. Greed on the other hand independently predicts need for achievement and productivity orientation as well as a negative relation with gratitude and entitlement. This indicates that greed might indeed be a more overarching concept than materialism and focuses on more than just material items used for gaining status, and that it

is the heightened value of material items that has negative effects on people's wellbeing.

The present scale not only provides us with more insight into how greedy people differ from non-greedy people, it also helps to address a problem of circular reasoning in the interpretation of greedy behavior. Indeed, acquisitive behavior is assumed to offer evidence of a greedy motivation but at the same time is labeled greedy because it presumably stems from such motive. Such reasoning is problematic if other motives can also explain so called greedy behavior, such as a fear of being taken advantage of (Coombs, 1973). Because the DGS measures greedy motivation, it can be used to examine when acquisitive behavior reflects greed and when it reflects other motives.

From an evolutionary perspective, greed may have evolved as an adaptive trait in resource poor environments. By acquiring as many resources as possible, greedy people might feel more confident of their future resource access, during times of uncertainty. Greed may thus function to ensure future resource access and eliminate uncertainty. In support, a recent study indicates that, when children are unsure about future access to resources, they tend to opt for instant gratification (Kidd, Palmeri, & Aslin, 2013). If greed serves this purpose, why do people differ in how greedy they are? Possibly, individual differences in dispositional greed could stem from differences in expectations and perceptions of resource insecurity. Varying expectations regarding resource access may be rooted in childhood experiences, which are particularly formative for adult values, personality, and behavior. In particular, childhood shortages have negative effects on people's psychological functioning later in life (e.g., Duncan, Brooks-Gunn, & Klebanov, 1994; Simpson, Griskevicius, Kuo, Sung, & Collins, 2012). As a point in case, children from disrupted families are more vulnerable to compulsive consumption tendencies (Rindfleisch, Burroughs, & Denton, 1997). Further research is needed to investigate whether childhood experiences of resource insecurity or scarcity are related to greed in adult life.

If such a link is found, an inherent uncertainty about environmental access to resources may shed new light on the concept of greed. Instead of being regarded as a negative personality trait, dispositional greed may actually be an adaptation to one's environment. Possibly, greed reflects a heightened sensitivity to insecurities; this may explain why in uncertain environments such as the ones often used for greed research (for instance, economic games in Stanley and Tran, 1998) some people seem more eager than others to behave acquisitively.

If greed serves to secure resources, this may extend to non-material items, such as the number of friends or powerful acquaintances. Another resource that warrants further research is time. While the number of hours in a day is the same for everybody, people differ in how they use their time. In this regard, it is telling that greed is related to productivity orientation. This suggests that greedy people may try to make the most of their time. Future research may investigate how this impacts their decision to volunteer, to enjoy idle time and whether it affects their valuation of efficiency gains, to name a few.

As the DGS was developed in parallel with the VAVS (Veselka et al., 2014), we could not test the relation between both greed concepts. Future research should examine how inclusion versus elimination of deception and manipulation as part of a greed concept influences its relation with other variables. Another interesting question pertains to the relation between greed and gluttony. While they are likely to be fairly related (Veselka et al., 2014), greed is focused on insatiability in the acquisition stage whereas gluttony is focused on insatiable consumption. We leave it to future research to test whether these differences in focus imply different behaviors and outcomes. For now, we hope that by providing a reliable, valid, widely applicable measure of dispositional greed, we stimulate more research on the causes and consequences of greed, across a variety of contexts.

5. CODA

As stated in both the introduction and discussion, during the scale development stage no measures existed for examining dispositional greed. However, currently two additional scales have been published (see Appendix C). The first one is the greed subscale of the Vices And Virtues Scale by Veselka et al. (2014), consisting of 10 items, including one reversed item, measured on a 5-point Likert scale (ranging from disagree strongly to agree strongly). These authors define greed as "a tendency to manipulate and betray others for personal gain" (2014, p. 2), which has been described earlier in this chapter.

Currently there also exists a second identically named Dispositional Greed Scale, developed by Seuntjens et al. (in press b). Their DGS exists of 7 items, measured on a 5-point Likert scale (ranging from strongly disagree to strongly agree). These authors define dispositional greed as "Greed is the dissatisfaction of not having enough, combined with the desire to acquire more" (2015, p. 12). Interestingly, their DGS is conceptually and empirically highly related to our DGS. Not only does their definition of dispositional greed closely resemble our own definition, the 7 items comprising their DGS are very similar to our own items, and the empirical results found nicely match the correlations with the different measures we used in this scale development chapter. This seems to further validate both the construct of greed as defined earlier in this chapter, as well as the objectivity with which both works have been executed. A joint study in which both scales are compared and validated with other measures might indicate whether both measures tap into slightly different views on greed or different behavioral effects. For instance, their clear relation with money, both in the scale items and with a positive correlation between their DGS and tightwad-spendthrift might be a first area for further investigation.

6. APPENDICES

Appendix A

Overview of variables included

1. Study 1

1.1. Materialism. Materialism was measured with two scales, the Richins and Dawson Material Values scale (1992), and the Belk Materialism scale (1996). The first scale defines materialism as "the importance ascribed to the ownership and acquisition of material goods in achieving major life goals or desired states" and consists of 18 items, measuring the subscales of Success (e.g., "I like to own things that impress people"), Centrality (e.g., "Buying things gives me a lot of pleasure"), and Happiness (e.g., "'d be happier if I could afford to buy more things"). Items were rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of materialism. In the current study, the alpha coefficient was .91.

The Belk Materialism scale defines materialism as "the importance a consumer attaches to worldly possessions" and consists of 21 items measuring 4 sub dimensions: Possessiveness (e.g., "I don't like to have anyone in my home when I'm not there"), Nongenerosity (e.g., "I do not enjoy donating things to the needy"), Envy (e.g., "There are certain people I would like to trade places with") and Preservation (e.g., "I like to collect things"). Participants rated each item on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of materialism. In the current study, the alpha coefficient was .79.

1.2. Psychological entitlement. Psychological entitlement was measured by the Psychological Entitlement Scale (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004) and defined as "a stable and pervasive sense that one deserves more and is entitled to more than

others". The scale consists of 9 items (e.g., "I demand the best because I'm worth it"). Participants rated each item on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of psychological entitlement. In the current study, the alpha coefficient was .89.

1.3. Egoism. Egoism was measured using a short version of the Egoism Scale (Russell, Hessing, & Elffers, 2008), defining egoism as "the excessive concern with one's own pleasure or advantage at the expense of community well-being". The short version consisted of 10 items from the original 20-item scale (e.g., "It is hard to get ahead without cutting corners here and there"). Items were rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of egoism. In the current study, the alpha coefficient was .82.

1.4. Empathy. Empathy was measured by the Empathy quotient 8 (Loewen, Lyle & Nachshen, 2010), a short version of the Empathy Quotient (Baron-Cohen & Wheelwright, 2004) defining empathy as "an observer's emotional response to the affective state of another and involves understanding the other's feelings". The scale consists of 8 items (e.g., "I find it easy to put myself in somebody else's shoes") and was rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of empathy. In the current study, the alpha coefficient was .76.

1.5. Social Comparison. Social comparison was measured by the Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999). This scale exists of 11 items (e.g., "I often compare myself with others with respect to what I have accomplished in life") and was rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of social comparison. In the current study, the alpha coefficient was .83.

1.6. Satisfaction with life. Satisfaction with life was measured using the Satisfaction With Life scale (Diener, Emmons, Larsen, & Griffin, 1985), which defines the construct as "a global assessment of a person's quality life according to his chosen criteria". The scale consists of 5 items (e.g., "I am satisfied with my life"). Participants rated each item on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher satisfaction with life. In the current study, the alpha coefficient was .90.

1.7. Social Desirability. Social desirability was measured using the Balanced Inventory of Desirable Responding (Paulhus, 1988), defining social desirability as "the tendency to give positive self-descriptions". The BIDR exists of 40 items measuring two subscales: Self-Deceptive Enhancement (e.g., "I am a completely rational person") and Impression Management (e.g., "Once in a while I laugh at a dirty joke"). Participants rated each item on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher socially desirable responding. In the current study, the alpha coefficient was .87.

2. Study 2

2.1. Dispositional Envy. Dispositional envy was measured using the Dispositional Envy Scale (Smith, Parrott, Diener, Hoyle, & Kim, 1999), defining dispositional envy as "an unpleasant feeling that typically results from social comparison when a person feels inferior with respect to some important life aspect". The DES consist of 8 items (e.g., "It is so frustrating to see some people succeed so easily") and was rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of dispositional envy. In the current study, the alpha coefficient was .93.

2.2. Personality characteristics. Personality characteristics were measured using the Big Five Inventory (John, Donahue, & Kentle, 1991), describing five factors of personality in a 55 item construct. These 5 personality items include Openness (e.g., having an active

imagination; being inventive), Conscientiousness (e.g., being a reliable worker; doing a thorough job), Extraversion (e.g., being talkative; full of energy), Agreeableness (e.g., having a forgiving nature; being trusting) and Neuroticism (e.g., being depressed; worrying a lot). Respondents indicated for each item whether they saw it as typical for them on a 1 (*strongly disagree*) to 5 (*strongly agree*) scale, with higher scores indicating higher levels of the specific personality characteristic.

2.3. Self-esteem. Self-esteem was measured by the Rosenberg Self-Esteem scale (Rosenberg, 1965), defining self-esteem as "a favorable or unfavorable attitude toward the self". The construct consists of 10 items (e.g., "I take a positive attitude toward myself"). Each item was rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of self-esteem. In the current study, the alpha coefficient was .93.

2.4. Competitiveness. Competitiveness was measured using the Competitiveness Mastery Questionnaire (Franken & Brown, 1995), defined as "an internal need to perform well". The scale exists of 19 items measuring the following 5 sub dimensions: Satisfaction that comes from improving one's performance (e.g., "Bettering my past performance is more important to me than winning" reversed), Desire to win (e.g., "To be a real success I feel I must do better than everyone I come up against"), Motivation to put forth effort (e.g., "My motivation to put forth effort is greater in competitive situations"), Satisfaction that comes from performing well (e.g., "I find satisfaction in working as well as I can") and Preference for difficult tasks (e.g., "I prefer to work in situations that demand a high level of skill"). Each item was rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of competitiveness. In the current study, the alpha coefficient was .85.

2.5. Productivity. Productivity was measured using the Productivity Orientation measure from Keinan and Kivetz (2011), defining productivity as "a continual striving to use time productively, make progress, and reach accomplishments". The productivity measure exists of 4 items (e.g., "I get restless and annoyed when I feel I am wasting time"). Items were rated on a 1 (*completely disagree*) to 7 (*completely agree*) scale, with higher scores indicating higher levels of competitiveness. In the current study, the alpha coefficient was .77.

Appendix B

EFA of the original 25 items

An exploratory factor (principal axis) analysis was performed on all 25 items. The results for all 25 items are discussed here, to provide a more comprehensive documentation of the development of the scale. In this appendix all 25 items will be discussed (see Table 4), the extensive results from the EFA for all 25 items (see Table 5), and their reason for exclusion (see Table 4).

First the means and standard deviations for all items were checked, to ensure enough variability and thus predictability in each item. Items that had an unusual high or low mean (i.e., below 2.5 or above 5.5 on a 7 point scale), or very low standard deviations (i.e., below 1.25), were deemed up for exclusion later on. In the EFA, we eliminated all items for which the anti-image correlations were lower than .50, which exhibited high inter-item correlations through item wording redundancy, or revealed high cross-loadings on different factors (> .35) or low factor loadings (< .35) on the first factor from the factor solution. It has to be noted here that in the initial factor solutions, there was a clear method effected, indicating that all reversed items except 1 loaded on a second factor. Thus, high (cross-)loadings on the second factor where not regarded as inherently problematic. Furthermore, the content of each item was re-evaluated to remove overly specific items in terms of situations (e.g., taxes) or the artifact one is insatiable about (e.g., money, power). Finally, given the theoretically problematic link with materialism, we examined each item's resemblance to those of the Belk (1985) and Richins and Dawson Material Values Scale (1992) to ensure enough discriminant validity. This resulted in a deletion of the happiness items, which too closely resembled the happiness subscale of the MVS. These steps resulted in the final DGS with six items.

Table 4. Overview of the initial 25 items

Item	M	SD	Reason for removal
Item 1. When I think about people with a lot of power, I wish I was in their position.	3.02	1.73	Factor loading
Item 2. Having a lot of money is not important to me.*	3.93	1.65	Too specific
Item 3. I would be happier if I owned more things	3.27	1.71	Happiness
Item 4. I am not willing to do much just to get more power.*	3.57	1.71	Too specific
Item 5. I feel like I can always still improve my life.	5.82	1.10	Factor loading, high M, low SD
Item 6. When I think about people with high status, I wish I was in their position.	3.44	1.72	Factor loading
Item 7. I am always looking for ways to make more money.	4.92	1.64	Too specific
Item 8. If I can afford a better version of something I already own, I switch to the better one.	3.72	1.72	Too specific
Item 9. Having a lot of something makes me joyful.	3.68	1.66	Happiness
Item 10. When I think about people with a lot of money, I do not want to be in their position.*	4.46	1.63	Factor loading
Item 11. The pursuit of more and better is an important goal in life for me.	3.88	1.78	
Item 12. Even when I am fulfilled, I often seek more.	3.60	1.72	
Item 13. It takes very little to make me happy.*	2.73	1.21	Happiness, low SD
Item 14. I am not easily satisfied with products, because I know there are better ones out there.	3.34	1.56	Too specific
Item 15. One can never have enough.	3.14	1.77	
Item 16. No matter how much I have of something, I always want more.	3.06	1.66	
Item 17. I am thankful for even the little things I have.*	1.95	1.03	Factor loading, low M, low SD
Item 18. My happiness is often overshadowed because I focus on everything else I want.	2.97	1.56	Happiness
Item 19. A simple basic life is sufficient for me*	3.24	1.65	

Item	M	SD	Reason for removal
Item 20. I am easily satisfied with what I've got.*	2.94	1.34	
Item 21. I might manipulate people to get more than I first received.	2.54	1.49	Factor loading, low M
Item 22. If I knew any tax loopholes, I would use them as much as possible.	4.48	1.90	Factor loading
Item 23. When I realize that by taking more, I caused someone else to have less, I feel bad about myself.*	3.19	1.78	Factor loading
Item 24. If I was sure the authorities would never find out, I would do undeclared work to earn more money.	3.19	1.95	Factor loading
Item 25. I wouldn't mind benefiting at the expense of others, if it meant I would make more money.	2.48	1.64	Factor loading, low M

*Only loadings greater than .30 are shown. An asterisk indicates reverse scored items. Items in bold are the final 6 items of the DGS

** 'Factor loading' indicates items were removed for analytical issues, 'Low/high M' and 'low/high SD' indicates items were removed for variability issues, 'Too specific' indicates items that were removed for reasons of abstractness, 'Happiness' indicates items were removed for resemblances to the Happiness subscale of the MVS (Richins and Dawson, 1992)

Table 5. Exploratory Factor Analysis on the initial 25 items

Items	Factor loadings				
	1	2	3	4	5
Item 1	.68				.37
Item 2*		.54			
Item 3	.72				
Item 4*		.34			
Item 5				.68	
Item 6	.69				.48
Item 7	.48				
Item 8					.63
Item 9	.76				
Item 10*		.37			.47
Item 11	.59	.30			

Items	**Factor loadings**				
	1	2	3	4	5
Item 12	.70				
Item 13*		.67			
Item 14	.67				
Item 15	.70				
Item 16	.83				
Item 17*		.51	.32	-.30	
Item 18	.59				
Item 19*	.55				
Item 20*		.70			
Item 21	.55		.53		
Item 22			.65		
Item 23*			.34	-.48	
Item 24.	.34		.63		
Item 25	.55		.53		

* Only loadings greater than .30 are shown. An asterisk indicates reverse scored items. Items in bold are the final 6 items of the DGS.

** The first factor comprises the general greedy motive. The second factor loads mainly on the reversed items and indicates a method effect rather than a substantive difference. The other three factors cover idiosyncratic effects.

Appendix C

Table 6. The Greed Subscale of the Vices And Virtues Scale (Veselka et al., 2014)

Items	Factor loadings
I enjoy being part of exclusive clubs or groups that are not open to everyone.	.69
I do not enjoying sharing positions of power.	.65
I like to collect expensive things.	.51
At work/school, I keep good ideas to myself so that only I can get credit for them in the long run.	.62
Financially supporting the less fortunate is a priority for me. (R)	.75
Money is essential; friends are replaceable.	.58
Being financially wealthy is my number one goal.	.33
I consider myself successful if I have a job that pays a lot of money.	.65
No matter how much I have I always want more.	.60
"I want it all" would be a good motto for me.	.71

Table 7. The Dispositional Greed Scale (Seuntjens et al., in press b)

Items	Factor
I always want more.	.85
Actually, I'm kind of greedy.	.80
One can never have too much money.	.65
As soon as I have acquired something. I start to think about the next thing I want.	.82
It doesn't matter how much I have. I'm never completely satisfied.	.85
My life motto is 'more is better'.	.84
I can't imagine having too many things.	.72

CHAPTER III:

GREED AS ADAPTATION TO RESOURCE UNCERTAINTY

CHAPTER III: GREED AS ADAPTATION TO RESOURCE UNCERTAINTY

As a concept, greed has been used throughout our history. Some historians claim that greed started with the rise of capitalism or, even earlier, with the rise of a money economy 5000 years ago, and that it has been characteristic to human progress (Newhauser, 2000). It supposedly left its trace throughout our history in religion, philosophy and literature. Greed is still evident in many spheres of human life, but is often controlled by a variety of social restraints. Despite these restraints, greed is believed to have driven part of our evolution and survival as a species (Ludwig et al., 1993). Many of these historical sources focus on individual differences in greed. This is not only consistent with the current public interest, which focused on labeling people and not behavior as greedy (Wang & Murnighan, 2010), but also with existing but scarce research on personality factors driving greedy behavior (Haselhuhn & Mellers, 2005). However, most academic research has focused mainly on contextually induced greedy behavior. This distinction between situational explanations and personality explanations for some behavior is tied to the distinction between state and disposition (or trait). As researchers focus on situational explanations, research on relatively stable individual differences in greed proneness is very limited to non-existent.

One specific result of such a lack of research interest in individual differences in greed is the fact that there is no insight into why people differ in how greedy they are. To understand such individual differences in greed, it is enlightening to consider what function a greedy disposition serves. We propose that greed ultimately is rooted in insecurity about future resource access. By acquiring as many resources as possible, greedy people might feel more confident of their future resource access during times of uncertainty. Thus, we suggest that the cause of individual differences in dispositional greed stems from differences in expectations

and perceptions of resource insecurity. Moreover, varying expectations regarding resource access might be rooted in childhood experiences, which are particularly influential for adult values, personality, and behavior (Duncan, Brooks-Gunn, & Klebanov 1994; Simpson et al., 2012). In short, we propose that a history of childhood shortages leads to biased expectations and perceptions of resource certainty, which in turn lead to greedy behavior to ensure future access to resources.

1. GREED AS ADAPTATION TO UNCERTAINTY

A simple query on Web of Science using greed as keyword identifies many papers that invoke the concept of greed. However, barring philosophical treatments of greed (Balot, 2001) and operations research papers on greedy algorithms (e.g., Zhang et al., 2000), the number of studies on human greed is rather limited. Not surprisingly, the most relevant papers stem from the fields of psychology and economics. To the best of our knowledge, most of the relevant studies focus on situations that make people behave more or less greedily. In particular, a greedy motive is often invoked to explain a specific behavioral result: the increased want for more of a certain object after some experimental manipulation (Cozzolino et al., 2009; Kasser & Sheldon, 2000). For instance, exposing people to the color green in a context related to monetary resources increased greedy behavior when confronted with a financial decision (Mazar et al., 2011). Often this want is exhibited in non-cooperative behavior (Greenberg, 1978) in economic games (Stanley & Tran, 1998) and resource exploitation (Ludwig et al., 1993).

This focus on situational rather than individual effects is reflected in academic definitions of greed (Wang & Murnighan, 2011). More specifically, most definitions conceptualize greed as excessive acquisitive behavior, with or without negative consequences for others, triggered

for instance by private displays of behavior (Robertson, 2001) or the possibility of others' perceptions (Anderson & Gilliland, 2014; Wang, Malhotra, & Murnighan, 2001). Webster's dictionary defines greed as "excessive or reprehensible acquisitiveness" and Anderson as "a selfish motivation to acquire an unfairly excessive amount of a resource, at the expense of others". In this paper we define greed as an individual personality trait that entails an insatiable self-focused desire for more, whether of monetary or non-monetary resources, thus specifically focusing on greed as an individual difference variable (Krekels & Pandelaere, 2015).

Recently, research has given empirical validation to the notion that people differ in how greedy they are (Krekels & Pandelaere, 2015, Seuntjens et al., in press b). For instance, these studies have found individual differences related to gender, employment sector and religiosity. Indeed empirical and lay understandings have shown that, although greed is a common motivator, people differ in their greedy motivations. As Wang and Murnighan (2011) have proposed, these individual differences should instigate research about the underlying drivers of greedy action. However, as of yet there is no insight into these drivers or origins of greed. In other words, the main question that has up to now remained unanswered is: why do people differ in this greedy motive?

From an evolutionary point of view, greed may have conferred reproductive advantages. In times of limited resources, being greedy might have ensured passing on one's genes as only those with enough resources were able to survive and procure offspring (e.g., Alchian, 1950; Friedman, 1953; Hodgson, 1993). In current society, there is less competition for basic resources such as food, energy or housing. However, relating back to the recent global financial crisis, it is hard to claim that all across society resource scarcity is by definition a thing of the past. Indeed, studies have shown that The GDP (Gross Domestic Product) has decreased all over Europe by 4.3% on average and unemployment increased substantially

(Karanikolos, Mladovsky, Cylus, Thomson, Basu, Stuckler, et al., 2013) and in the US household wealth and consumption decreased significantly (Bricker, Bucks, Kennickell, Mach, & Moore, 2011; Chakrabarti, Lee, Van der Klaauw, & Zafar, 2011; Hurd & Rohwedder, 2010). Thus, although resource access is not as limited as it used to be when our basic psychological functioning was formed, insecurity about future resources is a lingering issue. Therefore we propose that in current society resource scarcity might still be one of the triggers for the development of dispositional greed.

This line of reasoning implies that greed is not necessarily the socially abhorred trait it is so often thought of (Robertson, 2001). More specifically, we propose that dispositional greed might actually serve an adaptive strategy: preparing for possible future shortages. By definition greedy people are focused on acquiring as many resources as possible. By doing so, greedy people might boost their confidence about resource access during times of uncertainty. Thus, one of the main causes of greed might be to ensure future resource access and eliminate uncertainty. New research supports this adaptive purpose of focusing on immediate acquisitions to diminish future uncertainty. For instance, Kidd, Palmeri, and Aslin (2013) showed that, when children are unsure about future access to resources in a standard marshmallow test, they tend to opt for instant gratification. This effect has been replicated for adults as well (Griskevicius, Ackerman, Cantú, Delton, Robertson, Simpson, & Tybur, 2013). Furthermore, these studies have indicated that this type of future discounting is not only based on a lack of self-control, which used to be the explanation for this result. The acquisitive behavior is in fact also rooted in a rational decision-making process that considers environmental reliability and the utility of delaying resources, making it a deliberative process.

Several scholars in psychology have shown that other greedy behavior can also be triggered by different types of uncertainty. For example, Kasser and Sheldon (2000) indicate

that inducing uncertainty about the cause and moment of their deaths leads people to develop higher financial expectations and consume more in a common resource game. When children are unsure about the trustworthiness of their caretakers, they tend to opt for instant gratification (Kidd, Palmeri, & Aslin, 2013) and children from disrupted families are more vulnerable to compulsive consumption tendencies (Rindfleisch, Burroughs, & Denton, 1997). Although such studies do not pinpoint the exact aspect of uncertainty that causes greedy behavior or dispositions, they offer a first support for our claim that greed ultimately is rooted in insecurity about future resource access.

2. UNCERTAINTY ROOTED IN CHILDHOOD ENVIRONMENTS

If greed does serve this adaptive purpose, why do people differ in how greedy they are? We predict that one of the causes for individual differences in greed is childhood experiences, which are particularly influential in developing adult values, personality, and behavior (Nikelly, 2006). In particular, childhood shortages have negative effects on a wide array of people's psychological characteristics later in life (e.g., Duncan, Brooks-Gunn, & Klebanov, 1994; Simpson et al., 2012). Many studies have shown that people unconsciously sensitize to their childhood environment by forming cognitive, social and behavioral responses that are adaptive for these conditions (Ellis, 2004; Ellis, Figueredo, Brumbach, & Schlomer, 2009), similar to how children acquire language skills (Belsky, Steinberg, & Draper, 1991; Boyce & Ellis, 2005). More specifically, childhood circumstances have been linked to differing responses to resource uncertainty before (Griskevicius et al., 2013; Hill, Rodeheffer, DelPriore, & Butterfield, 2013). For instance, Griskevicius, Tybur, Delton and Robertson (2011) showed that reading news articles about environmental uncertainty lead people from

harsh childhood environments to prioritize quantity over quality, a finding that could not be explained by their current or expected future environments.

We propose that these individual differences in childhood environments furthermore influence dispositional greed through differences in expectations and perceptions of resource uncertainty. Growing up in a difficult environment might make one more prone to notice uncertain environments later on. In other words, if dispositional greed might be caused by a harsh childhood, it is possible that greedy people are more likely to recognize signs of possible future hardship as well, and act greedily as a strategy to ensure no future shortcomings. That is, taking the last cookie makes sense if the consumer is uncertain how long he or she will have to wait for the next food item; rushing to be first in line at a buffet is understandable if one is afraid that his favorite dish may run out quickly. Thus, we propose that a greedy disposition stemming from harsh childhood environments leads to an altered perception of their surroundings, and it is this altered perception that leads to greedy behavior. Current theory on the personality–behavior link (Caprara, 1987; Mischel & Shoda, 1995; Wright & Mischel, 1987) supports this link, viewing behavior as an outcome of the joint influence of dispositional and situational triggers. Multiple findings on childhood environments further support this sensitization model of life history strategies (Hill et al., 2013; Piff, Stancato, Martinez, Kraus, & Keltner, 2012; White, Griskevicius, Neuberg, & Kenrick, 2013).

