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Money Management in an
Age of Financial Illiteracy
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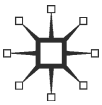

UNDERSTANDING CONSUMER FINANCIAL BEHAVIOR

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Foreword

After the financial crisis, understanding consumer financial behavior is becoming increasingly important for management and research. We have learned from the crisis that financial products are complex for most people, and consumers make many mistakes when buying these products. Financial products should not be treated separately, but attention should be given to the overlap and interaction between these products. Moreover consumers should not be impulsive but regulate their spending and should not start too late with saving for their retirement.

Research on consumer financial behavior can support governmental policy and marketing management with relevant data on financial behavior of consumers and investors. There are several reasons why relevant data are needed. Financial products have become more complex to understand and to choose. At the same time, consumers have become more responsible for their own financial future, the products they buy, the risks they take, and their retirement income. It is relevant for policymakers and financial institutions to know how financially literate or illiterate consumers and investors are, how they handle their financial affairs, which mistakes they make, and how these mistakes can be corrected and how consumers and investors can be assisted for a better financial future and life. Important financial decisions such as retirement saving are often postponed till too late. Many citizens are financially illiterate and need, as much as they can, to be "in control" of their own financial affairs. This book will, hopefully, help in a better understanding of financial behavior of citizens and thus contribute to better policies directed toward improvements of financial behavior and decisions of consumers and investors, and ultimately, toward no or less financial problems, more satisfaction, happiness, and well-being.

This book has its origin in economic psychology (Katona, 1975, 1980; Kahneman and Tversky, 1979; Wärneryd, 1999, 2001), in consumer research in marketing (Soman and coauthors), in behavioral or

psychological economics (Simon, 1963; Maital, 1982), and in behavioral finance (Thaler, 1992). Katona (1975, 1980) was one of the first to use the concepts of psychological and behavioral economics. Behavioral economics and behavioral finance have become accepted fields within economics (Figure F.1). In the past 20 years, we witnessed a growing number of publications in these fields and a lot of behavioral, experimental, and survey research in economics. Quite a number of scientific journals in economics, marketing, and psychology now publish papers on economic psychology and behavioral finance.

An important source of information on recent issues and publications in behavioral economics is the annual guide that appeared in 2014 and 2015, edited by Alain Samson, *The Behavioral Economics Guide*. The World Bank (Washington, DC, 2015) published the world development report *Mind, Society, and Behavior*, and with this report the World Bank gave a strong impetus to behavioral research on finance in developing countries. In a similar way, the OECD (Paris, 2005, 2012) contributed to the field with reports on financial literacy and behavioral finance.

Earlier versions of chapters 2–8 and 10 of this book were published in *Foundations and Trends in Marketing* (Delft, The Netherlands, and Hanover, MA: NOW Publishers; see Van Raaij, 2014). I thank Zachary Rolnik of NOW Publishers for his permission to use further elaborated versions of this material in the current book.

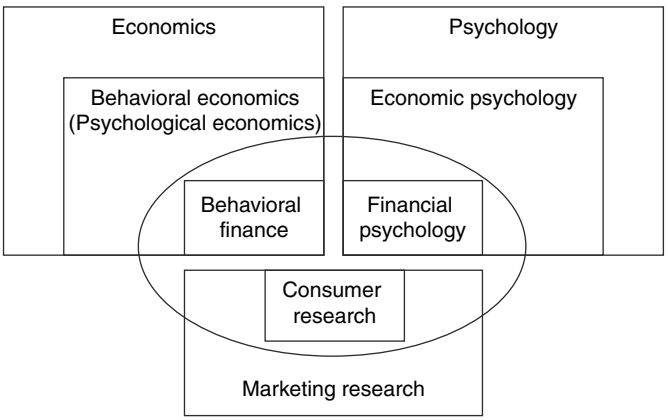

Figure F.1 Relationships between sciences, and the three basic sciences of this book (in the ellipse).

Four Perspectives

Four perspectives and uses of this book may be distinguished:

1. It is a structured literature survey on consumer financial behavior: published research results are combined into an overview that explains what is known on several types of financial behavior such as money management, saving, borrowing, insuring, participating in pension plans, investing, paying taxes, and avoiding becoming a victim of fraud.
2. The determinants and conditions of financial behavior such as individual differences and personality, perception of gains and losses, confidence, trust, risk preference, time preference, decision-making, and self-regulation are discussed and related to different types of financial behavior.
3. Marketing aspects are included: how can financial institutions become more customer oriented, regain trust, and offer the right combinations of products and services to customers?
4. Consumer financial education and literacy: which behavioral effects can we expect from financial education? How can education be done more effectively? Which are the correlates of financial literacy determining financial behavior? How could consumers better manage their personal financial affairs?

Target Groups of the Book

Related to the four perspectives are the target groups and people for whom this book has been written:

1. Teachers and students of marketing, behavioral finance, economic psychology, and management (at university level)
2. Financial advisors and planners
3. Consumer educators
4. Communicators and consumer advisors of financial institutions
5. Governmental consumer policymakers on consumer finance and protection
6. Consumers themselves (for a better understanding of their financial behavior)

Acknowledgments

In the past 17 years I have developed an interest in understanding consumer financial behavior. The start was the introduction of the euro in nine countries of the European Union in 2001. Research questions included how people react to the currency change and the loss of a national symbol, money illusion, and the costs and benefits of the new currency, as people perceive it in countries that adopted the euro and in countries that did not (Müller-Peters et al., 1998; Van Everdingen and Van Raaij, 1998). I thank the working group on Euro research of the International Association of Research in Economic Psychology for their stimulating meetings and discussions. This triggered in me the urge to learn more about consumer financial behavior, especially money management, pension plans, and insurance.

In 2006, the Platform Wijzer in Geldzaken [Moneywise] was established, a joint effort of the Department of Finance, other governmental departments, financial institutions, and the Consumer Union in The Netherlands. The platform stimulates research on consumer financial behavior and organizes two core activities on money management and education for children at the primary school level and on pension awareness and behavior. I thank the members of the platform for sharing their ideas and for their efforts in promoting consumer financial education and literacy.

Since 2012, Pauline van Esterik and I have done research on trust in financial institutions, joined by Peter Mulder of the market research agency GfK. Owing to the financial crisis in 2008, consumers lost their trust in banks, insurance companies, pension funds, and other financial institutions. The annual surveys on trust and its determinants and consequences provide a lot of insights into how people think about financial institutions in general and about their own bank, insurance company, and pension fund in particular. I thank Pauline and Peter for the stimulating discussions on trust, satisfaction, loyalty, and related topics in the interaction of financial institutions and consumers.

And, last but not least, I thank my wife, Gerrie, for her support in finishing this book and for all the good hours we have together when I am not sitting in front of a screen reading or writing chapters or papers. Now that this book is done, we will have more enjoyable hours together.

1

Introduction

Homo Economicus or Psychologicus?

In economic theory, the "homo economicus," with his/her rational decision-making, stable preferences, egocentrism, and maximizing utility, used to be the economic model of man. In Simon's (1957, p. xxiii) words: "Economic Man has a complete and consistent system of preferences that allows him/her always to choose among the alternatives open to him/her. He/she is always completely aware of what these alternatives are. There are no limits on the complexity of the computations he/she can perform in order to determine which alternatives are best." Becker (1976) outlined rational choice theory and applied this to domains outside traditional economics, from crime to marriage (Becker, 1981), and obviously also financial behavior. Becker believed that psychologists and sociologists could learn from the "rational man" assumption advocated by neoclassical economists. He did not assume that consumers actually use economic models and trade-offs to select a marriage partner or make a financial decision (descriptive validity), but he assumed that economic models are able to predict outcomes of human decision processes (predictive validity).

However, the opposite direction of thinking emerged at the end of past century. In behavioral economics and behavioral finance, new and more descriptive models have been developed on economic and financial behavior. From a psychological perspective, economic psychology contributed to this development by studying economic behavior of consumers, investors, and entrepreneurs. Neoclassical economists can learn from psychologists and sociologists. Behavioral economics constitutes a paradigm change in economics. In this paradigm change, three stages may be distinguished (Kuhn, 1962; Lakatos, 1968; Van Raaij, 1985):

1. Anomalies, paradoxes, and theoretical deviations are discovered that cannot be explained by neoclassical economic theory (Thaler, 1992).

2. These anomalies can be explained by biases and heuristics, a kind of partial theories that can explain a number of economic phenomena. Prospect theory is an example of a successful partial theory (Kahneman and Tversky, 1979).
3. These biases and heuristics can be categorized and hopefully will become part of a new overarching (behavioral) economic theory. However, this need not be true. Just as in psychology, behavioral economics/finance may remain a science without an overarching theory, but with a number of partial theories.

Behavioral economics and finance are now in the second stage. Descriptive studies and experiments have been done on how people behave and make decisions, how people use heuristics, are biased, and how people may be systematically irrational but still predictable in their behavior. Note that in behavioral economics and behavioral finance the emphasis is more on behavior (change), and less on mental constructs such as perception, motivation, attitude (change), and intention. A similar development took place in psychology: the behavioristic approach (Skinner, 1974) of focusing primarily on behavior and less on unobservable mental constructs such as attitude and intention.

Dual-Systems Models

For financial behavior, self-control is important for personal daily money management and long-term interests such as saving for retirement. In many cultures, self-control is a virtue by itself, required for friendly and effective human interactions. Thaler and Shefrin (1981) describe "self-control" as a conflict or competition between two opposing forces, the "planner" and the "doer." It looks as if we have two "homunculi" (little men) in our brain with two opposing objectives. The *planner*, located in prefrontal cortex of the brain (System 2), has a future-time preference and a high degree of delay of gratification and reward. The planner is in favor of deliberate decision-making and saving for the future. In contrast, the *doer*, located in the (reptilian) base of the brain (System 1), has present-time preferences and strives for immediate gratification and reward. The doer is impulsive and requires immediate rewards, whereas the planner accepts delayed (monetary) rewards. In this *dual-self model*, the planner tries to control the doer. The outcome depends on which force, the planner or the doer, "wins" the competition. Note that this approach is rather similar to the Freudian competition between the "superego" (conscience, values, norms), "ego" (planner), and "id" (doer).

The dual-self model is a kind of structural approach of identifying two functions as structures or locations in the brain. These locations can be found in the brain and correspond with separate neural systems. Parts of the limbic system associated with the midbrain dopamine system, including the paralimbic cortex, are associated with immediate rewards, and thus the doer. Regions of the lateral prefrontal cortex and posterior parietal cortex are engaged by intertemporal choice, irrespective of delay (McClure et al., 2004), and thus the planner.

Shiv and Fedorikhin (1999) tested the control function of the planner. If the planner is overloaded with other tasks, less cognitive capacity and energy is available for controlling the doer. This is called *resource depletion* (Muraven and Baumeister, 2000; Chapter 17). In such situations, the planner does not function very well and the doer may "win" the competition. This will result in less deliberate and more impulsive spending and buying decisions. Baumeister, Vohs and Tice (2007) compared willpower with a muscle. Tasks that require self-control, and lengthy or difficult decision-making, weaken this muscle, leading to *ego depletion* and thus a diminished ability for self-control. After a long and strenuous task, people are tired and ego-depleted and more easily engage in less desirable behavior. After such a strenuous task, they may also feel that they have done their very best and are "licensed" (permitted) rewarding and gratifying themselves.

Kahneman (2003, 2011) also distinguishes two systems. System 1 is the unconscious, intuitive, and automatic system and System 2 is the conscious, deliberate system of thinking. System 1 is nonconscious, impulsive, with present-time preference, whereas System 2 is conscious, deliberate, with future-time preference. Decision-making in System 1 is intuitive, fast and effortless, whereas decision-making in System 2 is difficult, slow, and effortful. In many instances, System 2 needs to control the impulsive decisions of System 1. See table 1.1 for a contrast between both systems. However, it is rather

Table 1.1 Contrast between Systems 1 and 2

System 1 (nonconscious)	System 2 (conscious)
Location: old brain	Location: neocortex
Multiple systems	Single system
Automatic: fast, effortless	Controlled: slow, effortful
Unintentional, uncontrollable	Intentional, controllable
Intuitive thinking	Deliberate thinking
Parallel processes	Serial processes
Many processes at the same time	One process at a time
No capacity constraints	Capacity constraints

unlikely that both systems are functioning completely independently. Both systems have functional specializations and there must be interactions between them. For instance, System 1 provides an emotional preselection and first impression (liking) of stimuli that are then more fully evaluated with System 2 (Van Raaij, 1989). Another interaction is that emotions of System 1 become consonant with cognitions of System 2 or vice versa.

Biases and Heuristics

Human thinking is not purely rational, error-free maximization of utility, as in neoclassical economic models. It is full of deviations from rationality: biases and heuristics. A *cognitive bias* is a systematic (nonrandom) error in thinking, deviating from formal logic or accepted norms. A *heuristic* is a cognitive shortcut, rule of thumb, or quick and easy decision process simplifying decisions or substituting a difficult question with an easier one (Kahneman, 2003). Using price or brand name as an indicator of quality of a product is an example of a heuristic. Availability and representativeness are two classes of general heuristics (Tversky and Kahneman, 1974).

The *availability heuristic* implies that the prevalence and probabilities of events that are recent, salient, vivid, accessible, memorable, and easily come to mind, are overestimated. We overestimate the probability of being killed by terrorists, because these cases are published in newspapers, and we underestimate the probability of dying by falling from the stairs. This may affect the type and coverage of insurance we buy.

The *representativeness heuristic* implies that the probability that an object or event A belongs to category B is judged by looking at the degree to which A resembles B (similarity). By doing this we neglect the base rate, that is, the general probability that B occurs (Kahneman and Tversky, 1972). If a financial product is expensive and has a famous brand name, we may assume that it has a high quality, whereas it is more likely that this product has an average quality. Products with an average quality are more frequent in the market and have a higher base rate than products with a high quality.

The *affect heuristic* is the third general heuristic. It is relying on good or bad feelings experienced in relation to a stimulus. Affect-based evaluation is quick, automatic, rooted in experiential thought, activated before reflective judgment. The affect heuristic is more pronounced if people do not have the cognitive resources or time to reflect. It is part of System 1 of intuitive thought (Slovic et al., 2002) and is similar to

the first impression or primary affective reaction (PAR) to a stimulus, for instance, an advertisement (Van Raaij, 1989). Affect coming from the brain stem is quicker and easier than cognition (thought) coming from the neocortex. This first impression often "colors" the subsequent more deliberate judgment. See Pieters and Van Raaij (1988) on the relevance of affect for economic behavior.

In the dual-system framework, System 1 consists of processes that are intuitive, automatic, experience-based, and often nonconscious. System 1 is the home of biases and heuristics. The reactions of System 1 are quicker than reactions from System 2, the system of controlled, deliberate, analytical, and reflective thinking. See the section titled "Dual-Systems Models" for more information on dual-system theory (Kahneman, 2003).

Biases and heuristics are often used habitually and automatically, without consciously thinking about it, even by experts. They may be dysfunctional and may lead to errors. Hogarth (1981) argues that this is the case when biases and heuristics are studied as discrete (separate) events. In practice, people use biases and heuristics as an ongoing process and get continuous feedback about their usefulness, both successes and failures. Dysfunctional aspects may then be corrected and disappearing over time. Educational programs and warnings to "debias" people have mixed results. In "debiasing" programs, biases are considered to be judgment errors to be corrected for unbiased decision-making (Fischhoff, 1982). Arkes (1991) overviews the evolutionary costs and benefits of judgment errors. Some of these errors persist despite their obvious drawbacks. People may be trained to overcome these biases, but often relapse to their biases after some time.

People often make use of "fast and frugal" heuristics (System 1) rather than making decisions by a slow, difficult, and cumbersome approach of comparing alterative options and selecting the "best" option (System 2). Gigerenzer (2007) argues that these heuristics are not necessarily inferior ways of information processing and decision-making, but may be functional in an evolutionary sense in a complex world to make fast, often even unconscious (intuitive), evaluations and decisions.

The foregoing models are based on individual thinking, automatically (System 1) or deliberately (System 2). A third aspect of thinking is "social thinking (and behavior)," such as cooperation, trust (see section "Trust" in chapter 12), emulation, imitation, social modeling (Bandura, 1986; Section 17.8), and herding, following the crowd (see section "Herd Behavior" in chapter 7). People have social preferences for fairness and reciprocity and cooperate with others.

MAIN THEORETICAL APPROACHES

The main theoretical explanations of financial behavior used in this book are derived from theory and research in economic psychology and behavioral economics/finance. A short overview of the eleven main theoretical concepts and explanations may provide a first understanding of the background.

1. Judgments and evaluations are not absolute, but relative and given in relation to a *reference point*. Losses and gains are perceived as deviations from a reference point (prospect theory; Kahneman and Tversky, 1979). The reference point is usually the past state, but could also be an expected future state. The silver medal winner expecting a bronze medal, perceives a gain. The silver medal winner expecting a gold medal, perceives a loss. People adapt to gains or losses by changing their reference points. People with a promotion focus strive for gains, whereas people with a prevention focus try to avoid losses (Higgins, 1998, 2005) (chapter 13).
2. A loss has a larger negative value than an equivalent gain has a positive value. Losses loom larger than gains (prospect theory; Kahneman and Tversky, 1979). *Loss aversion* is motivationally stronger than gain seeking. People take more risk to avoid losses than to reach gains. In a negative frame emphasizing losses, people are risk seeking to avoid losses. In a positive frame emphasizing gains, people are risk averse (chapter 13).
3. To exert control of expenses people use *mental accounting* and separate budgets for separate categories of expenses. This is a precommitment to exert self-control on spending, because people reduce and stop spending if the budget for a category has been depleted in a particular period. Many consumers do not want to transfer money between accounts (Thaler, 1985, 1999) (chapter 2).
4. *Self-control* and *self-regulation* (self-efficacy; Bandura, 1986, 1997) are important determinants of responsible financial behavior. Self-control is facilitated by precommitments, in case willpower is weak. It is correlated with future time preference, delay of gratification, and conscientiousness (chapter 17).
5. *Time preference* is the preference for spending or receiving money now or in the future. Future spending and receiving is discounted. Thus, people want a compensation for receiving money later rather than now. And they are willing to pay for receiving money earlier than expected. Present bias has a negative effect on (retirement) saving (chapter 15).

6. People *overestimate small probabilities* and thus participate in lotteries and take insurance. They are more affected by the size of the prize or potential damage/loss than by its probability (Tversky and Kahneman, 1974; Vlek and Stallen, 1981).
7. *Risk preference* is the preference for risky or certain options. Risk preference depends on the optimum stimulation level (OSL), and thus extraversion and impulsivity. It also depends on situational factors such as framing, potential losses, and the behavior of others (chapter 14).
8. People tend to compare, imitate, and follow the behavior of relevant others. This is a conscious or nonconscious process. "The crowd cannot be wrong." People tend to overestimate the number of people with the same opinion as they have (social consensus). Due to lack of reliable and valid information, investors tend to follow each other creating buying and selling frenzies and bubbles (chapter 7).
9. *Mental resources* are not unlimited, although System 1 suggests that mental functioning is effortless and unlimited. System 2 certainly has capacity constraints. The theory on (mental) resource depletion states that used resources are not immediately replenished. Resource depletion and fatigue have negative effects on decision-making and self-control (Muraven and Baumeister, 2000) (chapters 16, 17).
10. Confidence and trust are basic background factors. *Confidence* is optimism/pessimism about the personal and national financial future. It affects the level of spending, saving, and borrowing. *Trust* in people and institutions is needed if the quality of products and services cannot be assessed at purchase. Trust determines the type and number of transactions and loyalty (chapter 12).
11. *Perceptual biases* are manifold, such as money illusion, middle option, and attraction affect. These biases largely depend on the quantity, order, and presentation of information. Priming is a conscious or nonconscious influence on behavior through the salience of cues (chapter 16). Vohs and Baumeister (2011) found that a prime activating the concept of money results in more self-sufficient behavior. The money prime was a task to count money, whereas the nonmoney prime was a task to count sweets. Money helps in solving problems, in being self-sufficient, and in asking less help from others. In this way, money helps to increase happiness. Vohs, Mead, and Goode (2006) conclude that the prime of money activates self-reliance and self-sufficiency and deactivates social concern for others, which is a negative consequence, and asking others for help.

Relevance of Consumer Financial Behavior

Consumer financial behavior is or should be the basis and starting point for marketing management of financial products and services, as well as for consumer financial education and protection policy. This book is on consumer behavior with regard to spending, saving, borrowing, insuring, investing, tax compliance, and retirement planning, at a domain-specific and generic level (not at brand level). Determinants and consequences of these types of financial behaviors are also discussed. Sound and responsible financial behavior is a requirement for realizing one's life goals, being included in the financial system, participating successfully in the present society with its amazing array of products and services, social media, information (overload), and pursuit of satisfaction, happiness, and well-being. Consumer financial behavior is a research and application domain between microeconomics, behavioral finance, marketing, and consumer behavior. It is based on insights and behavioral theories from cognitive, economic, and social psychology (cognitive biases, heuristics, social influences), in the context of and sometimes in conflict with (rational) microeconomic theories of consumers, investors, entrepreneurs, and markets.

Financial behavior of consumers is relevant for government policy of demand and buying power of households, for marketing management of companies on consumer markets, and, last but not least, for consumers themselves and for consumer protection policy. Financial behavior consists of different types of behavior such as (1) day-to-day money management: spending, saving, and paying bills; (2) financial planning for the future such as retirement saving and pension plans; and (3) buying (complex) financial products such as insurance, mortgage, and pension plan (OECD, 2005).

Campbell (2006) provides a good overview of economic research on household finance. He concludes that some households make significant financial mistakes. For some financial products, this provides a cross-subsidy from naïve to sophisticated households and inhibits welfare improving financial innovation. Naïve households often have a lower level of income and education. In other words, complex financial products and the increased responsibility of individuals to manage their own financial affairs may lead to larger rather than smaller welfare differences between households. This is clearly an undesirable effect of giving more financial responsibility to households.

Many consumers lack sufficient knowledge and skills (financial literacy) about budgeting, financial products, and financial planning. Due to this lack of knowledge and skills, people may make suboptimal

decisions, take too much credit, pay too high interest rates, not save enough for their retirement, be over- or underinsured, and may make costly mistakes in their investments. Financial education could possibly help people to make better financial decisions (Mandell, 2001; Lusardi and Mitchell, 2014), but others such as Willis (2011) conclude that financial education increases people's confidence into overconfidence, but does not improve their financial behavior. If financial education is not successful for certain people, they should be assisted and advised by experts and/or by digital expert systems.

Consumer spending, saving, borrowing, investing, and tax compliance have implications for *macroeconomic policy* of a country. Katona (1975) was one of the first to recognize that consumers have freedom and thus power in their discretionary spending and saving. The economy of a country may stagnate if consumers have a low confidence in the economy and delay or curtail their spending. The economy of a country will grow and prosper if consumers have a high level of confidence and spend their income.[1] This may also be on a global scale. It is stated in The World Development Report 2015, titled *Mind, Society, and Behavior* (World Bank, 2015), that insights into how people make decisions can lead to new interventions that help households to save more, firms to increase productivity, communities to reduce prevalence of diseases, parents to improve cognitive development in children, and consumers to save energy.

Consumer organizations and market authorities need to know the reasons why consumers spend, save, borrow, insure, invest, and save for their retirement or the reasons why they do not. From a *consumer protection* perspective, this may provide ways to protect consumers against unscrupulous sellers and against themselves as illiterate and imperfect decision-makers. Questions for consumer protection are: How should consumers manage their financial affairs in an optimal manner? How should they avoid the risk of mistakes and losses they cannot bear? What is responsible and sustainable financial behavior (chapter 10)? How can households regulate their financial behavior to their attain life goals (chapter 17)?

Financial products are bought on the *market*. Financial institutions develop and sell new products and services, communicate about these products and services, and advice consumers what to buy. How could banks and insurance and credit-card companies become more customer-centric and less sales-driven? Products should be offered that people need and want in the short term and in the long term, and products that are safe under various economic conditions such as economic recession. The duty of care of sellers includes protecting

consumers against severe mistakes and risk of losses they cannot bear. Financial products and services with an investment component may look profitable and attractive in the short term, but these products could be "dangerous" (not profitable and even creating losses) in the long term under different economic conditions. For instance, a high mortgage may be attractive to finance a home, but could lead to over-indebtedness if house prices or incomes decline.

Financial affairs contain a paradox. People know that good money management and financial planning are very important for their future and happiness, but, at the same time, most people spend little time on increasing their knowledge of financial products and on managing their finances purposefully.

Structure of this book

This book is about consumer financial behavior, and financial products and services at the generic and domain-specific level: choice and expenditure within a product category or between product variants. The book is not about the specific level of brand choice (Van Raaij and Verhallen, 1994). This means that no particular brands of financial institutions and service/product brands will be mentioned.