This leads to the conclusion that dispositional greed might in fact be an adaptive strategy for dispositional greedy people (Belsky et al., 1991; Caudell & Quinlan, 2012; Ellis et al., 2009). When there is uncertainty about future access to resources, it might be beneficial to increase one's current resources, to build up a stock that can be used later during times of shortage. However, the hypothesis that differences in expectations and perceptions of future resource access can explain differences in greedy behavior implies that, in situations that do

not allow for different expectations and perceptions, greedy and non-greedy people should behave similarly. Thus, we predict that not in every situation greedy people will act acquisitively, but that it will be limited to situations that they themselves perceive as uncertain. In these types of situations that do allow for such differences in interpretation, dispositional greed should predict greedy behavior.

Three studies were conducted to test our hypotheses. In a first study we demonstrate that dispositional greed is indeed related to childhood uncertainty and socio-economic status, both objective and subjective, which triggers current feelings of uncertainty, but that it is less linked to current socio-economic status. A second study shows that greedy people's perceptions of new situations are indeed altered, leading them to have higher perceptions of uncertainty in situations that contain a certain element of ambiguity, which in turn leads them to express less controlling behavior. In a third and final study we show that it is indeed this element of uncertainty that leads greedy people to behave acquisitively, finding an interaction between dispositional greed and the situation in producing so-called greedy behavior.

3. STUDY 1: CHILDHOOD UNCERTAINTY

Research has shown that, when people are confronted with situations of uncertainty or insecurity about resources or access thereof, they become more acquisitive afterwards (Kasser & Sheldon, 2000; Kidd, Palmeri, & Aslin, 2013). As acquisitive behavior is a central notion of greed, and as at the moment there is no insights into what causes a greedy disposition, in this first study we wanted to investigate whether childhood resource uncertainty is related to greed. Although previous studies do not pinpoint the exact aspect of uncertainty that causes greedy behavior or dispositions, we propose that greed ultimately is rooted in insecurity about future resource access. Furthermore, given that childhood years are extremely influential in

developing psychological and behavioral mechanisms, we mainly focused on childhood harshness and uncertainty, which are often related to low socio-economic status (SES, Brady & Matthews, 2002; Chen & Miller, 2012; Repetti, Taylor, & Seeman, 2002; Troxel & Matthews, 2004). Thus in this first study we wanted to investigate whether harsh childhood circumstances might trigger the development of a greedy disposition as an adaptive strategy later in life and whether this is linked to lingering uncertainty in life.

3.1. Participants, materials and procedure

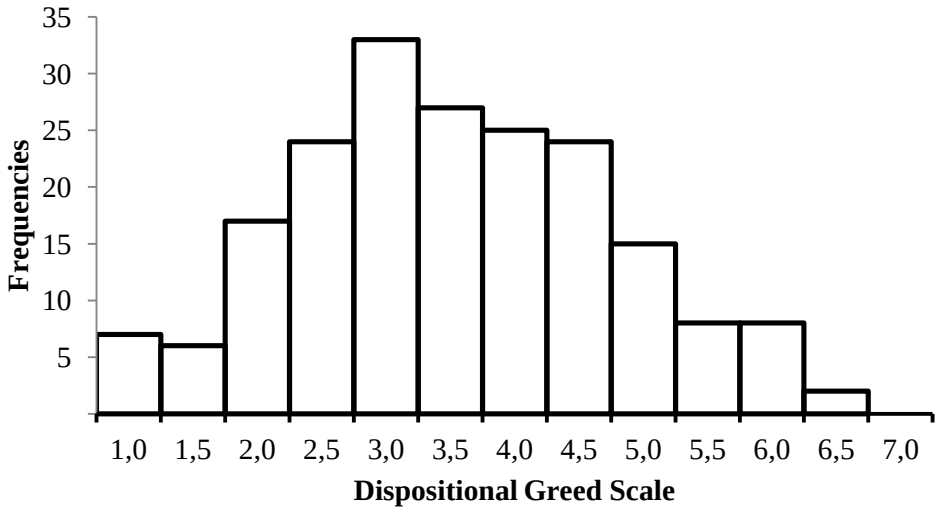
In this first study we focused on childhood and current SES, childhood and current support systems, childhood harsh environments and current uncertainty in life to examine whether there are links between life situations during upbringing and adulthood on the one hand and a greedy disposition on the other hand. 198 MTurk participants (101 males, *M*age = 39.2, *SD* = 12.2) filled out an online questionnaire asking about their childhood and current life circumstances. Measures for objective childhood SES included both parents' education level (ranging from 1 (*less than high school*) to 8 (*professional degree*); M_{mother} = 5.76, *SD* = 1.64; M_{father} = 5.67, *SD* = 1.88) and job level (ranging from 1 (*unemployed*) to 8 (*upper level executive of a large company or major professional*); M_{mother} = 4.97, *SD* = 2.03; M_{father} = 3.92, *SD* = 2.04) and combined annual household income (ranging from 1 (*less than 30.000*) to 11 (*120.000 or more*); *M* = 4.27, *SD* = .97). For this last measure, 4 respondents indicated that they rather not answer and were left out for analysis. The same measures were asked about the respondent him/herself to asses current SES ($M_{education}$ = 4.84, *SD* = 1.36; M_{job} = 4.54, *SD* = 2.26, M_{income} = 7.73, *SD* = 3.05).

Measures for childhood and current support system were more subjective in nature. Based on studies by Griskevicius, Delton, Robertson, and Tybur (2010), we included the

ladder ranking where respondents indicate where they place themselves relatively in society (M = 6.01, SD = 1.82) and a 6-item subjective childhood SES scale assessing both monetary and emotional support (ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), sample items: 'I grew up in a relatively wealthy neighborhood' and 'I would say that I received a lot of emotional support and love during my childhood'; Cronbach's α = .79, M = 3.93, SD = 1.28) that was also adapted for current/future SES (ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), sample items: 'I feel relatively wealthy these days' and 'I have a lot of emotional support and love these days'; Cronbach's α = .83, M = 4.10, SD = 1.31).

Harsh unpredictable childhood environments were measured through how often respondents experienced resource changes in their childhood (ranging from 1 (*never*) to 5 (*constantly*), sample items: 'A major, abrupt change in your family's financial status', 'Arguments between parents or other family members (including self)' and 'Move(s) to a different home or place of residence'; Cronbach's α = .85, M = 2.15, SD = .76) and through how these changes affected them (ranging from 1 (*strongly negative*) to 7 (*strongly positive*), with 4 as a middle option (*neutral/no impact*); Cronbach's α = .83, M = 4.47, SD = .77) (Rindfleisch et al., 1997). Finally, current uncertainty about one's life circumstances and their stableness was measured through the uncertainty avoidability index (Mittal & Griskevicius, 2014) (ranging from 1 (*strongly disagree*) to 7 (*strongly agree*), sample items: 'we live in a harsh world' and 'I can engage in behavior to minimize negative effects of the economy'; Cronbach's α = .74, $M_{\text{uncertainty}}$ = 5.42, SD = 1.24, $M_{\text{avoidability}}$ = 2.80, SD = 1.07). Respondents also answered the Dispositional Greed Scale (Krekels & Pandelaere, 2015) (Cronbach's α= .84, M = 3.52, SD = 1.23; see Figure 1 for MTurk sample distribution).

Figure 1: Distribution of the Dispositional Greed Scale



3.2. Results and discussion

Dispositional greed correlated negatively with most measures of childhood circumstances, but was not related to most measures of current circumstances. More specifically, objectively greed was negatively related to mother's education (r = -.19, p < .01) and job (r = -.18, p < .05) and marginally to the family income (r = -.12, p < .10), but not to father's education (r = -.09, p = .21) nor job (r = .03, p = .71). Greed was further negatively related to the subjective ranking (r = -.18, p < .05), and subjective SES related to monetary support (r = -.21, p < .01) but not to emotional support (r = .04, p = .58). For measures of current SES, there was no relation between greed and the objective measures of education (r = .03, p = .71), job (r = -.08, p = .29) or income (r = -.10, p = .15). Nor was there a link with the more subjective monetary (r = -.06, p = .40) or emotional support (r = .01, p = .89). Furthermore, the occurrence of harsh unpredictable childhood environments were related to dispositional greed (r = .19, p < .01), but not the impact they had on the respondents (r = -.10, p = .16). Finally, greedy people were found to have higher scores on current feelings of uncertainty (r = .24, p < .001) but not on avoidability (r = .03, p = .66) (see Appendix A).

Some of these predictors examined identical childhood and adult circumstances. Therefore as a first test of the importance of both we tested whether there were differences between the similar childhood and adult predictors and their relation to dispositional greed. We ran a series of regression models including only the identical predictors, to examine whether the regression coefficients differed significantly. A first model included mother's, father's and current education (B = -.231, B = -.047, B = .026). A subsequent comparison of the B's showed that mother's education had a significantly larger impact on dispositional greed than current education ($t(193) = 2.35$, $p < .05$) but that there was no difference between father's and current education ($t(193) = .20$, $p = .84$). A second model included mother's, father's and current job (B = -.176, B = .067, B = -.043). A subsequent comparison of the B's showed that mother's job had a significantly larger impact on greed than current job ($t(193) = 2.10$, $p < .05$) and there was a marginally significant difference between father's and current job ($t(193) = 1.74$, $p = .08$). A third model included family and current income (B = -.097, B = -.091). A subsequent comparison of the B's showed that there was no different effect of childhood's family income versus current income on dispositional greed ($t(190) = .06$, $p = .95$). A fourth model included childhood emotional and financial support and adult emotional and financial support (childhood: B = .136, B = -.256; adult: B = .010, B = -.040). A subsequent comparison of the B's showed that there was no difference between the effects of childhood versus current emotional support on dispositional greed ($t(192) = 1.26$, $p = .21$) but there was for financial support ($t(192) = 2.58$, $p < .05$). Thus, childhood parameters had a larger impact on dispositional greed in the case of mother's education and job, father's job and financial support.

Then childhood and current circumstances variables were entered in two separate backwards regressions to examine which of these statistically predicted adult dispositional greed. The childhood regression model included both mother's and father's education and job

and family income (both linear and squared, to test for possible non-linear effects), the subjective SES ranking and monetary and emotional support, and the impact and occurrence of unpredictable environments. The regression model showed that only mother's education, father's job, the monetary support and the occurrence of unpredictable circumstances significantly predicted greed, explaining 15% of its variance ($F(4, 191) = 8.285$, $R^2 = .148$). The adult regression model included current education, job and income (both linear and squared, to test for possible non-linear effects), current monetary and emotional support, and feelings of uncertainty and avoidability. The regression model showed that only current income (linear) and uncertainty predicted a greedy disposition, explaining 8% of its variance ($F(2\ 189) = 7.803$, $R^2 = .076$). Finally, including both childhood and current predictors into a regression model showed that the same predictors remained significant (similar *B*'s and *p*-values in separate regressions), explaining 20% of the variance (see Table 1).

To examine whether childhood versus adult life circumstances had the biggest impact, we ran two separate regression models. One included all childhood predictors in the first block and adult predictors in the second block. Using this technique, we could establish that adult predictors explained only 4% of additional variance after childhood circumstances were taken into account. The opposite regression, with adult predictors in the first block and childhood predictors in the second, showed that childhood predictors added 12% of explained variance. This seems to indicate that childhood circumstances are more important than adult circumstances to explain a greedy disposition. Furthermore, since current income was only marginally significant, it seems that when it comes to SES it is only childhood SES that drives a greedy disposition, further limiting the impact of current life circumstances.

Table 1. Effect of Childhood and Current Circumstances on Dispositional Greed

	B	*SE*	*t*	*p*
Constant	3.301	.52	6.392	.000
Mother's education	-.169	.056	-2.260	.025
Father's job	.216	.048	2.740	.007
Child's monetary support	-.269	.061	-3.480	.001
Occurrence of unpredictable childhood circumstances	.224	.112	3.238	.001
Current income	-.128	.027	1.189	.060
Current uncertainty	.185	.067	2.716	.007
F (df)	7.634 (6, 185)			
R^2	.198			

Finally, we set up a simple mediation analysis using ordinary least squares path analysis to examine whether the adult outcomes mediated the effect of childhood outcomes on greed. Results indicated that childhood circumstances did influence adult income (a1 omnibus R^2 = .054, $F(4, 187) = 2.679$, $p < .05$) but not uncertainty (a2 omnibus R^2 = .039, $F(4, 187)$ = 1.908, $p = .11$). As noted earlier, these adult circumstances also influence the corresponding greedy disposition (b1 = .182, $p < .01$; b2 = .052, $p = .060$). A bootstrap confidence interval for the entire indirect effect of childhood circumstances through adult circumstances (ab1 = .006; ab2 = .001) based on 1000 bootstrap samples still included zero (-.002 to .020; -.001 to .006), showing that there was no mediation of the effect of childhood circumstances on dispositional greed through adult circumstances (c' omnibus R^2 = .122, $F(4, 185) = 7.050$, $p <$ .001). Thus, although childhood circumstances influence some adult circumstances, they still have a direct effect on greed.

Thus, our results indicate that greed is indeed related to harsh childhood environments. Also, it seems that for the development of a greedy disposition, monetary resources are more

influential than emotional resources. Furthermore, there was a limited relation between current life circumstances and dispositional greed, indicating that this trait is indeed developed in childhood but might be maladaptive in adulthood. Children growing up in an objectively disadvantaged environment might become greedy for two reasons. First, the shortages might cause them to feel entitled to more, to make up for their prior needs. Second, being greedy might be a way to prevent future deficits by ensuring resource security. Although our current findings support the idea that resource insecurity leads to greed, they cannot confirm strict causality. The direction of the relation might be opposite, such that greed distorts childhood recollections or situational interpretations, though objective indicators such as parents' education and job do not support this explanation.

Finally, the correlation between the measure of current personal uncertainty and greed further supports our hypothesis that insecurities lead to greedy behavior. With this measure, this study gave a first indication that greedy people indeed perceive their current environments as more uncertain, possibly a learned perception preserved from their harsher childhoods. Thus, in a second study we will investigate whether greedy people generally perceive situations with an inherent element of uncertainty as more insecure than non-greedy people.

4. STUDY 2: PERCEPTIONS OF UNCERTAINTY

Our previous study gave a first indication of what exactly might trigger certain people to become more greedy than others: harsh childhood circumstances. Dispositional greed might thus be an adaptation to experienced resource uncertainty early on in life. However, greed was less related to current life conditions, especially job, education and income. Thus, if greed is indeed an adaptive strategy to harshness in life, why is it not as strongly affected by current

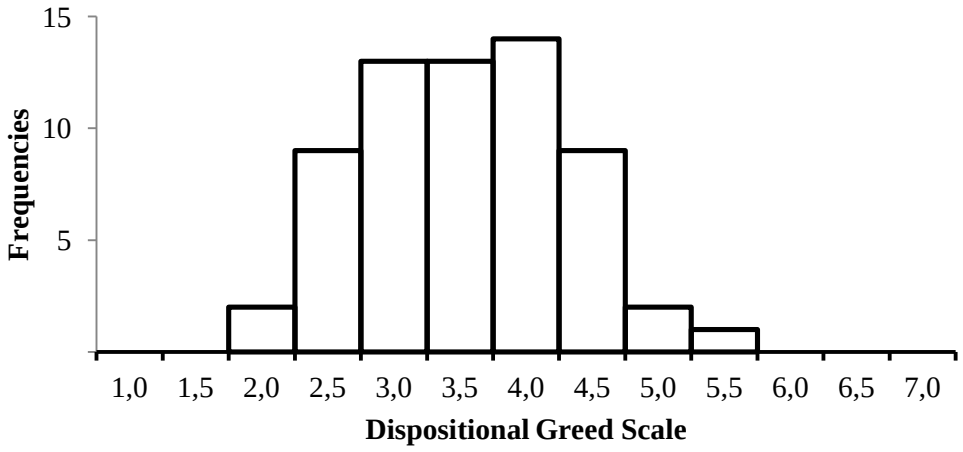
circumstances? Especially when these circumstances might not call for acquisitive greedy behavior to ensure future resource access. To answer this question we propose that individual differences in behavioral greed stem from a heightened sensitivity to insecurities, which in turn leads to differences in expectations and perceptions of resource insecurity. In other words, a greedy disposition alleviates people's focus on and perception of possible resource uncertainties, which in turn leads greedy people to perceive situations as more uncertain than they actually are. This may explain why in uncertain environments such as the ones often used for greed research (for instance, economic games in Stanley and Tran, 1998) some people seem more eager than others to behave acquisitively, though these situations are equal to all participants.

4.1. Participants, materials and procedure

Our second study was set up to investigate the basic notion behind this reasoning: that greedy people experience situational access to resources as more uncertain. 63 members of a large university panel (21 males, *M*age = 28.4, *SD* = 12.4) participated in an online study. They saw three scenarios stating that they were in need of a certain resource (course credit, job income and bakery food items, see Appendix B for exact scenarios). Chances of getting these resources decreased with the number of other people competing for this resource. The amount of other people competing was pretested to represent a range from very few to very much (5 conditions within subjects, 10-100 students for course credit, 1 to 5 people for a promotion and 2-10 people for a bakery). Respondents saw all three scenarios, and responded first how likely they thought they were going to obtain the resources ranging from 1 (*extremely unlikely*) to 11 (*extremely likely*), and second how much effort they were willing to make to obtain these resources (7 point scales, study time from 1 to more than 6 hours, hours willing to work late from 5 to more than 30, time standing in line from 5 to 30 minutes, see

Appendix B for means and standard deviations). Afterwards people answered the Dispositional Greed Scale (Cronbach's α = .77, *M* = 3.54, *SD* = .78, see Figure 2 for student sample distribution).

Figure 2: Distribution of the Dispositional Greed Scale



4.2. Results and discussion

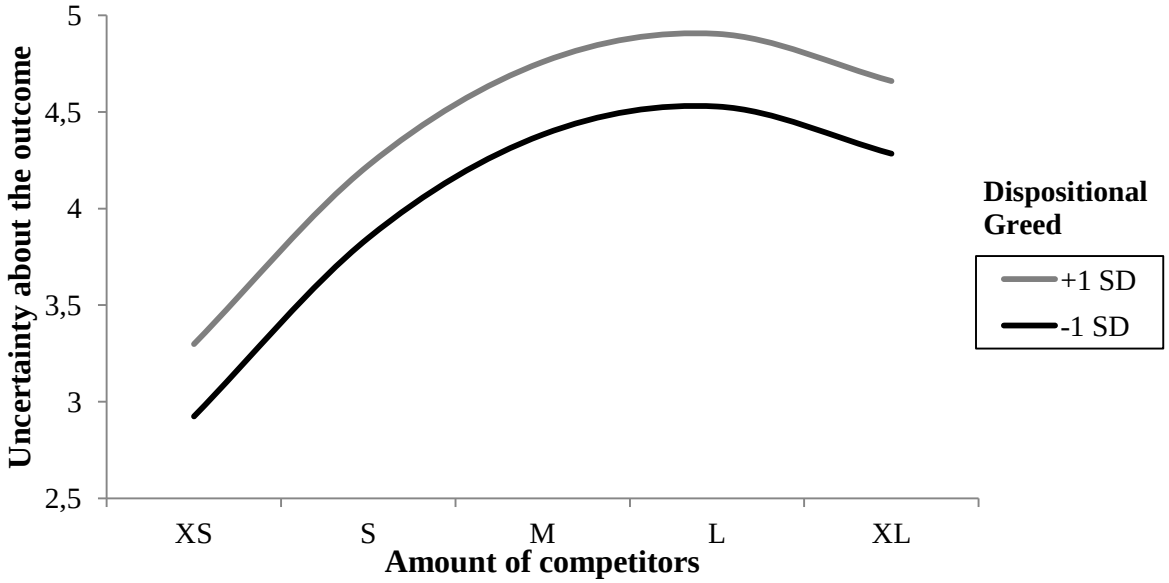
Before analysis, the scale measuring resource likelihood was recoded to represent uncertainty, by reversing half of the scale (i.e., points 1 till 6 remained the same, points 7 till 11 were reverse coded), such that extreme answers (i.e. extremely likely (1) or extremely unlikely (11)) were recoded as presenting certainty about the outcome (low scores (1) on the recoded uncertainty scale), and middle answers (i.e. somewhat likely (5) and somewhat unlikely (7), as likely as unlikely (6)) as presenting uncertainty about the outcome (high scores (5, 6) on the recoded uncertainty scale). Thus the likelihood scale was recoded to present certainty about the outcome instead of likelihood to obtain the resource. This type of recoding was done as pilot testing of our survey showed that respondents had difficulty judging their certainty when asked directly (i.e. please indicate how certain you are about the outcome), but not the likelihood of outcomes (i.e. please indicate how likely you are to obtain this resource).

Two general linear mixed models were set up to examine the influence of dispositional greed and number of competitors on certainty about the outcome and effort to obtain a positive outcome, across all three scenarios. We expected a curvilinear relation between certainty and number of competitors, in such a way that very few as well as many competitors reduced uncertainty, as chances are either very large or very small to obtain the resources, whereas a medium number of competitors would make it harder to judge certainty. Therefore, both the number of competitors and the squared number of competitors were included in the analyses. Results for the uncertainty judgment showed three separate main effects (see Table 2). The more greedy people were the less certain they judged a certain outcome to be. Furthermore, both the number of competitors as well as the amount squared was significant, indicating that uncertainty increases with the amount of competitors until a certain point, but then decreases (see Figure 3).

Table 2. Effect of Dispositional Greed and Competitors on Uncertainty

	B	*SE*	*df*	*t*	*p*
Constant	1.800	.204	329.86	8.83	.000
# Competitors	1.510	.150	545.98	10.07	.000
# Competitors ²	-.195	.024	600.08	-7.95	.000
Dispositional greed	.241	.052	815.45	4.63	.000

Figure 3: Effect of dispositional greed and competitors on uncertainty

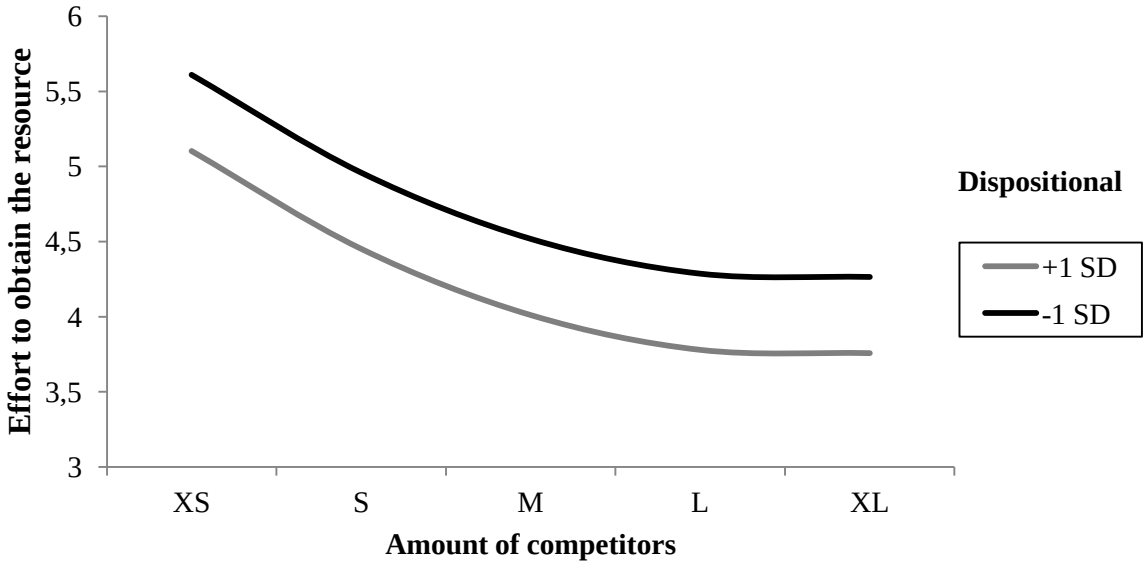


Results for the effort judgment also showed three separate main effects (see Table 3). The more greedy people are, the less they are willing to exert effort to secure resources. Furthermore, both the number of competitors as well as the amount squared were significant but in the opposite direction, indicating that effort decreases with the amount of competitors until a certain low point (see Figure 4).

Table 3. Effect of Dispositional Greed and Competitors on Effort

	B	*SE*	*df*	*t*	*p*
Constant	6.216	.350	149.30	18.15	.000
# Competitors	-.966	.266	315.17	-3.65	.000
# Competitors ²	.105	.042	401.27	2.39	.017
Dispositional greed	-.322	.091	535.40	-3.45	.001

Figure 4. Effect of dispositional greed and competitors on effort



The results confirmed our hypothesis: greedy people indeed have a higher perception of uncertainty than non-greedy people, and this is especially true when it is hard to judge the chances of obtaining resources. However, contrary to our expectations, this heightened uncertainty did not result in more effort to obtain resources but less. This result does not seem to match with the purpose of greed as ensuring future resource access. However, in this case exerting more effort does not result in future access to resources, only current access. Also, exerting effort might not be easily classified as greedy acquisitive behavior. Therefore, in the third study we will examine a more direct measure of greedy behavior and need for future resources.