In the first part of the book, different types of financial behavior will be discussed: money management (chapter 2), saving behavior (chapter 3), credit behavior and debt problems (chapter 4), insurance behavior (chapter 5), pension plans and retirement provisions (chapter 6), investment behavior (chapter 7), tax behavior (chapter 8), and being victim of financial fraud (chapter 9). Each of these chapters can be read independently and not necessarily in the order of the book. At the beginning of each chapter it is indicated which topics of part II are especially relevant for that chapter. The final chapter of part I (chapter 10) is on responsible financial behavior. [Earlier versions of chapters 2, 3, 4, 5, 6, 7, 8, and 10 have been published as Van Raaij (2014)].

The second part of this book contains seven chapters on psychological concepts and topics that are relevant for consumer financial behavior: individual differences and segmentation (chapter 11), confidence and trust (chapter 12), loss aversion and reference points (chapter 13), risk preference (chapter 14), time preference (chapter 15), decision-making, decision architecture, and defaults (chapter 16), and self-regulation (chapter 17). These psychological and sociological concepts are relevant for several types of financial behavior. Each of these chapters can be read independently and not necessarily in the order of the book.

Part I

2

Money Management

The basis of financial behavior is how people manage their money in daily transactions and payments, and how people try to "make ends meet" by mental accounting and budgeting their expenses. Financial planning and decision-making about (complex) financial products are also part of money management. Will money "buy" happiness and well-being or are other factors more important? This chapter can be read in combination with chapters 10 (responsible financial behavior), 11 (individual differences and segmentation), 12 (confidence and trust), and 17 (self-regulation).

Money Management

Money has a lot of meanings and associations. It is perceived as the basis of an enjoyable lifestyle and as the root of evil. Some people believe that money will bring happiness and well-being, whereas others believe that money is creating rather than satisfying wants. In psychology, it is a neglected topic, although Furnham and Argyle (1998) wrote a book on the psychology of money. Their book is particularly on the "meanings of money" and the attitudes people have about money. This book is behavior-oriented: managing money, saving and borrowing, and money as an instrument for realizing goals in life.

Money management is an important task of an individual or household. Money is a scarce resource to be spent or saved in a responsible way in order to maintain the consumption level of a household and to reach desired goals such as creating a financial buffer, buying a house, financing the education of children, and securing income after retirement. Financial management is instrumental in spending and enjoying life now: "You live only once." It is also instrumental in reaching life goals, avoiding problems and frustrations, and ultimately in creating happiness and well-being.

The three major domains of financial behavior are (figure 2.1) (OECD, 2005):

1. Day-to-day money management such as paying for products and services, paying bills, saving, and credit
2. Financial planning and reserving money for future expenses
3. Decisions about appropriate (complex) financial products

Day-to-day money management includes: receiving the salary on the bank account, putting money in the savings account, getting cash money from the ATM (automatic teller machine), paying in stores and restaurants, and paying bills. It also includes knowledge of prices and discounts, comparison of products and brands, trading off price and quality of products and services, and resistance to temptations. Price-quality trade-offs are done frequently: which quality level is acceptable and which prices are affordable? Often, the *middle option* will be selected, because the cost/price (downside) and quality (upside) of a middle option seem to have an acceptable balance. A free product has no cost, thus no downside. Consumers easily accept free products, because there is no trade-off to be made (zero price effect). If consumers have to choose between receiving a voucher with the value of €20 for the price of €7, or a free voucher with the value of €10, they tend to select the second voucher. A free product with a gain of €10 is preferred to a gain of €13 (Shampanier, Mazar, and Ariely, 2007).

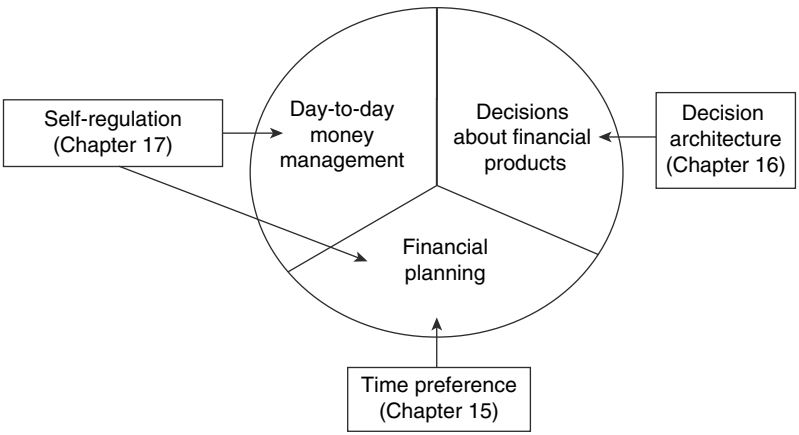

Figure 2.1 Domains of financial behavior.

Money management is the basic domain of financial behavior. It is usually not a goal by itself, but instrumental in reaching goals of persons or households. A basic financial goal is making ends meet and avoiding problematic debt (prevention goal). More advanced goals are, for instance, the acquisition of a durable good or purchasing a nice vacation (promotion goal). Due to poor money management one may not reach these desired goals and this may cause stress and conflicts between household members. Thus, an important psychological factor with money management is *self-regulation* (section "Self-Regulation" in chapter 17), managing finances for reaching personal goals. Day-to-day money management may take a lot of attention, time, and effort for poor people. Poor people spend a lot of time on solving urgent financial problems, making ends meet, and balancing their cash flow of income and expenditures (Mullainathan and Shafir, 2013). As a consumer remarks: "At the end of my salary, always a part of the month is left over."

Many people are not really interested in financial matters. It is a paradox that consumers know how important financial management is, but at the same time do not like spending much time and effort on it. They do not like reading and thinking about the "ins" and "outs" of financial products such as mortgages, insurances, and pension plans. Most people have a low need for cognition for financial products, services, and transactions. *Need for cognition* (Cacioppo and Petty, 1982) is the motivation of an individual to know and to think about a specific topic, because the topic is interesting by itself. Many people like to think about cars, sports, cooking, holidays, or home decoration. These topics stimulate creative thinking and day dreaming. Many people like thinking about being wealthy and spending money, but not so much on how to become wealthy. Maybe, only accountants, entrepreneurs, and economists have a high need for cognition about financial issues.

Financial products are "low *involvement*" products for many people and in many situations. People do not think about these products very often, except when there are financial problems. After an accident, the insurance becomes a high-involvement product for claiming damage. But when the insurance company has paid the claim, insurance may become a low-involvement product again. Involvement can be defined by four dimensions: (1) perceived product importance and importance of the negative consequences of mispurchase, (2) perceived probability of mispurchase, (3) symbolic value, and (4) hedonic value of the product (Laurent and Kapferer, 1985). Note that in this definition of *involvement*, mispurchase plays an important role. Consumers may worry about mispurchases and thus about potential

losses. Loss aversion is an important driver of financial behavior (section "Losses and Gains" in chapter 13).

To continue with this definition by Laurent and Kapferer (1985), financial products have a low symbolic and hedonic value, because these products are inconspicuous and largely "invisible" to others. The certainty, comfort, and peace of mind these products (insurance policy, pension plan) provide may have hedonic value for the person him/herself. Most financial products are important for consumers, and often consumers perceive the risk of negative consequences from a poor choice and/or the probability of making a mistake. Consumers may experience the negative consequences only years after the purchase, if the insurance company does not honor the claim, the investment fund does not give the expected or promised return, or the pension plan does not provide a sufficient retirement income. Note that we are concerned here with the product and not the brand level. Brands are also important for trust, hedonic, and symbolic values.

Paying Methods and Spending

Paying methods include paying with cash money, check, debit card, credit card, and even the smartphone. Due to digital-technical developments, payment with credit card and smartphone becomes almost automatic and the amounts paid become less visible. Consumers are less averse to paying with a credit card than paying with cash money (banknotes and coins) (Soman, 2001). Many consumers use precommitments to control themselves when paying cash. A *precommitment* is a self-imposed restriction on spending in order to avoid overspending. Examples of such precommitments are: shopping without bank or credit card, but only with a banknote of €50 or $100 restraining yourself not to buy more than these amounts. Another precommitment is waiting as long as possible to "break" a banknote of €50 or $100. As available cash budgets consist of a number of banknotes, these banknotes are a sort of *partitioning* device. Consumers hesitate, think, feel guilty, and wait before breaking another banknote (Cheema and Soman, 2008). This way they control their spending. The rate of consumption decreases when potato chips come in a number of small packs and when money is divided into several envelopes (Dhar, Huber, and Khan, 2007). Partitioning is an effective device when consumers are trying to regulate their consumption and spending. A credit card does not have such a partitioning "brake" on spending.

The physical appearance of banknotes also plays a role. Many people pay with worn-out bills first before paying with new, crisp, and clean

ones. Many bills of small denominations have been used frequently and are worn-out after two years. The reluctance to pay with these worn-out bills is lower than for new bills (Di Muro and Noseworthy, 2013). Thus, new bills provide a kind of temporary precommitment device not to spend them.

Soman (2001) found that people spend more when paying with a credit card than when paying with cash. Prelec and Simester (2001) found that people are willing to pay up to twice as much for baseball tickets when paying with their credit card compared to paying cash. Handing bills and coins to the cashier is for many consumers a more visible, painful, and aversive "loss" than paying with plastic. Paying with a credit card is a less visible and is a delayed "loss" because of the payment delay till the end of the month. Credit cards decouple the purchase from the payment by separating and delaying the payment. A credit card removes constraints on consumption because future income can be used for present payments. Another aspect of a credit card is that an individual payment, for instance, a €45 expense, loses its salience when perceived as a small part of a larger amount, for instance, €975, due on the card this month.

Decision-Making about Financial Products

In principle, consumers are provided by their bank with an accurate day-to-day online *overview* of their finances. But this overview is "hidden" in their bank account "behind" their user name and password or with an encrypted key. Consumers who do not pay bills online and do not regularly check their financial situation may not have an accurate overview of their financial situation. It is a financial skill to synchronize incoming and outgoing money in such a way that the balance of the bank account remains positive and that some money is left over at the end of the month. There are large differences in financial skill between consumers, how often they are online, pay their bills on time, and check their financial matters (Antonides, De Groot, and Van Raaij, 2008). Some people manage to "make end meet" even with a low income, whereas others seem to have a "hole" in their hands and experience financial problems.

Consumers may try to preserve a financial buffer for unforeseen events such as the breakdown of the washer or an expensive car repair. A savings buffer may consist of the amount of a two- to six-months worth of salary. A credit buffer is an arrangement, such as revolving credit, with the bank to be "in the red" for a certain period, if money is needed for an unexpected expenditure. Consumers wanting to buy

an expensive durable good (house, car, boat) or wanting an expensive vacation trip, save for this expenditure or have a credit arrangement with their bank and repay the loan and interest afterward. Goal saving may include the education costs of the children and old-age and retirement provisions (chapters 3 and 6).

In general, there is an acquisition dimension or "ladder" of financial products people buy and use, with the following hierarchical steps: (1) checking account, (2) savings account, (3) life insurance and pension fund, (4) investment funds, and (5) shares and bonds (Paas, Bijmolt, and Vermunt, 2007). Hilgert, Hogarth, and Beverly (2003) find that US consumers adopt cash management first, next credit behavior, and then saving and investing behavior. Products and services that require greater resources, are more complex and risky, and have a lower liquidity, come later on this hierarchical dimension. These complex and risky products require higher levels of financial literacy and "maturity" (Kamakura, Ramaswami, and Srivastava, 1991). Only a small number of consumers are concerned with the fifth step, private banking and *wealth management*. This is financial investment in stocks, shares, bonds, and real estate (chapter 7) to increase or maintain the family wealth. Often, people employ advisers to assist them in buying and selling at the right time and use fiscal arrangements and even "tax heavens" to avoid or reduce paying taxes.

Decision-making concerns the collection of information, comparison of available products and services, and choosing among these products. Consumers may collect information and compare the costs and benefits of the available alternatives before making a decision to buy or not to buy one of these alternatives. Decision-making may be done in a "complete" and "rational" way using an expected utility model, or by heuristics, simplified and relatively easy processes of comparing alternatives and choosing one.

The way information is presented to consumers strongly affects the decision-making process and outcome. If many alternatives with many characteristics are available in the market, and if information is difficult to understand, people may experience *information overload*. The consequences of information overload are (1) difficulty to process all information, (2) difficulty to compare alternatives, and (3) difficulty to assess which one is the "best" alternative. The decision task becomes too complex. As a consequence of this, people may delay or forego the decision. From an economic perspective, more available alternatives increase the chance that a matching alternative is available. From a psychological perspective however, the decision task may become too complex and people cannot make a decision or

make a suboptimal decision. Thus, more choice is not always better (Schwartz, 2004) (section "Problem Factors" in chapter 16).

Budgeting and Mental Accounting

Day-to-day money management, spending, saving and credit may become more effective using *budgeting*. Budgeting is a skillful and purposeful use of cognitive operations of money management to balance income and expenditure ("to make ends meet") in such a way that life goals can be attained without structural financial deficits. Budgeting provides useful insights into the money spent on expenditure categories. Budgeting can be learned by keeping track of all expenses, grouping these expenses into categories (housing, subscriptions, insurance premiums, food, clothing, education, medical services, etc.), and setting a maximum amount of money on the expenses in each category in order to "survive" financially. The objective of budgeting is getting control and grip on expenses (section "Self-Control" in chapter 17), not overspending on the obligatory categories/accounts, and reserving a budget of *discretionary income* for daily expenses. Budgeting is especially relevant for households with a low to median income to avoid problematic financial debt.

Budgeting may also consist of simple behaviors such as using a housekeeping book, not shopping when hungry, avoiding shopping and exposure to attractive products, and when going shopping, taking only a limited amount of money with you and paying only cash. These are means to exert self-control and restrict expenses.

If the budget is under financial strain, for instance, after the birth of a baby or after losing one's job, households have to cope with higher expenses and/or a lower budget. This requires self-regulation and financial skills. Better coping is associated with "forward looking" and having a negative attitude toward debt (Walker, 1996). The goal of coping behavior is finding a new balance of income and expenses that is acceptable for the well-being of household members.

Thaler (1985, 1999) developed the concept of *mental accounting*, a set of cognitive operations used by individuals and households to organize, evaluate, and keep track of their financial activities. According to this approach, people "open" accounts for specific expenses such as food and clothing. These accounts involve a budget that can be spent during a certain period, say a month. If this budget has been spent, the account will be closed and may open again next month. In this way, persons keep control and grip on their expenses. Suppose you set a monthly account (budget) of €300 for "eating out." After four

restaurant visits this budget may be spent and then you have to wait till next month to "eat out" again. The same may apply for buying fashion clothing and other products. Strict amounts of money are not necessarily set, but the idea that after four restaurant visits the "eating out" budget for this period has been spent forces people to wait for the next period to visit a restaurant again. Soman and Lam (2002) found that prior spending on an account negatively influences further spending on that account. The question remains whether the act of purchase or the payment is essential here. Paying with credit card gives an interval between purchase and payment. The payment does not deplete the current but the next mental account.

Mental accounting is thus a way to keep track and control over expenditures in the different accounts (categories) (Heath and Soll, 1996; Antonides, De Groot, and Van Raaij, 2011). Monthly periods are used because salary comes in monthly payments. Household shopping is done on a weekly basis, especially during the weekend. A month may contain four or five weekends for shopping and recreation. Months with five weekends are more expensive than other months.

Kojima (1994) reports on research in Japan on *psychological purses*, a concept similar to mental accounts. In a study of Japanese housewives nine "purses" were reported (Kojima and Hama, 1982): pocket money, daily necessity, personal fortune, education and culture, eating out, raising the standard of living, security, little luxury, and feminine articles. Thus, there are mental accounts based in different types of income (husband's income, wife's income, regular versus extra income), on different types of spending (Kojima and Hama, 1982), and on time periods (current and next month).

Money is implicitly or explicitly earmarked. A married man feels differently about the gambling wins and about the money he earns and hands over to his wife. His wife feels differently about the money given to her by her husband and the money she earns herself. The idea of the male breadwinner is still powerful. The husband's income is often seen as the family income, whereas the wife's income is perceived as additional income for "extra" expenses (Pahl, 1995). Obviously, in poor households, the wife's income is badly needed for daily necessities.

In Kenya, households report lack of money to invest in preventive health care and other investments. Providing people with a lockable metal box, savings increased, because people could separate some funds from discretionary income. In this case, the metal box is a savings mental account reserving money for special purposes (Dupas and Robinson, 2013).

Kahneman and Tversky (1984) demonstrate the effects of mental accounting on financial decision-making with an example of theater tickets. Suppose Susan lost her theater tickets worth €50. She is *less* willing to buy new theater tickets after having lost their tickets than after having lost a cash amount of €50. The theater tickets are in the "theater account" and buying new tickets creates a loss in this account. The lost amount of €50 is in the "cash money account" and this account is not yet depleted. Mental accounting assumes that money is not completely fungible, which means that money is earmarked for a certain account and cannot easily be transferred to another account. *Fungibility* is complete substitution of money: money = money. It means that money is not earmarked, and can be easily transferred to another category/account.

Arkes and Blumer (1985) tell the following story. George won a free ticket to a football game. He does not want to go alone and invites Paul to go with him. Paul buys a ticket for $40. At the day of the game there is a terrible blizzard. George decides not to go fearing the snowstorm. Paul wants to go because he does not want to "waste" the $40. This is the *sunk-cost effect*. Once an investment has been made in money, time, and/or effort, there is a tendency to continue that endeavor, even if the project will not be profitable or, in this case, dangerous. Terminating the project is perceived as a "waste" of funds already invested, not considering further investment as a waste of money. In the football game case, further investment involves the danger and inconvenience of driving in the snowstorm. If George paid Paul's ticket of $40, it is likely that Paul does not want to go when there is a blizzard. If George and Paul each paid $20 for the ticket, it is likely that both want to go. An empirical question is whether the investment of $20 or $40 makes a difference in the willingness to go. Are prepaid calling cards and store cards subject to sunk costs? Or are these cards perceived as "money" for buying specific services and goods?

In another story about the football game and the blizzard, Alan bought his ticket a year ago, while Bernard bought his ticket last week. Both want to go to the football game, but there is a difference in the strength of their willingness to go. Gourville and Soman (1998) found that the willingness to go depends on how long ago the ticket has been bought. Bernard bought his ticket recently and is more willing to go than Alan. The sunk-cost effect seems to erode over time. Gourville and Soman (1998) call this *payment depreciation*. A payment (loss) of long ago has a weaker sunk-cost effect on consumption than a recent payment. Consumers often buy products in large volumes,

such as cases of wine, snacks, and frozen food. Stockpiled food products at home lead to accelerated consumption. These products seem to be "free" because the payment has already been depreciated.

An explanation for the sunk-cost effect is that people do not want to accept the loss ("waste") of money they paid. This payment or loss aversion is explained by prospect theory (chapter 13 on "Prospect Theory"). Many large governmental and business IT projects turn out to be ineffective. Nevertheless more funds are invested to complete the project. As a US senator stated: "To terminate a project in which $ 1.1 billion has been invested, represents an unconscionable mishandling of taxpayers' dollars" (Arkes and Blumer, 1985, p. 124).

Financial Advice

European consumers were accustomed to a government that took care of inhabitants "from cradle to grave." Due to the financial crisis and deregulation, governments are now less able and willing to accept this responsibility and the corresponding costs. More personal responsibility is now given to consumers and households. They can no longer expect a system of social benefits, free or low-cost medical care, and old-age provisions that will be a "safety net," if you happen to get into financial problems. Consumers have to expend more efforts in organizing and paying for these provisions themselves and planning their finances carefully to avoid financial problems.

Banks, insurance companies, advisers, intermediaries, investment brokers, and financial planners play an important role in advising consumers and selling them financial products and services. Trust in banks and other financial institutions is an important determinant of financial behavior (Van Esterik and Van Raaij, 2016). Independent advisers may also be trusted, if they provide advice in the consumer interest and are not only driven by the profit they earn on the transaction. Due to the financial crisis, many people distrust banks and other financial institutions. At the same time, they need these institutions for receiving their salary, paying their expenses, and purchasing financial products. Trust in these institutions and persons determines how consumers evaluate these services, products, and financial advisers (section "Trust" in chapter 12). Most consumers prefer financial information from "independent" sources such as the government, consumer associations, and comparison websites (Antonides, De Groot, and Van Raaij, 2011).

Financial advice is offered by multiple persons who have diverging incentives to sell financial products that either are in the best interest

of the client or provide the highest profit for the seller. There is often a conflict of interest. Traditionally, financial advisers were mainly sellers of financial products of the firms they represented. Independent advisers offer a broader assortment of financial products than advisers who work for one firm. *Disclosure* requirements are that clients should be informed about the (in)dependence of the intermediary and the commission (profit) agents make on the products they sell. If income of agents depends on commission, they may be inclined toward selling products on which they earn most. If agents are paid by clients on the number of hours spent serving the client, a less biased advice will be given. In markets where financial advice to consumers is essential, sellers (intermediaries) should be independent and unbiased. Research shows that clients often follow the advice blindly, without thinking about this. Careful regulation of financial advice therefore seems warranted. See section "Financial Intermediaries" in chapter 16 for more information on the role of intermediaries and on disclosure.

Another requirement in many countries is that financial advisers provide information based on the financial literacy level of their clients. Clients with a low level of financial literacy should receive more information and information that is easier to understand than clients with a high level of financial literacy. Advisers should also take risk preference and time preference of their clients into account.

Sellers of financial products have sales targets and, at the same time, their *duty of care* assisting and advising consumers how to organize their financial matters in the best way. Duty of care is the moral, and often legal, obligation of sellers informing consumers and helping them to understand the benefits, costs, and risks of financial products, and to advise consumers in the consumer interest, and not primarily in their own business interest. Duty of care is not only important at the purchase of the product, but also during the period the client possesses the insurance policy, mortgage, or other financial product (*permanent duty of care*). *General duty of care* is related to the total portfolio of financial products of a household. This means that financial institutions should protect consumer interest in cases where consumers do not perceive or consider the long-term negative consequences of their decisions. In these cases, advisors should warn customers not to buy or they should not sell these products, if consumers want to buy. Working for the clients' interest may cost additional effort and time for the adviser and for the client who has to provide full information of his/her financial status, but, if done well, it leads to higher loyalty and more favorable recommendations to other consumers.

Financial Roles and Life-Cycle Stages

Sociodemographic factors such as age, gender, level and type of education, household income and number of wage earners, and composition of the household are determinants of financial behavior. Ferber and Lee (1974) define the *family financial officer* (FFO) as the person who does most of the financial transactions of the household such paying bills, saving, taking credit, and preparing tax declarations. The husband may be the FFO or both partners may perform this role. Ferber and Lee found that, if the husband is the FFO, the household will buy a car less frequently and save more over time. Note that this was true 40 years ago in the United States, but may not be true anymore in modern families. Some households pool the income of the wage earners, whereas in other households the wage earners keep their "own" money and coordinate the tasks and payments they do for the household. Pahl (1995) distinguishes three types of households: (1) male-managed households with male dominance in decision-making and spending, associated with high income, (2) female-managed households associated with low income and greater financial deprivation for wives, and (3) money pooled and managed jointly with more equality between husband and wife.

There are sex-ratio effects on spending and saving. *Sex ratio* denotes the ratio of males to females in a population, and this has a strong effect on animal and human behavior. With a high sex ratio, females are scarce, and males have to compete more. Thus, men spend more money during dates and courtship. Griskevicius et al. (2012) find that a high sex ratio (more men than women) leads men to discount the future and prefer immediate rewards. This results in more spending and debt and less saving. In China, due to the high sex ratio of 1.2, these effects may show up already or in the near future. Arab countries such as Bahrain, Oman, Qatar, and the UAE also have high sex ratios between 1.2 and 1.6.

Life events and other situational factors often play a role by increasing motivation and involvement with financial affairs. The transition from one *life-cycle stage* to the next is often a reason for becoming more involved in the financial situation. Depending on the life stage, people are forced to think about their financial situation and become more sensitive to the financial consequences of their decisions. *Life events* are part of these life stages. Life events often mark the transition from one life stage to the next or may be typical for a specific life stage. Changing jobs is more typical for life stages "full nest" than for life stages "empty nest."

Wells and Gubar (1966) identified nine stages of the *family life cycle*. Javalgi and Dion (1999) reduced this number to seven stages relevant for financial behavior:

1. *Bachelor stage*: young, single, not living at home. Relevant financial products are: checking account, student loans, basic insurance, regular savings and credit, and financial advice.
2. *Newly married couples*: young, no children. Relevant financial products are: joint or separate bank accounts, mortgage loan, repaying student loans, and additional insurance.
3. *Full nest I*: youngest child under 6 years of age. Relevant financial products are: joint or separate bank accounts, mortgage loan, home insurance, life insurance, credit line, and investment advice.
4. *Full nest II*: youngest child 6 years or over. Relevant financial products are: bank accounts, savings accounts, mortgage loan, payments for education of children, credit line, investment and tax advice.
5. *Empty nest I*: married couples, children left home, still active in labor force. Relevant financial products are: personal services, investments, pension plan, advice on investment, tax, and retirement.
6. *Empty nest II*: older married couples, children left home, retired. Relevant financial products are: savings, investments, pension plan, retirement, old-age provisions, advice on investment, tax, and retirement.
7. *Single survivors*. Relevant financial products are: savings, and financial advice on bequests.

These life-cycle stages look rather traditional. Households may have different life cycles due to divorce and remarriage. Children in the family may then have different parents or live with one of their parents. Murphy and Staples (1979) and Wagner and Hanna (1983) emphasize these "modern" deviations from the traditional family life cycle.

Psychological Factors

A number of psychological factors are important for money management: self-control and self-regulation of behavior, and money illusion and the numeracy effect.

Consumers differ in their level of *self-control* and *self-regulation* (Antonides, De Groot, and Van Raaij, 2008; chapter 17). Consumers with a high level of financial knowledge and skills prefer remaining independent of others and doing financial transactions and making financial decisions themselves ("hands-on"). They do not visit the

bank office very frequently. For them, the internet is a major source of information and tool for their financial behavior. The "hands-on" approach is valid for relatively simple financial products and transactions. For more complex financial products and transactions, "hands-off" is more common. Consumers with a low level of financial knowledge prefer "hands-off" for most financial products and transactions and need personal advice on how to handle their financial matters. See also the segmentation (section "Segmentation of Decision Styles" in chapter 11): the "controlled" and "ambitious" segments (hands-on) versus the "advise sensitive" and "convenience oriented" segments (hands-off).

Money illusion is focusing on the nominal value (numbers) of income and prices to be paid rather than the real value (Shafir, Diamond, and Tversky, 1997). Workers may be happy with a salary increase of 2 percent, while the inflation rate is 3 percent. They perceive 2 percent as a gain and forget the loss of 3 percent of monetary value. In a similar way, savers may receive 2 percent interest rate while the inflation rate is 3 percent. Saving is actually losing value with this level of inflation. Nevertheless, savers may start to save more in order to "beat inflation." Pensioners are more dissatisfied about a cut of their monthly income (nominal value) than about no indexation (no inflation correction). In the latter case, the nominal amount of their income remains the same, but the real value decreases.

With the change from European currencies to the common currency, the euro, in 2001, money illusion played a role. Prices in German marks looked more expensive than prices in euros. An explanation is that euro prices have smaller numbers than prices in German marks (Jonas et al., 2002). Small numbers are associated with low prices and "cheapness." The reverse was the case in Ireland. The Irish pound had a higher nominal value than the euro. Thus euro prices look "more expensive" than pound prices in Ireland.

Money illusion is an example of the *unit effect* and is related to the *numeracy* or *numerocity heuristic*. A product warranty of 60 months is perceived as being longer than a warranty of five years. The month as a unit gives higher numbers than the year. The more units on a scale, the higher the numbers (Pandelaere, Briers, and Lembregts, 2011). If people compare alternatives, they tend to focus on the attributes with the largest differences, irrespective of the scale on which these differences have been measured. These attributes will then be dominant in the comparison. This is called the numeracy heuristic (Pelham, Sumarta, and Myaskovsky, 1994). The numeracy heuristic and the unit effect are especially present under low involvement, when

people make quick and intuitive comparisons and decisions. When people are reminded of the scales with different numbers of units, the numeracy heuristic is less present and the unit effect will thus be lower (Pandelaere et al., 2011). With more elaborated comparisons and decisions, people are more aware of this effect and consider differences more carefully.

A new development in behavioral finance is the *neurological approach* including brain research to explain behavior (Camerer, Loewenstein, and Prelec, 2004, 2005). In this approach, brain areas are studied that have specific functions such as self-control, enjoyment, pain, and regret.

Money, Social Factors, and Well-Being

Expenditure and saving are not only guided by income, but social factors play a role as well. Many people are influenced by what other people buy, consume, and possess. Duesenberry (1949) stated the *relative income model*: the consumption level and expenditures of households are also guided by what other people do, according "to keep up with the Jones's." If relatives and neighbors have a certain type of car or spend money on parties, one may feel obliged or motivated to do so as well. Younger people may buy goods such as iPhones because others youngsters possess these brands. People with a relatively low income living in a "wealthy" social environment will spend a higher proportion of their income on consumption than people with a relative high income and living in the same social environment. Especially with visible goods such as cars, fashion clothing, and smartphones, social-imitation effects are strong.

Frank, Levine, and Dijk (2013) developed the relative income model into the idea of *expenditure cascades*. They argue that people tend to follow the consumption level of others that are somewhat better-off. With high income differences, people may follow the consumption level of people with much higher earnings. This means that these followers have less income left over for saving or, even worse, use credit to realize their consumption level. Frank et al. (2013) find evidence that households with a lower income than average in their neighborhood are more prone to bankruptcy and divorce. Bankruptcy and divorce are seen as indicators of too high expenditures, too low savings, and conflicts within these households.

Consumers compare their financial situation and well-being with reference to others (reference effect) and with their own state earlier in time (preference effect). Van Praag (1971) measured the welfare

function of income (WFI). Respondents could indicate which income levels are judged as sufficient or good for them (income evaluation question; IEQ). Most respondents indicated that an income level somewhat higher than their present income would be good. The reference point is their present income. If they get this higher income, the reference point changes to the new income. They judge their new income as just sufficient, and again aspire to an even higher income. This is called the *preference shift*. This is a type of hedonic adaptation: becoming accustomed to the present income and consumption level creates a gradually growing dissatisfaction, and subjective well-being is leveling off (Frederick and Loewenstein, 1999). Again, the aspiration develops to have a higher income and consumption level. Similarly, the *reference shift* is the aspiration to have the same income and consumption level as referent people, often with a somewhat higher income. People prefer to compare themselves with others that are somewhat better-off. If personal income is lower compared with the income of relevant others, people feel *financial deprivation* (Van Praag and Frijters, 1999).

According to these models, a higher income provides only a short period of increased happiness. People get adapted to the higher income and probably also to the higher consumption level associated with this income. The reference points (benchmark) change to the new level and happiness levels off. People are looking forward again to another income increase that will make them happy. The hedonic adaptation to a higher income and consumption level creates a *hedonic treadmill*, a continuous adaptation of happiness and well-being to new levels of income and consumption without changing subjective well-being very much.

Diener and Biswas-Diener (2002) conclude that money is not the main contributor to subjective well-being. Good health, meaningful work and other activities, and social integration are more important contributors. In two cases, however, money is a major determinant of subjective well-being. First of all, money is important to escape from poverty and to help in meeting basic needs (consumption adequacy). Subjective well-being in developed nations is higher than in developing nations, because an adequate consumption level has been reached. Second, materialistic and greedy people are unhappy, unless they are rich and can fulfill their material desires. Greedy people are insatiable; enough never seems to be enough (Krekels and Pandelaere, 2015; Seuntjens et al., 2015). For other people, more money does not or only marginally contributes to higher subjective well-being. Money is important to remove dissatisfiers such as poverty, inadequate consumption

level, and (for materialistic people) lack of material goods. Money is not a satisfier creating a higher subjective well-being. Thus, subjective well-being is influenced by two dissatifiers (income and health) and two satisfiers (meaningful work and other activities, and social integration). If income or health are below a certain level, they have negative effects on subjective well-being. Meaningful work/activities and social integration have positive effects on subjective well-being.

Sharma and Alter (2012) found that consumers feeling financial deprivation try to acquire scarce goods and expensive brands unavailable to others. In this manner, they may not feel inferior to others who have a better financial status. They also show others that they can afford expensive brands. Wealthy families also spend on scarce goods. Scarce, expensive, and visible *positional goods* such as mansions, Rolls Royces, and yachts may have been acquired with the intention to impress and to be emulated by others. This is called *conspicuous* or *demonstrative consumption*. Veblen (1899) described this phenomenon for extremely wealthy American families such the VanderBilts and Rockefellers in the nineteenth century.

Cultural factors also play a role in financial behavior. Cultures differ on the individualism-collectivism dimension. Western cultures are highly individualistic: people making their own decisions or making decisions together with their partner (and children). In a collectivistic culture, members of the group (relatives, colleagues) play a more important role, and people may take a loan or even a mortgage from a relative, and will go to a bank only if relatives are unable or unwilling to provide the loan. In such a culture, the opinions and norms of relatives have more impact on financial behavior and subjective well-being than in individualistic cultures.

Psychology of Poverty

This chapter is focused on consumers and households in developed nations. But we should not forget that many households live at the bottom of the pyramid in poor nations in Africa, Asia, Eastern Europe, Latin America, and the Caribbean, numbering four to five billion people (Pitta, Guesalaga, and Marshall, 2008). Nearly half of the world's population lives in absolute poverty. Income is very unevenly distributed. The poorest 40 percent of the world's people account for 5 percent of total income. The wealthiest 20 percent have almost 75 percent of total income. Over one billion people have inadequate access to potable water, and nearly twice that number lack basic sanitation and access to effective health care. Martin and Hill (2012) define

consumption adequacy as a baseline of goods and services needed for survival. Consumption adequacy is needed for people to regulate and determine their own lives (self-determination theory, SDT; Ryan and Deci, 2000). Consumption inadequacy leads to dependency on others (for instance, on developmental aid), lack of autonomy, and lack of social integration. This is the case under extreme poverty (Martin and Hill, 2012). People living in extreme poverty experience the sheer hopelessness of their situation. Note that consumption adequacy is related to sufficient income. However, there are cases and situations where people have low income but access to sufficient self-produced food and shelter. Examples are the tribes of Papuas living in the highlands of New Guinea. Relatedness of members of a tribe and home production of food offset detrimental effects of low income.

Increasing consumption levels improve life satisfaction and subjective well-being up to a certain point, and levels off or may even decline beyond that point. This point is far beyond lived experiences of the poor. But for consumers in Western societies this point may be realistic. These consumers may face negative psychological effects of having too many products, an overload of information, choice overload, and subsequent choice problems (Markus and Schwartz, 2010; Schwartz, 2004).

More research is needed on poverty and the bottom of the income pyramid. Hagenaars and Van Praag (1985) studied and defined *poverty lines* for European households. An absolute poverty line consists of the minimum income needed for an individual or household to buy necessities and survive in society. This concept of poverty can be abated by economic growth. A relative poverty line consists of the lower deciles of the income distribution. This concept of poverty can be abated with a more equal income distribution. Hagenaars and Van Praag provide a synthesis of the absolute and relative poverty lines. Which goods and services are necessary in this regard? How do poor families survive? What are the roles of husbands and wives in these families? How could the world (United Nations, World Bank) help guarantee consumption adequacy and abatement of poverty for these families and societies? Note that poverty lines and consumption adequacy are also relevant for poor people living in developed countries. Poverty lines are relevant for comparing countries on poverty levels and for income distribution within a country and for the income policy of governments.

Poor people have little control of their situation and future, lack financial buffers for unforeseen events, and live at the mercy of life's unpredictability (Irelan and Besner, 1973). Their focus must therefore be on preventing negative events rather than realizing positive events.

Prevention focus, present bias, less planning for the future, uncertainty, deprivation, helplessness, and fatalistic beliefs are the negative consequences.

Mullainathan and Shafir (2013) conclude that the condition of economic deprivation and poverty takes up mental resources, because poor people worry most of the time about money, food, and financing necessary payments and purchases. In developing countries, a great deal of mental energy goes to ensuring access to food and clean water, and less mental energy is left for careful deliberation and decision-making. Mani et al. (2013) measured the cognitive functioning of Indian sugarcane farmers at preharvest (high financial pressure) and postharvest (low financial pressure) periods, and found better scores in the latter period. These farmers receive their income once a year, at the time of harvest. The preharvest period was associated with a loss in cognitive functioning equivalent to about one day of sleep. "Poverty captures attention, triggers intrusive thoughts, and reduces cognitive resources" (p. 980). Policymakers should not only focus on monetary taxes, but also reduce "cognitive taxes" on the poor. Decision-making should be facilitated or outsourced to others who do not experience the cognitive tax of poverty (section "Self-Regulation and Poverty" in chapter 17).

Conclusions

Money management, including day-to-day spending, paying and budgeting, choosing complex financial products, and financial planning, is instrumental for reaching life goals of the family. Consumers want to secure a sufficient discretionary income. The involvement of consumers with money management is somewhat paradoxical. Money management and financial planning are perceived as important, but consumer involvement and knowledge (literacy) of financial products and budgeting is generally low. Even the motivation of consumers to gain more financial knowledge is low. This means that many consumers need help managing their money. Categorization of expenses and mental accounting are instrumental for budgeting and for "making ends meet."

Life events and stages of the lifecycle have impact on financial behavior. At these events and stages in life, many consumers have to reconsider and rearrange their spending. Psychological factors include self-control and money illusion. Self-control is needed to avoid impulsive buying and to stay within the constraints of budgets and discretionary income. Social factors include the comparison and adaptation

of consumption levels to those of other households. Money illusion is focusing on the nominal value (numbers) of income and prices to be paid rather than on the real value.

For low-income and poor households, money management is a daily struggle of survival. Money management is always high involvement for poor people. Poverty lines determine which income is needed in a country for a household to survive and to have an adequate consumption level. In chapter 10, we will discuss responsible financial behavior, financial education, integral financial planning, and advice as a solution to help consumers with a low level of financial literacy and to avoid the financial mistakes as a consequence of this lack of financial literacy and skills.

3

Saving Behavior

This chapter is on saving behavior and its determinants and consequences. Consumers save for a financial buffer, for specific transactions, for "rainy days," for their children, and for their retirement. Future-time preference and self-control are needed to refrain from immediate spending and to save money for "later." This chapter can be read in combination with chapters 11 (individual differences and segmentation), 12 (confidence and trust), 15 (time preference), and 17 (self-regulation).

History of Saving

In the Middle Ages, saving was perceived as morally good for ordinary people, and spending was seen as morally bad. "Sumptuous laws" were issued in the Middle Ages against too high consumption of the third social class (farmers and citizens). These laws clearly did not apply to clergy and nobility, the first and second social classes. Calvinism promoted thriftiness as a desirable behavior to provide provisions for the future and for children and other heirs. Jevons (1871) argued that the anticipation of pain and pleasure is a strong motivational force to provide for a secure future. The future is largely uncertain, and savings provide a buffer for negative events such as unemployment and damage to the home or other durable goods.

Von Böhm-Bawerk (1888) of the Austrian School designed the impatience theory of saving. People are impatient to consume and they demand a compensation (interest) for abstaining from consumption now. Marshall (1890) stated that the decision to save and actual saving involve the trade-off between present and future gratifications. People have to decide to spend now or to keep money for the future. Fisher (1930) agreed with Von Böhm-Bawerk that saving is determined by impatience, an individual characteristic, in the sense that impatient people save less than patient people. Fisher (1930) believes

that this impatience is not only caused by level of income and time shape, but also by six individual characteristics:

1. Short-sightedness (present bias; section "Hyperbolic Discounting" in chapter 15)
2. Lack of willpower and self-control (section "Self-Control" in chapter 17)
3. Habit of spending freely
4. Emphasis on the shortness and uncertainty of life
5. Selfishness or the absence of any desire to provide for survivors (bequest motive)
6. Slavishly following the whims of fashion in spending (herding)

There are also people who save for the sake of saving. Saving has become a habit for them, sometimes even a type of avarice or thriftiness. People of old age may still save, although it is now time for spending the money they saved for old age. However, they may still save for their (grand) children. This is the *bequest motive* of saving.

INCOME AND SAVING

Keynes (1936) in his *General Theory of Employment, Interest and Money* introduced a "psychological law": persons are apt to save the difference between actual income and expense of their habitual standard. This is similar to residual (left over) saving. When income changes, savings change as well, but they do not change perfectly simultaneously. A rising income will often be accompanied by more saving, because the consumption expenditure will not rise immediately. A falling income will often be accompanied by less saving, because the consumption expenditure will not decrease immediately. Because of contracts, obligations, and habits, consumption expenditure is not that flexible that it will change immediately with an increase or decrease of income. There is thus a short-term lag between income change and change in saving. Keynes's saving theory is based on the *absolute income model*. In this model, a proportional relationship is assumed between income and saving, albeit with a short time lag.

Duesenberry (1949) is author of the *relative income model*. Households look at their income position relative to that of others rather than at their absolute income position. Consumption and saving are determined by the relation of current household income to income of (reference) households with whom members of a given household compare themselves. Note that Duesenberry uses the term *household*

income rather than individual income, because a household may have more than one income earner (husband, wife, older children). Often, income of other households is unknown. However, consumption levels are more visible (than income levels) and can be compared easily. Expenditure may then be determined by the consumption level of reference households. People consume goods and services according to their perceptions of what is "normal" for their reference group. Saving is then mainly residual saving. The relative income model predicts that households with an income higher than the income of their reference group will save more than households with an income lower than the income of their reference group of households. People tend to compare themselves with others that are somewhat better-off. See also the *expenditure cascade* (Frank, Levine, and Dijk, 2013; section "Money, Social Factors, and Well-Being" in chapter 2).

Friedman (1957) developed the *permanent income model.* Consumption and thus saving do not depend on current income, but on medium-term income (3–5 years). People estimate their average income of a 3–5-year period and their consumption level, and thus the saving levels are based on this average income. Modigliani (1966, 1986) went a step further in his *life-cycle model.* Individuals tend to distribute their life resources evenly over the life cycle to get a gradually increasing consumption level. People borrow money when current income is lower than its proper share of lifetime income. This is typically done during the first part of life, for instance, by using a mortgage to buy a home. People save money when current income exceeds its proper share of lifetime income. This is typically done during the second part of life, for instance, by repaying the mortgage debt of a home. The life-cycle model can be illustrated with the "prototypical graph" of figure 3.1. Income and expenditure development are not the same over the family life cycle. It is assumed that income increases over the life cycle, which is typical for salaried employees and successful entrepreneurs. Early in life at the age of 30–45 consumption expenditure is higher than the actual income, whereas it is lower later in life at the age 45–65 and during retirement. At the age 30–45 *dissaving* (negative saving) takes place, mainly through the home mortgage, and at the age 45–65 the family will repay the mortgage and save for retirement. Consumption may decline later in the lifecycle because children have left home and durables are replaced less frequently. This is the decrease of consumption expenditure between the age of 50 and 60 in figure 3.1. After retirement, dissaving may take place, in the sense that people use their savings for consumption expenditures. The meaning of figure 3.1 is thus broader than just about saving; it is also about credit,

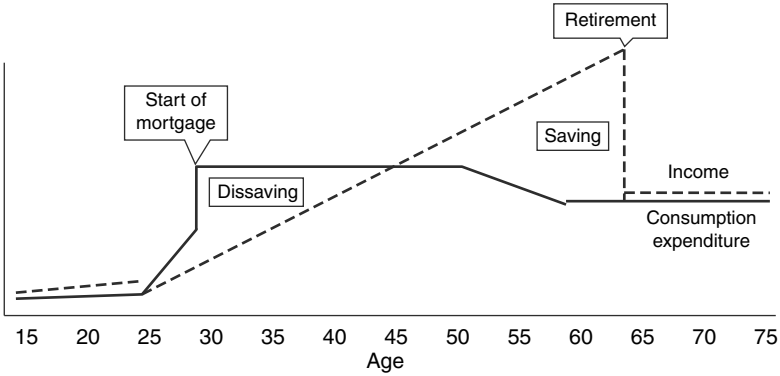

Figure 3.1 Financial life cycle of a household.

mortgage, retirement, and wealth management over the life cycle. An implication of the life-cycle theory is that people smooth consumption over the life cycle and try to maintain a stable consumption level.

Horioka and Watanabe (1997) found support in Japan for the life-cycle model of saving. During the stages of the life cycle, people save for different goals connected to the stages. In the first stage (age 20–44), people save for education, housing, and leisure. In the second stage (age 45–59), they save for their children's marriage and for retirement. In the third stage (age 59 and over), they save mainly for retirement.

Shefrin and Thaler (1988) developed the *behavioral life-cycle model* (BLC). The basic assumption of the BLC model is that households distinguish three mental accounts (section "Budgeting and Mental Accounting" in chapter 2): current-income account, current-savings (assets) account, and future-income account. The willingness to spend is assumed to be greatest for the current-income account and least for the future-income account. It is a type of self-control and precommitment not to spend current savings and future income. Winnett and Lewis (1995) conclude that households use mental accounts of consumption categories and saving rather than of income accounts, such as in Shefrin and Thaler's (1988) BLC model. Predictions of the BLC model have been supported by consumer expenditure data (Levin, 1998) and financial asset data (Schooley and Worden, 2008).

DEFINITIONS OF SAVING

Countries differ considerably in their saving rates. *Household saving* is defined as the difference between household's discretionary or disposable income, mainly wages and revenue of the self-employed, and

consumption expenditure. The *household saving rate* is calculated by dividing household savings by household discretionary income, and aggregating this for all households in a sample. Saving rates have been stable in some countries, but have declined in other countries such as Australia, Canada, Japan, Hungary, South Korea, United Kingdom, and United States. Low interest rates, lax credit standards, tax deduction of paid interest on credit and mortgages, easily available credit and mortgage, all stimulated borrowing, and thus less saving. Attractive returns on investment also reduced saving. In many countries house prices reached historically high levels. In United States, for example, household debt as measured by the ratio of debt to discretionary income was over 130 percent by 2007. Other countries, such as United Kingdom, Poland, Hungary, and South Korea, experienced housing bubbles along with decreased saving.

With the financial crisis of 2007–2008, the trend reversed and household saving rates increased in 2009 in many countries. However, in 2010 the household saving rates started declining again in some countries and are expected to decline through 2015. Countries with high saving rates are Belgium, China, France, Germany, Japan, South Korea, Portugal, Spain, and Switzerland.

A negative saving rate indicates that a household spends more than it receives as regular income. Denmark and the United States since 2005 have negative saving rates. Households with negative saving rates finance some of their expenditure through credit, increasing their debt, through gains from selling assets, or by running down cash and saving deposits. Households may do this temporarily, during a short period or for a specific expenditure, but cannot do this permanently. Household saving rates are measured on a gross or net basis (before or after tax). The use of these two measures makes a comparison between countries difficult. The saving rates of France, Portugal, Spain, and United Kingdom are gross saving rates and cannot easily be compared with the net saving rates of Belgium, Germany, and Switzerland.

The household saving rate is also affected by various social security and pension schemes and tax systems, all having an effect on discretionary income and saving. Further, the age of the population, availability and ease of credit (Loayza, Schmidt-Hebbel, and Servén, 2000), overall wealth, and cultural and social factors affect saving rates. Among cultural and social factors are: conspicuous consumption to impress others, consumerism, materialism, religion, and the need to participate in the modern world with cars, cell phones, tablets, fashion clothing, and other consumer goods. These factors may force people to spend more than they can afford.

Long-term economic growth requires capital investments and the main domestic source of funds for capital investment is household savings. Consistently high household savings over time can provide funds being available for investment and growth. On the other hand, domestic consumption (and less saving) adds to GDP growth, an important factor in economic recovery. If many consumers save more and repay their (mortgage) debt, this may have a dampening effect on consumer demand and thus on economic recovery.

Generally, households with high incomes tend to save more. At the same time, households with higher "perceived wealth" tend to spend more and save less. This is known as the *wealth effect*. Due to inflated real estate values, people perceive themselves as "wealthy" and as a consequence their need to save decreases. After recession hit the value of their homes and pensions, households perceived themselves as less wealthy and increased their savings. Rising unemployment and low level of consumer confidence, too, may increase savings, as households spend less on discretionary consumer goods and services.

TYPES OF SAVING

Saving is not using present income, wealth, or budget for spending now, but refraining from spending in order to spend it at a later occasion. Saving may be simply not spending part of available income during a certain period, because income is too high for what consumers want to buy or because desired products may not be available yet, but become available in the future. Not spending all of one's income is called *residual saving*. For residual saving, there is often no specific motive or reason. It is assumed that most people prefer spending money now (immediate gratification of needs) rather than in the future. This means that it is difficult for most people and requires much willpower to refrain from spending and instead put money aside for the future. Whereas many economists consider saving as residual saving (money left over), Katona (1975) was one of the first to consider saving as a purposeful act of consumers to protect themselves against emergencies and to protect their future consumption. Saving may thus be a strategy of coping with future financial uncertainties.

The following types of saving may be distinguished:

1. *Putting money in a piggy bank or savings box* (without interest), as children are taught to do
2. *Residual saving*: not spending a residual part of available budget or income

3. *Discretionary saving*: making a purposeful decision to transfer money into a savings account
4. *Contractual saving*: for instance, automatic saving for a predetermined period
5. *Repaying debt and mortgage*: "savings afterwards" by decreasing debt
6. *Buying products on sale*, for a temporary lower price, in order to save money
7. *Buying more economical goods* that are cheaper in use and maintenance

In this chapter, we will not discuss the fifth, sixth, and seventh types of saving, which are repaying debt and lower levels of spending, but we focus on the other types of saving. The word *saving* is also used for "hoarding" and "preserving for the future," such as saving food or saving a text file. We will not discuss this meaning of this word either.