5. STUDY 3: SITUATIONAL INFLUENCES

In our final study we investigate whether eliminating the potential for differences in expectations of future resource access eliminates the difference between greedy and non-greedy people. In other words, we wanted to test whether situations that are unambiguous in

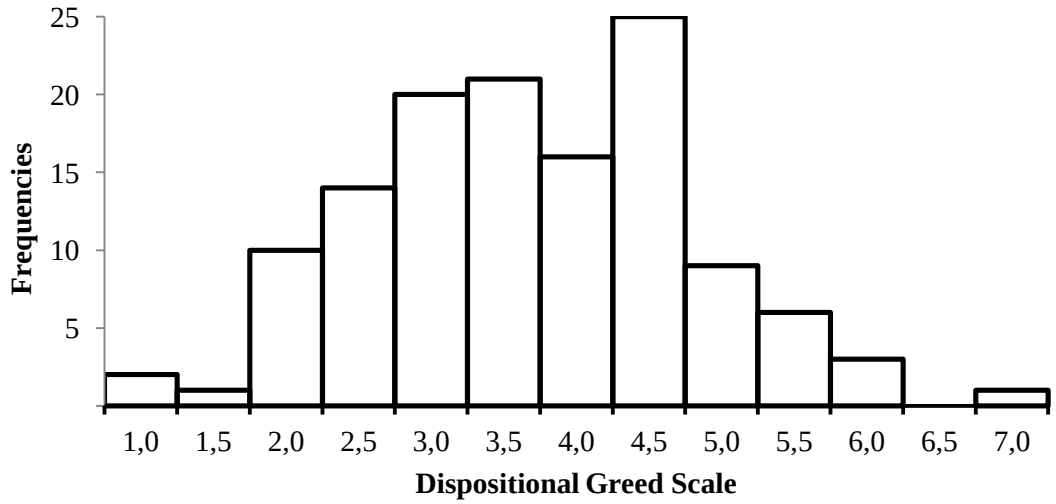
their access to resources would cause identical behavior in both greedy and non-greedy people. This would be a clear examination on whether it is indeed people's perception of resource access that explains differences in greedy acquisitive behavior. If future resource access is ambiguous, as in the previous study, greedy people should be more likely to behave acquisitive, as they are especially sensitive to the possibility of future shortage. However, in other situations there might be explicit indications that future resource access would be ensured. Eliminating the possibility of future shortages should make greedy people behave as non-greedy people and eliminate greedy behavior. Finally, also the opposite of the spectrum exists where future resource access is very hard or simply unattainable. In these circumstances, we predict that greedy and non-greedy people should all show a preference for acquisitive behavior as preparation for future shortages.

5.1. Participants, materials and procedure

We instructed 129 students (64 men, M_{age} = 22.8, *SD* = 5.2) in a resource access scenario study. We assigned these respondents randomly to 3 scenarios indicating that their access to future resources would be certain, uncertain, or impossible. The scenario asked them to imagine attending a music festival, where they had to buy coupons for their meals and drinks. The certain access scenario stated that coupon sellers were scattered across the festival grounds, so one was always nearby, making it very easy to buy more coupons in the future if needed. The uncertain access scenario indicated that sellers were all grouped at the entrances, a 15-minute walk from the actual festival ground, so that some time or effort was required for repeat purchases. Furthermore, for these sellers the scenario specifically stated that there was no certainty that after reaching them coupons would not be sold out. The impossible access scenario stated that there was no opportunity for repeat purchase; coupons had to be bought through a website before the actual festival started. Thus respondents each read one of three

resource access scenarios: certain access, uncertain access or impossible access. Next, participants indicated their preference to buy among three coupon options, priced linearly (five coupons for $15, 10 coupons for $30, 15 coupons for $45, $M_{certain}$ = 1.72, *SD* = .67, $M_{uncertain}$ = 2.14, *SD* = .80, $M_{impossible}$ = 2.37, *SD* = .69) and finally responded to the Dispositional Greed Scale (Cronbach's α = .77, *M* = 3.72, *SD* = 1.14; see Figure 6 for student sample distribution).

Figure 5: Distribution of the Dispositional Greed Scale



5.2. Results and discussion

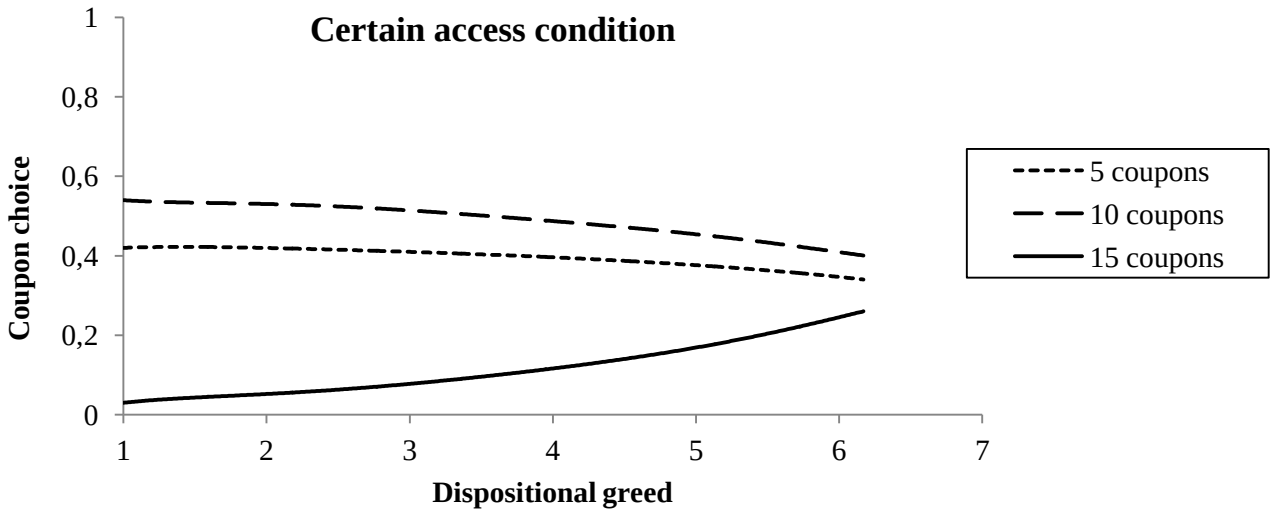
An ordinal multinomial logistic regression showed that resource accessibility interacted with a greedy disposition. The difference between greedy and non-greedy people was most pronounced in the middle access condition, marked by ambiguity about future purchases. In this situation, greedy people were more acquisitive and bought more coupons than non-greedy people, possibly to avoid future shortages. In the easy access situation, where sellers were easy to reach and certainly not sold out, we found no difference between greedy and non-greedy people, presumably because greedy people inferred that there was no need for acquisitive behavior. The difference also disappeared in the difficult access scenario: when

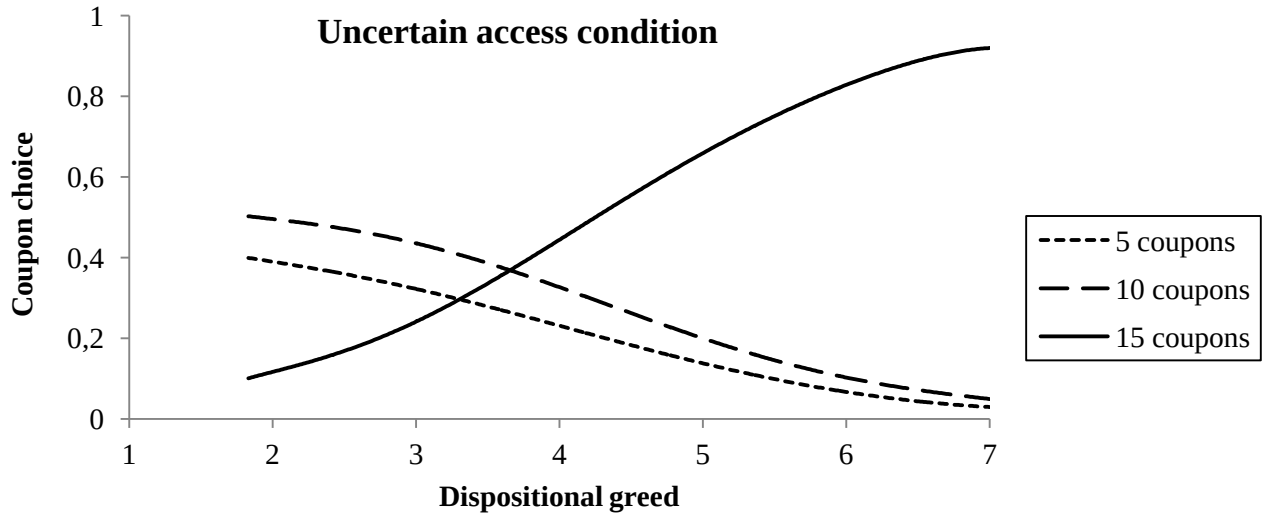
people learned explicitly that there would be no opportunity for repeat purchase, all respondents behaved acquisitively (see Table 4 and Figure 6).

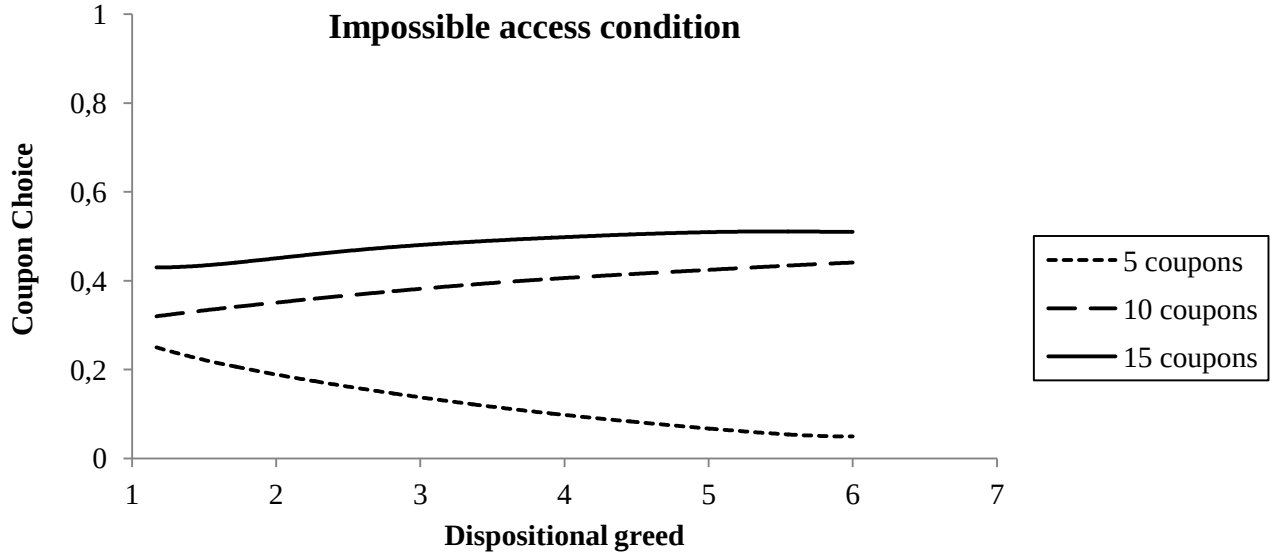
Table 4. Effects of Dispositional Greed and Resource Certainty on Coupon Choice

Coupon choice	Independent variable	*B*	*SE*	Wald Chi²	*p*
5/10 → 15	Dispositional greed	.79	.48	2.66	.10
	Easy access	-3.64	1.37	7.03	.01
	Hard access	1.82	1.79	1.03	.31
	Dispositional greed × Easy access	-.83	.34	5.98	.01
	Dispositional greed × Hard access	-.82	.45	3.39	.06

Figure 6. Effect of dispositional greed and resource certainty on coupon choice







6. CONCLUSION AND DISCUSSION

Although lay people throughout history focused not only on situational drivers for greed but also on individual differences in susceptibility to greedy behavior, research has long overlooked the possibility of greed as not only a state but also a trait variable. Because of this, insight into what drives a greedy motive is lacking. To investigate why people differ in how greedy they are, it is important to investigate what purpose this greedy motive might serve. In other words, why are some people more prone to think and act greedily, whereas others seem more or less immune to this behavioral driver?

In this paper we investigated one possible origin and function of a greedy disposition. More specifically, we hypothesized that greed might function as some sort of protection against future shortages. Ensuring that one attains as much as possible might be an adaptive strategy towards ensuring future access to vital resources. However, this means that not all people exhibit this acquisitive strategy against shortages; otherwise there would be no individual differences in greed. We therefore focused on childhood circumstances as one possible trigger for developing such a greedy strategy. Children that grow up in disadvantaged circumstances, where parents might struggle to provide sufficient material and immaterial resources for their children, might be more likely to see sense in such a preventive adaptive strategy. Our first study confirmed this link between childhood resource insecurity and several aspects of current personal insecurity on the one hand and dispositional greed on the other. More specifically, we showed that childhood SES but not current SES (except for income) is linked with a dispositional greedy motive. Being a mere correlational study, it is harder to draw causal interferences, but the use of both objective and subjective measures of a harsh childhood do seem to indicate that an uncertain childhood might trigger the development of a greedy disposition, possibly to ward against future shortages.

Furthermore, this first study seemed to indicate that childhood uncertainty lingers in adulthood, as greedy people also indicated to feel more uncertain about their current life circumstances, regardless of what these were. We then hypothesized that feeling uncertain about their current situations and resources is what drives greedy people to behave acquisitively, even when not necessarily required. Thus we set up our second study, to investigate whether greedy people's harsh upbringing might have settled into a heightened sensitivity to possible resource uncertainty, and whether greedy people exhibit a biased processing style that leads them to perceive uncertain situations as more insecure than they actually are. Our second study confirmed this reasoning, showing that the greedier one is, the

more uncertain they are about their access to resources, regardless of the amount of competitors for this resource.

As this second study indicated that there is indeed a difference in uncertainty perceptions between greedy and non-greedy people, the final question we tried to answer in this chapter was whether eliminating this difference in perceptions would also eliminate the difference in behavior. In other words, we wanted to examine whether under certain circumstances we could eliminate greedy people's biased perception in such a way that they would no longer behave greedily, and whether we could augment non-greedy people's uncertainty perceptions to such a level that they would behave similar to greedy people. We found that eliminating all possible misperceptions or biases considering uncertainty in a situation indeed led to greedy and non-greedy people no longer behaving differently, in such a way that ensured future resource access removed greedy people's need to behave acquisitively and definite future inaccess to resources induced greedy behavior even in non-greedy people.

The results found in these studies might shed new light on earlier research examining greed. Though previous research did not focus on individual differences, the contexts in which they examined the effects of situational variables often included an element of uncertainty. For instance, previous experiments investigating greed in an economic context (Coombs, 1973; Mazar et al., 2011; Stanley & Tran, 1998) mainly used designs such as resource exploitation. In these types of experiments, the fact that there are competitors for the same amount of resources induces an inherent element of uncertainty. Thus, it would be interesting for future research to design a similar procedure without uncertainty, to examine whether it is in fact outcome uncertainty that typically drives greedy effects in those often studied economic games.

The same applies to economic games such as ultimatum games, where the fact that another person has to agree with a certain division of the money accounts for uncertainty about the final outcome. One way around this issue is to examine dictator games instead of ultimatum games. In a dictator game, the responder has no input into whether or not he/she agrees with the proposed division. Therefore they lack the inherent uncertainty that is part of ultimatum games. Seuntjens et al. (in press b) used both procedures to validate their own Dispositional Greed scale. They found that the greedier a person is, the more they are willing to keep for themselves in both the dictator and ultimatum games, and the amount kept is larger in the game without uncertainty. This seems to contradict our earlier explanation. However, it is important to note here that there are important distinctions between the uncertainties inherent in resource games versus ultimatum games. In the first type, the uncertainty is part of the game and there is no way for players to diminish it. In ultimatum games on the other hand the uncertainty is directly related to the amount offered to the responder. Another important distinction between ultimatum and resource games is the amount of strategic thinking needed and the amount of power of the first mover, which also influence the amount of control one has over the uncertainty in the game. Therefore, it might also be interesting for future studies to examine controllable versus uncontrollable uncertainty.

Other research might also examine whether this difference in perception of uncertainty might be one of the reasons why being greedy is frowned upon. For greedy people, who experience situations as more uncertain, their greedy behavior is adaptive to cope with perceived inherent uncertainties. However, for non-greedy people, a situation might seem less uncertain, which in turn could lead them to view others' greedy behavior as disproportional. This in turn explains the typical claims of greedy behavior as unnecessary and excessive. This idea of excessiveness as linked to uncertainty perceptions seems to be supported by the final

study, which shows that when there is no possible perception difference, greedy people and non-greedy people act alike.

Furthermore, as the first study showed only limited relations between greed and current life circumstances, are greedy people by definition less adapted to current circumstances? Though previous studies have shown that low SES upbringings generally have negative effects later in life (Duncan, Brooks-Gunn, & Klebanov, 1994), some have shown that it also might have positive effects, such as enhanced learning and memory processing under stressful conditions (Champagne, Bagot, van Hasselt, Ramakers, Meaney, De Kloet, & Krugers, 2008). If greedy people also possess these qualities, their enhanced reaction to uncertainty might in fact be a more correct response than those of non-greedy people. Future research could therefore examine whether, under uncertain situations, greedy people could be more likely to produce optimal normative behavior than non-greedy people. On the other hand, this adaptation to uncertainty means that dispositional greed might also be maladaptive in certain situations. If greedy people have higher perceptions of uncertainty, this means that they might perceive a certain situation as pointing towards future uncertainty when in fact there is none. In these circumstances they will behave greedily as well, leading to overbuying. However, since there will be no future shortage, this might also lead to either waste when they realize their stock is superfluous, or to overconsumption to prevent such waste. Future research could shed more light on this duality.

It is important to note some limitations of our studies. The first limitation is that, though childhood circumstances were predictive of an adult greedy disposition, these childhood measures only explained up to 20% of variance. Thus, we do not wish to claim that all children from a harsh upbringing will grow up to become dispositional greedy, but merely that greed is just one possible way to cope with uncertainty. Indeed, the coping literature suggests that people who exhibit one specific strategy for coping often do not show any of the

possible other strategies (Carver, Scheier, & Weintraub, 1989). This has for instance been shown for religion and money, which seem to be contradictory coping strategies originating from a similar cause (Burroughs & Rindfleisch, 2002). This mutual exclusion of religion and money as coping strategies might also explain the negative link between greed and religion found in the previous chapter.

Important to also note here is that, though father's job was initially not correlated with adult greed, father's job did significantly predict adult greed in the regression model. This seems to indicate that there is a suppression effect present. The lack of correlation between both variables might in this case indicate that there is both a positive and negative effect of father's job. Given that parents often have similar levels of education (Buss, 1985), and that education is a big predictor of job levels, the negative effect of father's job on greed might be already accounted for through mother's education, resulting in only a positive effect of father's job in the regression model. Indeed, when mother's education and childhood monetary support are excluded from the model, father's job loses its significant effect.

However, the effect of father's job was still in the opposite direction than expected. This might be interpreted by the same social learning theory as the low explained variance of childhood circumstances overall. As we have shown in the previous chapter, greedy people are not only driven towards attaining more, they are also competitive and production oriented. This might cause them to become more ambitions in their job environments, leading them to work harder and attaining higher job positions than non-greedy people. Thus, father's job might actually be an indication of father's dispositional greed, rather than just an indication of their job level. Some fathers who are greedy might cope with their greed by working hard to attain higher job levels such as management positions. Given that this might for them be a way to cope with their greed, it is possible that they transfer this coping strategy to their children through their upbringing. On the other hand, it is also possible that some part of a

greedy disposition is genetically inherited, where fathers' greed is transferred to their children through their genes. Since the regression model already accounts for lower childhood circumstances through mother's education, the positive effect of father's job might be a first indication of families' social learning or genetical effects on their children's adult greed. The lack of measures for social learning and family genetics in our regression model might account for the low explained variance of childhood SES on greed. Future research might examine both adults and their parents, to examine the effect of social learning as well as childhood SES on adult greedy dispositions.

A second clear limitation is the fact that in study 2, greedy people were less likely to exert effort to cope with their enhanced uncertainty. We expected to find the opposite result, as we predicted dispositional greed to be an adaptive strategy to cope with uncertainty. However, there are several different explanations for this unexpected result. First of all, the conceptualization of effort in this study might have been problematic. In this study effort was not a way to ensure future but current access. Therefore, the results of this study might more aptly be described by the psychological term of learned helplessness. Learned helplessness refers to the fact that when people (or animals) encounter uncontrollable events with negative consequences, such as harsh childhood circumstances, they exhibit subsequent maladaptive behavior to controllable circumstances (Maier & Seligman, 1976). Studies unreported previously (84 members of a large university panel, 32 males, *M* age = 27.6, *SD* = 11.5) have shown that greedy people indeed are less certain (ranging from 1 (*absolute uncertainty*) to 11 (*absolute certainty*)) about future resources (18 resources, including material, emotional and social, sample items: money, family support, and self-confidence, Cronbach's α = .90) (*B* = -.207, *SE* = .077, *t* = -2.643, *p* < 01), but also believe that they will have less control over the likelihood of obtaining these resources (ranging from 1 (*no control*) to 11 (*absolute control*)) (*B* = -.244, *SE* = .074, *t* = -3.302, *p* < 001). This might indicate that greedy people exhibit

greedy behavior specifically during certain contexts, to cope with their less adaptive behavior during uncertainty. This idea seems to be supported by the final study, which shows that in the uncertain condition at the entrance (which in fact at that moment in time was still a certain context) greedy people were buying more coupons, to cope with the possible future uncertainty. Thus, new studies might examine how greedy people behave differently under current versus future uncertainty.

A second explanation for the unexpected lower effort of greedy people in this second study is the fact that greedy people might simply be less willing to exert effort to obtain resources. This explanation might also be used in the third study. In this study no effort was needed to obtain resources, which clearly led greedy people to obtain more of them when there was no difference in uncertainty perceptions. However the second scenario of access uncertainty also stated that sellers were located at the entrance of the festival ground, a 15 minute walk from the actual festival, and that they might be sold out when one would reach them. Though we interpreted this as a measure of uncertainty, there were no manipulation checks. Thus, a different interpretation of this effect might be that greedy people are simply less willing to exert effort to obtain resources. This impact of effort might be important, especially as the typical everyday behavior that is labeled as greedy, is exactly the type of behavior that requires limited effort. For instance, taking the last cookie when others did not receive their share or piling up your plate at a buffet to such an extent that others have less choices requires little to no extra effort compared to not displaying these behaviors. Similarly the lack of sharing that is often attributed to a greedy motive often requires less effort than does sharing.

In this third study there might be more confounds than just effort at play, which further limits the interpretation of this study. For instance, besides an effect of greed, there might also be an effect of generosity, where some people might buy coupons not only to ensure access to

food and drinks, but also to treat friends or family that might accompany them to the festival. Another possible confound is people's willingness to spend and possibly overspend money, where buying to many coupons might cause them to have to throw away coupons in the end. Furthermore, some people might have a habit of bringing their own food and drinks to a festival, which means they also would buy less coupons in the different scenarios. Finally, given that greedy people were more willing to buy 15 coupons in the access uncertainty scenario than in the impossible access scenario, there might also play an effect of planning for the near versus far future. Though all of these confounds might to some extent be related to a greedy disposition, it is still important to control for them to be able to make the direct claim that it is greed that is causing these differences between the scenarios.

Finally, individual difference traits that have been developed through human evolution often not only have evolutionary benefits but also evolutionary costs. These costs have not been examined in this chapter, but might give way to future research. One possible cost that might be associated with greed is the fact that within many societies greed is heavily frowned upon. For instance, the public outlash against bankers after the financial crisis is just one example of the vividness with which people can react to perceptions of greed and the resulting injustices. However, from an evolutionary perspective there are huge disadvantages of social exclusion. Human beings are social animals who have developed in group and social interactions structure many parts of our lives (Richerson & Boyd, 1998; Silk, 2003). The environments of our ancestors made solitary life harder and severely restricted chances of survival and reproduction. One of the possible costs of a greedy disposition might then be the hindrance of social inclusion. Thus, though being greedy might have given people higher chances of survival and reproduction during times of uncertainty or a shortage of resources, the same disposition might have caused people to become excluded from the social groups they needed for the same survival and reproduction.

This social cost of greed can be supported by some of the findings in our first chapter, where we found that greedy people are indeed egoistic and score lower on impression management. This might mean that people who realize they are greedy cope with the possibility of social exclusion by disregarding other people's perceptions of them. On the other hand, it is also possible that only people who care less about others' opinions develop a greedy disposition to cope with shortages, which might further explain the relatively low explanatory value of childhood SES on greed. Future research might examine whether the relation between greed and social exclusion is an a priori or a posteriori one.

The general idea that greed serves as insurance against future shortcomings, such that it stems from feelings of insecurity, raises some final questions for future research. Does acquisitive behavior to cope with uncertainty linger in consecutive choice situations without this element of uncertainty, or is it limited to the specific context? What happens when greedy people are not able to act greedily during uncertain situations? Might the inability to act on their greed, as might occur in real life, partly explain their lower well-being? Research addressing these questions should expand our knowledge about greed.

7. APPENDICES

Appendix A

Table 5A. Correlations with the Dispositional Greed Scale - Study 1

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Dispositional greed	.84											
2. Mother's education	-.194**	/										
3. Mother's Job	-.175*	.334**	/									
4. Childhood family income	-.120	.355**	.262**	/								
5. Father's education	-.090	.630**	.126	.473**	/							
6. Father's job	.027	.434**	.180*	.495**	.613**	/						
7. Subjective ranking	-.182*	.307**	.221**	.474**	.286**	.249**	/					
8. Childhood financial support	-.212**	.350**	.212**	.725**	.415**	.453**	.443**	.83				
9. Childhood emotional support	.040	.096	.088	.322**	.244**	.244**	.251**	.364*	.77			
10. Current education	-.026	.299**	.015	.083	.348**	.213**	.258**	.054	.003	/		
11. Current job	-.075	.198**	.258**	.116	.121	.197**	.215**	.078	.150*	.369**	/	
12. Current family income	-.104	.154*	-.012	.132	.198**	.128	.427**	.110	.161*	.409**	.294**	/
13. Current financial support	-.060	.286**	.119	.169*	.186**	.052	.322**	.183*	.168*	.351**	.220**	.465**

14. Current emotional support	.010	.126	.063	.146*	.059	.143*	.267**	.128	.349**	.104	.140	.149*
15. Occurrence of unpredictable childhood circumstances	.190**	.068	-.096	.195**	.163*	.149*	.144*	.204**	.476**	.076	-.036	.120
16. Impact of unpredictable childhood circumstances	-.102	.171*	.138	.228**	.210**	.115	.213**	.295**	.438**	.125	.075	.171*
17. Current uncertainty	.242**	-.024	.019	-.042	-.039	.024	.131	-.074	.065	.228**	.095	.134
18. Current unavoidability	.032	-.021	-.096	.117	.045	.102	.135	.107	.140*	.067	.197**	.133

* $p < .05$. ** $p < 0.01$. Numbers on the diagonal are Cronbach's α values where relevant.