Micro-savings are programs to help poor households saving small amounts of money. Mainly women participate and micro-savers often form a group supporting each other (social control) to save and to borrow occasionally from the group fund if needed. Micro-savings programs exist for Roma households in Hungary and other poor communities in Europe and in developing countries. Often, micro-saving is connected to micro-credit (section "Micro-credit" in chapter 4). In public policy, saving is usually promoted as an important step toward independence, financial inclusion, and development. With reminders, the saving goals can be made more salient. A series of studies in Bolivia, Peru, and the Philippines show that simple, timely text messages reminding people to save improve savings rates (Karlan, Morten, and Zinman, 2012). Precommitment devices also work: consumers may give up access to their savings until they meet a specified target level of savings. People who had been offered and had used these savings accounts increased their savings by 82 percent more than a control group (Ashraf, Karlan, and Yin, 2006). Even providing a lockable savings box to people in Kenya helped them to save (Dupas and Robinson, 2013; section "Budgeting and Mental Accounting" in chapter 2).

Saving Motives

Katona (1975) stated that saving is a function of two sets of factors: (1) ability and opportunity to save, the economic factor. People with a high (sufficient) income are more able to save than people with a low (insufficient) income, and (2) willingness and motivation to save,

the psychological factor. The willingness to save is higher for people with a future-time preference and the willingness to forego immediate gratification of needs.

Based on the work of Keynes (1936) and Katona (1975), the following six saving motives can be distinguished:

1. *Transaction motive*: saving for future large expenditures, such as a house, car, and vacation
2. *Precaution motive 1*: buffer saving, hedging against unexpected future income losses or large expenditures
3. *Precaution motive 2*: saving to smooth income over time, in order to secure an even level of consumption. This is especially relevant for people with variable income, such as entrepreneurs
4. *Future motive*: saving for old age and retirement, as part of a pension plan (see chapters 6 and 15)
5. *Bequest motive*: saving for children and grandchildren
6. *Speculation motive*: saving to increase wealth, for instance, by investment in housing, stocks, and bonds (chapter 7). Investment is related to the future, but is not necessarily a type of saving.

Saving for the transaction of buying a second-hand car of €3,000 looks like a large insurmountable task. The task becomes more manageable if subdivided (partitioned) into subgoals of saving €60 each week during a year. This weekly goal can be obtained by deciding not to eat out. Even foregoing a latte of €5 contributes to reaching the weekly goal, whereas this contribution looks insignificant to the total goal of €3,000. Colby and Chapman (2013) find that stating subgoals for saving increases perceived self-efficacy and motivation to save. See for "partitioning" the section on "Paying methods and spending" of chapter 2.

Two precautionary motives are distinguished; buffer saving and smoothing income over time. In buffer saving, a certain amount of money has been reserved to cover unexpected losses. Insurance is also bought from this precautionary perspective, although not all potential losses can be insured. In times of recession with a low level of consumer confidence, precautionary saving will increase, because people are pessimistic about the future and may expect income and job loss, and higher taxes.

Smoothing income over time is not done as a buffer, but it may secure a stable consumption level. During the "fat" years, people save part of their income for the coming "meager" years. See Joseph's advice to the Pharaoh of Egypt.

> "Behold, there come seven years of great plenty throughout all the land of Egypt: and after them seven years of famine; and all the plenty shall be forgotten in the land of Egypt; and the famine shall consume the land. Let Pharaoh do this, and let him appoint officers over the land, and take up the fifth part of the land of Egypt in the seven plenteous years. And let them gather all the food of those good years that come, and lay up corn under the hand of Pharaoh, and let them keep food in the cities. And that food shall be for store to the land against the seven years of famine, which shall be in the land of Egypt; that the land perish not through the famine" (Gen. 41: 29–31, 34–36; King James Bible).

Carroll (1997) developed a "buffer-stock saving" model. In this model, buffer-stock savers have a target wealth-to-permanent-income ratio. If wealth (buffer) is below the target, they save. If wealth is above the target, dissaving (spending) dominates. This model includes saving for emergencies as a precautionary motive.

The speculation motive is not only done by saving, but also by investing money in stocks and real estate in order to increase wealth. The rate of return on investment is usually higher than the interest rate of saving accounts, especially for a long period of investment (15–20 years).

Canova, Rattazzi, and Webley (2005) developed a hierarchical goal structure for saving, as an application of meaning structure analysis and laddering (Gutman, 1982; Reynolds and Gutman, 1988; section "Meaning Structure Analysis" in chapter 15). At the bottom of the hierarchy are concrete transaction goals, such as saving for a better house, new car, or vacation trip. Availability of money (financial buffer) is another concrete goal. In the middle are more abstract goals of independence, autonomy, and a good standard of living. The superordinate goals and values are: security, self-esteem, and self-gratification.

Governments want to encourage households to save to have enough money for the education of their children, health care, and retirement. These saving goals will induce people to save. Having three goals is better than having no goal. But is having three goals also better than having one goal? Soman and Zhao (2011) found that having a single savings goal leads to more saving than having multiple goals. With multiple goals, people have to trade-off for which goal to save and defer saving. With one goal, it is easier to implement saving intention into actual saving. If multiple goals are not competitive but integrated, it becomes easier to save for multiple goals.

Saving may become a habit with low involvement for many people, for instance, residual and automatic saving. But saving is certainly not only passively refraining from consumption. Saving is often a much

more active behavior and has hedonic aspects of self-esteem and self-gratification (Wärneryd, 1999, p. 326), and even savoring for future pleasure (Loewenstein and Prelec, 1993). Saving may become compulsive for some people, not any more saving for transactions and future pleasure, but saving for the sake of saving: avarice or miserliness, as described by Charles Dickens in his *Christmas Carol* (1843) with the miser Ebenezer Scrooge. A modern fiction example is the Disney character Scrooge McDuck. On the related concept of "greed" see section on "Agreeableness" in chapter 11.

Daniel (1997) found age differences in saving: older people are more willing and accustomed to save than young people. Do people start saving more when they become older? Maybe, because saving for retirement becomes more urgent. Or, is it a *cohort effect* that older generations save more than younger generations? An older generation has experienced a recession or has been educated to save, and this remains a habit during life.

Self-control and self-regulation (chapter 17) are important determinants of saving. Brounen, Koedijk, and Pownall (2016) find that keeping a tight administration of the household and thus control of spending contributes to saving. High financial literacy, left-wing political preference, positive economic expectations (section "Consequences of Confidence" in chapter 12), and internal control also contribute to saving. There is a contradiction. Positive economic expectations are needed for saving, whereas Katona (1975) would argue that negative expectations and uncertainty induce saving. The present situation could make it more attractive to save in order to be more independent, autonomous, and secure.

Recurrent and Total Savings

Lunt and Livingstone (1991) found that recurrent saving should be distinguished from total savings. Some consumers are passive with their total savings and do not save on a regular basis. They are similar to nonsaving consumers. Consumers with active, recurrent saving are different from passive savers and nonsavers. The total amounts people have saved are explained by discretionary income, and sociodemographic variables such as age (older people have more savings), gender (men have more savings than women), and number of children (families with children save less). People who spend more on insurance also have higher savings. A precautionary motive or conscientiousness may underlie both financial behaviors. Spending behavior is also a predictor of saving: people who spend more on clothing, save more. People who

spend more on food, save less. Spending on clothing may probably be seen as an investment in long-lasting goods rather than (immediate) consumption (Lunt and Livingstone, 1991). The amounts people commit to regular savings are predicted by a variety of psychological factors including self-control (more self-control, more saving), valuing enjoyment (higher value of enjoyment, less saving), attitude to debt (negative attitude toward debt, more saving), shopping behavior (clothing, food), and social networks (more discussions about money with friends, more saving). Savers get social support for their financial behavior. Nonsavers do not like to talk to friends about their financial behavior; they tend to keep their finances private.

The differences between savers and nonsavers are interesting. Savers tend to invest in durable goods at home including their wardrobe (clothing), whereas nonsavers tend to value enjoyment, shopping for bargains, and immediate food consumption. Savers are more utilitarian, thrifty, and future-oriented, while nonsavers are more hedonistic and enjoying their present life.

Saving and Inflation

Saving money is an economically attractive option only if the interest rate is higher than the inflation rate. Many consumers tend to "forget" the inflation when they consider saving and the interest rate. They are happy with the interest they earn, but are not aware that inflation takes away part of these earnings. This is called the *money illusion*: the tendency to consider the nominal value (numbers) of amounts of money (savings, wealth) rather than the real value (section "Psychological Factors" in chapter 2). It is rational that with a high inflation rate, people will save less, but save in other forms, such as buying gold. However, it is found that with high inflation people may even save more money in order to "beat inflation" and keep their savings intact (Molana, 1990), which is a precautionary motive. In a situation of high inflation, interest rates are also higher and look more attractive. This may also stimulate saving. If people save more, when the inflation rate is higher than the interest rate, people are victim of the money illusion. They focus too much on the nominal value and not on the real value of money.

Conclusions

Saving is the difference between income and consumption, but it can also be a discretionary and conscious decision to save part of the

income on a regular basis. Important saving goals are to build and maintain a financial buffer, to save for future transactions, and to save for "later," for old age and retirement. Saving requires a long-term perspective and self-discipline to regularly transfer money to one's savings account (discretionary saving). Precommitments such as automatic saving and consistent planning may help consumers to exert self-control and reach their saving goals.

Some anomalies exist with saving. Consumers may borrow for specific transactions (at a high interest rate) and save (at a low interest rate) at the same time. Consumers knowing their lack of self-control take credit to keep their savings intact. This may be explained with mental accounting to keep separate saving and borrowing accounts. This done as a type of self-protection, knowing one's lack of willpower to build up the savings again.

Another anomaly (money illusion) is that the interest rate on savings may be lower than the inflation rate. From an economic perspective, saving is then irrational, but consumers may even increase their savings to "beat" inflation and to maintain the security of a financial buffer.

4

Credit Behavior and Debt Problems

Credit is an attractive way to buy now rather than buying after saving. The downside of credit is that consumers may become overindebted on their credit cards and personal loans. Impulsive behavior, present bias, and lack of overview and self-control are psychological factors explaining why some people misuse credit and get into financial problems. This chapter can be read in combination with chapters 11 (individual differences and segmentation), 12 (confidence and trust), 15 (time preference), and 17 (self-regulation).

Consumer Credit

In most wealthy nations, consumer credit is generally accepted as a way to finance consumption. New generations have easy access to credit and people have become more tolerant of debt. Chien and DeVaney (2001) describe contemporary society as a "culture of indebtedness." Many people feel that if everyone is using credit, it must be okay. This is the consensus heuristic and a type of *herd behavior*. Availability, use, and managing credit has become "normal" for consumers in the United States and in other developed nations (Peñaloza and Barnhart, 2011). Credit got its functions and meanings in societies with stable incomes and an abundance of goods and services. In the United States, a college graduate carries $29,000 in student loans and an average credit card balance of $2,327 (Williams, 2004). In New Zealand, total student debt is higher than $7 billion, and it has been estimated that 10 percent of these borrowers do not have the ability to pay off their debt by the age of 65. Student debt is often accepted because it is an investment in future earning capacity. Students are likely to have high salaries after graduation, but even these salaries may fail to keep pace with the loan payments debtors have to make (Clark, 1998).

Borrowing money for study and buying a home and repaying this debt later in life is in line with the life-cycle model (Modigliani, 1966, 1986; figure 3.1 and section "Income and Saving" in chapter 3). Not only students use loans, but consumers in general want to "keep up with the Jones" and buy durable goods they "need" for functioning in their social group and participation in present society. Personal and social needs for specific products such as a house, car, and smartphone seem to be more important drivers for purchase than affordability and considering discretionary income.

Consumer credit is borrowing money from a bank or other financial institution (the lender) with a contract to repay the borrowed money and the interest during a specific period, for instance, with a number of monthly payments. People may also borrow money from relatives, which is the first option in many cultures, but this is not registered and counted as consumer credit. A specific type is *installment credit*, in which the purchase of a specific good, for instance, a car or boat, is financed by the bank and the good is used as a collateral for the bank. If the borrower cannot repay the debt ("defaults on the loan"), the lender will obtain the collateral and can sell the collateral to get the debt money back. With an installment credit, the risk for the bank is lower and thus the interest rate is lower. Types of consumer credit are:

1. Loans to students for their tuition, books, clothes, and living.
2. Home mortgage credit (to finance a house; see section "Home Mortgage").
3. Second home mortgages to finance other transactions.
4. Personal loans with fixed repayments.
5. Revolving credit on a bank account ("being in the red").
6. *Payday loans*, personal loans used before salary has been paid. Payday loans have a duration of a few weeks, and are repaid with the salary. They are extremely expensive.
7. Using and being "in the red" on a credit card: not paying the due amount during the grace period, but paying it later with interest. The interest charge of credit cards is between 15 and 20 percent annually. For credit cards, the *grace period* is the period during which you have to pay your balance in full without paying a finance charge. The grace period usually starts on the billing date and ends 21–25 days later. Longer grace periods give more time paying off the credit card balance and avoiding interest charges.
8. Credit with a mail-order company or other retailers, delaying, and spreading payments over time. Interest rates of these types of credit are up to 20 percent.

9. *Installment credit* to finance durable goods, such as a car, boat, or kitchen. The loan has to be repaid in monthly repayments of principal plus interest. Interest rates of installment credit are up to 15 percent.
10. Pawning goods with a *pawnbroker* or *cash converter*: goods are deposited as a security and an amount is borrowed on, say, a six-month contract; at any time during this period, the loan plus interest can be repaid in full and the goods regained.
11. A credit card is needed to rent a car, not only to pay the rental price and insurance premium but as a collateral against theft or damage. In this case, potential credit is used as a collateral for the rental car company.

Consumer credit is mainly used for consumption as opposed to credit in business, which is mainly used for investment. Consumption includes durable goods such as cars and boats, and services such as medical treatment and vacation trips. The value of most durable goods decreases over time. The exception is the use of mortgages for buying a house that may appreciate in value. When house prices increase, a mortgage may thus be called a kind of consumer investment credit.

Credit may even be used for investment, if people buy stocks with borrowed money (Legio Lease case). This may be profitable if the business cycle is going up and the return rate of investments is higher than the interest paid for the borrowed money. It is disastrous financial behavior if the business cycle is going down and the return rate of stocks decreases below the interest rate of the borrowed money.

Credit is necessary for economic growth. Credit allows for the continued purchase of needed goods and services, even when the economy suffers a minor setback. For individual households, credit allows for personal flexibility. If an emergency occurs, the car breaks down, or goods get damaged or stolen, credit will allow for repair or replacement of the goods. Note that buffer savings are also held for these emergencies. Credit is available if savings are insufficient or if consumers do not want to use their savings for these purposes. The downside of credit is that some households overburden themselves by allowing too many loans and too high debts on their credit cards. Their discretionary income may be insufficient to repay these loans.

Home Mortgage

The home is the most important source of wealth of a household. Most home owners need a mortgage loan to finance their home. The

mortgage loan is often the largest debt of the household and is secured against the household's most valuable asset, the family home. The type of mortgage contract has large effects on the household's ability to manage their lifetime financial resources. Gathergood and Weber (2015) studied different types of mortgages in the United Kingdom. The standard mortgage (SM) is a repayment mortgage, in which households pay the interest due and repay the principal (amount borrowed) during the mortgage period (amortization). An alternative mortgage (AM) has a higher *loan-to-income* (LTI) ratio, and households usually pay only the interest due. The principal (amount borrowed) does not decline (nonamortization) and may even initially increase up to maturity. The upfront costs of AM are lower than that of SM. Customers who expect income growth may prefer AM for its lower initial costs. Note that with an AM the principal still exists after the period and has to be refinanced with a continued or new mortgage, or paid off after selling the house. Fixed (FR) or adjustable (AR) interest rates constitute another difference. Risk-averse customers may select a fixed interest rate to avoid "surprises," although usually they pay more (the term premium) than with an adjustable interest rate. Gathergood and Weber find that people with a low financial literacy and a present-time preference are more likely to have an AM and an AR. They conclude that this is suboptimal, because with this choice the future is not sufficiently taken into account. Default rates are much higher for AMs than for SMs. This indicates that AMs are less appropriate for these unsophisticated borrowers.

In the Netherlands, Cox, Brounen, and Neuteboom (2015) find the reverse. Consumers with high financial literacy and high risk seeking are more likely to have AMs. AMs are chosen by wealthier, older, and more sophisticated households with a better understanding of the risks and benefits associated with AMs. If paid interest can be deducted from income tax, an AM is a better choice than an SM, especially for wealthy people. Van Ooijen and Van Rooij (2014) find that more sophisticated households as well as households that consulted intermediaries for advice are more likely to possess an AM. These AMs are more risky when housing prices decline or earnings losses occur. The role of the financial intermediary is important. The intermediary should advice in the customer interest, and should carefully check whether the potential borrower is able to bear the risk of an AM.

Another type of mortgage is the endowment mortgage (EM). With an endowment mortgage, households pay the interest rate and an "endowment" in an investment fund. From the returns of the investment the principal can be paid back at maturity, and, with high returns,

an additional amount of money will become available. Due to lower than expected returns on the stock market, EMs do not provide the complete principal at maturity and leave households with a remaining debt on their homes. Decreasing house prices also contribute to the remaining debt. In popular terms, these houses are "under water." Endowment mortgage providers are now demanded to provide compensation to holders of EMs for the shortfalls in the value of accrued endowments. EMs are too risky and no longer offered to households.

Note that the financial crisis started in 2008 in the United States with *subprime mortgages*. Subprime mortgages are offered to people with a low credit rating, who are unable to get a conventional mortgage. Subprime mortgages have a higher interest rate than standard mortgages, because of the higher default risk for the lender. A low credit rating may be caused by unstable income (entrepreneurs) or by a history of defaulting on loans. Often subprime mortgages start with a relatively low interest rate, but after a number of years the interest rate will be "adjusted to the market," and thus become higher. Then, some households can switch to standard mortgages, because their credit rating has improved. For other households, the monthly payments become too high and these households will default on the loan and return their home keys to the bank (in the United States). Although AMs and subprime mortgages are seen as the culprits of the financial crisis ("toxic mortgages"), these mortgages are a valuable tool for households needing lower initial payments and expecting higher future income (Cocco, 2013). With these mortgages they can smooth discretionary income over the life cycle.

Availability of Credit

People, for instance, students, expect a higher income in the future, take credit, and expect to repay the credit when their income is higher. Webley and Nyhus (1998) found that debtors expect their income to increase in the medium term, not in the short term. Confidence plays a role in the sense that consumers will take more credit with a positive confidence or optimistic outlook (section "Consequences of Confidence" in chapter 12). During an economic recession, debt may increase, due to declining value of stocks and real estate. In this way, households may become indebted. With an economic recession and a pessimistic outlook, people try to reduce their credit by paying off their loans, if they have money available.

Bank factors, such as easily available credit at a low interest rate, play a role. If it is easy to get credit, it is tempting to use credit (future

income) for present consumption and the purchase of durable goods. Easily available credit also gives the impression that using credit and thus being in debt is a generally accepted and frequently used way to finance purchases (Peñaloza and Barnhart, 2011). Credit card companies often give "free loans" with strict repayment terms. If these terms are exceeded, credit becomes costly. Consumers may perceive themselves as more disciplined than they actually are. With these "free loans" they are lured into debt.

Credit-card companies provide an easy *payment mechanism* and credit. In the United States in 2004, 1.4 billion credit cards were in use by 164 million Americans. This is 8.5 cards for each credit-card user. The average American household has a credit-card debt of about $12.000. The ease of paying with a credit card (no cash and change needed) tends to increase spending (Soman, 2001; Prelec and Simester, 2001). Often at the point of transaction, consumers are not fully aware of the amount of money they pay with their card. They focus more on typing the correct PIN code on the machine. The credit card seems to lift constraints on spending future income for present purposes. The credit card makes it more difficult for many consumers to exert self-control on their spending, especially if they do not pay the credit bill within the grace period. They perceive the credit limit on their cards as the amount they are allowed to spend and thus could spend (Soman and Cheema, 2002).

Life Cycle and Credit

Poor people may be forced into credit because they lack a financial buffer against unexpected but necessary expenses. Low-income households are more likely to be in debt, because of their low income level, but high-income households may also incur debt, because of too high expenses and too much credit. Men are more likely to be in debt than women. Men often take more financial risks and are often more optimistic about future income than women. Younger people are more likely to be in debt, because they are in the stage in the life cycle where mortgage is taken and not yet repaid (figure 3.1 and section "Income and Saving" in chapter 3). Adverse life event such as job loss, divorce, accidents, and disease (high medical costs and lower income) may force people to take credit and may also provide a learning experience on how to use credit and how to avoid indebtedness.

Duesenberry's (1949) relative income model states that individuals and households may experience *relative deprivation*, when they compare their consumption situation with other individuals and households.

This may induce them to take credit to spend more in order to get "even" with referent households. The relative income model explains why some people spend too much, save less or not at all, and take credit for consumption (section "Income and Saving" in chapter 3).

The *permanent income model* (Friedman, 1957) and the *life-cycle model* (Modigliani, 1966, 1986) state that consumers and households try to get an even and smooth consumption level over time (section "Income and Saving" in chapter 3). This means that during periods when income falls short of consumption expenditures, consumers will borrow, and during periods when income is higher than consumption expenditures, consumers will save and pay off debt. Students repay their study loans, when they have a job and a higher salary. Consumers borrow to finance expenditures early in life, particularly housing and schooling, and pay down debt during higher-earning periods later in life. The life-cycle model thus explains saving and borrowing over the life cycle.

Decision-Making about Credit

Credit decision-making concerns the information acquisition and comparison of alternative loans. Consumers may collect information and compare the costs and benefits of the available credit alternatives before making a decision to take one of these alternatives. Decision-making may be done in a "complete" and "rational" way or by heuristics, simplified and relatively easy processes for comparing alternatives and choosing an alternative.

Total interest changes are often computed as APR: *annual percentage rate of interest*. If for each year of the loan a flat annual rate of 12.5 percent is charged, and the balance of the outstanding loan is diminishing because of repayments, the true APR is actually 26 percent. APR might thus be misleading. The total amount of interest charged should be displayed to inform consumers about the real cost of credit. The 2010 Credit Card Accountability Responsibility and Disclosure Act (CARD) in the United States requires that financial institutions post the time it will take to pay off a card and how much interest will accrue when consumers pay only the minimally required payment (Connelly, 2009).

Most consumers focus on the amount of monthly payments and check whether these payments can be made considering their discretionary income. Loan duration may be chosen on the basis of a compromise. Shorter loans have lower total interest charges but higher monthly repayments. Longer loans have higher total interest charges but (often) lower monthly repayments. Although shorter loans are

cheaper than longer loans, consumers may select a longer loan because of the lower monthly payments. Stango and Zinman (2006) provide evidence that many US consumers have a *payment/interest bias*. They systematically underestimate the interest rate and the repayment duration of a loan. They focus on the monthly payments. Nonbank lenders, such as retailers, emphasize the amount of the monthly payment: "You can drive a Nissan Altima for only $ 195 per month." Consumers may judge this amount affordable, considering their discretionary income, and ignore the interest rate and duration of the loan. The Truth-in-Lending laws are based on interest rate (APR) to help consumers in comparing these loans.

Psychological Factors and Credit

Borrowing is in many ways the opposite of saving. With saving, payment takes place at purchase, whereas with credit, payment follows purchase. Prepaying gives more positive consumption-related emotions than paying afterward. Consumers are more satisfied with the product or service when they prepaid rather than when they paid afterward (postpaid) (Hahn, Hoelzl, and Pollai, 2013).

Similar psychological factors play a role with saving and borrowing, such as financial literacy, self-control, time preference, and delay of gratification. People who take consumer credit, prefer spending and consumption now rather than in the future, and do not accept delay of gratification. People who abuse credit and get into financial problems often lack money management skills (Lea et al., 1995) and self-control (Gathergood, 2012b). People with a low level of financial literacy are more likely to use high-cost credit such as home collected credit, mail-order debt, and payday loans (Disney and Gathergood, 2013). Other psychological factors related to debt are: time preference (chapter 15), self-regulation (chapter 17), and poor coping with financial strain. Some psychological factors may be causes, while other factors may be consequences of problematic debt.

Haultain, Kemp, and Chernyshenko (2010) find in a study among New Zealand students that attitude toward debt is not a simple pro- versus antidebt dimension, but consists of two independent attitude dimensions: debt utility and fear of debt. *Debt utility* (prodebt, upside of debt) includes aspects such as: not changing your lifestyle, enjoying life, pay later, take a loan because it is interest free, and take a loan whether you need it or not. *Fear of debt* (antidebt, downside of debt) includes aspects such as: being in debt or lack of money as negative aspects of university education; worrying about debt and

student debt may put people off university education. Debt utility sounds rather cognitive, but includes emotional statements such as enjoyment. Fear of debt sounds rather emotional, but includes cognitive statements such as putting off university education. When taking credit and enjoying its benefits, the debt utility dimension may dominate. When repaying the debt with difficulty, the fear of debt dimension may dominate. Fear of debt is mainly anticipatory: anticipated fear of debt may prevent people from taking credit. Debt attitude does not only determine taking debt, but may also accommodate the actual level of debt thus avoiding or "reducing" *cognitive dissonance* (Festinger, 1962). It is dissonant being in debt and hating debt at the same time. People with a higher level of debt thus develop a more positive attitude toward debt (Davies and Lea, 1995) and "reduce" the cognitive dissonance. These two attitude dimensions also apply to the upside and downside of credit card usage (Xiao, Noring, and Anderson, 1995): utility of the credit card (easy payments) and fear of using the card (anticipation of debt).

At the university, students have favorable attitudes toward credit, because they finance their study with credit. After finishing their study, unfavorable aspects of debt dominate, because they have to pay off the loan. Boddington and Kemp (1999) found a relationship of student debt with impulsive buying, suggesting that financial recklessness is not a major cause of student debt.

Debt problems often have a learning effect for the future. People who successfully coped with financial strain, for instance, after the birth of a baby, perform better afterward (Walker, 1996). The improvement of financial management is an effect of a life event, being in debt, and successfully solving the financial problems by finding a new and acceptable equilibrium of income and expenses. Antonides, De Groot, and Van Raaij (2008) found that it is not necessarily a personal experience of financial strain but knowing a relative or friend that had (solved) financial problems that may help a person to avoid debt and financial problems.

Time preference is the orientation toward present or future time. Present benefits of a loan are overestimated while future costs of debt are underestimated (chapter 15). Both prospect theory and the hyperbolic time discounting model account for the nonstable discount rate and the discounting of future costs. Meier and Sprenger (2010) find that present-biased preferences are correlated with credit-card borrowing. Present-biased people are more likely to have credit-card debt and also have higher amounts of credit-card debt.

Some people, having €25,000 savings in their savings account, nevertheless finance their new car of €25,000 with a personal loan. This

is irrational, because the interest rate on savings is much lower than the interest rate on a loan. Nevertheless, people say that keeping savings separately from credit makes it easier to keep control and to be certain that the savings will be maintained. People may also feel that they lack the willpower or self-regulation (chapter 17) to save the €25,000 again. Mental accounting is less economical than using savings for financing the car, but it is nevertheless done to exert control over spending, and keeping the savings intact. Taking credit is then a type of precommitment that the bank will force borrowers to repay their debt, while their savings remain intact.

People need *self-control* to overcome overspending and overindebtedness in excess of their budget constraints. Although many people are debt-averse, the pervasiveness of consumer borrowing and the ease of obtaining a personal loan facilitate spending future money in the present (Wertenbroch, 2003). In many countries, the savings rate is low or even negative. The low savings and high credit rates are one of the factors that caused the credit crunch and that makes it more difficult to overcome the economic crisis. Many consumers have to (re)learn to save and to take the possible future economic and financial conditions into account. Gathergood (2012b) finds a strong effect of lack of self-control on overindebtedness. Can self-control be learned? It can only be learned by training willpower and financial skills, and avoiding temptations. Nonexposure to temptations includes not going on a shopping spree and avoiding to be confronted with attractive products and services. Restrictions on the availability of credit at the point of purchase and delaying access to funds are other ways for controlling impulsive spending and mitigating consumer self-control problems.

Overindebtedness

Credit and debt are two sides of the same coin. *Credit* is money available for the borrower to spend, whereas *debt* is money owed to the lender. Debt includes the interest, fees, and administrative costs the borrower has to pay to the lender. Most consumers use credit in a responsible way, using it to buy goods now rather than saving and waiting for it. They obey the contract and pay off their debt in time. Some people, however, abuse consumer credit, get into financial problems, and cannot pay off their debt.

Note that some of the factors mentioned here are also determinants of overindebtedness and thus problematic debt situations of households, for instance, an unexpected income decline due to job/income loss or divorce, and a too optimistic idea of personal income

development and future income. *Overindebtedness* is the accumulation of credit (loans, mortgages, revolving credit, contracts with delayed payment) of a household with insufficient discretionary income to pay the interest and to pay off the loans. This disturbs the regular financial management of the household. When households fall behind in payment, credit agencies may take legal action to collect their money. Households may then lose their house or must file bankruptcy.

Financial problems negatively affect health, happiness, and well-being of the family, and may lead to conflicts and disturbances of normal family life and interactions. Gathergood (2012a) concludes that people in the United Kingdom with problematic debt exhibit poor psychological health such as anxiety, distress, and depression. Berger, Collins, and Cuesta (2013) found in the United States that short-term debt of households is associated with depressive symptoms, and not the mid-term and long-term debt. This is especially the case for 51- to 64-year-old persons with low education. Short-term debt creates a problem for the present, whereas mid-term and long-term debt constitute problems for the future. If households are unable to solve the credit problems themselves, professional help may be asked of debt consultants.

Banks and other money lenders use acceptance norms and balanced score cards before lending money to consumers. They may also consult data bases with the credit history and correct repayment of consumers. The acceptance norms include: credit history, home ownership, stable marriage, steady job and income. Consumers who paid off their credit on time, own a home, have a stable marriage, and have a steady job and income are more likely to pay off the new loan, and are thus more likely to obtain a new loan from the bank or other lender. Money securitization by selling mortgages and credit contracts to other financial institutions weakens the checks banks perform on potential borrowers. This contributed to the financial crisis of 2008–2009.

Paying Off Debt

In a qualitative study in New Zealand, Watson and Barnao (2009) studied how students pay off debt. They distinguish four types or profiles of repayment behavior. Two types are very similar and here the three main types are described:

1. The *expedient payees* and *traditionalists* try paying off their study loans as quickly as possible to avoid future problems. These people are willing to live in a frugal way to pay off their debt faster. They don't like to purchase items on credit, and are not likely to take

any further debt. They use credit cards to avoid bank transaction fees, and pay the credit card balance during the grace period date to avoid interest charges. These consumers have a high level of self-regulation, are deliberate and conscientious in their financial behavior (chapter 17), and use a sound manner to reduce their debt.

2. The *entrepreneurs* still have their study loans and have the money to pay off the current balance. They choose not to pay off because the return on this money is larger than the interest they pay. Their attitudes toward debt are favorable, and they use debt as an investment in their business activities.
3. The *life-indebted* people pay off the lowest amount possible (compulsory amount) of their study debt. In this way, they pay off their debt over a long period (20–40 years) and they consider these payments as an extra tax throughout their working life. In some cases, the minimum amount they pay off is lower than the accruing interest. This means that their debt increases (*debt trap*), although they make their obligatory payments. Whereas the entrepreneurs use the loan as a way to finance their investments. The life-indebted people create a financial problem for themselves.

Paying off an installment loan may be considered from mental accounting theory (Thaler, 1985). The installment credit has to be paid off with a series of monthly payments. The relevant core account is thus a recurrent budget period account. Each monthly budget period has a payment amount and an interest charge or, in some cases, a constant sum of both. The number of budget periods, the loan duration, is also important. Ranyard and Craig (1995) interviewed people on how they think about installment credit. They propose that consumers utilize a dual representation of installment credit based on total accounts and recurrent budget period accounts. People may give greater weight to current rather than future problems and delay payments. Others, however, prefer to pay an immediate deposit or want to start paying off as early as possible or finishing them as early as possible. Compare the expedient payees in the study of Watson and Barnao (2009). Pinto and Mansfield (2006) concluded that US college students who have high student loan balances, both currently and expected at graduation, also have high credit-card balances. They are a financially at-risk group and this may negatively affect their academic performance, leading to depression and dropping out of school. If forced to prioritize debt repayment, these at-risk students indicated more often than not-at-risk students that they would pay their credit card bills before making their student loan payments.

If consumers have a number of credit-card debts and want to pay off some of their overall debt, they often pay off the smallest debt first. In this way, they reduce the number of debts. However, it would have been better to pay off part of the debt with the highest interest rate. By paying off the smallest debt first, more tangible progress is experienced than by paying off part of a large debt (Amar et al., 2011). If these debts are segregated (section "Hedonic framing" and figure 13.3 in chapter 13), completely paying off a small debt removes more negative value (emotion, worry) than paying off part of a large debt. Amar et al. also find that restricting the ability of consumers to completely pay off small debts, and focusing their attention on the amount of interest each debt has accumulated, helps them to reduce overall debt more quickly.

Consumer Protection

Consumers should be protected against *predatory lending*, the unfair, deceptive, or fraudulent practices of some lenders. Predatory lending can be defined as imposing unfair and abusive loan terms on borrowers. *Payday loans*, for instance, are loans given to consumers before they receive their paycheck. These short-term loans have a high interest rate and must be paid down with the paycheck. Bertrand and Morse (2011) made the costs of borrowing $300 with a payday loan transparent to users and compared these with the costs of borrowing $300 on a credit card. The payday loan was 18 times more expensive than borrowing on a credit card. After receiving this comparative information, people were 11 percent less likely to borrow from payday lenders.

Credit-card debt may also have a high interest rate. These types of consumer credit are often used by the less educated, poor, racial minorities and by the elderly, although predatory lending may occur across all sociodemographic groups in society such as university students. Poor consumers are a high risk to lenders and are thus charged higher interest rates.

Predatory lending typically occurs on loans backed by a collateral, a product, or option used as a security to the lender. If borrowers default on the loan, lenders repossess or foreclose, and profit by selling the repossessed or foreclosed (collateral) property.

The following types of predatory lending are mentioned in the literature:

1. Unjustified risk-based pricing (unjustified if there is no higher than standard risk for the lender)

2. Not telling the borrower that the price of the loan is negotiable
3. Lack of transparency on terms and conditions of the loan
4. Short-term loans with disproportionally high fees, such as payday loans, credit card late fees, and checking account overdraft fees.

It is questionable whether these lending practices are always predatory. Take, for instance, *subprime mortgages.* Households that cannot obtain a mortgage because of uncertain future income, such as starting entrepreneurs, are forced to take a subprime mortgage with a higher interest rate than regular mortgages.

Charging a higher price to borrowers who are more likely to default on their loans compensates lenders for the higher risk they take. This is called *risk-based pricing.* If lenders would charge the same rate for borrowers likely or not likely to default, they would attract too many "risky" borrowers and they would charge too much for less "risky" borrowers. This would be an unfair practice, although in the insurance industry this is what happens: Consumers with a lot of damage pay the same insurance premium as consumers with less damage. On the other hand, "risky" borrowers paying a higher price (interest and costs) are often poor and disadvantaged. In this way, the credit system favors the rich by offering them lower prices than the poor.

DEBT RELIEF

In many developed countries, consumer debt has become a large problem in recent years, due to easily available personal loans from bank and credit cards. It is estimated that the average US household has $19,000 in nonmortgage debt. With such large debt loads, many individuals do not have enough discretionary income to pay off and are in need of help. Companies offer debt consolidation services, but these services are not always in the consumer interest and involve taking out a loan secured by a person's home. If debt has become problematic, it is best to turn to a consumer association or the local government for advice first, as consumer associations and local government have experience with debt problems and may be able to advice the most effective ways for *debt relief.* Kilborn (2005) discusses debt relief programs in North America and in Western Europe.

Credit-card companies should help their clients in paying off debt through relatively traditional means, depending on the service these clients have entered. Leaving bankruptcy aside, it is in the best interest of credit-card companies that their debtors are motivated to continue paying off their debt and do not perceive their growing balances as

hopeless. Some debtors do not even open the letters from the bank and credit-card companies anymore, fearing the negative messages. Psychologically, consumers should perceive that their situation is not hopeless, and that they, with some debt remission and postponement, can change their financial situation and gradually climb out of debt.

Micro-credit

Micro-credit concerns small loans to poor borrowers who typically lack collateral, steady employment, and a verifiable credit history. These poor borrowers, mainly women, often live in developing countries and have no access to regular credit from banks. These poor people are often victims of "loan sharks" (predatory lending). Micro-credit is designed to support entrepreneurship, alleviate poverty, provide for regular food for the family, and also empower women and uplift entire communities. Women often lack a stable employment and credit history, because they have left the workforce to care for children and elderly relatives. Micro-credit borrowers are often members of a group of borrowers who control the credit fund and the paying off of the credit. Micro-credit and micro-saving (section "Types of Saving" in chapter 3) belong together as group members also save small amounts of money in the group fund. The group fund is often a safer place to store money than the home of the borrowers. Grameen Bank in Bangladesh, a nonprofit organization, started micro-credit in 1983. Muhammad Yunus, the founder of Grameen Bank, was awarded the Nobel Peace Prize in 2006 for his work in providing micro-credit services to the poor. In 2009, an estimated 74 million men and women held micro-loans totaling $38 billion. Grameen Bank reports that success rates of paying off micro-loans are 95 percent and over. The origin of micro-credit is in Bangladesh, and it has become also popular in India, Pakistan, Indonesia, sub-Sahara Africa, and Latin America. Micro-credit is no longer provided only by nonprofit organizations. The commercialization of micro-credit began already in 1984 with the formation of Unit Desa of Bank Rakyat Indonesia, charging over 20 percent on small business loans.

Due to micro-credit, the number of small businesses increases by one-third compared to a control group (Banerjee et al., 2012) and thus generated self-employment. Fofana et al. (2015) found an effect of micro-finance on income and women empowerment in Côte d'Ivoire (Ivory Coast). The success of new businesses and thus self-employment depends on a growing market. In this situation, micro-credit may help poor people taking advantage of market growth and

bringing prosperity to families and communities. Not only micro-credit but adding saving facilities, insurance, micro-pensions, enterprise development (management training, marketing support), and welfare-related services (literacy and health services) help in making developmental programs successful.

Neighborhood savings programs such as *rotating savings and credit associations* (ROSCAs) are popular in developing countries. Each ROSCA member contributes a fixed monthly sum to the central pot, and a randomly chosen individual gets the entire pot each month. Saving thus becomes a public act and social pressure from other ROSCA members is exploited to commit members to the desired level of saving (Ardener and Burman, 1996). This a type of micro-finance is a combination of micro-saving (section "Types of Saving" in chapter 3) and micro-credit.

However, micro-finance may lead borrowers into a debt trap, a level of debt that cannot be paid off. Although micro-credit generates many benefits for people in developing countries, it is not the only panacea for alleviating poverty and financial dependency. Income redistribution is another successful means to fight poverty. Income inequality decreased in Africa and in Latin America, including the Caribbean (UNDP, 2013; chapter 3), especially in Argentina, Brazil, and Mexico. (See the discussion on poverty lines in section "Psychology of Poverty" in chapter 2.)

In 1868, Friedrich Raiffeisen founded the first cooperative bank to support farmers in rural Germany. This was an initiative for self-help development similar to micro-finance and micro-credit. In India, *self-help groups* (SHGs) comprise 20 or fewer members, including women from the poorest castes. Members save small amounts of rupees in a group fund, and may borrow from the group fund for a variety of purposes, from paying medical bills to school fees. If these SHGs are capable of managing their funds well, they may borrow from a local bank to invest in small business or farming activities. The Indian SHG-bank model is now the largest micro-finance program in the world.

A recent development is *peer-to-peer lending* (*crowd funding*), often an aggregation of a number of small loans at a low interest rate, not a single direct loan. Web platforms are used for mutual help and the general public can participate in alleviating poverty. The US-based nonprofit Zidisha is an example of a peer-to-peer Internet micro-lending platform to link lenders and borrowers across international borders. Potential borrowers who are declined by banks and credit card companies may obtain credit from private lenders through these organizations. However, debtors may fail to pay off their debt with

obviously negative consequences for lenders and borrowers. What are the motives of lenders to give money to borrowers with a low credit rating? It comes close to giving money to charities. Genevsky and Knutson (2015) found that the same brain region (nucleus accumbens in the forebrain of each hemisphere) is involved in giving to charity and in micro-lending. The nucleus accumbens is also involved in pleasure and reward processing. The conclusion could be that people are positively rewarded from giving to charity and from micro-lending to a particular person or project.

Conclusions

Taking credit is an easy way to finance consumption without a time delay such as with saving. Credit cards are an attractive payment tool. Buying a home is impossible for most people without a mortgage. Early in the life cycle, a household is in debt, but the debt will be paid off later in the life cycle. Credit is thus needed for consumers to finance a home and durable goods. Similarly, students take loans for their study and are (too) optimistic about paying off these loans from their high income after they have finished their study. Consumers need self-regulation and self-control not overburdening themselves with credit and incurring problematic debt.

Psychological factors related to credit are similar to saving: time preference, time discounting, and self-control. Consumers should be aware of the interest they pay and the burden they accept for their future financial state. Self-control is a way to protect oneself against too much credit and financial problems. Self-regulation with help and personal effort is also a way to continue paying off debt and step by step getting out of debt problems. This is not always easy; many people remain in debt.

In many Western countries, credit is a generally accepted part of the consumer culture. But credit remains a dangerous way of financing consumption, because too high levels of debt create problems for future discretionary income, and cause conflicts, unhappiness, and lower well-being. Consumers should be protected against predatory lending.

Micro-credit may be a way to help people in developing countries to start a business or to get a job. Micro-credit and micro-saving often come together. Community social control is the key to help people spend the loan in a purposeful way and to pay it off.

5

Insurance and Prevention Behavior

Insurance and prevention behavior constitute protection against potential financial losses. People may be under- or overinsured, not knowing the coverage of their insurance policies. Important home insurance against natural disasters is often lacking, whereas less relevant insurances such as product warranty extensions have been bought. Moral hazard relates to misuse of insurance by customers, visiting the doctor too often, or overclaiming losses. This chapter can be read in combination with chapters 12 (confidence and trust), 13 (loss aversion and reference points), 14 (risk preference), 15 (time preference), and 17 (self-regulation).

Why Take Insurance?

Insurance is a means for consumers to protect themselves against damage and potential losses and to provide income or capital, if present income earning capacity has been lost. Insurance increases financial security. The main distinction is between damage and capital (life) insurance. A certain level of economic development and family wealth is required for people to have these potential losses and the ability and willingness to insure them. Damage insurance includes: loss or damage of a home by fire, earthquake, or other disaster; loss of goods through burglary or other theft; loss or damage of a car at traffic accidents. Insurance may also include legal liability to other people, if the insured person causes losses to others, for instance, by a traffic accident. Other costs that can be insured are: health care costs, costs of a funeral, and even bad weather during a holiday trip. The second main group is life or capital insurance, providing capital to surviving kin, if an insured person dies. Pension insurance provides capital or monthly income (annuity) to retired people. Labor disability insurance provides

income for people who have become partially or fully unable to work. There are large differences between countries in the level of insurances sold to consumers. In poor and developing countries, people usually only possess the obligatory traffic insurance.

The following types of insurance may be distinguished:

1. *Life (capital) insurance*, paying a capital or annuity (monthly or annual payment) to the insured, for example, pension insurance, or to his/her surviving kin.
2. *Damage insurance*, property insurance, vehicle insurance, paying damage to the home or other goods, and present value of stolen goods.
3. *Health care insurance*, paying medical bills of the insured. Health insurance may be *in natura* (in kind) if health insurance companies have contracts with doctors and hospitals.
4. *Labor disability insurance*, paying monthly income to insureds who became (physically, psychologically) unable to work.
5. *Income protection insurance*, paying monthly income at temporary unemployment.
6. *Legal liability insurance*, paying costs of a legal claim to the insured.
7. *Travel insurance*, paying for stolen and lost goods and medical expenses during holiday trips and other travel.
8. *Funeral insurance*, often a combination of saving and insurance, paying costs of a funeral, an in natura insurance. The funeral insurance company organizes the funeral and pays all or most of the costs.
9. *Product warranty*, free insurance to repair or replace a nonfunctioning product, often provided at purchase.
10. *Credit* and *mortgage insurance*, an insurance that compensates the lender for the risk that debtors default on the loan.
11. Specific insurances such as a pet insurance or bad weather insurance during a holiday trip.

Due to climate change and growth of the population in hazard-prone areas, natural disasters such as hurricanes, flooding, and earthquakes will become more frequent. Not all consumers are aware of the risks and potential losses caused by these disasters and protective measures to be taken decreasing potential losses, such as home improvement, protection, and insurance (Kunreuther, 1996). Many consumers are ill-informed about which potential losses can be insured. Kunreuther et al. (1978) found that 60 percent of the uninsured home owners in disaster-prone areas in California had no idea that they could cover their

house against damage by floods or earthquakes. On the other hand, many home owners in Mississippi believed that they had insurance coverage against flooding damage by the Katrina hurricane (August 29, 2005) while they did not have such insurance. Home owners are often not well-informed about the coverage of their insurance policies and often lack the right insurance policies against damage costs that they cannot bear themselves. On the other hand, nonmeaningful insurance is sold on the market, such as warranties for repair costs and servicing of electronic equipment. Consumers should be informed that insurance for these losses is very expensive and often not needed.

Insurance

Insurance is a contract between two parties whereby the insured purchases a policy from the insurer, which can be redeemed for money if certain predefined events occur such as damage to health or property. This is a *restitution policy*, where the insured party receives a financial compensation for the loss or the insurer pays the medical treatment costs. An in natura policy means that the insurer does not compensate the insured with money but with a service, such as a funeral service. Health insurance may thus involve a restitution policy, where the insured retains the freedom to choose a medical treatment, or an in natura policy, where the insurer selects and pays the hospital and medical treatment for the insured party. The insurance company may have contracts with hospitals and doctors about the quality, price, and timing of medical treatments.

Insurance is bought to reduce or eliminate the financial consequences of risks households run because of uncertain events such as accidents, thefts, and deaths. These uncertain events are "acts of nature" and not under control of the insured person. The insurance company pays the insured person an agreed amount of money if a particular damage or loss occurs.

Personal control is not always completely excluded, because dangerous driving may cause more traffic accidents. People with such a driving style, for instance, young male car drivers, often have to pay higher premiums or may be even excluded from the insurance. A new development is to have technical equipment built into the car to monitor the driving style of drivers. If the driving style is correct and safe, drivers may receive a discount on their premium.

Insurance may be perceived as an investment that guarantees recovery of a possible loss caused by an uncertain hazard. Two aspects of expected utility theory play a role: probability and value/size of the loss.

It is rational to insure against an unlikely event (low probability) with a severe loss, for instance, liability for health care of the other party as a consequence of an accident. It is not rational to insure against an event with a low loss or repair cost, such a warranty on a new piece of electronic equipment. Most insurance policies are between these two extremes.

When making insurance decisions most consumers focus more on "badness" of the outcome and size of potential loss than on probability of the outcome/loss. The same is true for lotteries. People focus more on the prizes they can win than on the probability of winning these prizes. After reports of burglary published in mass media and social media, people may overestimate the probability of burglary and are more inclined to buy insurance. This is an example that people focus on the probability and overestimate the probability. This is called the *availability heuristic* (Tversky and Kahneman, 1974, 1981): probabilities of events that are recent, vivid, accessible, and easily come to mind are generally overestimated.

Insurance started as a system of *solidarity* between people: lucky people who did not incur a loss help unlucky people who incurred a loss. Farmers in many villages and countries started a local insurance system to rebuild the farm that had gotten on fire. Physicians in poor areas started a fund to help people who got ill. If all patients of a physician pay a small weekly or monthly premium, the physician could help the patients who got ill. This idea of solidarity seems to be less prevalent now among people. Individuals today are more likely to trade-off premium costs of an insurance policy and potential benefits for themselves rather than for other people. Insurance then becomes a personal equity of paid premiums and honored claims (Adams, 1965; section "Equity and Fairness" in chapter 8).

Elements of solidarity are still present in some types of insurance. A community may be formed and members of the community organize and share damage insurance. If the insurance makes an annual profit, a rebate is given to members of the community. The community will then be motivated to accept only members that do not claim too much damage. In this sense, the solidarity is restricted to accepting only "well behaving" members for the insurance community and keeping "butterfingers" out. New types of insurance such as Inshared return "excess" premium to insured people (members) if the total damage claimed during a year is below a certain criterion.

In orthodox-protestant communities, such as the Amish in the United States, people have no insurance because this interferes with decisions of the Lord to punish people. If a member of such community has been hit by disaster such as fire, people help him to rebuild

his barn. A new trend of solidarity is present in many countries. For many self-employed people, a labor disability insurance bought from an insurance company is too costly. Self-employed people then form a cooperative fund, pay their premiums, and insure each other for labor disability, at a lower cost than with an insurance company. These funds are sometimes called "bread funds."

Insurance Motives

The main reason for buying insurance is to get a financial compensation for a *potential loss* caused by uncertain future events. The motive is to protect oneself and the family against financial consequences of negative events and making oneself and the family less financially vulnerable for these events. Both damage and capital insurance are involved. In this manner, people invest in their future and make their future more secure and certain. Loss aversion is related to *prevention focus* (avoiding or mitigating negative outcomes) in *regulatory focus theory* (Higgins, 1998, 2005; Zhou and Pham, 2004).

Connor (1996) found that insurance is perceived by consumers as an investment to salvage a positive transaction (gain) from a negative event (loss). *Anticipated regret* may also play a role. When people incur a loss, they often feel regret when they are not properly insured. People may have experienced this regret in the past and insure themselves to avoid future regret. Hsee and Kunreuther (2000) found that people who are very attached to particular objects, for instance, a stamp collection, an old-timer car, or antique furniture, are more likely to insure these objects.