Table 5B. Correlations with the Dispositional Greed Scale - Study 1

	13.	14.	15.	16.	17.	18.
13. Current financial support	.87					
14. Current emotional support	.380**	.85				
15. Occurrence of unpredictable childhood circumstances	.074	.203**	.85			
16. Impact of unpredictable childhood circumstances	.230**	.159*	.261**	.83		
17. Current uncertainty	.241**	.200**	.191**	.105	.92	
18. Current unavoidability	.210**	.298**	.086	-.015	.051	.86

* $p < .05$. ** $p < 0.01$. Numbers on the diagonal are Cronbach's α values where relevant.

Appendix B

1. Scenarios study 2: resource uncertainty

1.1 Course credit: Imagine that for one of your courses you need to give a presentation. This presentation counts for 50% of your final score. You know you need good grades for this presentation as it is a hard course to pass. At the beginning of the semester the professor told his class that each student will need to prepare their presentation for a certain specific deadline. Starting the day of the deadline, each lesson 5 student will be picked at random to give their presentation. The day before the deadline, you have not yet started working on your presentation.

How likely is it that you will need to do your presentation the next day?

How many hours will you spend the day before the deadline to prepare your presentation?

1.2 Food items: Imagine that on a Sunday morning you would go to the bakery to buy pastries for your family's breakfast. At the bakery you notice that there is a long queue waiting before you. You know that your family is at home, waiting hungrily for you, and that the chance exists that the pastries you were supposed to buy might be sold out by the time it is your turn to order.

How likely is it that the pastries you were supposed to buy will still be available when it is your turn to order?

How long are you willing to stand in line to get your family's breakfast?

1.3 Promotion: Imagine that after your graduation you start renting an apartment with your partner en start looking for your first job. After some job interviews you find a job you like at a company with good career opportunities. A year later you and your partner start looking for

a house. You find one that both of you like, close to your jobs, and sign the contract for buying the house. You move into your new house. However, a few months later your partner loses its job, and you struggle financially to pay off the loan and provided for all the other living expenses. But you also know that in a few months' time a better position will become available in your company. If you would apply for and get this new position, your financial problems would decrease significantly.

Knowing that you have been working for this company for 2 years now, and that your employer is satisfied with you, how likely is it that you will get this promotion?

How many overtime are you willing to work to improve your chances for this promotion?

2. Overview of Means and Standard Deviations in study 2: resource uncertainty

Table 6. Overview of Means and Standard Deviations of Uncertainty

Scenario	Amount of competitors	M	SD
Course credit	XS	3.14	1.23
	S	4.33	1.02
	M	4.75	.93
	L	4.44	1.17
	XL	3.81	1.41
Food items	XS	2.51	1.33
	S	3.10	1.39
	M	3.81	1.42
	L	4.21	1.52
	XL	4.03	1.52

Scenario	Amount of competitors	M	SD
Promotion	XS	3.67	1.43
	S	4.22	1.24
	M	4.78	1.02
	L	4.97	1.00
	XL	4.83	.98

Table 7. Overview of Means and Standard Deviations of Effort

Scenario	Amount of competitors	M	SD
Course credit	XS	5.08	1.11
	S	4.79	1.25
	M	4.49	1.33
	L	4.14	1.45
	XL	4.00	1.60
Food items	XS	3.79	2.07
	S	4.05	1.86
	M	3.86	1.76
	L	3.73	2.01
	XL	3.68	2.17
Promotion	XS	3.27	1.94
	S	3.33	1.82
	M	3.03	1.82
	L	3.06	1.83
	XL	2.59	1.95

CHAPTER IV:

THE EFFECT OF GREED ON ABSOLUTE AND RELATIVE THINKING

CHAPTER IV: THE EFFECT OF GREED ON ABSOLUTE AND RELATIVE THINKING

Many economic and psychological theories on processing styles explain mental processes as driven by two incompatible processes, for instance experiential versus rational thinking (Epstein, 1990) or a hot versus cold emotional system (Metcalfe & Mischel, 1999). One of those dual thinking styles that recently gained academic attention focuses on the difference between absolute and relative thinking (Sewell, 2011; Stigler, 1987). According to an absolute thinking style, the happiness derived from winning 50$ in a lottery where one paid 20$ should be equal to that derived from winning 35$ in said lottery would they have only paid 5$, both gaining 30$ in the end. However, a large group of literature has shown that people often do not engage in such absolute thinking but generally apply a more relative thinking style (Kahneman & Tversky, 1984) where relative changes from a certain reference point are taken into account. In this line of thinking, people winning 250% of their initial lottery fee are by definition less happy than those winning 700% of it, even if the winnings are the same in absolute value. Limited research has investigated whether psychological, situational or individual differences influence these thinking styles.

In this paper we will focus on dispositional greed as an individual difference variable that might be related to this thinking style. More specifically we propose that whereas non-greedy people follow the general relative thinking style, greedy people exhibit the opposite, i.e. they think more absolutely. Thus, whereas non-greedy people generally focus on relative differences often presented as percentages, greedy people focus more on absolute differences. Furthermore, we will show that this difference can be traced back to a difference in diminishing utility. This is because the psychological value of an increase or decrease in a certain domain depends on the affective value the person ascribes to that domain, or how

emotionally important they feel that domain is for them. As greedy people are focused on attaining more, they might attribute a higher affective value to any increase, whether the original amount is small or large. This in turn might lead to less diminishing utility and thus render them more prone to absolute thinking. For non-greedy people on the other hand, the affective value of an increase might more likely be linked to the original value, leading to diminishing marginal utility and relative thinking.

1. ABSOLUTE AND RELATIVE THINKING

Prior to 1950, economic theory claimed that people considered only absolute differences when making decisions, whether of money, time, quantities or other (Sewell, 2011; Stigler, 1987). Such absolute thinking required that people who were willing to drive 30 minutes to save 30$ on a 90$ item, should also be willing to travel the same distance for the same amount of money saved for a 300$ product. However, this idea of fixed absolute preferences started to get undermined by behavioral research as early as the 1960s, showing that people often engage in relative thinking (Darke & Freedman, 1993; Frisch, 1993; Kahneman & Tversky, 1984; Ranyard & Abdel-Nabi, 1993) which takes relative changes from a certain reference point into account. Following this line of thinking, people were in fact more willing to travel to save 33% versus 10% of an item's price, even if the discounts would be identical in nominal value. This relative thinking style has been shown in a variety of contexts. Early studies focused on time versus money, showing that people generally are willing to exert more effort to save money on low-priced goods then on high-priced goods (Mowen & Mowen, 1986; Thaler, 1980). For instance, Tversky and Kahneman (1981) indicated that people were more willing to go to another store to save 5$ on a 15$ calculator when they were also buying a 125$ jacket, but not to save the same amount on a 125$ calculator when also

buying a 15$ jacket. Recent studies have broaden these contexts to differentiated goods and even non-price related goods (Azar, 2007; Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997; Hanna & Wozniak, 2001), showing that such relative thinking might lead to preference reversals (Wong & Kwong, 2005). Furthermore, this relative thinking style is not limited to human thinking, but has also been found in animal species making foraging decisions (Dehaene, Dehaene-Lambertz, & Cohen, 1998; Shafir, Menda, & Smith, 2005).

Research has indicated that relative thinking might be an adaptation from other senses and corresponds to the Weber–Fechner law (Fechner, 1860; Weber, 1834), which holds that people respond to changes in physical stimuli by comparing it to the original value (Engel, Kollat, & Blackwell, 1968; Gabor & Granger, 1964; Myers & Reynolds, 1967). This adaptation to relative differences has been shown for several physical stimuli (Miller, 1962). Recent studies on neurology have even found a neuron-based explanation for this relative perception of our environment, further confirming that it may have been developed through evolution (Dehaene, 2003). Thus, our senses are evolved to evaluating changes rather than absolute magnitudes, which means that stimuli are perceived relative to a certain reference point (Kahneman & Tversky, 1979), and that this evolution has influenced our thinking processes as well.

2. DIFFERENCES IN THINKING STYLES

Although relative thinking is now a well-known concept established in research, little focus has been given to psychological, situational and individual differences that might influence people's tendency to engage in relative thinking. The limited research that has been conducted on personal and situational drivers has mainly studied behavioral underpinnings of relative thinking. For instance, Saini and Thota (2010) examined cognitive load and

consumer's propensity for intuitive decision-making. They found that cognitive load leads to more relative thinking, as it restricts one's cognitive capacities. Their research gave a first indication that relative thinking indeed often functions as a heuristic when cognitive capacities are limited or necessary elsewhere, a notion further supported by the fact that a preference for intuitive decisions making also enhances the propensity to use relative thinking instead of absolute thinking.

Others focused on situational boundary conditions for relative thinking. Moon, Keasey and Duxbury (1999) for instance showed that relative thinking diminishes when absolute savings are high, indicating partial relative thinking that is attentive to both absolute and relative differences (Azar, 2007). Darke and Freedman (1993) further showed that relative thinking also diminishes when the percentages associated with the savings are small, showing a floor effect for relative thinking. Finally, Nunes and Park (2003) indicated that people were more prone to absolute thinking when it was difficult to evaluate a promotion, for instance when the promotion was stated in different currencies or in non-monetary terms. Others have tried to demonstrate whether experience and knowledge also diminish relative thinking, but found limited effects indicating that even economic scholars exhibit biased thinking (Azar, 2011b).

However, research examining behavioral underpinnings of biased reasoning is ample in the domain of scope neglect (Kahneman, 1986), which is the phenomenon that people generally are sensitive to the presence or absence of a stimulus, but largely insensitive to further variations of scope (Boyle, Desvousges, Johnson, Dunford, & Hudson, 1994). Research on the effect of scope has shown that there are several psychological, situational and individual differences that enhance this influence of scope (Baron & Greene, 1996). For instance, Hsee and Rottenstreich (2004) used feeling- or calculation-based processing styles to influence the effect of variations in scope. Important for this project, however, is that many

studies have focused on personal attachment to the good for increasing scope sensitivity (Bergstrom, Stoll, & Randall 1990; Hanley & Craig, 1991). More specifically, they state that the psychological value of an increase in X depends on the affective value of X, or the emotionally importance they attach to that X (Frederick & Fischhoff, 1998), indicating that it is the affective value of the focal domain or object that determines whether people focus more or less on scope. For instance, Boyle et al. (1994) showed that the emotional attachment people had to environmental issue influenced their WTP for saving 2.000, 20.000 or 200.000 members of a bird species.

The literature on scope neglect and that on absolute versus relative thinking have several commonalities (Cunningham, 2011; Saini & Thota, 2010). First, both psychological processes are often related to the aforementioned Weber-Fechner law, which states that a focus on relative processing has extended from sensory information to cognitive information. In other words, both scope neglect and relative thinking may have evolved in a similar way. Second, though implicitly, both refer to diminishing utility to explain these different thinking styles. Diminishing utility refers to the process where people are less sensitive to identical increases or decreases further from a certain reference point, a concept introduced with prospect theory (Kahneman & Tversky, 1979). Diminishing marginal utility generally states that the psychological perceived value of a good diminishes with each additional unit acquired. For instance, eating the first piece of a chocolate bar one has been craving for gives a large amount of pleasure. However, by the time one is halfway through the chocolate bar, a sweet tooth might have been satisfied, leading to less pleasure from each additional bite. In other words, starting from the reference point where one craves a chocolate bar and has not taken a first bite, the marginal utility or pleasure derived from eating the chocolate will diminish with each additional bite.

This means that the valuation function depicting psychological value as a function of magnitude is inherently concave, illustrating that identical changes farther from the reference point have a smaller impact than changes close to the reference point. Thus, the more units one is exposed to, the lesser the impact of each additional unit, gradually becoming desensitized to absolute value. In scope sensitivity literature, scholars often directly refer to prospect theory to explain the concavity of this valuation function and thus the diminishing effect of scope (Hsee, Rottenstreich, & Xiao, 2005). Also within the domain of relative thinking articles often base their theoretical development of relative thinking on the concavity of the utility function within prospect theory (Azar, 2007; Saini, Rao, & Monga, 2010; Saini & Thota, 2010), stating that people are more sensitive to savings on a small loss than a large one. In other words, the effect of saving 2$ on a 10$ item is, because of the concavity of the value function, more valuable than the same savings on a 100$ item, leading to relative thinking.

In this project, we look at the personality characteristic dispositional greed to investigate people who might be prone to relative or absolute thinking. Dispositional greed is defined as a personality trait that entails an insatiable, self-centered desire for more, whether of monetary or non-monetary resources (Krekels & Pandelaere, 2015). More specifically, we believe that this notion of always wanting more is what links greedy people to a more absolute thinking style. When a greedy person wins 50$ in a lottery, we think it might be less important whether this is an increase of 1% or 50%. In both situations, the person who is focused on getting more has gained 50$. Furthermore, we suggest that this effect of dispositional greed is due to a difference in the valuation of the good and thus its marginal utility. For non-greedy people, who are not as interested in wanting more above a certain threshold (Wang & Murnighan, 2011), we believe that the initial value or reference state might influence the value of an increase or decrease. In other words, non-greedy people's affective value depends on the

deviation from a reference state, resulting in a stronger diminishing utility (Kahneman & Tversky, 1984). In contrast, for greedy people, who have an internal motive towards always attaining more (Krekels & Pandelaere, 2015), the initial value or reference state might be less informative, making the affective value of an increase or decrease independent of the reference state. In other words, they show less diminishing utility.

3. BIASED PROCESSING

Prior to 1950, economic theory that focused on rational human behavior (Savage, 1954; Sugden, 1991) claimed that the human race was a species of 'homo economicus', meaning that individuals would base their economic choices on rational thinking and self-interest. According to these initial economic theories and textbooks of the 1950's, absolute thinking was the most rational thinking style (Sewell, 2011; Stigler, 1987). The literature on scope neglect and relative thinking has also often stated that absolute thinking should lead to more rational decision making (Azar, 2007; van Boom, 2011). Research has indeed shown that in many cases relative thinking leads to biased processing and suboptimal choices (Azar, 2009). For instance, relative thinking leads consumers to make too much effort to save on a low-priced good (willing to drive 20 minutes to save 10$ on a 20$ good, which is 50% off), but too little on a high priced good (not willing to drive 20 minutes to save 30$ on a 300$ good, which is 10% off). It is clear that this relative thinking then leads to worse decisions, since making the opposite choice would still cost a 20 minute drive, but would also have saved an extra 20$ (Azar, 2007).

The question is therefore whether greedy people, being absolute thinkers, are less prone to biased processing. We do not believe this necessarily is the case. More specifically, we believe that greedy people are in fact simply biased in the opposite direction, towards absolute

thinking. In some situations, rational and deliberative processing would lead to the same results as absolute thinking, such as in the examples given in the introduction. However, in other situations relative thinking leads to more optimal choices, such as those of physiological satiation (Booth, 1990). Another situation in which relative thinking is more optimal is that of the unit effect, where differences between attributes of substitute goods appear larger if these differences are denoted on scales with a larger number of units (for instance days versus hours). Here, relative thinking should at least partly eliminate this effect, as for instance a score of 6/10 vs. 7/10 is relatively speaking the same as a score of 60/100 vs. 70/100. However, for those who think absolute, this is a difference of 1 point versus 10 points. Thus, in certain cases, thinking absolutely is in fact biasing and will lead to suboptimal choices.

We conducted three studies to test our claims. First, we demonstrate that dispositional greedy people indeed think in a more absolute sense, whereas non-greedy people think more relative when deciding how much to pay for differentiated goods. In a second study, we show that greedy people exhibit less diminishing utility, indicating that for them the psychological value of an increase is not as much related to the reference state. In a third and final study, we illustrate that, although greedy people do think more absolute, they do not necessarily make better decisions, by demonstrating that their absolute thinking can lead to suboptimal decision making in certain contexts.

4. STUDY 1 – ABSOLUTE VS RELATIVE THINKING

4.1. Participants, materials and procedure

To test our main hypothesis, that greedy people exhibit a more absolute thinking style than non-greedy people, we set up a scenario study based on Azar (2011a). 117 students (50 Males, *M*age = 23.4, *SD* = 5.7) of a large university read three scenario's. Respondents saw

three different products they wanted to buy (a 15 inch laptop, household shopping in a large clean supermarket, a plane ticket to Rome without transfer, randomized within subjects). They either saw this product at an expensive or cheap price (i.e. 659€ - 475€, 76€ - 47€, 157€ - 98€, randomized between subjects). Respondents were then instructed to indicate their maximum willingness to pay for a substitute product (a 13 inch laptop, M = 457.66, SD = 101.23; shopping in a messy store with lesser quality items, M = 50.12, SD = 14.19; a plane ticket with a 2 hours transfer, M = 76.71, SD = 30.37, see Appendix A for exact scenarios) and finally answered the Dispositional Greed Scale (Cronbach's α = .83, M = 3.52, SD = 1.03).

Using the original price indicated by the scenarios and respondents' answers on the WTP questions, we are able to calculate the absolute value difference between the original and substitute good, denoted as Absolute WTP. This is called the Absolute WTP because it refers to the value difference in Euros, which is an absolute amount. This is the amount of money that gives the respondent the same utility as the utility difference between the two goods. If people exhibit a full absolute thinking style, in accordance with basic economic theory, this utility difference should not be affected by the price condition. The utility difference between a 15" laptop and a 13" laptop should not depend on the original price of the 15" laptop. In other words, the quality difference between both laptops should be fixed, regardless of whether the larger laptop costs €659 or €475. For instance a smaller laptop might be worth 100€ less than a larger laptop for a certain person, independent of whether the original laptop costs 659€ or 475€. This will result in no effect of original price on Absolute WTP (a 100€ difference in both cases).

On the other hand, many studies have shown that people's valuation of a good is in fact affected by its price (Rao & Monroe, 1989). If consumers' decisions are affected by price differences, they exhibit at least partial relative thinking. In this case, their Absolute WTP should in fact be affected by the original price condition, in such a way that the value

difference between a 15" laptop and a 13" laptop should be higher, the higher the original price. For instance, a smaller laptop might be worth 100€ less if the original price was 659€, but only 70€ less if the original price was 475€. For these people we do expect an effect of original price on Absolute WTP. Thus, we expect the Absolute WTP to be dependent on people's thinking style.

It is also possible that people's valuation of the difference between the original product and the substitute product depends completely on the original price. In this case, they exhibit full relative thinking. If consumers' decisions might be affected by only relative price differences, it would be interesting to not only examine an Absolute WTP, but also a relative one. This Relative WTP would then represent the relative value difference between the original and substitute good. In other words, this measure represents the relative utility difference between the two goods. This is called the Relative WTP because it refers to the ratio between the original price and respondents' answers on the WTP questions.

According to thinking styles theory, for people who exhibit full relative thinking this relative utility difference should be identical irrespective of the original price. In other words, if for a certain person a 13" laptop would represent a 20% decrease in quality compared to a 15" laptop, his Relative WTP for this smaller laptop should be 80% if the 15" laptop cost 659€ and it should also be 80% if the 15" laptop cost 475€. For people who do not only take relative price differences into account but also absolute differences, and thus exhibit a partial relative thinking style, the Relative WTP should in fact be affected by the original price condition, in such a way that the relative value difference between both laptops should be smaller, the higher the original price. For instance, a smaller laptop might be worth 20% less if the original price was 659€, but 25% less if the original price was 475€. For these people we do expect an effect of original price on Relative WTP. Thus, we expect the Relative WTP to be dependent on people's thinking style.

For greedy people, we expect that the original price of the items has no effect on their Absolute WTP difference. In other words, we predict that greedy people attribute a certain value to a 2-inch difference in laptop sizes, but that this difference is not dependent on the original price. Thus, we expect greedy people to exhibit the same behavior as what has been shown for people who think absolutely. For non-greedy people on the other hand, we expect that the original price of the items has no effect on their Relative WTP difference. In other words, we predict that non-greedy people attribute a certain relative value to a certain difference in laptop size, and that this difference is not tied to the original price. Thus, we expect non-greedy people to exhibit the same behavior as what has been shown for people who think relatively.

Using the original amount indicated by the questions and respondents' WTP, we calculated the Absolute and Relative price difference between both products. For instance, one respondent saw the 15-inch laptop at the expensive price of 659€ and indicated a WTP of 400€ for the 13-inch laptop. This resulted in an Absolute WTP of 259€ and a Relative WTP of 39%. The same WTP of 400€ for the small laptop would have resulted in an Absolute WTP of 75€ and a Relative WTP of 16%, had this respondent seen the large laptop at the cheaper price of 475€. Two general linear mixed models were then set up to examine whether dispositional greed interacts with the original price, and whether this predicts the Relative and Absolute WTP.

4.2. Results and discussion

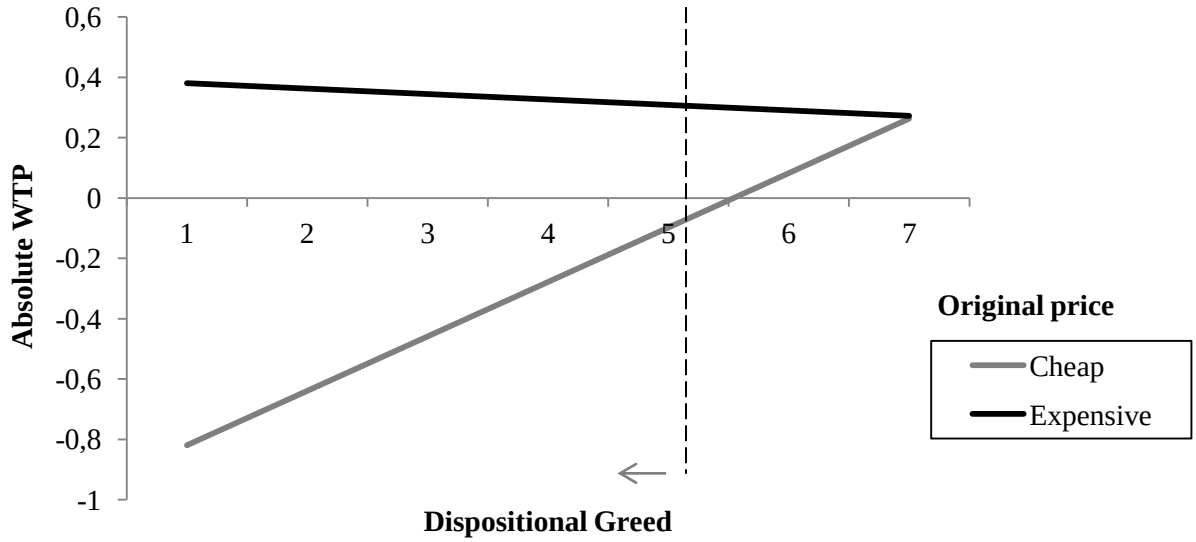
Relative and absolute WTP were recoded into z-scores to take into account the original price value difference and price range difference between the products. Results indicate that there is indeed an interaction between greed and original price on absolute WTP (*F*(345.35,

349.60) = 54.32, $p < .05$) (see Table 1 and Figure 1). Further examination of the results indicates that our hypothesis on absolute thinking was correct: the more greedy people are, the less the original price affects their absolute WTP difference. Furthermore, analysis show that there is also an interaction between greed and original price on relative WTP (F(339.27, 345.90) = 4.89, $p < .05$) (see Table 2 and Figure 2). A further examination of the results further indicate our hypothesis on relative thinking to also be correct: the less greedy people are, the less the original price affects their relative WTP difference. Thus, it seems that greed does influence people's thinking style, in such a way that greedy people think more absolute, whereas non-greedy people think more relative.

Table 1. Effect of Dispositional Greed and Original Price on Absolute WTP

	B	*SE*	*df*	*t*	*p*
Constant	.399	.246	345.35	1.621	.106
Price condition	-1.399	.353	349.67	-3.961	.000
Dispositional Greed	-.018	.068	345.56	-.269	.788
Dispositional greed * Price condition	.199	.096	349.60	2.079	.038

Figure 1. Effect of dispositional greed and original price on absolute WTP

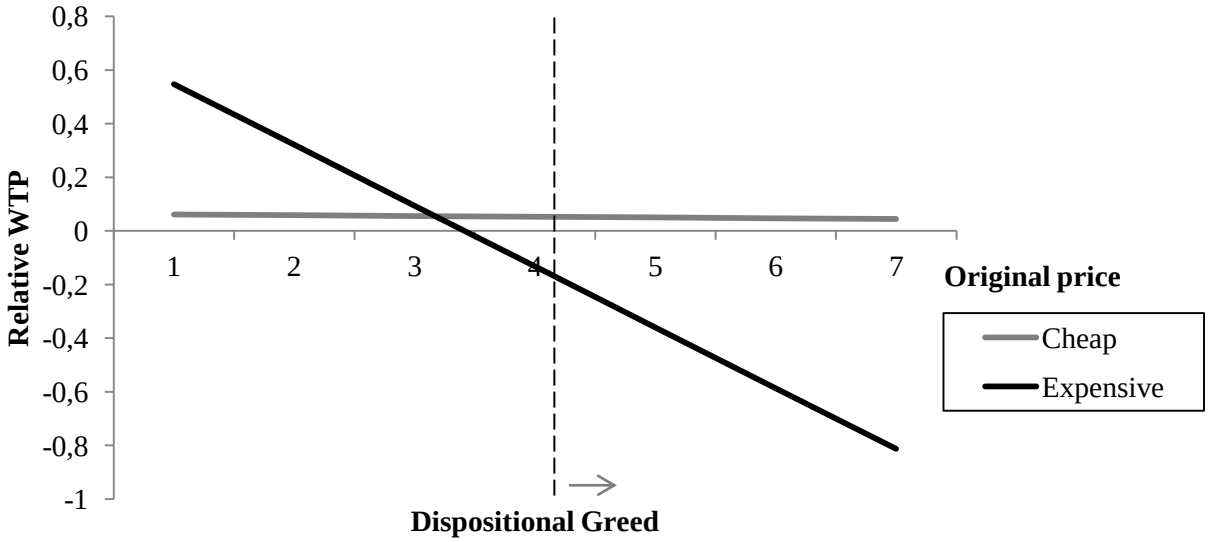


*Dashed line indicates the critical Johnson-Neyman value (5.20).