Insurance behavior may also be guided by a *personal or social norm* that some insurance policies are needed for persons or families for functioning responsibly in a community or in society. Social reference, personal and social norms, and even social pressure may be present that getting children and forming a family should be accompanied by financial measures such as insurance. There is a social effect in the sense that the behavior of others will be imitated. If his or her neighbors have flood insurance and talk about this, a person is more likely to buy flood insurance as well. This is related to anticipated regret. If your neighbors receive compensation after a flood, it is very frustrating not to get compensation because you are not insured.

The main insurance motives are thus:

1. *Loss aversion* or financial protection against potential losses
2. *Prevention focus*, avoiding and mitigating negative outcomes

3. *Anticipated regret*, if not insured
4. Eliminate worry and obtain peace of mind
5. Social-comparison effect of insured neighbors
6. Adhering to a *personal or social norm*
7. Satisfaction from overcoming or controlling an environmental threat
8. Wish to invest in a secure future
9. Turning a loss into a gain (investment appeal)
10. Attachment to insured object(s)

INSURANCE PREFERENCES

Framing a problem in terms of insurance rather than a loss increases the demand for coverage. Kunreuther and Pauly (2005) give the following example. If an individual is asked whether she would pay $ 140 to protect herself against a loss of $ 10,000 with a probability of 0.01, many people will not accept this. If the same problem is framed as purchasing an insurance policy which costs $ 140, a higher proportion of people will accept.

A number of anomalies from economic theory are present in insurance behavior (Kunreuther and Pauly, 2005). Many consumers prefer insurances with no or low deductibles, although these insurance policies are more expensive than insurances with high deductibles. The lower the deductible, the higher the chance that the insurance company will pay something back in exchange for the premium paid. In this case, people have the impression that insurance is a fair deal that they get something in return for the premium they paid. Many consumers pay a premium for a deductible amount of money they can cover themselves easily. An explanation may be the *status quo bias*, if the default option of these insurance policies is the no or low deductible option.

Many consumers prefer insurance policies with a rebate afterward, when a deductible option is financially more attractive. In the deductible option, consumers pay less for their policy. In the rebate option they get their money back afterward if they did not claim this amount as a compensation for damage. It is obviously cheaper not to pay this amount than to get it returned one year or more later, without receiving interest. Getting money back is a sort of "gift to oneself" and thus an attractive *windfall gain*. In the same way, many tax payers like to get money back from the tax authority at the end of the fiscal year rather than paying a lower amount of monthly income tax.

Another example of the *status quo bias* is the difference of health plan choices between new and existing enrollees. Samuelson and Zeckhauser (1988) found that one particular plan with more favorable

premiums and deductibles had a growing market share among new employees, but a lower share among older employees. The older employees already had another plan and did not switch to the better plan. An explanation is the inertia to compare both plans and switch. The older employees may be attached, committed, and loyal to their insurance plan (endowment effect) and thus less likely to switch. The status quo bias may thus be an obstacle to choosing better insurance. It explains why established firms in a market retain a large base or franchise of loyal customers, even when firms with better products have entered the market.

Framing and vividness of information plays a role in decision-making. Johnson et al. (1993) compared the willingness to pay (WTP) for three options of a flight insurance policy that would pay $100,000 in case of death on the airplane due to any act of terrorism, any mechanical failure, or any reason. The WTPs did not differ, although the third option has a higher coverage than the first two. The vividness of terrorism or mechanical failure aroused a higher WTP than the boring and general "any reason."

An example of magical thinking about insurance is that people think they tempt fate if they do not take precautions such as insurance and protective measures. People who did not take precautions believe that negative outcomes are more likely. An explanation of this *tempting-fate effect* is that people without insurance and precautions think more often and more vividly and worry more about negative outcomes than people with insurance and precautions. Thinking and worrying about negative outcomes increases the perceived likelihood of these outcomes (availability heuristic) (Tykocinski, 2008, 2013; Van Wolferen, Inbar, and Zeelenberg, 2013). People who have taken precautions think less about negative outcomes and have bought "peace of mind" with their insurance. The second effect is called the *protection effect* (Tykocinski, 2008, 2013). The possession of gas masks seems to reduce the likelihood of a missile attack. Having insurance seems to reduce the subjective probability of negative events. This is strange because the possession of a gas mask or an insurance policy may only reduce the impact of a negative event and not its likelihood.

Flood Insurance

An example of risk evaluation and insurance decision-making is *flood insurance* (Tyszka et al., 2002). Brzesko, Uście Solne, and Kotlina Kłodzka, Poland, had severe river floodings in 1997 and 1998. The vivid and salient experience and memory of recent floods (*availability*

bias, Tversky and Kahneman, 1981) was a major determinant to buying flood insurance. After these floods, many home owners took insurance, probably because they regretted that they were not insured when the flood came. But this was only a short-term effect. Four years after the flood, the number of insured households started to decline. Either people have "forgotten" the floods or rated the probability of new floods as being lower after a number of years without flooding. Some insured people consider the premium to be higher than expected benefits, whereas others even consider the premium paid as being "wasted" because no flood has taken place. The two components of a loss (probability of the event and size of the loss) and the price of the premium give the following results:

- Insured home owners rated the probability of flooding and the size of the loss as higher than noninsured home owners. According to the tempting-fate effect, insured home-owners may think less about flooding, but asked about this they rationalize their insurance by giving a higher probability of flooding.
- Insured home owners rated their personal knowledge of the consequences of flooding as lower than that of noninsured home owners.
- Noninsured home owners consider the premium to be too expensive for the benefits they receive.

This could mean that the noninsured home owners are *overconfident* with regard to their knowledge of flooding. They may trust the measures the government has taken against flooding, such as protective dikes along the rivers. Noninsured home owners have become too optimistic and perceive future flooding as less likely than insured home owners, and consequently they have canceled their flood insurance. After another flood, they may buy insurance again. The conclusion is that purchase of insurance is more likely after the occurrence of a disaster rather than prior to it. It is also interesting to know whether home owners perceive floods as random events that may take place or not, in a particular year, or perceive floods as a consequence of a trend, caused by, for instance, climate change. If the latter is the case, they may expect more floods in the future and are then more likely to take flood insurance.

STATUS QUO BIAS IN INSURANCE

The *status quo bias* is the preference for an option one already possesses or as it is offered on the market. It implies a lack of willingness of consumers to change the option. Downsizing an insurance policy

may lead to perceived loss (loss aversion) of not being covered for the "subtracted" risks, and attribution of the cause of the potential loss to oneself. Upsizing an insurance policy makes the insurance policy more expensive and thus less affordable and less attractive for consumers.

Johnson et al. (1993) studied automobile insurance. The law allows drivers in the neighboring states of New Jersey and Pennsylvania (United States) a reduction in the right to sue for a lower insurance premium. In New Jersey, drivers are offered a cheap policy (with a reduction in the right to sue) as a default, and drivers have to incur additional costs for the right to sue. In Pennsylvania, the expensive policy is the default, with the opportunity to opt (for a rebate) for a reduction in the right to sue, and thus a cheaper policy. In New Jersey, 23 percent choose the full right to sue. In Pennsylvania, 53 percent kept the full right to sue. Is the default option as offered perceived as the "recommended" option? Or is it inertia, laziness, convenience, avoiding the trouble of changing the offered option? *Default options* as offered on the market are perceived by many consumers as recommended options (Thaler and Sunstein, 2008). (See also section "Effects of Presentation Layout" in chapter 16.)

Offering default options leaves customers the freedom of changing the option, but it is more convenient for them to accept the option. For insurance companies, one message to their clients is enough. If clients do not react before the deadline, they will continue to receive the default insurance option.

Protective Measures Related to Insurance

Apart from or in combination with insurance, protective measures may be taken. Insurance companies may require these protective measures from their customers. Protective measures will prevent or decrease potential losses. Examples of these protective or mitigating measures are: (1) installing a smoke detector in the home, (2) installing a burglary alarm system in the home, (3) buying a steering wheel club for the car, (4) using safety belts for the backseats of the car, if not yet obligatory, (5) installing dead bolt locks on doors and windows, and (6) taking a watch dog in the home or courtyard.

Investments in protective measures involve an initial cost (investment) and potential benefits accruing over time in the form of reduced expected losses. The WTP for risk mitigating measures (Kunreuther, Őnçüler, and Slovic, 1998) depends on the following factors:

1. Perceived probability of disaster (theft, fire)
2. Size of potential loss

3. Costs of protective measures
4. Expected effects of protective measures
5. Time period of usage of protective measures
6. Anxiety and fear with regard to disaster (theft, fire)

Kunreuther et al. (1998) found that American consumers are generally willing to purchase these protective measures, but do not take into account for how long these measures will be effectively used. The WTP was not larger if the measures could be used for a longer period. Note that the WTP in this study concerns mitigating property loss. The WTP is generally higher for car safety measures protecting against life threatening and health risks (Dreyfus and Viscusi, 1995). It may also be expected that high-income consumers are more willing to pay for insurance and protective measures than low-income consumers.

Moral Hazard

There are several segments of insurance customers. The first segment consists of conscientious and prudent people. They take insurance to reduce potential physical and financial losses and to increase their financial security. This is a positive selection and insurance companies prefer to have these customers. The second segment consists of people taking more risk and being more likely to claim damage. This is a negative or adverse selection for insurance companies.

Do insured people accept more risk because they will be financially compensated for a loss? Do students who are insured leave their bicycle in a public space without a secure lock? Note that the financial compensation may be only partial and not large enough to buy another bicycle. And it takes effort and time (behavioral costs; Verhallen and Van Raaij, 1986) before the financial compensation will be paid by the insurance company. This brings us to a discussion of moral hazard.

Consumers may use a service more, when the cost of the service is covered by insurance than when it has to be paid by consumers themselves. For instance, if people have 100 percent health-care insurance, they are more likely to visit a doctor when they feel ill. If they have a "deductible" and have to pay the first €400 of the medical costs themselves, they are less likely to visit the doctor. Are people with travel insurance more likely to lose their luggage? The latter statement may not be true, because losing your luggage during a holiday trip brings a lot of inconvenience, discomfort, and effort to redress the situation. If people fraudulently state that they have lost their camera

during a holiday trip and claim the costs from the insurance company, they abuse their travel insurance. *Moral hazard* can be defined as loss-increasing behavior of insured persons (Rowell and Connelly, 2012).

Moral hazard is based on asymmetric information. The insurance company cannot completely know the situation of insured persons, whether the persons are really ill or the severity of their illness. The insurance company wishes that insured persons behave prudently and carefully, but cannot control the behavior of insured persons. Three types of moral hazard may be distinguished. See Van Wolferen (2014).

1. *Ex-ante moral hazard* concerns risky behavior of insured persons, for instance, taking risks at car driving increasing the probability of accidents, and thus costs for the insurance company. The insurance company may require higher premiums from insured persons that have "too many" accidents, for instance, are in the top 10 percent of claimers. Insured persons may also hide information for the insurance company about diseases in the family, smoking, drug addiction, and alcohol consumption in order not to pay higher premiums.
2. *Ex-post moral hazard* concerns the use of services paid by insurance, for instance, visiting the doctor more frequently than is "really needed." It is difficult to assess for the insurance company what is "really needed" in this case. If there is a maximum number of visits to a physiotherapist, some people want to use this maximum, even if not really needed. They argue that they already paid for these services and perceive it as a loss (waste) of money not to use these services (*sunk-cost effect*; sections "Budgeting and Mental Accounting" in chapter 2 and "Prospect Theory" in chapter 13). Note that customers may perceive their health-care insurance premium as "prepaid health-care costs" rather than as insurance premium. In that case, sunk costs apply.
3. *Insurance fraud* is also a moral hazard because the insurance company cannot completely check whether a claim of insured customers is justified. *Planned fraud* involves a systematic effort to gain insurance payments by falsifying accidents, theft, or injuries. *Opportunistic fraud* involves attempts to get excessive payments (claim exaggeration or "padded claims") for insured events that are otherwise legitimate. Of the surveyed consumers, 25–35 percent stated that overclaiming is acceptable (Insurance Research Council, 2000). Tennyson (2002) found that consumers with insurance experience and a favorable perception of the insurance

industry are less likely to accept insurance fraud. Inexperienced consumers may have misperceptions about insurance contracts and rules, which could result in favorable attitudes toward fraudulent actions. Women, highly educated people, and the elderly are less likely to accept insurance fraud.

People like to think about themselves as being honest. But dishonesty, for instance, opportunistic insurance fraud, pays well. How do people resolve this tension? Many people behave dishonestly enough to profit and honestly enough to remain convinced of their integrity (Mazar and Ariely, 2006; Mazar, Amir, and Ariely, 2008; Ariely, 2012). Cheating is often reinterpreted in a self-serving manner. The truth is "stretched" up to a certain point. Self-serving reinterpretations include stories that might have been true such as "We could have taken a more expensive camera on this trip and this camera would then have been stolen." "We did not claim any damage done to our car before, and after this accident we claim repair costs of earlier damage as well." These self-serving reinterpretations positively affect the personal equity balance (Adams, 1965) of customers, while maintaining their self-concept of honesty. If people are mindful of their norms and moral standards, the limits for dishonesty will be tighter or zero. An insurance company could require customers to sign an honor code statement when they take insurance. However, at the time of claiming a loss or damage, customers may have forgotten they signed this code. Customers could also be reminded of the honor code on the claim form they have to fill out.

CONCLUSIONS

Insurance started as a solidarity cooperation in a community to help unlucky fellows who had a loss. Insurance has become now a more individualistic personal equity of paid premiums and honored claims. Loss aversion is the major motive for taking insurance and taking protective measures for health and damage loss.

Deciding on taking insurance, the probability of an event and the size of the loss (and the costs of premium) are the main criteria for comparing insurance policies. Probabilities may be overestimated due to the availability bias (burglary, floods). Consumers often take the insurance policy as offered (default) and do not change the insurance conditions (status quo bias). Changing the conditions makes them personally responsible if damage is not covered.

Moral hazards are based on incomplete knowledge of the insurance company of the behavior and honesty of the insured persons. Insurance fraud is claiming more damage costs than were really incurred. Many people seem to accept the opportunistic fraud of claim exaggeration and "stretching" the truth in a self-serving direction. At the same time, they maintain their self-concept of honesty.

6

Pension Plans and Retirement Provisions

Most people agree that pension plans and retirement provisions are of crucial importance to them, but nevertheless they do not spend much time on this topic and do not save enough for their retirement. This may be due to their time preference, especially present bias, because retirement is far away in the future. Causes and effects of postponement of retirement saving are discussed. The main question is how this can be improved in the consumers' and societal interest. This chapter can be read in combination with chapters 12 (confidence and trust), 15 (time preference), and 17 (self-regulation).

Pension Plans

In 1881, president Otto von Bismarck proposed to the German parliament to provide a pension income for people from the age of 70. The age of 70 years is then the retirement age. At that time, the average age in Germany was 70 years, and thus the average duration of a pension income was zero. Later on, the retirement age in Europe and North America was decreased to 65 years. In many countries, the retirement age will now gradually be increased to 67 or higher. Note that the average life expectancy in Western countries has increased considerably to 78–79 years for men and 82–84 years for women. *Life expectancy at birth* is the average number of years a person born in a given country would live, if mortality at each age would remain constant in the future. Japan has the highest scores: life expectancy for males is 80.2 years and for females 86.6 years. The lowest life expectancies are in sub-Sahara Africa, due to HIV/AIDS infections: 53.1 years for men and 55.3 years for women (United Nations, 2015). For pension funds, the *survival rate* (proportion of population reaching the age of 65) and *life expectancy at the age of 65* are relevant statistics. In most Western countries the survival rate is 83 percent. In sub-Sahara Africa

this is 45 percent. Life expectancy at the age of 65 in Western countries is between 18 and 20 years. This means that people who reach the age of 65, are likely to reach the age of 83–85 years. The average duration of pension income is thus between 18 and 20 years.

There are four pillars for pension plans:

1. The *government*, providing a state pension to inhabitants of a country, based on number of years a person has lived in the country.
2. The *employer*, providing a pension plan for employees, based on number of years a person has worked for the employer.
3. *Self-insured pension plans*, paid for by persons themselves, based on insurance, savings, and/or investments. These pension plans pay a fixed amount of money at retirement or provide a monthly, quarterly, or annual annuity.
4. *Other financial means* are also relevant for old-age and retirement provisions, such as inherited wealth, a home or a private company to be sold, and other wealth that can be used for an annuity or for paying expenses during retirement.

Obviously, there are combinations of these four pillars to provide for income after retirement. It is the strength of a pension system to be built on more than one pillar. If one of these pillars fails to provide sufficient income, other pillars may compensate.

Home ownership is often considered a (fourth) pillar for a pension plan, because the home owner may sell the home and obtain a pension annuity. Or, if home owners want to remain living in their home, a "*reverse mortgage*" may be a solution. A "reverse mortgage" is a way to convert part of the home equity into cash to help retirees in covering living and health care expenses. It is called a "reverse mortgage" because the payback stream is reversed. Instead of making monthly payments to a lender, as done with a traditional mortgage, the lender makes payments to the borrower. This loan will then be paid off by the borrower when the house is sold or vacated. With a traditional mortgage, borrowers decrease their mortgage loan balance during the mortgage period. With a reverse mortgage, borrowers increase their mortgage loan balance during their retirement. Delfani, De Deken, and Dewilde (2014) find a negative correlation between home ownership and pensions. Especially in a liberal welfare state, where both housing and pensions are "commodified," home ownership and pensions are substitutes, as both are voluntary and exposed to market risk. Consumers can then make a trade-off between a (de)investment in housing and/or in pensions.

Pension plans are based on two schemes.

Defined benefit (DB) scheme: The benefits of receiving a particular pension income are defined, irrespective of the premium a person paid for the pension. In many cases, present-day workers pay pension premiums and thus pay the pension income of retired workers. State pensions are designed this way and the tax authorities collect the premiums together with income tax. The DB scheme is dependent on the number of workers paying premiums and the number of retired people receiving pension income benefits. If the number of workers is too low for the number of retired people, either the premium has to be raised or the pension income has to be lowered. Intergenerational solidarity is required to keep present-day workers paying for retired workers, while the present-day workers expect that the next generation of workers will pay for their pension income.

Defined contribution (DC) scheme: The benefits of receiving a particular pension income depend on the premium (contribution) the retired person has paid during his/her working life. Employer pensions are designed this way. This is a purely individual system: the more you contribute, the higher your pension income will be. The pension fund of the employer invests the pension payments in order to increase the value and the benefits of the pension plans. New pension plans are often based on DC rather than on DB. This is also due to new accounting rules. Employees bear more responsibility in a DC scheme for decisions about how much to save for retirement. Many employees fail to join the DC program and, if they join, they do not save enough. This is a huge societal problem. Explanations for this low level of saving are time preference and especially *present bias* (chapter 15), preferring spending money now rather than saving it for later, and lack of *self-regulation* (chapter 17), not being able to forego spending and even perceiving retirement saving as a "loss" of money.

In the United States, a 401(k) plan is a tax-qualified DC account as defined in subsection 401(k) of the Internal Revenues Code. Under this pension plan, retirement savings by employees, and sometimes matched proportionately by employers, are deducted from the employee's salary before taxation. Thus, employees do not pay tax on these retirement savings, limited to a maximum of $18,000 annually (as of 2015). When these savings are withdrawn after retirement, income tax has to be paid. In some other countries, retirement savings are also tax-deferred stimulating retirement saving.

Retirement saving and pension plans are very important for persons and countries as well. It concerns personal or household income after retirement. Pension plans are long-term contracts and trust in pension

funds is needed to engage in such a contract (chapter 12). People are often not motivated to spend time on acquiring and understanding information about pension plans. HRM departments of employers are the primary source of information for employees about their pension rights and pension income. Information in the media about retirement and pension advice are important as well as experiences of other people with their pension plans and income. Fortunately, the involvement and motivation increases when persons grow older and retirement comes closer. Unfortunately, many consumers are then too old to improve their pension income significantly by additional insurance or saving.

Pension Awareness and Motivation

Many people consider the pension plan as a financial product for "later," when they are 65+ years old. People do not like to think about "old age" with its related illnesses, handicaps, and inconveniences. Retirement is also associated with being out of the labor market, having less power, and having a lower societal status, value, and self-esteem. Young people have other priorities to think about such as work and career, buying a house, marriage, and forming a family. Mandell (2008) found that the idea of retiring poor is a strong motivator for people to think about retirement and to provide for old-age provisions such as a pension plan. In communication programs, it is effective to elicit the fear of retiring poor, to get people involved and motivated to change their situation. Hershfield et al. (2011) exposed people to age-progressed pictures of themselves to show them how they will look like at retirement. This motivated people to think about their retirement and their pension. This personalized approach can be used in experimental settings and on the Internet. For mass communication, visuals of hoped-for or feared possible future selves can be made (Brüggen, Rohde, and Van den Broeke, 2013) and used in advertising and communication of pension funds with their participants. These hoped-for and feared future selves can be varied on health (ill versus healthy), social (lonely versus connected), and financial (poor versus wealthy) dimensions. Brüggen et al. (2013) found some interesting effects of these visuals. Exposure to this visuals caused people to want more safety after retirement and some participants stated they were willing to consume less today and save more for their retirement.

Awareness and motivation are the starting points for pension knowledge and pension saving (figure 6.1). Awareness is the idea that pension income may be a problem. Putting this topic on the agenda

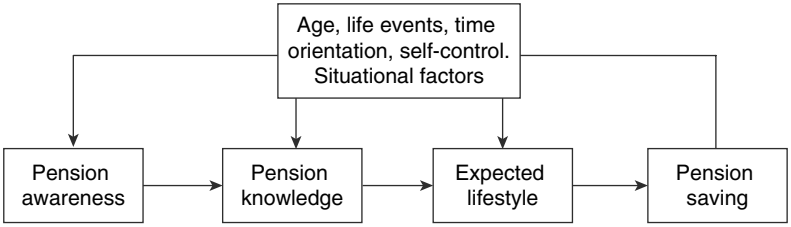

Figure 6.1 Relationships between awareness, pension knowledge (literacy), expected lifestyle, and pension saving.

and providing information in the media make people aware of this problem. Due to the economic crisis, pension funds are unable to provide the pension income as promised. Messages appeared in the media about this. This will certainly increase the awareness of the problem. It takes a number of steps to go from awareness to motivation and then to the intention to do something to solve this problem.

Pension Knowledge

Pension knowledge includes the motivation to be involved with retirement, the knowledge and attitude of consumers with regard to pension plans, self-control and self-regulation (chapter 17), time preference and procrastination (chapter 15), and expectations about the future value of pension plans.

For many people, a low level of awareness and motivation leads to a lack of interest to acquire knowledge about pension plans and pension income. Because a pension plan is for "later," acquiring information and decision-making can easily be delayed and postponed, especially for people with a present bias. Pension plans are also considered to be difficult to understand, dependent on a lot of political, societal, and thus uncertain developments. It requires a lot of effort and time to make decisions about pension plans (Van Raaij et al., 2011).

Three consecutive steps may be distinguished in pension knowledge:

1. *Estimation of the retirement income* as a proportion of the income before retirement. Many people are too optimistic and their estimate of their retirement income is too high.
2. Knowing the retirement income, the next question is whether this *income is sufficient* for the expenditures and lifestyle after retirement. Are there plans, such as traveling and moving to a warmer climate after retirement? Which activities will be done after

retirement? This is especially relevant for the 65–75 age bracket. How will be the personal health condition and how large will be the expenses for health and care at home? This is especially relevant for the 75–85 age bracket. Adams and Rau (2011) conclude that many people are not well-prepared and have no plans what to do and how to finance the last 15–20 years of their life.

3. If this retirement income is not sufficient for the expected expenditure and lifestyle after retirement, how to *increase retirement income*? People need knowledge and advice on how to save or insure for higher retirement income in the third pillar. Measures to have a higher retirement income should be taken before the age of 45, otherwise it will become very expensive. Consumers need future-time orientation to take these measures on time. And they should not overvalue present over future benefits (time discounting; section "Hyperbolic Discounting" in chapter 15).

Many people have insufficient pension knowledge. They are not aware that the pension plan also includes a pension for the partner, if the person with the pension would die before retirement. Some pension systems also include a provision for inability to work. People may also be unaware how the retirement age in many countries is changing from 65 to 67. People complain about the complexity of pension information. On the one hand, there is too much information (information overload); on the other hand, relevant information is lacking (Van Raaij et al., 2011). People are also aware that retirement is still far away and their career and income, and economic and financial conditions may change considerably over time.

Most employees participate in the pension plan of their employer. Usually, this is part of the labor contract and a default or standard option for most employees. Madrian and Shea (2001) compare the *opt-in* and *opt-out* variants of participation in a pension plan. If nonenrollment in a pension plan is offered as a default with the opt-in to enroll, people hesitate and after three months only 20 percent of employees are enrolled in the program. If the pension plan is offered as a default with an opt-out, 90 percent of employees are enrolled in the program. In an opt-out variant, all employees are automatically enrolled, unless they do not want to. If the pension plan is the default or standard and employees can opt out, the participation rate is much higher than in the opt-in case. This is an example of the *status quo bias*. Participation is at the start of the program for the opt-out variant, rather than months later. And the opt-out variant is also more efficient: less communication and persuasion efforts and money are

needed to get employees enrolled in the pension plan. Beshears et al. (2009) report about a company that changed its enrollment policy for new employees from automatic nonenrollment (with opt-in) to automatic enrollment (with opt-out). With automatic nonenrollment, participation starts with 60 percent and increases gradually to 80 percent. With automatic enrollment, participation is almost immediately close to 100 percent. Defaults are often perceived as a recommendation. In this sense, automatic enrollment has a downside. If a low savings rate is specified in the default, employees may select this savings rate, while in an open choice, some employees might have selected a higher savings rate. Thus, defaults have to be tested beforehand, and should be at the upper limit of acceptance for employees (see section "Effects of Presentation Layout" in chapter 16). A high savings rate is in the long-term interest of employees. In the short term, however, they may select a low savings rate not to "lose" too much money now. If there is a high heterogeneity of preferences, one default for all may be impossible to find.

Thaler and Benartzi (2004) developed the SMarT program to increase pension saving of employees. SMarT stands for *Saving More Tomorrow*. If employees are asked to save now for their retirement, many employees may not accept this proposal. They may perceive this as a "loss" because less discretionary income is left over for present consumption. However, if employees are asked to allocate a portion of their future salary increase to their pension plan, many more will accept. For instance, at a salary increase of 4 percent, an even split can be made to spend 2 percent to saving for retirement and 2 percent to a higher discretionary income (not considering taxes). Thaler and Benartzi found an increase of pension saving from 3.5 to 13.6 percent with the SMarT program. A high proportion of employees (78 percent) joined the program, and 80 percent did not drop out but remained in the program. Explanations for this success are: (1) people prefer to start saving "tomorrow" rather than "today." In the case of "tomorrow" the negative consequences come later, just as people prefer to start dieting at a later point in time. (2) Precommitments are more easily accepted for "future time" than for "current time." January 1 is a good starting point for many good plans. (3) Saving from the present salary is perceived as a loss, whereas saving a part of the future salary increase is perceived as a smaller gain (prospect theory; chapter 13). (4) Saving more from the present salary implies that the consumption level should be decreased; saving more from a future salary increase still implies a (small) increase of the consumption level.

In figure 6.2, saving 2 percent from present salary is seen as a "loss" of 2 percent with a value of –150. Saving 2 percent of a gain of 4 percent is seen as a "smaller gain" with a value of 100 – 125 = –25. A loss of 150 is six times larger than a loss of 25. People are thus more motivated to save more for retirement from a salary increase than from present salary. The event of a salary increase is thus a good starting point to save more for retirement.

The SMarT program has been criticized as being paternalistic, because the SMarT program as a default option leaves little room for people not to participate. Thaler and Sunstein (2008) call it "libertarian paternalism," because employees still retain their freedom not to join the SMarT program. The SMarT program helps employees to overcome their inertia and lack of willpower of not saving enough for their retirement. At retirement, employees may appreciate that this default option helped them saving more. Without the program they may not have saved enough and may later regret this. Indeed, default options and precommitments not only restrict the present freedom of individuals, but help them to realize their good intentions for the future.

Preparations for retirement including a sufficient retirement income are often postponed, while measures and commitments taken early in life provide huge benefits for retirement income. Most people know

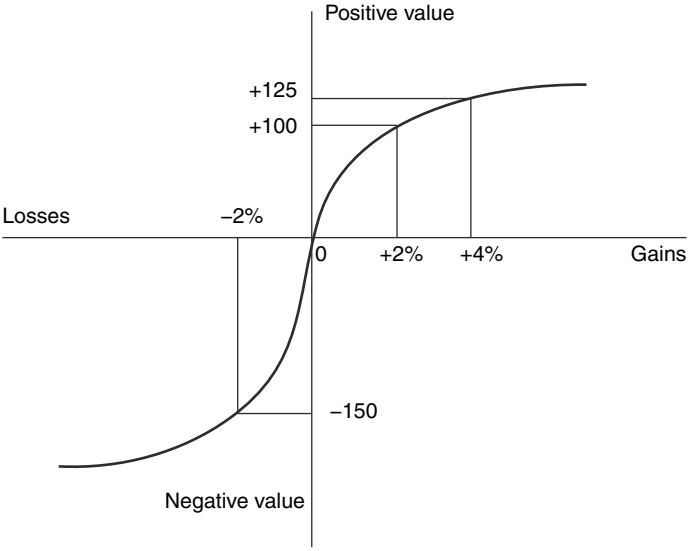

Figure 6.2 SMarT program and prospect theory.

that a pension is important and have good intentions about saving more for their retirement income, but nevertheless postpone taking the steps to realize their good intentions (*procrastination*; section "Time Management and Procrastination" in chapter 15). Knowing how important a good pension plan is may even increase the procrastination. If people know they have to spend a lot of time on this difficult task and they may not have enough time available now, they postpone the task to a period when they have enough time to perform the task (O'Donoghue and Rabin, 1999, 2001). A solution to this procrastination problem is to subdivide (partition) the difficult task into smaller and less difficult tasks. It is easier to perform a sequence of small and relatively easy tasks than one large and difficult task. See "partitioning" in the section on "time management and procrastination" in chapter 15. Choi, Laibson, and Madrian (2006) partitioned the decision to participate in a 401(k) program into two steps: first, the decision to participate, and a few months later, the decision how much to save and other specifications. This proved to be more successful than one big step. Another option is to facilitate the assistance of a financial adviser or financial planner to perform the difficult task for consumers who lack the time and/or willingness to do it themselves (Schuurmans, 2011). Pension is now more and more considered to be a personal responsibility, and cannot only be delegated to other parties such as the employer or the government.

Van Rooij, Lusardi, and Alessie (2011b) find that people with high financial knowledge are more likely to plan for retirement. People with high financial knowledge usually have a high pension knowledge. This correlates with a higher level of education and especially with a specific financial education, such as accountancy and financial economics. Men have a better pension knowledge than women, which can be explained by the fact that men are traditionally the main wage earner of the household. Persons in a one-person household have higher pension knowledge than people in a multiperson household, simply because in an one-person household there is no task division. Singles have to make all decisions by themselves. People with higher income and higher wealth have more pension knowledge than people with a lower income and lower wealth. Income and education are positively correlated.

Pension knowledge increases with age, as retirement comes nearer and this knowledge also becomes more accurate and more relevant. People with a financial plan (financial planning) have better pension knowledge (part of the financial plan). Social factors and experiences play a role. Knowing someone, a relative or a friend, with low pension

income (social experience) triggers a consideration of the personal situation and an increase of personal pension knowledge. People who once in their life acquired a risky financial product such as an investment product (personal experience) seem to have learnt from that experience, and are more likely to have better pension knowledge (Van Raaij et al., 2011). Another explanation is that buying a risky financial product and pension knowledge are both determined by a third factor, for instance, involvement with financial products and financial planning.

Pension Enrollment

Life events may serve as starting points for pension saving and precommitment. Life events are: getting the first job, marriage, buying a house, getting the first child, changing jobs, promotion and salary increase, becoming unemployed, divorce, moving to another home. Most life events take place when people are between 25 and 40 years old. Later in the life cycle, the job and family situation are more stable. At a life event, people often have to rearrange their financial situation, such as buying new insurances and getting a new mortgage for their home. At a life event, their discretionary income also may change and thus people have to reconsider their life style, expenditures, savings, and credit. Life events are thus the moments in life where people can be influenced to save more for their pension. The SMarT program (Thaler and Benartzi, 2004) uses the life event of a salary increase to induce people to save more for their retirement.

People with low present bias and future-time preference (chapter 15) and high level of self-control and self-regulation (chapter 17) are more likely to plan and save for their retirement. *Pension planning* is probably the most important part of financial planning. It includes estimates of life expectancy, expectations about income and wealth, expected health at retirement, and plans for activities during retirement. People are biased in these estimates. Men tend to overestimate their retirement income and women tend to underestimate their life expectancy (Dai, Dellaert, and Donkers, 2015). Pension communication programs could try to change these biased estimates in order to improve pension planning.

Conclusions

Young people do not like to think about old age, retirement, and pension. It is still far away for them and other concerns such as career and

family are more prominent. This is the main reason that knowledge of pension income, lifestyle after retirement, and additional pension saving is meager. As a result, pension saving is often quite low.

Pension motivation is the starting point for acquiring more pension knowledge, thinking about expected lifestyle and expenditure during retirement, and, consequently, for (more) pension saving.

People tend to postpone their decision to start saving more for their retirement (procrastination). One way to overcome procrastination is to divide the big task into smaller and less complex tasks, a type of *partitioning*. Another way is to make the task less onerous by accepting satisficing rather than maximizing solutions. Satisficing means that an acceptable alternative is good enough and not necessarily the best alternative. A third way is making a commitment now to start saving in the near future. A fourth way is to start saving after a salary increase.

Approaches to increase pension knowledge and saving are often related to life events. A life event is an effective situation and point in time to change financial matters, including pension saving. As with other financial products, future-time preference and self-regulation are important for pension saving. People with good self-regulation and a future-time preference, and who accept their personal responsibility, are more likely to save for a higher pension income. Precommitments and assistance are often needed to exert self-control for pension saving.

7

Investment Behavior

Investment behavior is based on uncertainty about the future and is thus risky. News and rumors and speed and availability of information play important roles in investment markets. Risk propensity, risk preference, and attitude are the major concepts and explanations of investment behavior. Investors employ biases and heuristics in their decisions to invest or not, and how much to invest. Herding is another factor: people tend to imitate and follow other investors, probably due to lack of relevant and reliable information and lack of courage to behave differently. This chapter can be read in combination with chapters 11 (individual differences and segmentation), 12 (confidence and trust), 13 (loss aversion), 14 (risk preference), and 15 (time preference).

Stock Market

Due to rising discretionary incomes, many individuals in Western Europe, North America, Australia, China, Japan, and New Zealand started investing in stocks and bonds. Many consumers are thus also individual investors. In the long term, stocks and bonds have a higher return on investment than savings on a savings account. Consumers may thus invest their money for better return, although with higher risk. They also invest money in stocks and bonds creating pension income. Some of these individual investors enjoy the thrill of trading, buying and selling stocks, and the expectation and realization of profits. For them, trading on the stock market is like playing a game with their money. Individual investors (consumers) usually have less information on stocks than institutional (professional) investors and react later (often too late) than institutional investors to a profitable trend in the stock market. Institutional investors often consider individual investors as being naïve and "noise traders," creating opportunities for them to make a profit (Kyle, 1985). The stock market

is a zero-sum game. For each exceptional investor there is a subpar investor. Individual investors are often subpar investors.

Some individual investors may be active in collecting information and in trading stocks and bonds. Other individual investors are more passive, participate in investment funds, and do not trade themselves. If the investment fund performs better than the Dow-Jones index or other stock market indexes, participants are satisfied. However, they have to pay the management costs/fee of the investment fund and thus usually gain a lower profit than active traders. Active individual traders, however, may take high risks, make severe mistakes, and lose their money. The conclusion of Barber and Odean (2011) is that the performance of individual investors is poor. Individual investors lose money on their trades before costs and on high transaction costs (commissions and bid-ask spread) due to excessive trading.

Stocks (shares) and *bonds* (obligations) are both *securities*. The major difference between the two is that (capital) stockholders or shareholders have an equity stake in the company (they are "owners" of the company), whereas bondholders have a creditor stake in the company (they are lenders to the company or to the government that issued the bonds). Another difference is that bonds usually have a defined term, or *maturity*, after which the bond is redeemed, whereas stocks may be outstanding indefinitely. Investors receive an annual interest from bonds and, at maturity, get their money back. Investors receive annual dividends from stocks, but this is not guaranteed. If the company has financial problems, dividends may not be paid. The value of stocks changes over time. Investors make a profit by buying and selling their stocks at the "right" time. Stocks may give a higher return than bonds, but are riskier than bonds. The *risk premium* is a compensation for investors who accept the extra risk of stocks compared with a low-risk or risk-free asset, such as bonds.

But bonds also differ. High-quality corporate bonds issued by established corporations earning large profits or by countries with an AAA rating have very little risk of default for investors. Countries with a triple A-rating, the highest credit rating, have a history of paying off their debt on time, for instance, Germany. Therefore, such bonds will pay a lower interest rate than bonds issued by less-established companies with an uncertain profitability or by countries with low credit rating and a higher default risk, for instance, Greece. Risky bonds pay a higher interest rate and this is the risk premium (reward) for investors.

Investment Motives

Motives for investing money in stocks and bonds are:

1. Saving for children and retirement
2. Becoming wealthy (speculation motive)
3. Maintaining family wealth
4. Sports and thrill in investing and taking risk (investment as entertainment and "gaming")
5. Financially supporting specific firms, for instance, firms in your home country (home bias)
6. *Green investments*, supporting specific companies, based on sustainability and environmental concern.

Investment can thus be seen as risky, although in the long term (5–10 years) investment is an effective way of increasing wealth. In the long term, return on investing is larger than return of saving. It can also be experienced as a game to avoid losses, obtaining gains, and trying to get a return higher than the indexes. Some investors invest in firms they know well and have more knowledge about, and they want to support these firms. Many individual investors prefer to buy stocks of firms of their home country (*home bias*), because they know these firms better than foreign companies. Or these investors want to support firms from their home country for nationalistic reasons. It may also be fashionable to buy shares of popular firms such as Apple, Facebook, and Twitter. Green investments are investments in companies with sustainable products, and companies that are not involved in child labor or military production. These firms share the same values with investors. This is called *value congruence* (chapter 12). These investors not only want a return on their investments, but also want to support firms with values corresponding with and similar to their own.

Psychological Factors

A number of introductions (books) on investor behavior have been published during the past 15 years, focusing more explicitly on "investment psychology." Lifson and Geist (1999), Shefrin (2000), Wärneryd (2001), Nofsinger (2002), and Baker and Ricciardi (2014) can be mentioned. In this section, we will discuss only a few points relevant for investment behavior.

Financial literacy affects financial decision-making. Most people have basic financial knowledge and know about interest compounding,

inflation, and the value of money (chapter 10). However, very few go beyond this level and know the difference between stocks and bonds, the relationship between bond prices and interest rates, and the basics of risk diversification (Van Rooij, Lusardi, and Alessie, 2011a). People with low levels of literacy are less likely to invest in stocks. They are probably unable to make wise decisions and take full advantage of the stock market. As more people have to make decisions how to invest their retirement wealth, a low level of financial literacy may lead to poorly diversified portfolios and other risks.

Overconfidence is relevant for financial decision-making and risk taking (Glaser, Nöth, and Weber, 2004). With increasing experience and familiarity, decision-makers have the tendency to focus on their own abilities and successes rather than on situational influences. They will rely on their own routines and judgments of the past and, in a choice situation, they do not process all relevant information. As a result of their overconfidence, they are prone to underestimate the actual risks and overestimate their abilities to overcome unforeseen problems. Thus, they underestimate the possible risks involved (Jemison and Sitkin, 1986; March and Shapira, 1987). Barber and Odean (2001) found that male investors are more overconfident than female investors, and men trade 45 percent more than women. Overconfident investors trade too much. Trading costs reduce men's net returns by 2.65 percentage points a year as opposed to 1.72 percentage points for women. Women are thus better investors due to their lower trading rate and costs.

Overconfidence may be displayed in several ways. Overconfident people may:

- believe that their knowledge is more accurate than it actually is (Lichtenstein, Fischhoff, and Phillips, 1982);
- believe that their abilities are above average (Svenson, 1981);
- have an illusion of success, overestimating and selectively remembering personal success (hubris);
- have an illusion of control (Langer, 1975);
- be excessively optimistic about the future (Weinstein, 1980); and
- overestimate the precision of one's information or underestimate uncertainty (this is also called *miscalibration*).

Overconfidence is irrational. Irrational "noise" traders incur high trading losses and that will ultimately drive them out of the market according to Friedman (1953).[1] Oberlechner and Osler (2012) find that experienced and inexperienced currency dealers are equally

overconfident. Overconfidence need not be a negative characteristic. It helps to survive in currency trading markets and can lead to new trends and trend reversals. Overconfident traders take more risk and can thus earn a higher return (De Long et al., 1991). Their illusion of success may enhance their ability to spot profitable trading opportunities (Taylor and Brown, 1988). Overconfidence may be necessary to survive in the stressful, high-stakes profession of trading (Oberlechner, 2004).

Sensation seeking is another cause for excessive trading. Sensation seeking is related to a high OSL (optimum stimulation level), gambling, and risk taking (sections "Extraversion" and "Personality and Financial Behavior" in chapter 11). These investors have a preference for stocks with a risky lottery-like payoffs.

Time preference is particularly relevant for financial decisions that pertain to the distant future of 30–40 years ahead, such as a home mortgage, participation in a pension plan, and saving or investing for old-age and retirement provisions. People with a present-time preference (present bias) focus on the present and prefer to spend their money now rather than later (Frederick, Loewenstein, and O'Donoghue, 2002). People with a future-time preference are more willing to delay the gratification of having products and services now. They rather save for the future and form a buffer for unforeseen expenditures. The term *time discounting* is used for undervaluing future benefits (section "Hyperbolic Discounting" in chapter 15.3).

Regret is an emotion felt as a consequence of a decision of which the outcome has been found to be bad or wrong. Regret is a relevant emotion in risky financial decision-making. When consumers decide to invest all their savings in the stock market, they may envision a possible stock market crash and losing their investments. This may be compared with a situation in which their savings are securely placed in a savings account with no risk involved. Consumers may anticipate regret when thinking of a stock market crash and losing their money, or anticipate regret of not having the higher return of the stock market. Anticipated regret may induce them not to take the choice option with the highest possible regret (regret avoidance). Consumers may feel actual regret when it becomes clear that they made the wrong decision. Regret is a relevant negative emotion because financial decisions of consumers are often based on uncertain information and expectations about the future, and, second, financial decisions may have significant impact on their future wealth and lifestyle. Important decisions will cause more intense regret when outcomes go awry (Zeelenberg and Pieters, 2007).

Early life experiences also exert an influence on present behavior (*cohort effect*). Malmendier and Nagel (2011) found that generations that experienced low stock market returns, for instance, at the Great Depression, are less willing to take financial risk, and less likely to participate in the stock market. If they participate, they invest a smaller part of their assets in stocks and are more pessimistic (low confidence) about future stock returns. Younger generations have only recent return experiences influencing their risk taking.

DISPOSITION EFFECT

Shefrin and Statman (1985) defined the *disposition effect* as the tendency of investors to sell stock that has declined in value ("losers") too late and stock that has increased in value ("winners") too early. Most investors do not like to accept a loss (loss aversion, prospect theory, section "Prospect Theory" in chapter 13). All stocks are usually considered as separate mental accounts. Investors prefer to close a mental account with a gain. Selling stock at a loss means that it has to be accepted that the mental account will be closed with a loss. This is an uncomfortable truth, because one must then admit the mistake of buying this stock. These investors hope that the value of this stock will recover and then they can happily close this account breaking even, or maybe even with a gain. In a similar manner, investors sell stock that has increased in value ("winners") too early. If a gain can be realized in a mental account, investors tend to close the account and sell too soon, foregoing an even larger gain. Investors thus learn too little about their investment behavior. Regret aversion may also explain selling winners too early, but cannot explain why investors keep losers too long. Self-control and precommitment devices recommend selling stock that significantly decreased in value, for instance, an "automatic" rule of always selling stock that decreased 10 percent or more in value. Analysis of the fundamental characteristics of the stock could, however, lead to the conclusion that the decline is only a "dip" and that the stock value will recover. Not selling "losers" is attractive for investors, because they avoid the negative emotions of a loss. Another explanation is *anticipated regret*. After a stock has been sold, the value may increase, and this will cause regret. By not selling "losers" investors avoid future regret.

The disposition effect is absent with stocks not bought by the owner but being given or inherited (Summers and Duxbury, 2007). A stock owner who did not buy but received the stocks, considers this portfolio not as his own decision and does not feel responsible for the

value of these stocks. Stock owners hardly adjust the portfolio, compared to what they would have bought if they would have received money instead. Summers and Duxbury add that emotions also play a role: regret and disappointment for losses and rejoicing and elation for gains. Prospect theory, personal responsibility, and these emotions are required for the disposition effect to occur. Given Odean's (1998) conclusion that winners sold by investors do better than losers retained by investors, investors need to exercise more self-control and sell losers and retain winners, and thus overcome the disposition effect.

Contradictory to the disposition effect, De Bondt and Thaler (1985) conclude that investors *overreact* to small value changes of stocks. Andreassen (1990) studied how investors extrapolate trends and overreact on small changes ignoring the base rate. A small value change of stocks does not necessarily imply a positive or negative value trend. If many investors sell at a small value drop and buy at a small value increase, the value decreases and increases may become significant due to this behavior. It becomes a self-fulfilling prophecy. The way value changes are indicated on screens, often with red and green background colors, may stimulate investors to react, even if the value change is small and insignificant. The representativeness heuristic (Tversky and Kahneman, 1981) may apply here. The use of the red and green color is a type of framing. The negative emotion with a change to red is then expected to be greater than the positive emotion with an equivalent change to green.

Loss aversion causes people to shy away from investment opportunities that are profitable over time, but might expose them to a loss at any given time. People invest too little in risky assets compared with traditional views on risk and return. Loss aversion is so strong that many investors do not possess risky investments at all (Guiso and Sodini, 2013). This can also be explained by a myopic short-term focus on fluctuations (Benartzi and Thaler, 1995; Gneezy and Potters, 1997). The disposition effect of overvaluing losses and undervaluing gains leads to a welfare loss. The stronger an investor is affected by a superficial gain-loss framing, the worse an investor scores on an index of economic well-being (Cardenas and Carpenter, 2013). Policies to increase risk tolerance in the presence of losses may be beneficial to investors and society. These policies should provide a frame in which short-term losses become less salient, and information on long-term benefits becomes more salient (Keys and Schwartz, 2007). These policies should, obviously, not promote accepting too much risk, especially not when the invested capital is needed in the short term for retirement or other purposes.

INFORMATION, NEWS, AND RUMORS

Individual investors are influenced by the representation of prices and subject to money illusion (Shafir, Diamond, and Tversky, 1997; section "Psychological Factors" in chapter 2). Svedsäter, Gamble, and Gärling (2007) did experiments how investors react on company announcements of increasing or decreasing profit. They found that when nominal share prices are high, investors expect less change in share prices than when nominal prices are low. Investors seem to believe that high nominal share prices are less affected by changes in underlying fundamental factors such as profit of the company involved. It also matters whether prices are given in euros or Swedish crowns (SEK). Numbers are higher in Swedish crowns and investors believe that shares with SEK prices are less affected by fundamentals such as changes in profit. Low stock prices seem to be related to poor performance of the company and high stock prices to good performance.

Companies sometimes use *stock splits* or *reverse stock splits* to restore the nominal value of stocks after a sustained rise or fall of share prices. The stock owners then receive more (or less) shares for a given investment of money. After a stock split, the stock returns to the category of inexpensive stocks. It is found that after a stock split (lower nominal value), buyers and sellers are more willing to trade, maybe because of the "inexpensiveness" of the stock. After a reverse split (higher nominal value) there is less willingness to trade. The reasons for this increased/decreased trading are not completely clear (Svedsäter, Gamble, and Gärling, 2007). Stock splits may be signals of rising prices or the news makes investors more aware of the stock.

Individual investors tend to be influenced by the news and buy stocks that are in the news, for instance, stock splits, stocks experiencing a high abnormal trading volume, and stocks with extreme one-day returns (Barber and Odean, 2008). Investors seem to have difficulty in searching and comparing the thousands of available stocks, and focus on stocks in the news. Stocks in the news that have caught their attention, become their *consideration set* or choice set from which stocks are selected to be bought.

Information is easily available. Involved individual investors may check the value of their portfolio weekly or even daily. Small value changes may exert a strong influence on trading their stocks. The transaction costs and taxes of excessive trading become high and negatively affect the return on their investments. Barber et al. (2009) studied the trading history of Taiwanese investors and found that these investors lost systematically by their active and excessive trading and

aggressive orders. In contrast, institutional investors made a profit, both by their aggressive and passive trading.

News and rumors in financial markets do not spread in one direction. Traders and journalists of magazines, newsletters, and blogs are engaged in a circular pattern of market information provision and processing. Traders rate the speed and availability of news and its anticipated impact on market participants as more important than its perceived accuracy (Oberlechner and Hocking, 2004).[2] How are news and rumors perceived and interpreted by market participants, and which impact does this have on the development of the market? Traders try to anticipate how other traders will react to news and rumors, and how new trends, developments, and hypes will be created. "The more news you get, the more uncertain you are of what to do." The circularity of information and thus the repetition of being exposed to the same or similar information increase the illusion of truth. "I heard this before, so it must be true." In this information overload, investors/traders tend to select news that confirms their expectations and ignore news that is contrary to their ideas. Investors are thus subject to the *confirmation bias.* The reaction of investors to news and rumors may cause herding and instability in financial markets.