Table 2. Effect of Dispositional Greed and Original Price on Relative WTP

	B	*SE*	*df*	*t*	*p*
Constant	.065	.263	339.27	.246	.806
Price condition	.710	.379	345.94	1.872	.062
Dispositional Greed	-.003	.072	339.31	-.039	.969
Dispositional greed * Price condition	-.227	.103	345.90	-2.211	.028

Figure 2. Effect of dispositional greed and original price on relative WTP

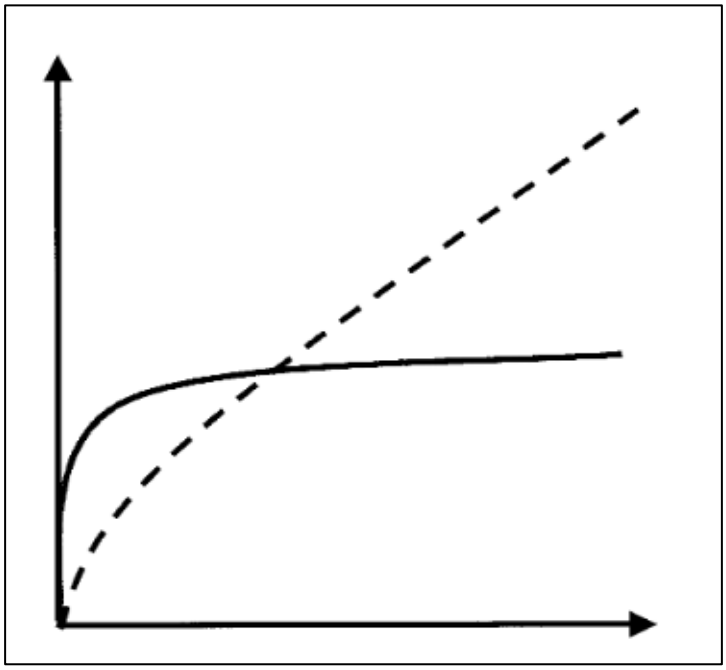


* Dashed line indicates the critical Johnson-Neyman value (4.05).

5. STUDY 2 – DIMINISHING UTILITY

The second study was set up to investigate whether this difference in thinking style can be attributed to a difference in diminishing utility. We hypothesize that for non-greedy people, the original amount or reference state dictates the subjective value, in such a way that above a certain threshold the subjective value of an increase is limited due to diminishing marginal utility. For greedy people on the other hand, the original amount has less informative value and thus a lesser effect on the subjective value of an increase. In other words, greedy people show less diminishing utility (Kahneman & Tversky, 1984). Thus, above a certain threshold, the effect of an increase in value will have more effect on greedy people than on non-greedy people, due to their less strong diminishing utility (see Figure 3).

Figure 3. Value function based on absolute thinking and relative thinking



*Dotted line represents absolute thinking for greedy people, solid line represents relative thinking for non-greedy people. The x-axis of the function is the scope of a stimulus; the y-axis is the subjective value.

Interestingly, this also means that below this same threshold, we expect the opposite effect, meaning that for small increases close to the reference point, the subjective value of this increase will be stronger for non-greedy people. This corresponds to earlier research, showing that people who think relatively are willing to exhibit a disproportional amount of effort to save on low-priced goods (Azar, 2009), overvaluing the amount saved compared to the original amount. Conversely, we expect that people who think relatively will derive more psychological value from an equal increase in actual value than people who think absolutely, as long as this increase is close to the reference point and thus constitutes a larger relative difference. For instance, when the reference point is low, such as 1 or 2, every marginal increase of 1 or 2 consists of a relatively large increase of 50% up to 200%. For people who think absolutely on the other hand, it remains the rather low increase of 1 or 2. This leads to an overvaluation of small increases close to the reference point for relative thinking people compared to absolute thinking people.

5.1. Participants, materials and procedure

141 Undergraduate students from a large Belgian university (55 Males, *M*age = 22.6, *SD* = 5.5) read a context story where they walked past a promotion stand raffling free candy bars. After participating in the lottery they won candy bars and started to walk away. However, they were called back and told that something went wrong with the pricing, and given 1 extra bar. We manipulated the amount of candy bars respondents had initially won: 1 versus 4. After this scenario, they had to indicate how happy they were with the extra bar (100-point scale, extremely unhappy to extremely happy (*M* = 76.53, *SD* = 16.35)) and filled out the Dispositional Greed Scale (Cronbach's α = .79, *M* = 3.74, *SD* = .94). In an absolute thinking style, where there is no marginal diminishing utility, people should be as happy in the first as in the second condition because they receive an additional candy bar in both conditions. In a relative thinking style, where the value of an item is dependent on its reference state, people should be happier in the first condition, where that additional candy bar represents an increase of 100%, than in the second condition where it represents an increase of 25%. In other words, we expect greedy people to be happier with the extra candy bars in the 4-bar condition than non-greedy people.

However, it is not certain what will happen in the 1-bar condition. As stated previously, people who think in a relative way overvalue small increases below a certain threshold and undervalue them above this same threshold. It is a priori not easy to determine where exactly the threshold lies, as it might depend on some general satiation level point. In other words, people who think in a relative way might overvalue increases of a certain item as long as they have not reached this satiation point, but undervalue every increase that surpasses this point of satiation. Therefore, this threshold point might be tied to the type of product. For instance, given that most people are full after eating one apple, for apples this threshold may lie somewhere between half and three quarters of an apple. For chips on the other hand, the

threshold would probably not lie at half or three quarters of a chip, but possibly between 30-100 grams of chips (i.e. between 10-40 chips). In this case, where the focal product is candy bars, we might predict the threshold point to lie somewhere around two bars. In that case we might expect that in the 1-bar condition, which lies below this threshold or satiation point, non-greedy people who exhibit a relative thinking style might overvalue the extra bar, leading to a higher experienced happiness than greedy people. On the other hand, would the threshold lie at one or even half a bar, greedy people should be happier with the extra bar in the 1-bar condition than non-greedy people.

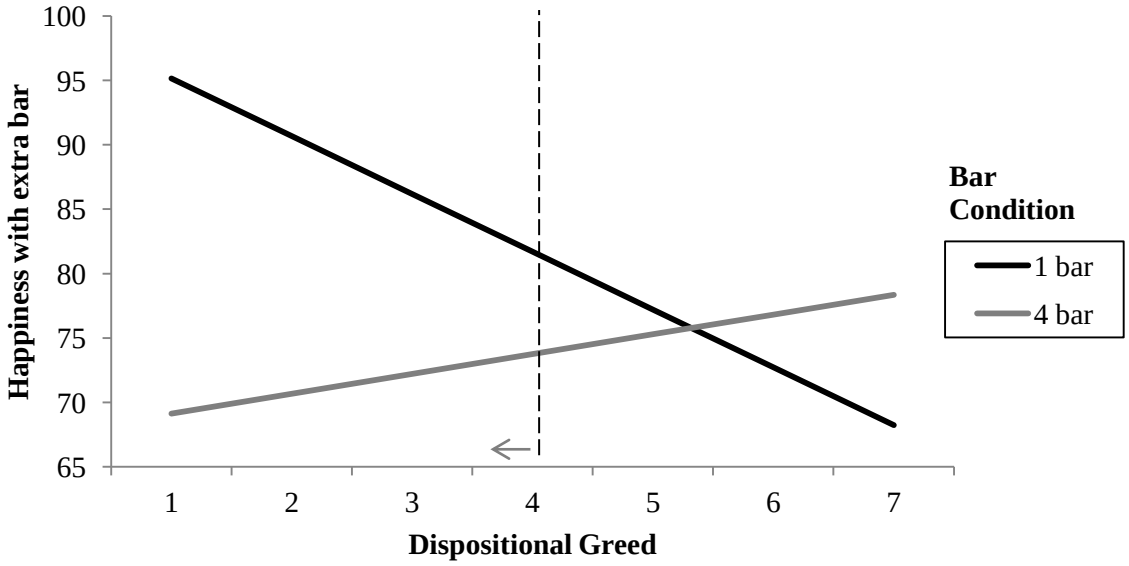
5.2. Results and discussion

A linear regression showed a main effect of bar condition ($F(1, 136) = 7.501$, $p < .001$), confirming the general opinion that people were more happy with the extra bar in the 1-bar condition than in the 4-bars condition. Including the interaction with dispositional greed confirmed our hypothesis: there was a negative interaction between dispositional greed and bar condition ($F(3, 135) = 4.274$, $p < .05$), meaning that the effect of the condition disappeared for greedy people (+1 SD, $F(1, 128) = .082$, $p = .78$) but was present for non-greedy people (-1 SD, $F(1, 128) = 9.802$, $p < .01$) (see Table 3 and Figure 4). This confirms our hypothesis that diminishing marginal utility diminishes with dispositional greed. Furthermore, given that the effect of greed was significantly negative in the 1-bar condition ($B = -3.362$, $SE = 1.909$, $t = -1.861$, $p = .046$), but less pronounced in the 4-bar condition ($B = 3.015$, $SE = 1.917$, $t = 1.605$, $p = .065$), the threshold or satiation point for candy bars seems to lie somewhere around the 3-bar point.

Table 3. Effect of Dispositional Greed and Bar Condition on Happiness

	B	*SE*	*t*	*p*
Constant	110.328	11.105	9.935	.000
Bar condition	-10.684	3.901	-2.739	.007
Dispositional Greed	-6.495	2.825	-2.299	.023
Dispositional Greed * Bar condition	2.008	1.010	2.067	.041
F(df)	4.274 (3,135)			
R²	.084			

Figure 4. Effect of dispositional greed and bar condition on happiness



*Red line indicates the critical Johnson-Neyman value (4.07).

6. STUDY 3 – WHEN ABSOLUTE THINKING GOES ASTRAY

The literature on scope neglect and relative thinking often claims that absolute thinking leads to more rational decision making (Azar, 2007; van Boom, 2011). Thus, a third study was set up to test whether greedy people actually think more rational or whether their absolute

thinking might be biasing them towards suboptimal decisions in certain situations. In this study, we focus on the unit effect, which states that attribute differences appear larger on scales with a higher number of units (Pandelaere, Briers, & Lembregts, 2011). For instance, phone A could score 7/10 on a certain characteristic and phone B 8/10. However, when these scores are indicated in a larger unit – 70/100 and 80/100 – the difference between both phones seems larger. In this situation, thinking about relative differences (70% vs. 80% in both cases) leads to better choices than thinking about absolute differences (1 point difference vs. 10 point difference).

6.1. Participants, materials and procedure

133 students from a large Belgian university (57 Males, *M*age = 23.1, *SD* = 5.4) participated in this study as part of a series of unrelated tasks. This task was based on the home cinema study by Pandelaere, Briers and Lembregts (2011) in which participants received quality information about 12 home cinema systems (see Appendix B for exact scenarios). For half of the participants this information was rated on a 10-point scale, ranging from 4 to 9.5 in steps of 0.5, for the other half on a 1000-point scale, ranging from 400 to 950 in steps of 50. They imagined winning one of these systems but were informed they could also upgrade to a perfect system in exchange for money. Each participant therefore indicated, for each of the 12 systems, how much more they would be willing to pay to upgrade from the current cinema system to the perfect home cinema system (see Appendix C for means and standard deviations). Afterwards they answered the Dispositional Greed Scale (Cronbach's α = .81, *M* = 3.52, *SD* = 1.03). We hypothesized that the influence of quality was lower in the 10-unit condition than in the 1000 condition, as was found in previous research, and that the effect of quality in the 1000-unit condition would be even stronger for greedy respondents.

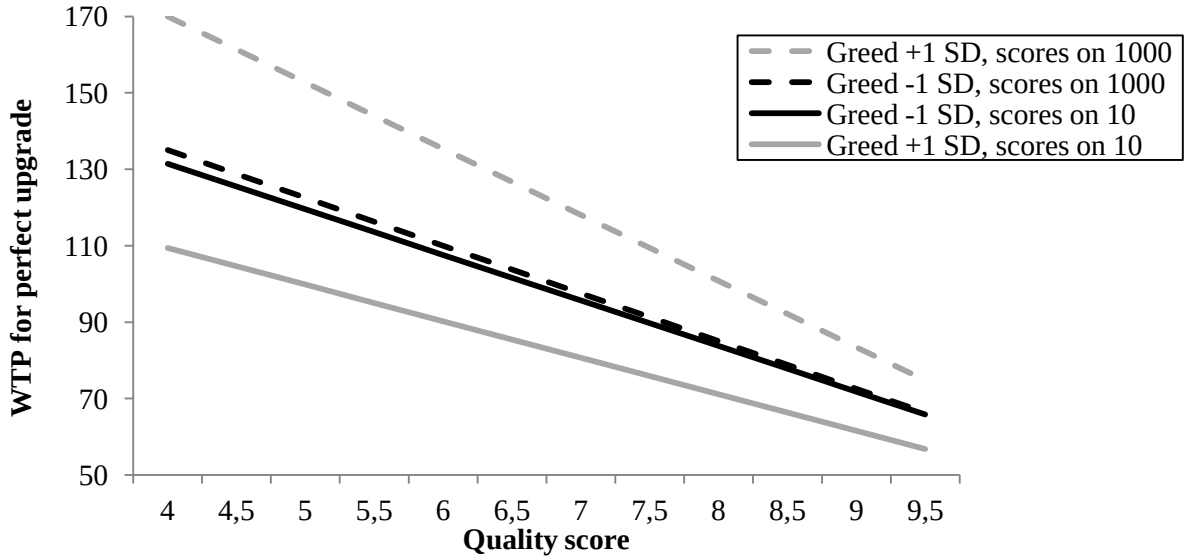
6.2. Results and discussion

As each participant indicated their WTP for all 12 systems, a multilevel linear regression analysis indicated that there was indeed a significant interaction between the unit and quality ($F(1193.11, 1032.75) = 16.39$, $p < .001$), indicating that the effect of quality on price was larger in the 1000 condition than in the 10 condition, showing the basic unit effect. Furthermore, including dispositional greed in the analysis resulted in a marginally significant three-way interaction with dispositional greed ($F(1193.11, 1032.75) = 3.22$, $p = .073$) (see Table 4 and Figure 5). Examining these results more in detail, we see that there is indeed a stronger effect of quality in the 1000-point condition, and that this effect is enhanced for greedy people. ($F(1, 1250.146) = 5.338$, $p < 05$) but that greed does not moderate the effect of quality level on willingness-to-upgrade in the 10-point condition ($F(1, 1250.426) = 1.154$, $p = .28$). These results indicate that greedy people indeed do think more absolutely, but not necessarily more rationally. Thus, in situations where relative thinking leads to more optimal decision making, it is greedy people who are worse off.

Table 4. Effect of Dispositional Greed, Unit and Quality on WTP

	B	SE	df	t	p
Constant	106.59	36.15	984.01	2.948	.003
Unit condition	-123.56	51.49	968.11	2.399	.017
Quality	-5.43	3.99	941.38	-1.358	.175
Dispositional Greed	-29.14	10.37	991.59	2.811	.005
Unit condition * Quality	10.61	5.71	933.81	-1.858	.063
Dispositional greed * Unit condition	47.29	14.13	973.74	3.348	.001
Dispositional greed * Quality	2.61	1.15	945.47	-2.278	.023
Dispositional greed * Unit condition * Quality	-4.03	1.57	936.77	2.577	.010

Figure 5. Effect of dispositional greed, unit and quality on WTP



7. CONCLUSION AND DISCUSSION

Classic pre-1950 economic theories of rational choice predicted that when comparing prices or objects, people should exhibit a rational absolute thinking style to make optimal decisions. For instance, utility maximization implies that consumers should think about the absolute worth of their time and money before deciding whether to interchange time for a better monetary gain. However, research has shown that people often make suboptimal decisions by using a relative thinking style (Tversky & Kahneman, 1981). In these choice situations people's decisions are mainly affected by considering relative differences rather than absolute ones, leading to the paradoxical notion that people are willing to exert more effort to save on low-priced goods than on high-priced goods.

In this paper we show that a preference for relative thinking as standard processing style is not generalizable across the population. More specifically, we focused on dispositional greed to examine whether an insatiable drive for more, whether of monetary or nonmonetary items, affects people's thinking style, hypothesizing that greedy people in fact do think in a more absolute manner. We suggested that, as greedy people are inherently motivated to attain

more, they would show less influence of the original reference point and seek absolute gains rather than relative ones. In a first study we demonstrated this basic effect of dispositional greed, showing that dispositional greed leads to considering absolute differences more and relative differences less when deciding how much to pay for differentiated goods.

Furthermore, we suggested that this effect of dispositional greed is due to a difference in the affective valuation of the good and thus its marginal utility. In other words, non-greedy people's affective value depends more on the deviation from a reference state, resulting in a stronger diminishing utility (Kahneman & Tversky, 1984). For greedy people on the other hand, the initial value or reference state might be less informative, making the affective value of an increase or decrease less dependent on the reference state. In other words, they show less diminishing utility. In a second study we then showed that, when given free candy bars, greedy people's happiness with extra free bars was not related to the amount of bars they originally got. In other words, when investigating happiness, we demonstrated that the greedier one is, the less diminishing utility one exhibits, indicating that for them the psychological value of an increase is less related to the reference state.

Finally, we wanted to explore whether greedy people's tendency to think more absolutely mirrors a more rational processing style or that it in fact is just a different way of biased thinking. In other words, we wanted to examine whether greedy people make decisions more rationally or whether for them absolute thinking is just a different heuristic. In a third and final study we illustrated absolute thinking as suboptimal decision making by using the unit effect, which states that attribute differences appear larger on scales with a higher number of units. In these circumstances, thinking rationally means processing these differences in a relative style, noticing that in fact the unit used has no effect on the good's quality. However, results indicate that greedy people indeed use absolute thinking as a heuristic, demonstrating that absolute thinking can lead to suboptimal decision making in certain contexts.

This research further improves our understanding of dispositional greed. Not only does a greedy motivation impact behavior, making people generally more acquisitive and oriented towards attaining more, it does so by influencing the way they process information, in this case numerical information. This main effect was clearly shown in the first study, showing that greed not only influences wanting more but also people's WTP for goods. The second study showed that this did not only affect people's behavior, but also their subsequent valuation of products and their happiness with objects gained. Furthermore, this study clearly showed that whereas non-greedy people seem to decrease their happiness with extra gains based on the amount of objects already owned, greedy people seem to exhibit the opposite effect. Future research might examine whether greedy people have a complete lack of upper bound, or whether this simply lies much higher than for the general population (for instance, decreasing their happiness with extra gains only after 20 or 30 candy bars). Finally, the third study showed that their greedy focus on attaining more might make them more vulnerable for biased information processing when information is displayed in a relative way. Given that product information is often presented in different units between substitute goods (for instance, comparing prices of a 1.25L bottle of washing detergent versus a 875 ml bottle without price/Liter information), greedy people might have a harder time choosing the optimal product. However, future research should test if this effect is still present when greedy people are able to compare products presented in different units, rather than having them presented in only one possible unit type as was done in this paper.

Showing that there are individual differences when it comes to relative versus absolute thinking improves the literature on processing styles. Up to now, most studies have given support to a general notion of relative thinking as the dominant processing style, with little regard to situational or individual differences (Azar, 2007; Kahneman & Tversky, 1984). These studies have improved our understanding of relative thinking and how it affects market

and pricing decisions, both from a consumer, marketing and business standpoint (Azar, 2009; Fetherstonhaugh, Slovic, Johnson, & Friedrich, 1997; Hanna & Wozniak, 2001). However, little research has investigated whether people indeed show a general preference for relative thinking, or whether there are individual differences in processing style. Given that we indicated here that greedy people, who comprise up to 30% of the population (scoring higher than 4 out of 7 on the Dispositional Greed Scale, Krekels & Pandelaere, 2015), exhibit less relative thinking, there exists a large gap in the literature towards understanding the effects of this type of processing on consumer decision making.

However, a large question remains with respect to the direction of the relation between dispositional greed and thinking styles. In other words, it is not clear whether dispositional greed is the cause or consequence of a more absolute thinking style. Arguments exist for both causal relationship directions. On the one hand, thinking in an absolute way might make people more motivated to get as much as they can, irrespective of one's current possessions. This argument paints greed as a consequence of absolute thinking, but might only explain stereotypical acquisitive greedy behavior, not the ones documented in other chapters of this dissertation (infra chapter V). On the other hand, being dispositional greedy might make people focus on every increase in possessions, irrespective of one's current possessions, as the motive of wanting more might lessen the influence of diminishing sensitivity. Thus, as the direction of the relation between dispositional greed and thinking style is unclear, further research is needed. One way to test the direction of the effect might be to separately manipulate either greed or thinking style as state variables, rather than trait variables as they were investigated here, and see which one has the largest effect on the other. Another possibility might be to set up a longitudinal crossover design, and to examine which construct measured first has the largest effect on the second measured construct.

Apart from showing that individual differences affect processing styles, this research adds value to the existing conceptualization and design of experimental research on absolute versus relative thinking. Most research employs the traditional dependent measure where respondents indicate how much they are willing to pay for the same good to travel to another store at a certain distance where this good would be on sale (Tversky & Kahneman, 1981). In essence this is a classic time versus money trade-off. This paper gives further evidence to the fact that processing style also plays a role in quantity versus quality trade-offs, as shown in the differentiated goods study, and in quality versus price trade-offs, as shown in the unit effect study. Furthermore, as Saini and Thota (2010) called for research examining the effect of decision making style on situations unrelated to price processing, this paper is to our knowledge the first to show a straightforward effect of processing style on happiness, as shown in the candy bar study.

Not only is this second study the first to show a direct effect of thinking styles on diminishing utility through happiness, it is also one of the first to show clear empirical evidence of the theoretically hypothesized overvalue effect for relative thinkers. Though many studies have shown this in an indirect way, investigating why relative thinkers are willing to save more on low-priced goods (Azar, 2009), to our knowledge we are the first to show this in a direct way. Indeed, study 2 clearly shows that non-greedy people are happier with an extra bar in the 1-bar condition than are greedy people, who one might expect in general to be happier with any increase than non-greedy people. This clearly shows that relative thinkers indeed overvalue small increases below a certain threshold point, which for candy bars seems to lay around 3 bars. Future studies might examine where this threshold point lies for other products, whether it is indeed linked to a certain general satiation point as hypothesized in this study, and what that means for non-food items for which satiation might have different connotations.

Understanding that there are indeed differences in people's processing styles has important implications for both theory and practice. From a theoretical perspective, the notion that relative thinking is not as wide-spread as indicated by previous studies might influence economic models to more accurately predict consumer behavior and the effects of price differences. The initial economic models only took absolute thinking into account, and were not able to correctly predict actual behavior (Sewell, 2011). Whereas previous scholars have correctly advocated modifying these models to take relative thinking into account to produce more accurate results (Tversky & Kahneman, 1981), we encourage the inclusion of both processing styles. Similarly, related economic domains such as research on pricing, competitive strategy and advertising might benefit from including both thinking styles. However, as dispositional greed might not be the only individual variable influencing these processing styles, more research is needed to accurately take population differences into account. Furthermore, more research should also examine situational variables that might affect thinking styles, to most accurately predict real-life behavior.

Furthermore, the notion that individuals might differ in their processing style not only advances economic theory, but psychological theory as well. Though the literature on relative thinking has not yet focused on situational or psychological drivers that affect thinking style, the psychological literature on scope neglect has taken some of its drivers into account. However, this project evokes further questions concerning some of the results that have been found in this literature. For instance, Saini and Thota (2010) examined the psychological underpinnings of relative thinking and found that relative thinking has stronger effects for affect laden hedonic products than for affect-poor utilitarian products. However, given that we found that greedy people even think absolutely when considering candy bars, which are a typical hedonic product, the question raises whether this influence of affect-richness of a

product only influences those who think relatively by default. Thus, instead of being a driver for processing style, it might only be a driver for those who already think relatively.

The results found in our second and third study also raise questions about those found by Saini and Thota (2010), who have related absolute thinking to calculation and deliberative processing on the one hand and relative thinking to feeling and impulsivity on the other hand. However, given that greedy people exhibit absolute thinking precisely because they attach a higher subjective affective value to increases independent from the original reference point, the difference between relative and absolute thinking cannot be based on feeling alone. Furthermore, given that greedy people seem to use absolute thinking as a default thinking style also in situations where it leads to biased processing and different outcomes than deliberative processing would, the difference between relative and absolute thinking can neither be attributed to reasoning and deliberative processing, as was often proposed in earlier literature on thinking styles (Saini & Thota, 2010). Thus, this project encourages further research into what exactly distinguishes the drivers behind both processing styles.

Considering individual differences in thinking style not only advances theoretical reasoning about these processing styles, but also has practical implications from a managerial perspective. These implications are most relevant in the pricing domain. For instance, a study by Pratt, Wise, and Zeckhauser (1979) has indicated that firms seem to assume consumers' relative thinking style by fitting their sale price proportionally to the mean price of products. However, this might have detrimental effects for dispositional greedy people, who are more interested in absolute differences. Further research might indicate if this type of pricing has a detrimental effect on sales for a certain part of the population, who uses absolute price differences before determining their purchase decision. Future research might also investigate whether advertising sales prices relatively, such as percentage off, or absolute, such as a certain amount cash back, have different effects for different people. Previous research has

advocated using percentages for small priced goods, where the percentage off is often higher than the absolute amount off, but cash backs for higher priced goods, where the percentage off is smaller than the absolute amount (Azar, 2007). However, for people who think absolutely, this strategy might be less efficient.

However, not only price but also its interaction with location might be relevant for future research. Research by Sorensen (2000) has shown that firms also respond to the indirect effect of relative thinking on pricing, i.e. the effect that people are willing to exert more effort to save on small-priced goods than on higher-priced goods, by having a higher price dispersion for more expensive goods (Aalto-Setälä, 2003; Pan, Ratchford, & Shankar, 2001; Pratt et al., 1979). Likewise, generally scholars advice firms to optimize location choice in such a way that, for smaller priced goods price breakers are able to make profit from a more remote location, but not for large priced goods, as relative thinking causes people to exert less effort for a low-percentage discount on those more expensive goods. However, in areas that might comprise a larger percentage of greedy people (Krekels & Pandelaere, 2015) this might also be an optimal strategy for stores selling higher-priced goods.

Irrespective of the existing literature on relative thinking and scope neglect, this paper also opens up new lines of research on dispositional greed. For instance, the studies reported in this paper are all scenario studies, examining hypothetical behavior. Few papers that have examined real-life behavior, often found it hard to replicate the effects of thinking styles in reality (Azar, 2010). Therefore it is not certain whether the effects found here replicate themselves in actual consumer behavior. Second, the situations examined here all focus on possible gains. Given that greedy people are more sensitive to losses than other people (ref chapter V) it remains a question whether greedy people also exhibit absolute thinking when it comes to losses.

In summary, in this paper we reintroduced absolute thinking as a relevant processing style, by showing that dispositional greedy people do not exhibit the now standard relative thinking but indeed think more in an absolute manner. Furthermore we showed that this difference in thinking style is due to a difference in diminishing utility. Finally, we demonstrated that absolute thinking is not necessarily the rational processing style it is often made to be, as for greedy people it functions as a heuristic that might bias them towards suboptimal decisions in certain situations. Thus we advance insights in both the literature on dispositional greed and those on processing styles.

8. APPENDICES

Appendix A

1. Scenarios study 1: Substitute goods

1.1 Laptop. Assume that you want to purchase a laptop. The model in which you are interested is offered with two screen sizes: 15" and 13". Assume that all other features are identical across the two models. Also assume that on an average day you work with the computer for about 5 hours, and that you intend to replace it 3 years from today. If the computer with the 15" screen size costs €659 (€475), what is the maximal price of the computer with the screen size of 13" such that you will prefer it to the computer with the larger screen?

1.2 Household shopping. Assume that you can do your weekly grocery shopping in one of two stores, which are at the same distance from your home/kot. In store A the products are conveniently organized on the shelves and the store is spacious, clean, and quiet. Store B is not conveniently organized and is congested, dirty, and noisy. Purchasing the products you want to buy takes you three quarters of an hour in either store. If the products you want to purchase cost a total of €76 (€47) in store A, what is the maximal amount you will be willing to pay in store B such that you will prefer to shop there instead of in store A?

1.3 Plane ticket. Assume that you want to fly to Rome for a short vacation. You found two possible flights. One flight is direct and takes 2 hours and 10 minutes. The second flight makes a connection stop in Berlin, and the entire trip take 4 hours and 5 minutes, including transfer. The suitcases continue directly to Rome and you do not need to take them out in Berlin and check them in again during the connection stop. Other than the connection the flights are identical. If the direct flight costs €157 (€98), what is the maximal price of the flight with the connection such that you will prefer it to the direct flight?

Appendix B

1. Scenario study 3: When Absolute Thinking goes astray

Your local electronics store distributes a weekly leaflet with its current promotions. Included in this leaflet is a weekly competition. This week's competition includes the following explanation about the prize: "Now you can experience the real movie theatre feeling in your own home by creating your own 'home theatre', with a DVD-player, preferably a widescreen television and off course surround sound. Using 6 speakers (4 satellite speakers, 1 central speaker and 1 subwoofer) distributed strategically in your living room, you will be surrounded by sound. The best way to start is buying a home cinema package that exists of a DVD-player and the 6 speakers required. This week you can win this entire package including DVD-player and speakers!" You would like to have such a home cinema system, and decide to participate in the competition.

In the mean time you have become very interested in these home cinema packages and decide to do more research online. You discover that Testaankoop (a Dutch consumer protection magazine) regularly compares these packages. It compares these systems on different characteristics and attributes and grants them a general score on 10 (1000). Thus, a perfect home cinema system would be granted a score of 10 out of 10 (1000 out of 1000). Two weeks later you receive a phone call. It is your local electronics store to tell you that they have good news: you won a home cinema package!

You will now see several home cinema packages with a general quality score [12 systems shown, scores ranging from 4/10 to 9.5/10 (400/1000 to 950/1000)]. Imagine for each system separately that that is the one you have won. However, the seller gives you the following option: either you can take home the system that you have won, or you can pay for an upgrade. This upgrade would be the perfect system with a score of 10 out of 10 (1000 out of 1000).

Please indicate for each home cinema system how much you are willing to pay for an upgrade to the perfect system with a score of 10/10 (1000/1000). In other words, how much more is the perfect system worth in each of these cases? Please indicate your answer in €.

Appendix C

Table 5. Overview of Means and Standard Deviations of WTP

Unit condition	Quality	M	SD
10	4	149.55	148.39
	4.5	140.50	137.11
	5	129.17	126.10
	5.5	121.47	118.01
	6	109.73	109.61
	6.5	100.00	96.73
	7	88.29	86.37
	7.5	79.66	80.41
	8	66.00	67.52
	8.5	57.00	61.55
	9	42.67	55.88
	9.5	33.34	40.90
Unit condition	Quality	M	SD
1000	400	226.42	309.47
	450	218.03	307.88
	500	199.03	278.85
	550	182.95	264.77
	600	149.85	183.46
	650	136.59	161.21
	700	111.79	124.07
	750	97.88	106.80
	850	55.53	86.28
	900	41.87	83.21
	950	37.61	87.51

CHAPTER V:

RETENTION VERSUS ACQUISITION

A GREEDY PARADOX

CHAPTER V: RETENTION VERSUS ACQUISITION
A GREEDY PARADOX

As a concept, greed has been used throughout our history. It is hard to say when exactly the first notion of greed as a concept became noteworthy, but scholars now often claim that it started with the rise of capitalism or, even earlier, with the rise of a money economy 5000 years ago (Newhauser, 2000). It supposedly left its trace throughout our history in every sphere of human life. Greed is still evident nowadays, but is often controlled by a variety of social restraints. Despite these restraints, greed is believed to have driven part of our evolution and survival as a species (Ludwig et al., 1993). Scientific research has not missed this focus on greed in society and greed has become a central concept in economic research. Greed is often invoked to explain non-cooperative behavior in economic games (Stanley & Tran, 1998), resource exploitation (Ludwig et al., 1993) and is considered intrinsic to a materialistic lifestyle (Belk, 1985).

When people think about the concept of greed, they typically focus on acquisitive behavior (Wachtel, 2003), generating the stereotypical image of the greedy person who is never content with what he or she already has. Though we will not claim that greedy people are not focused on wanting more, the aim here is to show that acquisitiveness is not the only driver for greedy behavior. In this paper we will demonstrate that a key concept in earlier conceptualizations of greed needs to be made explicit: a retention motive. Ensuring that they do not loose what they already own might be just as important to greedy people. After all, to enlarge one's ownership, it is quite possible that one is first and foremost focused on keeping one's current possessions. Thus, not only are greedy people focused on attaining more, they are also focused on retaining their current possessions. Furthermore, when both are in conflict with each other, we expect greedy people to let go of their acquisitive motive in favor of their

retention focus to ensure not losing their current possessions. For instance, we might expect that greedy people would be less willing to participate in a lottery, given that there is a possible risk of losing the entrance fee without being compensated with a price. In this case, ensuring that they keep their current money would be more important than trying to acquire more money.

Incorporating a retention motive or loss aversion in the conceptualization of dispositional greed broadens its explanatory value to domains that were up to now unrelated to greed. Loss aversion has been involved in a wide array of domains such as behavior in the housing market and household mobility (Engelhardt, 2003; Genesove & Mayer, 2001), risky choices involving investment behavior (Thaler et al., 1997), brand choices (Hardie, Johnson, & Fader, 1993), international political decision making (Jervis, 1992) and insurances (Johnson, Hershey, Meszaros, & Kunreuther, 1993). All these domains include behavior that has up to now been unrelated to dispositional greed, using the standard definition of greed as wanting more. However, including loss aversion and retention as a part of greedy behavior might allow research on greed to encompass more behavior than has been studied up to now, extending the research domain of dispositional greed.

1. GREED AS ACQUISITIVE BEHAVIOR

Greed is omnipresent in our current society and highly relevant to economics. For instance, the media and public opinion attributed the financial crisis to the greediness of bankers and stockbrokers, who risked clients' money to ensure greater turnover to satisfy their greed (Papatheodorou, Rosselló, & Xiao, 2010). This recession climate prompted people to publicly condemn the effect of greed on global economics within general media (Sarna, 2010) as well as the business press (Gilliland & Anderson, 2014). Greed has also been related to

corporate fraud (Smith, 2003) resulting in the downfall of international corporations (Wells, 2011). On a smaller scale individual greed is shown to be associated with higher debts (Lunt & Livingstone, 1991). Scientific research has caught up with this renewed focus on greed in society, making it a central concept in economic research.

As this recent backlash against greedy employers and bankers shows, when people think about the concept of greed, they typically focus on acquisitive behavior (Wachtel, 2003). For instance, Balot (2001, p. 1) defined greed as "an excessive desire to get more" and Webster's as "excessive or reprehensible acquisitiveness" (1977, p. 504). Other synonyms for greed that are often used to denote the same behavior are grasping, covetousness, gluttony, lust, and desire spun out of control (Tickle, 2004), all focusing on attaining more possessions than one already owns. Describing how and why perceptions of greed arise, Gilliland and Anderson (2011) demonstrate that it is indeed the specific acquisitive behavior that triggers these perceptions. Thus, from a lay perspective, central to greed is acquisition.

Also within academic research, definitions of greed are mostly focused on attaining more (Dawes, Orbell, Simmons, & van de Kragt, 1986; Stanley & Tran, 1998, Wang & Murnighan, 2011) often using both concepts as synonymous. For instance, in their overview of greed in research and society, Wang and Murnighan (2010, 6) propose a simple definition of greed as "the acquisition of materialistic wealth". Measures used in research on situational drivers for greedy behavior often specifically use wanting more as a proxy for greed. For instance, Forsythe et al. (1994) used the amount of money kept in a dictator game to decide whether or not their manipulation caused greed. Indeed, greed is often invoked to explain non-cooperative acquisitive behavior in economic games (Seuntjens et al., in press b; Stanley & Tran, 1998) and resource exploitation (Ludwig et al., 1993).

2. GREED AS RETENTION BEHAVIOR

Though we endorse this wanting more perspective, central in both research and lay notions of greed, we believe another aspect from prior conceptualizations deserves more attention than given up to now. More specifically, though some researchers refer to retention or keeping one's current possessions whilst giving an overview of greed, it is seldom regarded as a central characteristic of a greedy motive. Though the concept of retention is often implicitly present in theoretical research on greed, preventing losing certain items could very well also be an essential part of behavioral greed. Thus, we believe that besides acquisition, retention is also a key concept in explaining greedy behavior: to have more you first need to retain what you already have. Within most academic research this might sound as a peripheral concept given the fact that most focus in behavioral greed research lies on wanting more, but others have started to acknowledge it implicitly as a part of dispositional greed (e.g., stinginess in Seuntjens, Zeelenberg, Breugelmans, & van de Ven, in press a). In lay reasoning on the other hand retention behavior is already incorporated in language on greed, including miserliness and avarice as one of the possible synonyms of greed (Tickle, 2004).

Furthermore, we do not only believe that a retention focus is a central aspect of greed, we will try to demonstrate here that retention could be an even stronger motive for greedy people and that it might surpass an acquisition motive. In this paper we aim to show that greedy people's primary focus is to ensure not losing what they already own rather than being mainly motivated to acquire more possessions, which we intend to show is merely a secondary objective. Though this might seem counterintuitive at first, it becomes more straightforward when following the logical reasoning that to attain more, one first needs to secure their current possessions. Thus we hope to show that, when there is a conflict between acquiring and retaining resources, greedy people will be more likely to choose the retention path.

This dual vision on greed is sometimes already indirectly incorporated in research, where the same uncooperative acquisitive behavior might be explained by preventing losses in pay-offs, or increasing pay-offs (Rapoport & Eshed-Levy, 1989). In research this has often been denoted as greed versus fear. However, we will try to show here that fear of losing in itself is an essential and central aspect of greed, not the opposite effect. Furthermore, this type of research on situational greed has often stated that when greed is induced, people are more motivated by desires for personal gain than avoiding losses (Dawes et al., 1986; van de Kragt et al., 1983). What we will show in this paper is that, when people are intrinsically motivated to attain more, instead of driven by specific circumstances, avoiding losses is in fact a stronger predictor for their behavior.

Furthermore, we will try to demonstrate in this project that some behaviors that have previously been labeled acquisitive might for greedy people actually be retention behavior. For instance, many of the economic games that are often used to study situational effects on greedy behavior have been shown to produce a pseudo-endowment effect (Goebes, Ehrhart, & Weinhardt, 2010; Wu, Zhang, & Gonzalez, 2004). Pseudo-endowment effects occur when people feel psychological ownership over a certain item, which leads to attachment and higher subjective value, which in turns leads to higher evaluations of that item (Ariely & Simonson, 2003). Indeed, research has shown that people overvalue things they actually own, and that this process transcends to feelings of psychological ownership (Kahneman, Knetsch, & Thaler, 1990).

When such a pseudo-endowment occurs, buying the object and thereby becoming the definite owner of this object, psychologically feels like not losing this object, even though in reality and from an outsider perspective it still is attaining the object (Ariely & Simonson, 2003). Thus, paying for items that people feel like they own, even when in reality they do not, could be a type of loss aversion or retention behavior instead of acquisitive behavior.

Furthermore, we will demonstrate in this article that greedy people, who by definition should place more value on owning items (Wang & Murnighan, 2011), produce an even stronger endowment effect than non-greedy people. Thus, when paying for certain objects for which a pseudo-endowment has occurred, it is greedy people's retention motive that drives their WTP and not the acquisition motive.

Finally, focusing on a retention motive instead of an acquisition motive will expand the range of behaviors that can be explained by a greedy disposition. Thus incorporating a retention motive in the conceptualization of greed extends its explanatory value to domains that were up to now unrelated to greed. More specifically, in this paper we will examine the effect of a greedy disposition and its inherent retention orientation on the purchase of insurance policies and warranties, which has up to now never been regarded as relevant for greed research. However, focusing on retention behavior, the industry of insurance companies and warranties becomes a very straightforward candidate for greed effects, as they are primarily associated with protective mechanisms against possible losses and negative outcomes. By definition the purpose of insurance companies is to protect people from suffering potential negative outcomes of certain events (e.g., Kluger, Stephan, Ganzach, & Hershkovitz, 2004; Wiener, Gentry, & Miller, 1986). Similarly, extended service contract warranties can protect customers from losses (Shimp & Bearden, 1982) through diminishing the effects of damages and assuring that the product will perform to expectations (Loveland, 2010). Indeed, both warranties and insurances can be purchased as a means to minimize the effects of a loss or product related problem should it occur. Thus, we expect dispositional greedy people to be more likely to purchase warranties and insurances to avoid losses, as it corresponds to their loss avoidance motive (Liberman, Idson, Camacho, & Higgins, 1999).

We conducted four studies to test our hypotheses. In a first study we demonstrate that greedy people are more loss averse, meaning that for them avoiding losses is more important

than acquiring gains. This is a first confirmation that for dispositional greedy people a retention motive weighs more in their decision making. A second study showed that what has typically been named acquisitive behavior, buying items in an auction, might more correctly be labeled retention behavior. In this study we also see a first indication that greedy people might have a stronger endowment effect. A third study was set up to experimentally examine the simultaneous effects of both an acquisition and retention motive on buying behavior. The final study then indicates that focusing on a retention motive expands the domains relevant to greed research to, for instance, insurances and warranties.

3. STUDY 1: LOSS AVERSION

Many real-life behaviors involve the possibility of gaining or losing relative to the status quo (Hardie, Johnson, & Fader, 1993; Novemsky & Kahneman, 2005). When people are confronted with these types of decisions, they often exhibit behavior that indicates them to be more sensitive to possible losses than to possible gains (Abdellaoui, Bleichrodt, & Paraschiv, 2006). To be precise, research has shown that people are about twice as sensitive to losses compared to gains (Tversky & Kahneman, 1992). In other words, people would need a possible gain of 20$ to willingly take the risk of potentially losing 10$. Given that we believe that dispositional greedy people are more focused on retention (i.e. keeping what one already has) than on acquisition (i.e. attaining more than what one already has), we expect that greedy people might be even more sensitive to possible losses.

3.1. Participants, materials and procedure

Therefore, in a first study we focus on loss aversion as a straightforward way to examine the impact of possible gains, which are associated with acquisitive behavior, compared to

possible losses, which are the main focus of retention behavior. Based on the method of Tom, Fox, Trepel, and Poldrack (2007), respondents indicated their willingness to participate ranging from 1 (*very unwilling to participate*) to 5 (*very willing to participate*) in a coin toss gamble. Each gamble had an equal 50%-50% chance of winning or losing. The amount to be won ranged from 10€ to 45€, with increments of 5€, and the amount to be lost ranged from 5€ to 25€, with increments of 2.5€. These amounts were chosen specifically to be relevant for a student sample, and the winnings doubled the possible losses as previous studies had shown that people are in general twice as sensitive to losses as they are to gains (Abdellaoui, Bleichrodt, & Paraschiv, 2007). Each amount of winnings was coupled with an amount of losses, resulting in 64 randomized trials, and two attention check trials where people were explicitly instructed to indicate a specific willingness score. 152 Students (102 males, *M*age = 21.1, *SD* = 2.7) participated in these 66 randomized trials. These trails were randomly divided in three tasks, interspersed with unrelated tasks to avoid answering fatigue and random answering. After a last task they answered the Dispositional Greed Scale (Cronbach's $\alpha = .77$, $M = 4.18$, $SD = .93$) (Krekels & Pandelaere, 2015).

3.2. Results and discussion

The loss aversion measure was assessed by fitting a separate linear regression to each participant's acceptability judgments collected for all 64 gambles, using the size of the gain and loss as independent variables simultaneously. This analysis gives us for each participant the regression Beta coefficients of both the gains response and the losses response, indicating for each respondent whether the impact of the gain sizes is larger, equal or smaller than the impact of the loss sizes. Based on these results, we computed an individual measure of behavioral loss aversion ($M = 4.72$, $SD = 5.23$, range .136 to 17.62) as the ratio of the individual (absolute) loss response (Beta) to the gain response (Beta). A second linear

regression then showed that dispositional greed predicted respondents' loss aversion (B = .19, $F(1.151) = 5.53$, $p < .05$). Greedy people (+1SD) exhibit an average loss aversion ratio of 5.62 (SD = .59), indicating them to need more than 5 times the amount of gain versus loss to participate. For non-greedy people (-1SD) this ratio is 3.82 (SD = .59). This shows that greedy people are not only oriented towards gaining more, but are also focused on preventing losses, and when balancing both, loss prevention is the more powerful motivation. This study then gives us a first indication that greedy people do have a retention motive, and that it might be stronger than their desire to acquire. Important to note here is that our non-greedy sample also far outreached the standard loss aversion ratio of 2 that is often found in previous research. This might be due to the fact that we used a Belgian student sample, who might be more loss averse as they also have a lower income (often pocket money or money earned through weekend jobs). If this is indeed the case, we suspect that the loss aversion of greedy people in a more general population would also decrease to a more average level. However, there seem to be no direct reasons to expect that the general increasing effect of greed on loss aversion would disappear completely.

4. STUDY 2: AUCTIONS

The previous study demonstrated that when greedy people experience a conflict between acquisition and retention, the last is the more powerful predictor of behavior. This study wanted to examine whether greedy behavior, previously labeled as acquisitive, might also be labeled retention. To study this we used auction paradigms, which have often been used in economic research (Cilia & Buchmann, 2002), simulating real life auction websites (Bajari & Hortascu, 2003). Research has shown that bidding can produce a pseudo-endowment effect (Ariely & Simonson, 2003). This pseudo-endowment denotes the hypothesized increase in

value caused by a person's psychological—as opposed to actual—ownership of an item. As this pseudo-endowment effect often results in feelings of attachment to the object, it might result in loss experiences when people do not become the final owner (Carmon, Wertenbroch, & Zeelenberg, 2003). We used this paradigm to examine whether greedy people's loss aversion might cause them to be willing to pay more in an auction, to avoid feelings of psychological loss.

4.1. Participants, materials and procedure

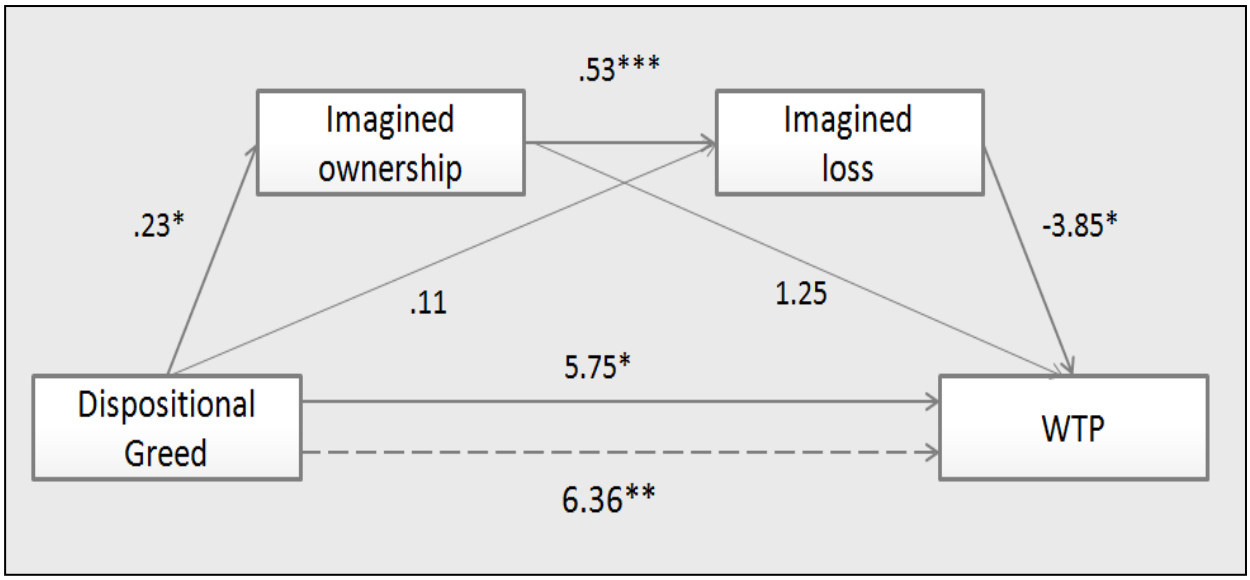
138 student from a large Belgian university (83 males, *M*age = 32.5, *SD* = 11.3) imagined participating in an online auction. They saw a list of ten broad-ranging items that might be sold in an auction (e.g., an iPhone, a table lamp, a microwave, a pair of sunglasses) and indicated the highest price, relative to existing retail prices (10% to 120% of the retail price in 10% increments), they were willing to bid. Afterwards a retention motive was examined by answering their imagined ownership ('Even when the auction has not ended yet, I already feel ownership of the object I am bidding on', ranging from 1 (*totally disagree*) to 5 (*totally agree*); *M* = 2.20, *SD* = 1.15) and imagined loss ('When I do not offer enough money and therefore do not become the owner, I feel like I lost the object I was bidding on', ranging from 1 (*totally disagree*) to 5 (*totally agree*); *M* = 2.71, *SD* = 1.14). Finally respondents answered the Dispositional Greed Scale (Cronbach's α = 74, *M* = 4.17, *SD* = .94).

4.2. Results and discussion

A mixed models linear regression analysis showed that dispositional greed predicted the amount respondents were willing to bid ($t(1362.09) = 7.05$, $B = 5.65$, $SE = .80$, $p < .001$).To examine whether this increased willingness to pay is indeed caused by a pseudo-endowment

effect and a retention motive, a simple mediation analysis using ordinary least squares path analysis was set up. This included both imagined ownership and imagined loss in parallel and serial mediation, to allow for direct effects from both mediators but also for both variables to mediate each other. The results show that greedy people are more susceptible to pseudo-endowment effects, as indicated by their higher ratings for imagined ownership (a1 = .23). Furthermore, those who felt more ownership of the auction objects, reported also higher imagined losses (a3= .53). However, the higher loss ratings resulted in lower willingness to pay (b2 = -3.85). There was no direct effect of dispositional greed on imagined loss (a2 = .11) nor from imagined ownership on willingness to pay (b1 = 1.25). A bootstrap confidence interval for the entire indirect effect through imagined ownership and imagined loss (ab = -.47) based on 1000 bootstrap samples no longer included zero (-1.27 to -.14), showing that there was a mediation of imagined ownership and loss of the effect of dispositional greed on WTP (c' = 6.36, p <.01). Thus, dispositional greed still influences WTP independent of the endowment effect and retention motive (see Figure 1).

Figure 1. Effect of dispositional greed on retention and WTP



Thus, though imagined ownership and feelings of possible loss mediated the effect of greed on WTP, the mediation was in the opposite direction than expected, resulting not in a mediation but suppression effect. That is, dispositional greed does lead to higher feelings of endowment, which in turn lead to higher feelings of possible loss. However, these loss feelings lead to a lower willingness to pay, not a higher. In other words, the positive effect of greed on WTP could not be explained by loss aversion in this study. One possible reason for this opposite effect might be the inclusion of competition, which might have enhanced the feelings of imagined loss to such an extent that people rather not risk any loss, and therefore bid lower to curb one's expectations. This could also be enhanced by the fact that in this study, people imagined participating in the auction game. Given that they imagined participation, and answered anticipated emotions, it is possible that for greedy people giving less money for the product is a type of opt-out, which in this imagined game is a safe option as there is no real loss. To further examine this enlarged endowment effect of greedy people, eliminating the two proposed drivers for the negative effect of loss on WTP, we set up a third study to answer these questions.

5. STUDY 3: ENDOWMENT EFFECTS

The purpose of study 3 was threefold. First of all, the previous study indicated that a retention motive explained greedy people's willingness to pay in an auction but in the opposite direction than expected. Two other drivers were identified that might explain the negative effect of endowment on WTP: competition and a possibility for opt-out through imagined participation. Second, apart from retention, also an acquisition motive that is aimed at gaining objects, not just retaining them, might drive a positive effect of greed on WTP. Thus study 3 was first of all set up to eliminate competition and opt-out and investigate the

effect of both a retention and an acquisition motive simultaneously. Third, as respondents' WTP was only hypothetical, this study will examine if the effects are different with actual buying behavior.

5.1. Participants, materials and procedure

90 undergraduate students (33 Males, *M*age = 22.3, *SD* = 4.6) participated in a lab study where they answered 40 pen-and-paper questions regarding their attitude and experience with the university. After this 5-10 minute task, they were told that they could buy a new university brand pen that was developed in collaboration with a well-known luxury brand (retail value 20€, but this was not mentioned). Half of the respondents had no previous experience with this pen other than a photograph and a written overview of its characteristics (condition 1: no endowment). The other half of the respondents had previously used this pen to fill out the survey and where told that it was that exact pen they could buy, a standard endowment task manipulation (condition 2: full endowment).

They were then instructed to answer questions regarding how much ownership of the pen they felt ('Although it is not certain that you will be able to buy this pen, do you feel like this pen is already your property?', ranging from 1 (*not at all*) to 7 (*very much*), *M* = 2.42, *SD* = 1.66) and how much they liked the pen ('How do you feel about this new university pen?', ranging from 1 (*very unattractive*) to 7 (*very attractive*), *M* = 4.75, *SD* = 1.36). Second they answered the Dispositional Greed Scale (Cronbach's α = .78, *M* = 4.12, *SD* = .91). Afterwards they also indicated how much they were willing to pay for the pen (0€ to 10€, increments of .50€; *M* = 2.21, *SD* = 2.05). To ensure that their WTP matched their valuation of the pen, they were told that after this experiment they would roll a 20-sided dice (Becker–DeGroot–Marschak procedure; Becker et al., 1964). If their WTP was higher or equal to the dice-roll

(.50€ per point), they were to buy the pen for the price decided by the dice. Thus their WTP corresponded to the maximum amount they were willing to pay for the pen. All but one respondent was aware of the consequential nature of this measure; the one that did not was removed from the dataset. At the end of the experiment respondents went to the experiment leader, who rolled the dice to decide the selling price (M = 11.20, SD = 5.90). Respondents who had indicated a higher WTP (N = 25, M = 4.32, SD = 2.79), paid the selling price as decided by the dice roll and took it with them at the end of the session.

5.2. Results and discussion

First, the WTP measure was log-transformed to attain a normal distribution, as WTP distributions typically exhibit a left skew. Second, we ran an independent sample t-test to ensure that the condition manipulations did not affect people's dispositional greed (t(85) = 1.207, p = .23). A mediated moderation analysis using ordinary least squares path analysis was set up to examine if there was an interaction between dispositional greed and the endowment conditions on WTP, and if this interaction was mediated by both the retention and acquisition motive. Results from an initial moderation analysis shows that further analysis was indeed useful. The main effects of the two conditions show that in general the two conditions did differ significantly from each other, in such a way that people in the full endowment condition where generally willing to pay more for the pen (M_{no} = .39, SD = .26; M_{full} = .46, SD = .23), but there was no main effect of greed. Furthermore, the interaction results showed there was a difference in interactions between greed and the endowment conditions on WTP (see Table 1 and Figure 2). For non-greedy people (-1SD), there was no difference between the two endowment conditions (M_{no} = .37, SD = .05; M_{full} = .42, SD = .05, p < .205). For greedy people (+1SD), there was a clear difference between the effects of both endowment conditions on WTP (M_{no} = .40, SD = .08: M_{full} = .61, SD = .07, p < .05).

Table 1. Effect of Dispositional Greed and Endowment Conditions on WTP

	B	*SE*	*t*	*p*
Constant	.341	.056	6.054	.000
Endowment Condition	.043	.025	1.730	.047
Dispositional Greed	-.036	.064	-.564	.574
Dispositional greed * Endowment Condition	.053	.028	1.898	.031
F(df)	4.749 (3, 87)			
R²	.147			

Figure 2. Effect of dispositional greed and endowment conditions on WTP

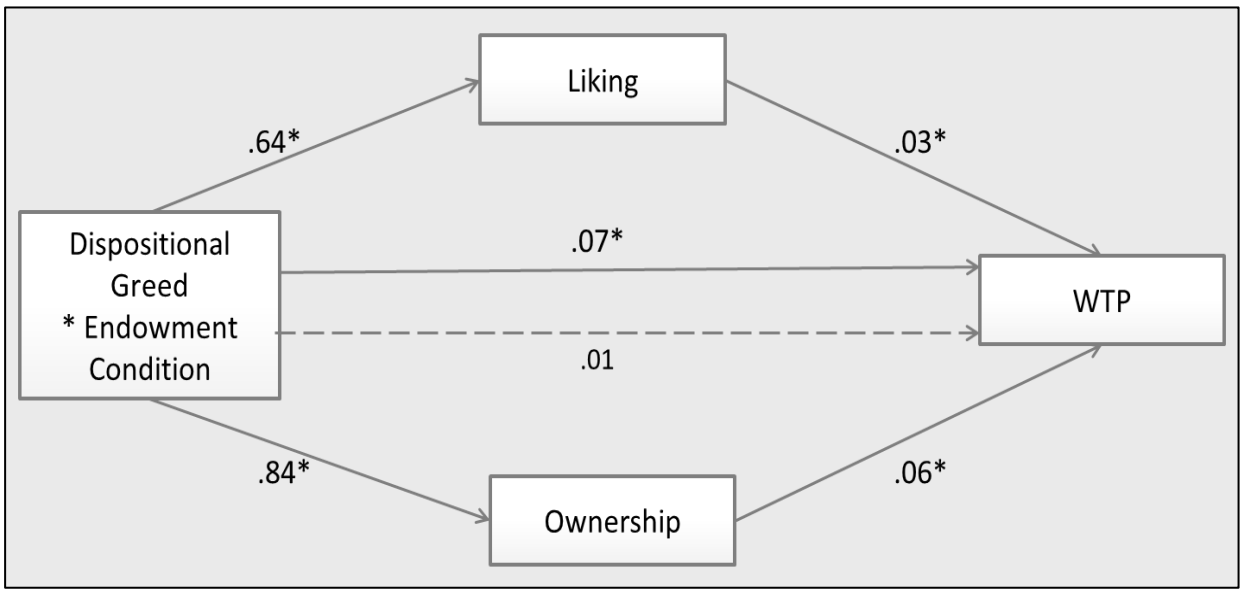
A mediated moderation analyses was set up to examine the mediating effects of both an acquisition and retention motive. However, due to issues with the analysis program used (Process for SPSS; Hayes & Preacher, 2014) we could only include the interaction effect as a predictor, the main effects of greed and the conditions had to be included as covariates. This means that the main effects are included in the statistical results of the a en b paths, but unfortunately not in the direct and indirect c paths.

The mediated moderation analysis showed that the interaction between these 2 conditions (endowment vs. no endowment) and the effect of greed on WTP was mediated by imagined ownership (a2 = .84, b2 = .06). A bootstrap confidence interval for the indirect effect through ownership (ab2 = .05) based on 1000 bootstrap samples no longer included zero (.121 to .005), showing that imagined ownership mediated the effect of dispositional greed and endowment on WTP. However, though there was an effect of the interaction between greed and the two conditions on respondents' reported liking (a1 = .64), and this acquisition motive liking did have an effect on WTP (b1 = .03), the mediation itself was not significant. The analysis indicated that the indirect effect (ab1 = .02) did just include zero (.067 to -.002), indicating there was no significant mediation through liking. Incorporating both mediators (ab = .07) into a bootstrap confidence interval based on 1000 bootstrap samples no longer included zero (.012 to .147), indicating that the entire mediation model was significant (c' = .01, p = .85). Furthermore, this bootstrap confidence interval also analyzed the difference between the two specific indirect effects (ab1 - ab2). This still included zero (-.032 to .102), indicating that there was no significant difference between the effect of liking versus ownership.

Thus, results indicate that the in the full endowment condition dispositional greed had a larger effect on ownership than in the no endowment condition, and that ownership mediated the effect on WTP. Furthermore, though there was a significant difference between both conditions and greed on liking, this did not mediate the effect on WTP (see Figure 3). This demonstrates that greedy people experience a stronger imagined ownership for full endowment than for no endowment, and that this imagined ownership mediates the effect of the interaction between greed and endowment condition on WTP. Though there was also an effect of the interaction on liking, the latter did not mediate, though the strength of its effect

did not differ from that of ownership. Thus, in this case, it is the retention motive that drives the difference between both conditions.

Figure 3. Effect of dispositional greed and endowment conditions on WTP, mediated by ownership and liking



These results seem to indicate that, when greedy people are presented with a situation in which they might feel psychological ownership of a product, such as in the full endowment condition, their retention motive is more responsible for the resulting higher WTP than when there is no opportunity for psychological ownership, such as in the no endowment condition. Thus, when there are differences in experienced psychological ownership, it is the feeling of not wanting to lose a certain object that makes greedy people willing to pay more for this object. These results confirm findings of the previous study that showed that a greedy disposition is the cause of psychological ownership, as this study also demonstrated that non-greedy people do not seem to display psychological ownership.

6. STUDY 4: INSURANCES AND WARRANTIES

In this fourth and final study, we wanted to investigate whether the existence of a retention motive in greedy people might account for behavioral effects that have up to now not been linked with greed. As a loss prevention or retention orientation is mainly focused on safety and protection (Higgins, 1997, 1998), in this final study we examine the effect of a greedy disposition and its inherent retention orientation on the purchase of insurance policies and warranties. One industry that is primarily associated with protective mechanisms against possible losses and negative outcomes is that of insurance companies and warranty providers. By definition the purpose of insurance companies is to protect people from suffering potential negative outcomes of certain events (e.g., Kluger et al., 2004; Wiener, Gentry, & Miller, 1986). Similarly, extended service contract warranties can protect customers from losses. As product quality is not directly observable by customers and there exists a potential but undeterminable risk of product failure, buying a warranty diminishes the financial risk of a purchase (Shimp & Bearden, 1982) through diminishing the effects of damages and assuring that the product will perform to expectations (Loveland, 2010). Indeed, both warranties and insurances can be purchased as a means to minimize the effects of a problem should it occur. Thus, we expect dispositional greedy people to be more likely to purchase warranties and insurances to avoid losses, as it corresponds to their retention motive (Liberman et al., 1999).

6.1. Pretest

A pre-test showed that not only research but also lay-people do not link greedy people to insurance buying. 103 students from a large Belgian University (38 men, *M*age = 26.8, *SD* = 11.3) responded how likely they perceived either people in general or greedy people (between subjects) to buy insurances. An independent sample t-test showed that respondents perceived

greedy (M = 3.51, SD = 2.68) people to be less likely to buy insurance than the general population (M = 4.58, SD = 1.70) ($t(101) = 2.409$, $p < .05$).

6.2. Participants, materials and procedure

108 MTurk participants (55 men, *M*age=38.1, *SD*=11.6) answered an online survey about product purchases, insurances and warranties. They saw three scenarios describing a shopping scenario in which they purchased a product, and were told by the seller that there was a possibility to purchase an extended service contract, insurance or warranty for this product. The scenarios were chosen to represent both products and experiences, to be relevant for both warranties and insurances and to include different measurement of tendency to buy. Furthermore, as we saw in the previous study that ownership was important for the retention motive to come into play, respondents were told that they had already bought the product in question, and were only considering whether they wanted to buy an additional insurance or warranty. The products included a smart phone (insurance offered by the store for damages not inherent in the basic company insurance), a second-hand car (extended insurance offered by car dealer as manufacturer's warranty has expired) and a ski trip (snow guarantee offered by the travel agency in case of low snowfall), products for which in real life insurances or extended warranties are standard. For these items they answered their attitude towards the insurance or warranty (ranging from 1 (*bad deal*) to 5 (*good deal*), M = 3.44, SD = 1.04), their purchase likelihood (ranging from 1 (*very unlikely*) to 7 (*very likely*), M = 4.38, SD = 1.81), and whether they wanted to buy a limited basic warranty, an additional insurance package or none (3-point scale, a none option, a basic insurance and an additional insurance, M = 1.77, SD = .70). Afterwards respondents answered the Dispositional Greed Scale (Cronbach's α = .86, M = 3.52, SD = 1.14).

6.3. Results and discussion

Regression analysis revealed that the more greedy the responder, the more inclined they were to buy the more extensive insurance (B = .97, t(102) = 1.82, p = .07), the higher their purchase likelihood (B = 1.22, t(105) = 2.34, p < .05) and their attitude towards the warranty (B = 1.06, t(105) = 2.06, p < .05). Thus, although no previous research investigated the relation between greed and insurance buying, it seems that incorporating a retention motive in the conceptualization of greed, leads to broader contexts in which it might be relevant.

7. CONCLUSION AND DISCUSSION

When people are asked to give examples of greedy behavior, they often refer to the time they saw someone take more than they needed. Indeed, a central concept of greed seems to be acquisitive behavior, the accumulation of wealth and goods, generating the stereotypical image of the greedy person who is never content with what he or she already has. Though we do not claim that greedy people are not focused on wanting more, the aim of this paper was to show that acquisitiveness is not the only driver for greedy behavior. In this paper we have tried to demonstrate that a peripheral concept in earlier conceptualizations of greed, a retention motive, needed to be examined explicitly. Ensuring that one does not loose what they already own seems to be just as important to greedy people.

Thus, in a first study investigating loss aversion, we have shown that when a conflict occurs between greedy people's acquisitive and retentive motive, they seem more concerned with securing their current possessions than accumulating them. This seems to be a first demonstration that a retention motive may be more central to a greedy disposition than attaining more. In a second study, using an auction paradigm, we investigated whether greedy people might have a bigger endowment effect, examining whether this might be one of the

drivers for their increased loss aversion. Results indicated that greedy people indeed have stronger psychological feelings of ownership, but this causes them to pay less for products they are bidding on, not more.

In a third study, we wanted to examine whether the effects found in the previous study were due to hypothetical behavior instead of actual buying behavior. We found that greedy people indeed exhibit stronger feelings of ownership from mere touch. Furthermore, only a psychological endowment effect, not liking of the object, influenced their desire and WTP when comparing non-touched versus touched objects, in such a way that only greedy people who were able to use the object before actually purchasing it, were willing to pay more to own this object. In a fourth and final study, we gave a first example of how incorporating a retention motive in the conceptualization of greed broadens its explanatory value. In this study, we investigated the effect of greed on insurance buying, which is an industry that was up to now deemed unrelated to greed. Results indicate that greedy people are indeed more positive towards buying insurances and even more likely to buy an extended version, an effect that could not be explained by focusing on greed as exclusively acquisition oriented.

As we started this chapter by giving an overview of acquisitiveness in both lay and academic definitions, treating a retention motive as a more implicit part of greed, it is important to note that this is also the case for our own definition of dispositional greed: a personality trait that entails an insatiable, self-centered desire for more resources, monetary or other. In this definition we also simply focused on attaining more, without making it explicit that this refers to both acquiring more on the one hand and retaining current possessions on the other. Given that we have shown in this chapter that a retention motive might be an even stronger predictor of greedy behavior, and that it is sometimes a more accurate description of greedy behavior, the question rises whether this should not become an explicit part of the definition. Therefore, we propose here a new definition of dispositional greed: a personality

trait that entails an insatiable, self-centered desire for more, which focuses on both retaining current resources and acquiring more of them.

However, at the moment we are not entirely convinced of whether this would also mean that the DGS should need extra items to explicitly incorporate this retention motive. The reason for our hesitation is twofold. First, it is not entirely clear whether greedy people are consciously aware of their retention motives. And second, it is not certain that greedy people are aware that their stronger loss aversion is due to their existing greedy motive. Given that we showed in the first chapter that greedy people are in fact very aware of their greediness, including unconscious or self-deceptive aspects in the greed scale might produce spurious results. Because of these two reasons, and because the DGS was able to predict actual retention behaviors without explicitly questioning them in this chapter, more research is needed before altering the existing validated scale.

When looking at this new conceptualization of greed, it might also be interesting to relate the findings of this chapter with those of the previous one on absolute and relative thinking. Though preliminary at this point, it seems that greedy people's absolute thinking transcends beyond mere numerical information processing, and that it also affects how they view 'more'. Given that retention seems to be a strong driver for greedy people, their view on 'more' might not only incorporate extra's or more than their current state, but simply focus on the total sum of their possessions. If this is the case, than it follows naturally that when there is a conflict between a certain retention and an uncertain acquisition, as in the first study, they are willing to forego any additional acquisitions in favor of a retention motive.

Though this research gives insight in both the conceptualization of greed and its explanatory value, it also raises new questions for future research. For instance, if greedy people are indeed focused on more in an absolute sense, it would have been more rational to

participate in more gambles in the first study. Given that possible gains were always larger than possible losses, for each individual gamble the expected value was positive but chances of winning remained only 50%. However, if all gambles are taken into account, the chances of losing overall become smaller than 50% whereas the expected value remains positive. Thus, it might be interesting to redo this first study with actual behavior, and manipulate whether in the end only one of the gambles will actually be executed for all participants, or whether for one participant all gambles will be executed. If greedy people are indeed focused on attaining more overall, in this first condition greed might be more associated with participation in only those gambles with highest expected value, whereas in the second condition greed might be more associated with a higher overall participation rate.

However, all conclusions and implications from this first study drive on the notion that our measure for loss aversion did in fact measure loss aversion. Though this measure had been used previously for the same concept (Tom et al., 2007), it is possible that this measure also taps into other constructs. For instance, given that loss aversion was measured through participation in gambles, this might also have been a measure of risk aversion. Up to now there have been no links between dispositional greed and loss aversion, not in our own studies (risk-taking measured through Lejuez, Read, Kahler, Richards, Ramsey, Stuart, et al.'s (2002) BART test, r = .08, *ns*, unreported previously), nor in those executed by Seuntjens et al. (in press b; risk-taking measured through Holt and Laury's (2002) lottery choice measure, r = .04, *ns*). However, given that we did not control for risk aversion in this study, we are not able to exclude this alternative explanation.

More questions are related to our second and third study, which have shown that greedy people have an extended range of psychological ownership. This leads to a possible re-interpretation of previous results related to greed research. For instance, some research on economic games has identified greed based on the amount of money dictators wanted to keep

in a dictator game, labeling this as anti-social behavior (Murnighan, Oesch, & Pillutla, 2001). However, in these types of studies people are often explicitly instructed that the full amount of money is given to them, and that they get to decide how much they want to keep for themselves. Looking at it not from an economic game perspective but from the endowment literature, this might be a clear example of priming people with ownership. Thus it is possible that, given the fact that greedy people have an extended range of ownership, they actually do see all this money as their own money.

Given that people rarely attribute less than 20% of the money to the other person (Stanley & Tran, 1998), for greedy people this behavior might be more correctly label as pro-social, since they are not dividing money between themselves and another person, but are willingly giving someone else a part of their money. It might be interesting to investigate different types of instructions, and how this influences dispositional greedy people's behavior. Similarly, other research that has focused on greed as acquisition driven (e.g., Cozzolino et al., 2004; Cozzolino & Snyder, 2008; Cozzolino et al., 2009), might be revisited to investigate to what extent it correctly labels greedy behavior.

Second, there is a striking contrast between our second study, where endowment and loss aversion did not explain the enlarged effect of greed on WTP, and the third study, in which it did. Important to note here is that, at first glance, this second study is more in line with previous research on greed. Previous research studying greed in economic games has often identified two differing drivers of uncooperative behavior, fear and greed (Dawes et al., 1986; van de Kragt et al., 1983). Depending on the publication, fear is either identified as fear of lagging behind (Coombs, 1973; Rapoport & Chammah, 1965) or as fear for the possible risk of losing (Ahn, Ostrom, Schmidt, Shupp, & Walker, 2001), the second lying more closely to our vision of retention in this paper. Regardless of the exact definition, most of these studies

have indicated greed to be a stronger predictor for behavior than fear. In other words, people would be more driven by desire for personal gain than by desires to avoid loss.

However, not only do their findings contradict the literature on loss avoidance (Abdellaoui et al., 2007; Tversky & Kahneman, 1992) which consistently states that people's behavior is more influenced by possible losses than possible gains, there are also important differences between these papers and our own project. One of the main differences is that in previous studies people have been labeled greedy based on their behavior, whereas we a priori labeled respondents, before examining the resulting behavior. Therefore, we are able to clearly disentangle a greedy motive from loss aversion or acquisitiveness. This allows us to investigate under which circumstances loss aversion does not explain greedy behavior, such as in study two, and under which circumstances it does, such as in study three. Indeed, under circumstances that involve competition similar to those of economic games, such as our eBay study, loss aversion seems to not be able to explain greedy behavior: though the mediation of greed through endowment was in fact significant, it led to opposite results. However, in circumstances where there is less competition, greedy behavior does seem to be linked to a retention motive. Thus, our project calls for future research to gain more insight into when and why a retention motive is relevant for greedy behavior, but has also indicated that despite the clear link with behavior this motive still remains an essential part of a greedy disposition.

It is important to note though that the second and third studies have several limitations, which require further investigation before the aforementioned conclusions and possible implications might be thoroughly investigated. First of all, as stated at the end of the results section, study 2 suffered from the fact that we did not measure nor control for the effects of perceived competition and imagined instead of actual behavior. Though these explanations might account for the different directions of the effect of greed on WTP found in study 2 and 3, they need further testing before this claim can be substantiated.

Second, in the third study, both the retention and acquisition motives were measured through proxies. For the acquisition motive, we used liking instead of the more appropriate desire, because pre-testing had shown that directly measuring desire also incorporated the retention motive. In other words, people who desired to buy this pen did this because they both wanted to own it as well as not lose it, but different ways of asking respondents' desire might not have suffered from this issue. For the retention motive, we used their feelings of ownership, as the previous study had shown that the effect of ownership on WTP was fully mediated by imagined loss. However, given that the directions of the effects were opposite in both studies, it would have been better to also include imagined loss. Finally, given that the mediation models generally just included or excluded zero in the bootstrap confidence intervals, and given that the effect of liking did not differ significantly from that of ownership, the conclusions about the different effects of retention versus acquisition remain premature.

It might still be useful to relate this chapter to chapter II, in which we investigated the effect of uncertainty about resource access on a greedy motive and greedy behavior. In that chapter, especially in study 2, we found uncertainty about current access to resources led greedy people to make less effort to obtain this resource, which we related to learned helplessness. This paper seems to indicate that greedy people are not only more likely to exert less effort to obtain resources when there is uncertainty in the direct environment related to actually obtaining this resource, but they might also be more likely to opt out if there is an actual chance of not obtaining/losing something to which they already feel attached, such as their own money in study 1 or auction objects in study 2. The effort needed in chapter II to obtain the resources, a willingness to spend time, is similar to the one needed here, a willingness to spend money. Also similar to that study is the fact that the uncertainty about resource access lies not in the future but the present. This again calls for more research on greedy people's willingness to spend time or money to obtain resources, when the uncertainty

lies in the present, and about their likelihood of opting out when there is a chance that they might lose the resource they feel attached to.

Finally, as has been shown in our last study, incorporating a retention motive or loss aversion on the conceptualization of dispositional greed broadens its explanatory value to domains that were up to now unrelated with greed. Loss aversion has been involved in a wide array of domains such as behavior in the housing market and household mobility (Engelhardt, 2003; Genesove & Mayer, 2001), risky choices involving investment behavior (Thaler et al., 1997), brand choices (Hardie, Johnson, & Fader, 1993), international political decision making (Jervis, 1992) and insurances (Johnson et al., 1993). All these domains include behavior that has up to now been unrelated to dispositional greed, using the standard definition of greed as wanting more.

However, an alternative explanation for the fact that greedy people are more willing to buy insurances, is the fact that for them insurances might simply be another type of resource. Given that greedy people are inherently motivated to obtain more resources, buying insurances might for them have less to do with the retention aspect of protecting current resources and more with the acquisition of yet another type of resource. Therefore, future research might examine whether greedy people do see insurances as a type of protective mechanism, or whether they simply see it as something to obtain more of. Second, identical to the limitations for the first study, the question remains whether buying insurances is more related to loss aversion, not willing to lose newly bought products, or whether it is more related to risk aversion, which has more to do with the inherent uncertainty of the quality and longevity of new products. This should also be further examined.

In summary, in this paper we identify a retention motive as a central part of dispositional greed and that it might even surpass the classic acquisition motive of wanting more, that has

for so long be the crucial driver behind greed. Furthermore we have shown that this retention motive under certain circumstances leads to an enlarged WTP for objects, and that this is due to the fact that greedy people have an extended range of ownership. Finally, we demonstrate that incorporating a retention motive in greed research might broaden the explanatory value of greed and the contexts in which it is a relevant variable to investigate. This could lead to future research expanding our insight in greed, both as a disposition and as behavior.

CHAPTER VI:

CONCLUSIONS, CONTRIBUTIONS & FUTURE RESEARCH

CHAPTER VI: CONCLUSIONS, CONTRIBUTIONS AND FUTURE RESEARCH

The aim of the current dissertation was to get more insight into dispositional greed. Previous research mainly focused on situational greed, investigating which situational circumstances cause a general greedy motive across people. Lay people understanding on the other hand also documented individual differences in greed proneness. In this dissertation we focused on dispositional greed as a personality trait that differs across individuals. In the four essays of this dissertation, we introduce the Dispositional Greed Scale as a way to identify greedy people, and further examine where these individual differences in greed come from and how they affect information processing and behavior. First, we will summarize the findings of each essay. Next, we will discuss the theoretical and practical implications of our findings. Finally, we will focus on the limitations of the current research and give directions for future research.

1. RECAPITULATION OF FINDINGS

Greed has been viewed as a fundamental motive throughout history, triggering human evolution and progress. However, the existing academic literature had up to now mainly focused on situational drivers for greed, largely overlooking individual differences in greed proneness (Cozzolino et al., 2009; Kasser & Sheldon, 2000; Stanley & Tran, 1998). In other words, earlier studies focused on when people act greedy, disregarding which people are more likely to act greedy. Where greed as a situational state is widely studied, there has been limited to no research about dispositional greed, which denotes relatively stable individual differences in greed proneness. Research in this area was mainly hampered by the lack of an adequate measure to identify these individual differences in greed. Therefore, in our first

essay, "Development of the Dispositional Greed Scale", we started our investigation on dispositional greed by developing the Dispositional Greed Scale and giving a clear definition of greed as an insatiable desire for more resources, monetary or other. The 6-item dispositional greed measure, including 2 reversed items, was found to be reliable and valid. We demonstrated that it is related to psychologically similar measures such as materialism, envy, entitlement and egoism, but that there were still meaningful differences between these measures and the greed scale. Furthermore, we demonstrated that greed was also related to social comparison, productivity, competition and impression management, giving us more insight into what a greedy disposition entails. Finally, we demonstrated that men and people with financial or managerial jobs were more greedy, but that the opposite was true for those who were very religious. Developing this scale will allow more research into investigating what it means to be greedy.

Given that we were now able to confirm lay people understanding that people differ in how greedy they are, the question arose where these individual differences come from. Thus, in our second essay "Greed as Adaptation to Resource Uncertainty" we wanted to investigate why people differ in how greedy they are. To answer this question, it was fundamental to understand what the function of such a greed disposition might be. In this essay we examined whether greed might serve an adaptive purpose, where attaining as much as possible might be a way to ensure future access to resources. In other words, being greedy in the present might guarantee the greedy person that he will not suffer from shortages in the future. If this is indeed the aim of a greedy disposition, it might seem strange that not all people adapt this strategy. However, it is possible that a history of shortages makes one especially sensitive to this strategy. Thus, in a first study we tested whether a history of shortages is related to dispositional greed. We indicated that childhood SES, a proxy for harsh childhood environments, was related to adult dispositional greed, but that there was a weaker link with

adult life circumstances, only including income as a relevant predictor. This was a first suggestion that dispositional greed is indeed an adaptive strategy acquired during childhood, and triggered by difficult circumstances related to resources. However, the fact that it was less related to adult SES seemed inconsequent with current greedy actions. It might be possible that a difficult upbringing not only triggers a greedy disposition, but also enhances people's sensitivity to uncertainty in their environment, leading to an enlarged perception of insecurity when it comes to resources and thus greedy behavior. A second study then indicated that greedy people indeed perceive uncertain situations as more insecure than non-greedy people, but that they are less likely to exhibit behavior aimed at taking control over these situations, such as working harder to attain certain goals. In a final study we showed that, when there is no difference between people's perception of the situation through ensuring either complete access or no access to resources, there is no behavioral difference between greedy and non-greedy people. This indicates that greed might indeed serve an adaptive purpose, ensuring future access to resources, but that this only affects people when there is a difference in environmental uncertainty about these resources.

Chapter IV, "The Effect of Greed on Thinking Style", examined whether dispositional greed might not only influence the behavioral decisions people make, but also how they come to those decisions. In other words, in this essay we wanted to examine the internal processes that occur before final decisions are made. We focused specifically on two different processing styles: absolute versus relative thinking. Absolute thinking considers absolute differences when making decisions. Relative thinking on the other hand considers relative differences when making decisions, and has been shown to be more predictive of real-life behavior. As there is limited research on what drives people's preference for either thinking styles, we examined in this essay whether dispositional greed might influence the use of these processing styles. In a first study we showed that it indeed influences these thinking styles, in

such a way that the greedier one is, the more they are inclined to use a more absolute thinking style. Furthermore, in a second study we showed that this difference in thinking style is due to a different sensibility of diminishing marginal utility, which affects greedy people less. Finally, in a third study we demonstrated that for greedy people absolute thinking is not more normative or rational. For them, absolute thinking seems to be a default processing style, leading to suboptimal decision making in certain circumstances.

Chapter V, "Retention versus Acquisition: A Greedy Paradox" examined the dual influences of an acquisition and retention motive on explaining greedy behavior. Though a greedy insatiable disposition is most often linked to acquisitive behavior, in this chapter we demonstrate that a retention motive is just as important in explaining consumer behavior. Four studies show that greedy people are indeed not only focused on attaining more, but also on safeguarding their current possessions. Furthermore it seems that a retention motive might be an even stronger predictor for some greedy behaviors. When the environment entails an element of competition, acquisition is the main driver for greedy behavior, but when there is no competition and an opportunity for increased psychological ownership, it is a retention motive that explains the resulting greedy behavior. Finally, we show that incorporating a retention motive into the conceptualization of dispositional greed, allows researchers to link this greedy disposition to new domains, such as those of insurances. Thus, this new focus on dispositional greed as both acquisition and retention driven not only enhances our understanding of greed, but also broadens its applicability in consumer research.

2. THEORETICAL IMPLICATIONS

Until recently, most theoretical considerations of individual differences in greed proneness were limited to philosophical or religious literature. Empirical findings were

severely hampered due to the fact that no scale existed to measure dispositional greed. Therefore, most empirical research on greed in the fields of economy and psychology examined situational effects on greedy behavior, defined as every act of increased acquisitiveness after any manipulation set up for this exact purpose. This research has documented greedy behavior as diverse as simply consuming more (Sheldon & McGregor; 2000) or spending more money for pleasure (Kasser & Sheldon; 2000), to giving lower offers in economic games, increasing one's own pay-off at the expense of others (Carter & Irons, 1991), to cheating customers on a farmer's market (Yang, Wu, Zhou, Mead, Vohs, & Baumeister, 2013).

However, many of these studies essentially had no other choice than to revert to circular reasoning. As the only observable change was behavioral, scholars had to assume an underlying change in either the motive or the information processing driving these behaviors. The resulting acquisitive behaviors were then labeled greedy as they presumably stemmed from an underlying greedy motive, and the proof that these manipulations evoked such a greedy motive was the fact that the resulting behaviors could be labeled greedy. Our newly developed Dispositional Greed Scale might overcome the issues surrounding this circular reasoning by clearly labeling people who possess such a greedy motive, allowing researchers to distinguish greedy behavior from behaviors caused by a different underlying motive.

New studies might reexamine previous greed manipulations to study whether the resulting behaviors can be linked to a measurable greedy motive, or whether they might in fact be caused by different motives. For instance, Yang et al. (2013) showed that presenting people with dirty money makes them more greedy. However, they also demonstrated that exposure to this dirty money lowered moral standards and reduced positive attitudes towards fairness and reciprocity. Though one might link this to greed, it might in fact be a different underlying motive that is not oriented towards attaining more but towards behaving self-

oriented and self-interested without the insatiable cravings present. The resulting behavior might be similar to greed, but using the greed scale as an additional manipulation check might give more insight in the underlying motive, and thus label the resulting behavior more correctly.

Also the opposite effect could be interesting from a theoretical point of view. In other words we might set up studies to examine whether behavior that was supposedly caused by different motives might in fact also be caused by dispositional greed. For instance, previous research on situational influences distinguished the effects of a greedy motive from those of a fear motive. Our last chapter however showed that a fear motive might in fact stem from a greedy disposition, allowing us to more correctly label specific behavior as greedy, where it previously would have been labeled fear (Rapoport & Eshed-Levy, 1989). Furthermore, these studies also showed that behavior deemed unrelated to greed, being not as stereotypically acquisitive as other greedy acts, might in fact also be caused by the same underlying greedy motive. Thus, using the DGS to clearly distinguish underlying motives from external behavior might advance our insight in both greed and other related constructs.

A second theoretical implication emerging from this dissertation is that greed not only influences behavior, but also the underlying processes. For instance, we showed that a greedy disposition is related to absolute thinking, which influences how numerical information is processed. Whereas non-greedy people are more inclined to focus on relative differences, such as ratios and percentages, greedy people think in a more absolute way, taking absolute differences into account when making decisions. Furthermore, we showed that a greedy disposition also influences the processing of information related to uncertainty, in such a way that greedy people perceive these contexts as more uncertain. The question rises whether greedy people might process information differently in more ways than just the absolute-relative thinking difference and uncertainty. For instance, as we hypothesized in chapter IV

that the difference in thinking style is due to a difference in affective value, and since we have shown in chapter V that greedy people form stronger psychological connections to material objects, it is possible that greedy people form emotional connections in a different way than non-greedy people.

As an example we could hypothesize that people might differ in the type of emotions most often experienced, where greedy people might be more likely to experience hot than cold emotions (Metcalfe & Mischel, 1999). Hot emotions often lead people to become impulsive and emotionally overwhelmed instead of relying on rational deliberative thinking. These emotions originate from satisfying desires that are considered part of a want-self instead of a should-self (Bazerman, Tenbrunsel, & Wade-Benzoni, 1998). As these emotions have been shown to activate short-term acquisitive self-interest and diminish people's concern for others (Tenbrunsel & Smith-Crowe, 2008), it seems very likely that they might be more relevant to a dispositional greedy motive than calculated rational cold emotions. This is especially important as these hot emotions tend to peak during an action or decision, but dissipate quickly afterwards (Bazerman et al., 1998; Wang & Murnighan, 2010), which might lead to guilt or regret and thus explain greedy people's lower well-being.

Moreover, since greedy people's low SES upbringing results in changed uncertainty perceptions, it might also alter perceptions of information that is more directly related to SES, such as income or monetary issues. Though these types of resources are often conceptually directly related to greed, and especially greedy behavior, it might be interesting to examine whether greedy people act more greedy for these types of resources simply because they are resources, or because they process information about these types of resources differently. Furthermore, there are resources linked to childhood circumstances that are not as obviously related to dispositional greed, such as certainty about living situations and emotional resources, which might also be influenced by a different processing style linked to a greedy

disposition. Thus, further research that not only examines greedy behavior, but also the underlying processes, might further advance our understanding of greed.

A third theoretical implication from this research focuses on the causes of individual differences. In chapter III we showed that one possible cause for greed might be a problematic childhood background, where adults from low SES backgrounds were more likely to exhibit a greedy disposition than people stemming from high SES backgrounds. Since SES has been shown to influence a wide range of psychological, behavioral and social effects, it seems highly possible that it might also cause stable differences in adult motivations. Thus stable individual traits, which are often thought of as being part of a persons' personality from birth or developed very early in childhood (Rothbart, Ahadi, & Evans, 2000; Shiner, 1998), might also develop during later childhood in such a way that it only becomes clearly manifest and measurable during adulthood. This might mean that measuring children's dispositional greed might not be as predictive of adult dispositional greed.

However, the explanatory value of this SES variable, though significant, was limited. Although this might be explained by the fact that recent research has shown important individual differences in susceptibility to environmental influences (Ellis, Boyce, Belsky, Bakermans-Kranenburg, & van IJzendoorn, 2011), another possible explanation is that childhood SES is not the sole predictor of dispositional greed. Thus, it seems that there might be other causes influencing a greedy disposition. For instance, economic climate is another variable that might influence people's adult sense of control. Growing up in harsh economic circumstances could have similar effects to low SES upbringing. In this case it would be more appropriate to examine generational differences rather than interindividual differences. This might also explain why we did not find a direct link between age and dispositional greed, as economic climates tend to fluctuate every 7-11 years, rather than simply improve over time

(Juglar, 1862). Also parents coping strategies and social family learning could be a relevant influence on whether or not people develop a greedy disposition.

Furthermore, the relation between greed and childhood circumstances might be of interest to further examine the relation between greed and thinking styles. It seems possible that this second relation is actually a spurious one, where neither greed causes absolute thinking, nor absolute thinking causes greed. In fact, childhood circumstances might in fact cause both processes. Though the link between greed and SES has been established in chapter III, the one between childhood SES and processing styles merits further research. Similarly to how greed might function as an adaptive strategy, ensuring future resource access, absolute thinking might also serve an adaptive purpose. More specifically, people who grow up in harsh conditions might focus on the value of every additional increase, regardless of the original amount already owned. It then seems possible that people who come from low SES backgrounds are more likely to think in an absolute style. Thus, not only examining the visible external behavioral results of a greedy disposition and the underlying processes assimilating information, but also the causes of individual differences in a greedy disposition, could increase our insights in greed.

Finally, this research challenges existing assumptions about both greedy people and greedy behavior. First of all, we showed that greed might not only be a selfish trait with little considerations for others, but that it might also stem from childhood shortcomings and uncertainties, shedding a more positive light on the resulting greedy disposition as an adaptive trait to ensure no future shortcomings. Second, we demonstrated that greedy people are not solely interested in attaining more, but that their main concern might lie in ensuring that they keep what they already have. Third, we showed that a greedy motive not always results in acquisitive approach behavior regardless of the circumstances, as in specific uncertain situations a greedy disposition results in avoidance behavior, reducing the amount of effort or

even choosing to opt-out altogether. These stereotype-debunking results attach further importance to future research examining a greedy disposition, greedy behavior, and underlying processes, to investigate to what extent our current lay and scientific views on greed accurately depicts real-life greedy people.

3. PRACTICAL IMPLICATIONS

Though most practical implications were already mentioned in the discussions of each specific chapter, here we would like to mention some implications that are either relevant for more than one chapter, which have to do with previously unreported results, or that are not as straightforward related to the specific results found in each study.

In our first paper chapter we described the development of the dispositional greed scale. As this scale was developed mainly to be used for academic research, we did not focus on an empirical segmentation to be used by marketers or managers. However, though not always reported in the studies, a wide range of socio-demographics were taken into account when setting up the surveys. Therefore, we do have access to some social-demographics that allow for an initial segmentation. As reported in the studies in chapter II, we found a clear gender effect in men being more greedy than women. However, we did not find effects of age, education or income, which are often used in customer segmentation (e.g., Samdahl & Robertson, 1989; Zimmer, Stafford, & Stafford, 1994). On the other hand, we did find an effect of job, such that people in managerial or financial jobs were greedier, which might be regarded as an indirect proxy for income and education. Using these variables as a basic segmentation model, businesses might divide their customers into a non-greedy, in-between and greedy segment. Though unreported in this dissertation, we also found in different studies that greedy people were more likely to overbuy, and consequently had to throw away more

(especially food items which are prone to decay), which makes segmenting customers based on greediness certainly useful for producers and sellers of fast moving consumer goods.

Furthermore, this segmentation might also be useful to set up marketing communications differently based on the customer one tries to reach. For instance, in chapter III and V we showed that greedy people were more sensitive to situational uncertainty, in such a way that in uncertain situations greedy people were more likely to stock up, while these situations did not harm the buying tendencies of non-greedy people. Specific product or marketing communications, such as "offer valid while stocks last", might trigger uncertainty in greedy people, leading them to buy more than necessary or even buy unplanned purchases to ensure future access to these goods, while not hurting the purchase intentions of non-greedy people. Other types of uncertainty framing are also possible, such as specific pre-purchase offers or coupons valid till a certain period, which have been shown to lead to increased purchase but a smaller increase in use of these purchases (Aggarwal & Vaidyanathan, 2003).

The fourth chapter, focusing on absolute versus relative thinking, also showed that greedy people might react differently to price framings than non-greedy people. Whereas previous research focused on relative thinking, claiming that price communications would be more effective when stated in percentages or ratios (Hardesty & Bearden, 2003), this might be less convincing for greedy people who think in a more absolute way. One possibility of dealing with such different thinking styles might be to frame discounts both in an absolute and relative way. We on the other hand propose that not framing discounts, i.e. simply stating both the original and sale price, would be the most effective strategy. In other words, we suspect that, since people are inherently motivated to obtain discounts (Darke, Freedman, & Chaiken, 1995), a price markdown will be processed in the most convincing way, essentially in a way that is congruent with people's own thinking style, which will lead to more sales. Indeed, previous research has shown that framing information in a way that is congruent with

people's natural processing tendencies leads to more optimal results (Higgins, 2000). Allowing respondents to arrive to the most positive framing of a discount themselves, rather than stating explicitly in the promotion communication, might even lead to more recall and more positive attitudes and purchase intentions afterwards, as shown by research on the self-generation effect (Wänke, Bohner, & Jurkowitsch, 1997).

Finally, the last chapter V on dispositional greed and a retention motivation has shown that greedy people seem to have an extended range of ownership. In other words, greedy people more quickly associate feelings of ownership with a certain product, leading them to be willing to do more (i.e. pay more, but possibly also exert more effort) to finally obtain the object. Previous research on the endowment effect has shown a range of methods that might be used to provoke such an endowment effect, such as imagery encouraging touch (Peck, Barger, & Webb, in press). Using these techniques in marketing communications and advertising, it might be possible to sell products aimed at a greedy segment for a higher price or reach a greedy clientele further away from the store location, as they are probably more willing to retain objects that they feel are theirs, to avoid losing their ownership claims, as long as there is no opt-out possible or effort needed is not too high. Furthermore, recent research has shown that actual physical control is important for experiencing psychological ownership (Süssenbach & Kamleitner, 2015). As control also seems to be important for greedy people, it is possible that using these techniques to enhance feelings of ownership might be particularly effective for small tangible objects.

4. LIMITATIONS AND SUGGESTIONS FOR FUTURE RESARCH

At the development stage of the Dispositional Greed Scale, we as authors were not aware of any other existing scales. However, currently two other scales measuring greed have been

published. The first is the greed subscale of the Vices And Virtues Scale of Veselka et al. (2014). This one-dimensional greed scale exists of 10 items, and defines greed as "a tendency to manipulate and betray others for personal gain". The second greed scale is the identically-named Dispositional Greed Scale of Seuntjens et al. (in press b), based on a prototype analysis of greed (in press a). Their one-dimensional greed scale exists of 7 items and defines greed as "the dissatisfaction of not having enough, combined with the desire to acquire more". As these scales seem to have been developed simultaneous to our Dispositional Greed Scale, it was not possible to include both scales into our validity and reliability tests. However, it would be interesting for future research to examine these three scales to see whether they differ theoretically or empirically, and to test whether they possibly tap into different meanings of greed.

For instance, the greed subscale of the VAVS (Veselka et al., 2014) empirically focuses on the importance of exclusivity, money and power, whereas we purposefully tried to keep the items general and non-specific. Thus, future research might be able to distinguish both scales based on a more generalized desire for more on the one hand or on the other hand an American dream type of wanting more that is focused on getting ahead in life and society. Furthermore, given that the VAVS incorporates negative outcomes for others in their definition of greed, a second point of diversification might be to examine whether people scoring high on the VAVS scale might be more egoistic and more willing to cause harm for others than people scoring high on our DGS.

The Dispositional Greed Scale of Seuntjens et al. (in press b) on the other hand shows close resemblance to both our own definition and conceptualization of dispositional greed. Furthermore, their published results match our own, indicating that both DGS's might be closely related, both theoretically and empirically. One possible area where both scales might differ however is the incorporation of and importance attached to money. Whereas they

specifically mention money in one of their scale items, we do not. This might explain the different results found with the tightwad-spendthrift measure (r = .03, p = .33, unreported previously) and in the ultimatum game experiment. Further research might examine whether incorporating money in the DGS items simply focuses respondents attention to monetary questions, leading to different answers, or whether both constructs might in fact tap into different meanings of greed, related or unrelated to monetary issues.

Second, the scope of this dissertation was to investigate greed as an individual difference variable that was deemed to be part of a persons' personality. Therefore, in this dissertation we focused on measuring a greedy disposition with our newly developed greed scale. However, this led to two possible limitations of our research. First of all, as we were interested in greed as a stable individual difference variable, we only measured greed, and did not manipulate it. Previous studies on other known individual difference variables, such as regulatory focus, have examined both the effects of stable traits and of those of variable states (Spielberger & Sydeman, 1994), showing possible interactions between both motives. For future research it might be relevant to first of all examine whether it is possible to manipulate a greedy motive to see how this influences behavior.

To manipulate such a greedy state variable, several existing manipulations of state variables might be adapted to our greedy measure. For instance, scrambled sentence tasks (Srull & Wyer, 1979) might include words such as more, enough, acquiring, desire, quantity or dissatisfaction to raise a temporary greedy mindset. Other possibilities might include word puzzles or asking respondents to recollect a time when they felt satisfied or dissatisfied with their current possessions. Allowing participants to listen to music with a clear greedy theme (Queen's "I want it all" or the Rolling Stones' "Satisfaction") or the opposite (John Lennon's "Imagine" or Seasick Steve's "Started out with nothing") might also induce differences in a temporary greedy state. Furthermore, it would also be interesting to see how the effects of

these manipulations would interact with an already existing (or non-existing) greedy disposition, and how both greed as a trait and state differentially impact short- and long-term behaviors.

A second limitation of examining greed as a stable individual difference variable was the limited attention devoted to situational influences. Previous research on greed had solely examined these types of influences, such as whether behavior was public or private (Fehr & Gächter, 2000; Kurzban, McCabe, Smith, & Wilson, 2001) and whether people were held accountable to their behavior afterwards or not (Croson & Marks, 1998; Keser & Van Winden, 2000). It seems likely that, although these situational variables would not directly influence an already existing greedy motive, there might be an interaction between both to more accurately predict greedy behavior. For instance, in the last study of chapter III, we showed that the situational uncertainty interacted with dispositional greed in such a way that only under uncertain situations greedy people's behavior differed from that of non-greedy people. Thus, future research might examine more of these moderators influencing the final resulting behavioral outcome of such a greedy disposition, to show which situational influences inhibit greedy behavior and which enhance it.

Another important limitation of almost all studies described in this dissertation is the fact that they were executed based on scenario studies. That is, people had to indicate what they thought they would do in a certain situation, rather than measuring actual behavior. Though some studies have found limited variance between scenario studies and real life behavior (e.g., Anderson & Bushman, 1997; Robinsons & Clore, 2001), others have shown stark differences (e.g., Klink & Smith, 2001). This is especially true for the studies in chapter IV, where the effects of relative thinking have been amply demonstrated in scenario studies and lab experiment, but seem to disappear in real-life behavioral studies (Azar, 2011b). Thus, future research should examine whether the effects of dispositional greed are as indicative of

behavior when it comes to actual instead of imagined behavior, which was shown in chapter V to lead to different results.

Studies such as the last one described in chapter V, where people had to indicate their willingness to pay and were aware of the fact that they would eventually have to pay the money indicate, do not suffer from this limitation. However, this study for example does suffer from external validity as it was a very artificial set up that is less likely to happen outside of the lab or in everyday life. Thus, a second recommendation for further research is to examine the effects of a greedy disposition in everyday life. Though it might be hard to set up experiments where people's behavior is monitored at the same time as them answering the dispositional greed scale, given that we have shown in this dissertation that greed is a stable trait (i.e. there is very little intrapersonal variance), it might be possible to study actual behavior and let respondents answer a range of scale including the DGS at a different time point, before or after the behavioral measure.

Finally, this dissertation raises ethical questions that might be answered by future research. Though we tried to stay away from explicit behaviors with negative consequences for others, to avoid both self-presentation effects and ethical issues, the fact remains that greed is often socially frowned upon. Thus the question remains whether greed is necessarily the negative trait with undesirable consequences for others that it is so often though out to be. Perrucci and Perrucci (2014) for instance stated that greed might have the potential to actually serve the common good, as a personal motive of acquiring more might for instance be related to broader entrepreneurial activities that may be beneficial to the larger economy and to the people who get jobs in the economy. Although they did not test this hypothesis, it might be possible to set up studies in such a way that greedy people show behavior that is beneficial to others. For instance, given that they are production oriented, their drive for more might make them more likely to be productive in a situation where positive results are only possible when

all members cooperate. In these scenarios, greedy people might in fact be less likely to freeload, as their cooperation is essential to obtaining rewards.

Most studies that have found negative effects of greed, were in fact set up in such a way that being anti-social behavior was beneficial to ensuring that one acquires as much as possible (Marwell & Ames, 1981; Poppe & Utens, 1986). Framing manipulations in an opposite way, were freeloading leads to less acquirements, might produce opposite results. On the other hand, our studies have also shown that uncertainty about the outcome, which is an essential part of the type of scenarios described above, might lead greedy people to opt-out and be even less cooperative. Thus, given that greed is simply a driver to acquire more, the specific way in which these acquirements occur might be highly influential on the resulting behavior and merits further research.

This societal view of greed as an immoral dark trait might also depend on the culture. For instance, within the USA the American dream is seen as a positive driver for human progress. Though it is not identical to greed, this positive vision of ambition might transfer partly to greed. In collective cultures on the other hand, where the good of the community is sometimes more important than that of the individual, the fact that greedy people are self-interested and mainly focused on their own progress might make it less acceptable. Thus, cross-cultural studies might examine whether different cultures have different connotations with greed and whether this affects scores on the DGS on one hand and the impact of social desirability on these greed scores on the other.

Within our studies, we were able to find small cultural differences between American respondents and Belgian ones, where Americans tended to score slightly lower on the DGS (M_{American} = 3.33, M_{Belgian} = 3.83, t(3211.01) = 13.436, $p < .001$) and had a slightly higher variance in their answers (SD_{American} = 1.13, SD_{Belgian} = .99; F(2, 3268) = -26.399, $p < .001$).

Americans' lower greed scores might be related to the differences in greed definitions of the VAVs scale on the one hand (Veselka et al., 2014), an American scale which clearly defines greed as a negative dark trait, and the DGS's definitions (Krekels & Pandelaere, 2015; Seuntjens et al., in press a, b), European scales that define greed in a morally more neutral way.

However it needs to be taken into account that these were also rather different samples, where the American respondents were often fully employed adults, whereas the Belgian respondents were students. Though we were not able to find age effects in our studies, the stark differences between a student lifestyle versus a working one might still have effects above a mere cultural difference. More research is thus needed to make general claims of the effects of culture on greed. To conclude, future research might include more diverse cultures to examine cultural effects on dispositional greed and its ethical dimensionality.

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