Herd Behavior

Herding has a long history in crowd psychology. Veblen (1899) already explained economic herd behavior in terms of social influences in what he called "emulation," where consumers imitate and mimic other consumers of higher status. Frank, Levine, and Dijk (2013) explained this as *expenditure cascades.* Consumers imitate popular persons such as pop stars. They follow other consumers in a bank run. Individual investors imitate other investors in the stock market. This is called *herd behavior.* Important stock market trends often begin with a period ("bubble") of frenzied buying. Stock market trends often end with a period of frenzied selling ("crash"). This buying or selling frenzy is a case of herd behavior, driven by the greed to gain during a bubble and by the fear of loss during a crash. Individual investors imitate other investors in a rush to get into or out of the market. A bank run or stock market frenzy has aspects of a *self-fulfilling prophecy.* Herding reinforces volatility of markets, may destabilize markets, and increase the fragility of the financial system. If many investors believe that the price will go down and sell a particular stock, the price of that stock will go down. If many investors believe that the price of

a particular stock will go up and buy, the price of that stock will go up. Shiller (2000) identified herding in the collective irrationality of investors.

Bikhchandani and Sharma (2001) provide an overview of research on herd behavior in financial markets, and describe information cascades based on rumors and incorrect information. If investors discover that they have taken a wrong decision, they may herd in the opposite direction. *Reputational herding* is following the advice of experts, newsletters, or blogs with a high reputation. The analysis and advice of these sources is not necessarily correct. Stock market information is full of opinions, suggestions, recommendations, and shaky conclusions. Note that herding may be based on correct information that many investors become aware of almost simultaneously. This is called *spurious herding* and is a market efficient outcome. Bikhchandani and Sharma (2001) conclude that herding is more prevalent in emerging markets with weak reporting requirements, lower accounting standards, lax enforcement of regulation, and costly information acquisition.

Hey and Morone (2004) developed a model of herd behavior in a market context. Many investors are only informed about the value of a stock through its price (increase or decrease). They overreact on a small price change and through their buying and selling they increase the amplitude of the price change, respectively, into a higher or a lower price of the stock (De Bondt and Thaler, 1985). Investors act on the basis of private information and (public) knowledge about the behavior of other investors. Herd behavior may result from the overuse of public information, including rumors, and the underuse of private information.

Herding is based on what others do (*consensus heuristic*) and not on a fundamental analysis of the value of a stock or a currency (in the case of currency and foreign exchange speculation). What others do may be based on correct analysis, and then imitation is not a bad tactic of *free riding* on informed judgment of others (spurious herding). If others are also uninformed, imitation is a poor tactic, detrimental to all. If herding proves to be wrong, it is easier for individual investors to justify their mistake of following the trend and crowd than that acting against the trend and crowd. Table 7.1 gives the four options. There are uneven effects of being right or wrong. In case of following the herd, failure can be externally attributed: the excuse that others made the same mistake. In case of not following the herd, failure can only be attributed to oneself (internally). No excuses are convincing in this case. See also table 17.1 on attribution processes.

Table 7.1 Attribution of success and failure in herd behavior

	Success	Failure
Following the trend/crowd (herd behavior)	Self-fulfilling prophecy, in case of positive trend (biased internal attribution)	Excuse that many others were also mistaken (external attribution)
Against the trend/crowd	Glory of independent thought (internal attribution)	Failure attributed to oneself (internal attribution)

Herd behavior may lead to bubbles and crashes of the stock market. Tulipmania, extremely high prices for tulips in the Netherlands with a peak in 1637, and the Internet bubble in 2000 are examples of herd behavior in a direction of overvaluation of certain stocks or products. The subprime mortgage (2004) and credit (2007–2008) crises are examples of spurious herd behavior in a direction of undervaluation of bank and insurance company stocks. Spurious herding means in this case that all investors got the correct signal that these mortgage packages were "toxic" and these stocks were overvalued.

Risk Diversification

Risk diversification is a way to reduce the risk of investing. Investors should not allocate all their resources to one type of stock, but diversify the portfolio into a number of different stocks from different industries and countries. A loss of one type of stock can then be compensated by a gain on other types of stock. Again, the variety of default options tends to be followed slavishly by naïve investors. Diversification is a good thing to reduce risk, but an investor should first of all think how much risk to take and then allocate the funds to the various options (Markowitz, 1959). In this allocation, stocks should be selected of which returns do not covary (increase and decrease at the same time). If investors do not want to take risk, they should allocate more to bonds than to stocks. Risk diversification should be a purposeful strategy based on the situation and the objectives of the investor.

Information is often supplied in categories. Categorization may have a strong effect on choice and diversification. For example, if different investment categories are offered, people tend to split their investment amounts equally across categories. When presented two categories of stocks, North American (Canada, United States) and South American (Argentina, Brazil, Chile, Uruguay, and Venezuela) investors are likely

to invest more in US stocks than when presented with a list of these seven countries (Bardolet, Fox, and Lovallo, 2011).

People tend to follow the categorization of information slavishly. Benartzi and Thaler (2001) found that many individual investors, when they invest money for their DC (defined contribution) pension plan, invest in equal quantities in the different types of stock or equally in stocks and bonds. This is called the *1/n rule*. If n options are offered to naïve investors, they allocate their funds in n equal parts to these n options. If 40 percent of the options are stocks and 60 percent are bonds, they allocate 40 percent of their funds to stocks and 60 percent to bonds. It is thus very important how stock information is supplied to investors.

Behavioral portfolio theory (Shefrin and Statman, 2000) is an investment allocation theory based on investor behavior and behavioral finance. Risk diversification and avoidance of covariation of stocks are important parts of it. Investors may segregate (partition) their portfolios into mental accounts with a varying level of risk (Thaler, 1999). The simplest division is risk-free versus risky. Risk-free is motivated by loss prevention and wealth maintenance. Risky is motivated by achieving gains and profits. In this portfolio with varying levels of risk, covariation should not be neglected. Covariation is a difficult concept for investors. Many investors believe that taking a variety of stocks from different industries and countries is sufficient to reduce risk. Hedesström, Svedsäter, and Gärling (2006) studied covariation neglect in fund investment. They found that instructions to minimize risk or to diversify risk helped people to change from naïve to effective risk diversification.

Mitchell and Utkus (2002) discuss the risks and benefits of holding company stock in employer-sponsored DC retirement plans. Many large companies offer their employees to invest in company stock with the expectation of productivity gains from stock ownership. The employees become "owners" of the company and then feel more responsible for the financial performance of "their" company. However, company stock does not necessarily contribute to enhanced portfolio diversification.

Conclusions

Information in stock markets may be based on rumors and incorrect interpretation of the behavior of other investors. Individual investors in markets with high uncertainty cannot follow the rules of optimal economic behavior. Investors are humans influenced by

cognitive and emotional biases and using heuristics to make (quick) decisions. Investors differ in their risk propensity, as a personality factor and based on the type and goal of their investments. Often, investors try to control and reduce risk by investing in bonds rather than stocks or by diversification of stocks and bonds. On the other hand, they may accept high risks in order to obtain a better return on their investments.

Investors tend to perceive stocks as separate mental accounts and avoid terminating (closing) these accounts with a loss (loss aversion). Many investors are also influenced by other investors, overreact on stock value changes, and follow the behavior of other investors (herding). This causes instabilities, even bubbles and crashes, in the stock market.

8

Tax Behavior: Compliance and Evasion

Tax behavior, both compliance and evasion, are important for taxpayers and the tax authority. Paying taxes is not popular for most people. Traditionally, taxpayers and the tax authority play the "cops and robbers" power game of distrust, policing, and control. A modern approach is the "clients and services" approach with more trust between parties. The tax authority may provide pre-filled-out tax declarations and other services to taxpayers. Equity, fairness, and justice are important drivers of trust and tax compliance. This chapter can be read in combination with chapters 12 (confidence and trust), 13 (loss aversion and reference points), and 14 (risk preference).

Taxation

Most citizens do not like to pay taxes and may perceive paying taxes as a loss of discretionary income. Especially if people distrust the government, they oppose taxation and if possible, avoid or evade paying taxes. Trust, equity (fairness), and justice are necessary ingredients for tax compliance.

The *shadow economy* of a nation is the part of economic activity where no taxes are being paid. In some areas of production such as household work or voluntary work, no official salaries are being paid for work and thus no income taxes are being withheld. This is the *informal economy*, a legal part of the shadow economy. In the *black economy*, work is done and paid for without withholding income tax and social security premiums. This is illegal type of tax evasion, for both employer and worker. The relative size of the shadow economy is an indicator of tax evasion in a country. The shadow economy may be as low as 9 percent in Switzerland, or as high as 60 percent in Zimbabwe. In most developed countries, the shadow economy is between 12 and 22 percent. The average for the OECD countries is 16.8 percent.

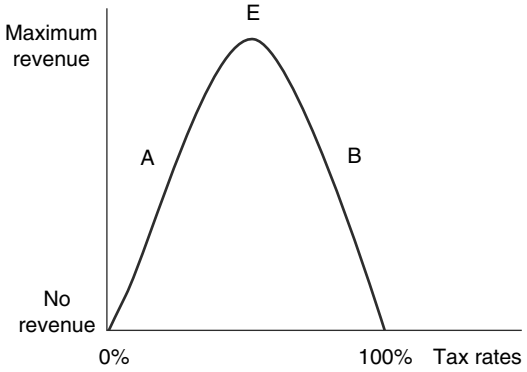

Figure 8.1 Laffer curve of tax revenue.

Increasing tax rates will usually increase tax avoidance and evasion, because with a higher tax rate it becomes more profitable not paying tax. This effect is illustrated with the Laffer curve of tax revenue based on tax rate (figure 8.1). At point A, increasing tax rate will result in higher revenue for the government. At the equilibrium point E, the maximum revenue for the government will be reached. Increasing tax rates above point E is counterproductive. At point B, increasing tax rate will result in lower tax revenue for the government because of tax avoidance and evasion. The Laffer curve represents a kind of taxable income elasticity. The parabolic shape of the curve has not been empirically tested. The curve may be asymmetrical, because the results of tax compliance and tax evasion are not necessarily mirrored. The equilibrium tax rate is difficult to assess. A tax rate of 100 percent is not realistic.

Apart from income tax, other taxes are *value-added tax* (VAT) on goods and services, usually between 4 and 25 percent, and carbon emission (CO_2) tax on, for instance, airline travel. For many people the word "tax" has negative connotations. "Carbon tax" is therefore often labeled "carbon offset." Hardisty, Johnson, and Weber (2010) found that in the United States, Republicans and Independents were more willing to pay for "carbon offset" than for "carbon tax." For Democrats, the labels did not make a difference.

FISCAL BEHAVIOR

A behavioral approach to tax compliance is not new. Already in 1959, Schmölders published a paper on fiscal psychology. He coined the term *tax morale*, the attitude and/or motivation to comply with the social or

personal norm to pay taxes (Schmölders, 1959, 1960). Tax morale is not well defined because it can be an attitude toward paying tax or a motivation to comply with the norm to pay taxes or to pay a specific amount or percentage of taxes. It is better to use the terms "tax attitude" and "willingness to pay taxes." Tax knowledge, tax attitude, social norms, and tax ethics are determinants of tax compliance (Hessing, Elffers, and Weigel, 1988; Lewis, 1982; Wärneryd and Walerud, 1982).

A distinction can be made between three types of fiscal behavior:

1. *Tax compliance*: Declaring all taxable income and deducting only real deductions such as gifts and medical costs, and paying the due amount of tax on time. Tax compliance is honest behavior of the taxpayer (Andreoni, Erard, and Feinstein, 1998).
2. *Tax avoidance*: Using loopholes in the tax law to pay lower taxes, but in a legal way. Tax avoidance is tax behavior according to the letter, although not according to the spirit of the law. This type of behavior may lead to disagreements, negotiations, and conflicts between taxpayers, tax inspectors, and authorities.
3. *Tax evasion* is fraud, for instance, not declaring all taxable income or deducting nonpaid costs. Tax evasion is dishonest and illegal behavior of the taxpayer.

Tax avoidance and tax evasion are dishonest behaviors, although tax avoidance remains within boundaries of legitimate behavior. Dishonesty is often not a conscious trade-off between material gains and costs of detection and punishment. Many taxpayers reinterpret their dishonest behavior in a way that makes them appear being less or not dishonest (Mazar and Ariely, 2006; Mazar, Amir, and Ariely, 2008). If people are reminded of their norms and moral standards, they are more aware of dishonesty and are less likely to cheat. A tax declaration form has to be signed and people have to state that the declaration has been filled out correctly without cheating. To remind people of honesty, it may be better to have the declaration signed before filling out the form: "I declare to fill out this declaration form honestly and truthfully." If people promise to be honest, they are more likely to fill out the form honestly.

Income, Education, Age, and Tax Behavior

Income, education, and age of taxpayers may determine tax behavior and compliance. The level of income determines the tax rate. For high-income people, tax deductions (gifts to charities, work-related costs) are more profitable to lower the tax burden than for low-income

people. High-income people are also more likely to seek advice and help from tax advisers.

Level of education and type of occupation are positively correlated with tax knowledge and literacy. People with an education and/or job in economics, finance, and accounting are more tax literate than people with other jobs. People with this type of education and/or job need no help with filling out their tax forms and may even enjoy doing it. People with other jobs may be less able and willing to do it themselves, but with a "clients and services" approach of the tax authority they are more inclined to do it themselves.

With a higher age, citizens may become more knowledgeable and more accustomed to tax forms and declarations. They have learned how to do it and may perceive the new tax declaration as a "repeat" or a variant of the declaration of last year. For tax inspectors, a stable pattern of tax declarations is a sign of compliance (Hessing, Elffers, and Weigel, 1988). A new stage in the life cycle may also imply a change of income and deductibles, and thus a major change in tax declarations. Life events and transitions over time in the life of individuals and households, such as getting a job, marriage, getting children, divorce, and retirement, often create a change in tax rate and thus a necessity or need to reconsider or to change tax behavior.

PSYCHOLOGICAL DETERMINANTS OF TAX BEHAVIOR

Generally, taxes are perceived as a loss of income, and thus *loss aversion* may apply (Kahneman and Tversky, 1979). This is especially true for entrepreneurs who pay their full taxes annually. If self-employed people keep their VAT and income taxes to be paid in a separate (mental) account, they will feel less loss aversion when paying taxes, because the tax money has then not been considered part of their personal income and endowment. Loss aversion does not apply or applies very little to money that has been budgeted to be spent (Novemsky and Kahneman, 2005).

For employees with a monthly salary, income tax is already withheld by their employer and is no longer in their endowment. For them, net income and discretionary income are the resources used for consumption. Some people know that their monthly tax payments are too high, but they keep it that way in order to receive an annual tax rebate as a *windfall gain* (Katona, 1975). A small windfall gain may be considered as current discretionary income. A large windfall gain, however, is perceived as extra income and does not belong to

the current income account. Windfall gain may thus be spent on extra (special) expenditure, additional saving, or for paying off debt.

If tax declaration is perceived as a difficult and onerous task, this task may be postponed to close to the deadline (*procrastination*, section "Time Management and Procrastination" in chapter 15). In the rush to be on time, people may make errors, forget deductibles, and may thus overpay taxes.

Tax morale has a social component: *perceived social norms* about paying tax. An individual taxpayer is strongly influenced by the perception of other taxpayers and messages in the media. If taxpayers believe that tax evasion is common, tax morale goes down and tax evasion increases. If taxpayers believe that other taxpayers are honest, tax morale goes up and tax evasion decreases (Frey and Torgler, 2007). In eastern European countries (Russia, Belarus, Ukraine, and the Baltic countries), tax morale of the citizens is lower than in central European countries such as Hungary, Czech Republic, Slovenia, Bulgaria, Croatia, and Poland. Trust in the government and perceived quality of political institutions and tax authorities have strong effects on tax morale. This quality consists of absence of violence, control of corruption, government effectiveness, regulatory quality, voice, and accountability. (See the drivers of trust in section "Determinants of Trust" in chapter 12.) In a climate of distrust, tax morale is low and tax evasion is usually high.

Tax Authorities

Macroeconomic and political factors include governmental policies on taxation. The levels of confidence and trust in the government (chapter 12) affect tax behavior. If the government is not corrupt, if taxes are spent on useful public goods, if tax rules and levels are fair, and if tax authorities provide taxpayers with correct information and services, voluntary tax compliance will generally be high in a country.

Tax authorities may influence consumer motivation and decision-making by their information, services, and personal advice. The "tax morale" in a country will influence the number and severity of audits by the tax authorities. *Audits* are checks of the truthfulness of the tax declarations of citizens. Only a small proportion of tax declarations will be audited, based on random sampling or on suspicion by the tax inspectors, based on detected irregularities in the past. Salaried workers have only a few opportunities to evade taxes, whereas entrepreneurs usually have more opportunities. A higher opportunity usually means a higher probability of tax avoidance and evasion, but it is certainly not true that most entrepreneurs are tax evaders.

Taxpayers, and especially avoiders and evaders, fear tax audits, especially because they have something to hide or they fear that mistakes they made will be considered tax fraud and thus will be fined. In an experimental study in Italy, Mühlbacher et al. (2012) found that waiting for an audit increases tax compliance. This means that if the objective of audits and fines is to increase tax compliance, the timing and intervals between tax declarations, tax returns, and audits should be carefully planned.

EQUITY AND FAIRNESS

Interactions of taxpayers with tax authorities are very important. Taxpayers judge taxes by their equity and fairness. Schmölders (1960) already recognized this. There are two types of equity as components of tax morale:

1. Beliefs about the *equity* of the personal tax burden relative to the tax burden of other taxpayers (*horizontal fairness*)
2. Beliefs about the *exchange equity* of the tax burden relative to the benefits a taxpayer draws from public goods (*vertical fairness*).

The tax rate may be a flat proportion or a progressive proportion of income. With a flat rate, all taxpayers, wealthy or poor, pay the same proportion of tax, say 30 percent of their taxable income. With a progressive tax rate, wealthy people pay a higher proportion of their income than poor people. Three or more income levels may be distinguished with higher tax rates for higher income levels. If people with higher incomes thus pay a higher proportion of taxes, taxes are a way to redistribute net income. Equity theory (Adams, 1965) was concerned with the inputs (taxes paid) of the taxpayer and the outcomes (benefits drawn) for the taxpayer (vertical fairness). Later, horizontal fairness was added as another type of equity.

Fairness is more comprehensive than equity (Fehr, Fischbacher, and Gächter, 2002). Fairness includes three types of justice:

1. *Distributive justice* refers to the exchange (equity) of costs and benefits. If taxpayers perceive their contribution to the commons as balanced to the benefits they are entitled to receive (vertical fairness), and balanced to the contributions of others (horizontal fairness), a high level of distributive justice has been accomplished.
2. *Procedural justice* refers to the rules and processes of paying the costs and receiving the benefits. It is a process-based type of fairness. The tax processes should be consistent, accurate, free of errors, not favoring certain people, and correctable in case of errors.

Procedural justice as a part of integrity is an important component of trust in tax authorities (section "Trust" in chapter 12).

3. *Retributive justice* is concerned with the perceived appropriateness of sanctions in cases of offense and norm breaking. It includes the attribution of responsibility, the restoration of the damage, and the punishment of the wrongdoer, for instance, the tax evader.

"Cops and Robbers" or "Clients and Services"

Traditionally, taxpayers and tax authorities are antagonistic parties that play a "cops and robbers" game (Kirchler, 2007). This means that taxpayers are considered to be potential cheaters motivated to minimize their tax burden. Tax authorities are perceived by taxpayers as "robbers" that take away part of their earned income. Taxpayers may also perceive the tax authority as an army of "cops" (police) that have to check and control the taxpayers with regular audits and fines to keep them compliant. This typical economic approach is based on mutual distrust and price effect. In this approach, it is assumed that taxpayers are motivated to evade and pay as less tax as possible. Increasing the deterrence by higher penalties and a higher probability of detection will make taxpayers more compliant. This creates a climate of distrust. If tax authorities distrust taxpayers, taxpayers resent this and react by distrusting tax authorities. This may "crowd out" a favorable tax morale. *Crowding out* means that a favorable tax morale may be diminished by treating taxpayers as potential evaders (Frey, 1998). A favorable tax morale is an intrinsic motivation of taxpayers to comply. This intrinsic motivation may be externalized or "crowded out" in a climate of distrust and become an extrinsic motivation based on trading off benefits (paying lower taxes) and costs (fines for tax evasion). Systems intended to enforce compliance may, ironically, breed distrust and provoke noncooperative behavior and noncompliance.

Falk and Kosfeld (2006) discuss the hidden costs of control. Tax authority and taxpayer have a principal-agent relationship. The agent performs to the principal as in an employer-employee relationship. The principal may control or trust the agent. Agents (taxpayers) perceive control as a signal of distrust and a limitation of their autonomy and freedom. They react to control with a lower compliance. The costs of control are thus costs of the control operation itself and the costs of lower compliance. Principals who trust agents have lower costs and probably a higher compliance. Trust is, however, not always better than control. When facing opportunistic taxpayers with a low

tax morale, trusting is likely to be suboptimal. Note that trust is not a matter of degree: you either trust someone or you do not. Trusting a bit is likely to be interpreted as not trusting at all.

In high-trust countries, the control operation of "cops and robbers" may backfire and decrease rather than increase tax compliance. Tax authorities may treat their taxpayers in better ways, in a "clients and services" approach (Kirchler, 2007), built on mutual trust and respect, and emphasizing the collective benefits of paying taxes. Distributive justice and procedural justice are important components of the "clients and services" approach (see table 8.1).

In the Netherlands, the tax authorities fill out the personal tax declaration forms for taxpayers with the information they already have on income, mortgage, savings, and debt. This is a service to taxpayers facilitating their work of filling out tax forms. At the same time, taxpayers know which information the tax authority already has about them, and they are then less inclined to cheat.

Kirchler (2007) designed the *slippery slope model* in which both approaches are depicted in a cube. [See Kirchler, Hoelzl, and Wahl (2008), Mühlbacher, Kirchler, and Schwarzenberger (2011), Kirchler, Kogler, and Mühlbacher (2014), and Prinz, Mühlbacher, and Kirchler (2014).] In this model, tax compliance may be strengthened by either enforced compliance (power and control of authorities) or voluntary compliance (trust in authorities), or a combination of both. Promoting voluntary compliance by trust in authorities does not necessarily mean that these authorities are less powerful. These authorities do not use their power to enforce tax compliance, but are able to do so, if necessary. Tax compliance is high with high enforcement, high trust, or a combination of both. The combination of power and trust has a stronger effect on compliance than power or trust by itself. This latter effect is included in table 8.2. If power and trust are both high, tax

Table 8.1 Characteristics of the "cops and robbers" and "clients and services" approaches to tax compliance [adapted from Kirchler (2007), Kirchler, Hoelzl, and Wahl (2008)]

	Cops and robbers	Clients and services
Climate	Low trust, antagonism	High trust, respect
Resist or cooperate?	Resistance, reactance	Cooperation
Compliance	Enforced compliance	Voluntary compliance
Motivation	Extrinsic	Intrinsic
Procedures	Audits and controls	Services and assistance
Sanctions	Penalties, fines	Rewards
Paying tax is a...	burden	civic duty

Table 8.2 Effects of power and control of authorities and trust in authorities on tax compliance (known as "slippery slope model") [adapted from Kirchler (2007), Kirchler, Hoelzl, and Wahl (2008)]

Power of authorities	Trust in authorities	Tax compliance
High	High	High
High	Low	Medium
Low	High	Medium
Low	Low	Low

compliance is high. If either power or trust is high, tax compliance is medium. If power and trust are both low, tax compliance is low.

Conclusions

Paying tax is not popular. Many taxpayers perceive taxes as a loss and not as a civic duty for the government. Tax declaration is seen as effortful and paying tax as a burden. Tax avoidance and evasion are rather common in most countries. Tax compliance is the honest and desirable behavior. Tax compliance increases if people perceive taxes as fair and equitable, trust the government and tax authorities, and perceive paying taxes as a civic duty.

An anomaly is that some people prefer a too high income tax each month and a rebate at the end of the fiscal year. This rebate is perceived as a windfall gain and can be spent on special purposes or saving, apart from discretionary income.

With a low level of trust in the government and tax authorities, taxpayers and tax inspectors are antagonistic parties that play a "cops and robbers" game. Taxpayers try to avoid paying tax and tax inspectors try to detect tax avoidance and evasion. In a climate of trust, the "clients and services" can be played. Tax authorities assist taxpayers with correct and timely information, and even with pre-filled-out tax declarations. In this way, the tax burden is lower and tax compliance will increase.

9

Victims of Financial Fraud

In this chapter, the tactics of fraudsters and reactions of potential and actual fraud victims are described. Unfortunately, fraud is a pervasive phenomenon and many people will become victims of financial fraud during their life, for instance, pyramid games and other investment fraud. Internet fraud such as phishing is growing and is becoming more sophisticated and more difficult to stay away from. This chapter can be read in combination with chapters 12 (confidence and trust), 13 (loss aversion and reference points), and 14 (risk preference).

Financial Fraud

In every sector of every country, fraud has a pernicious impact on the quality of life (Gee, Button, and Brooks, 2011). Consumers receive fraudulent phishing mails of criminals trying to find out their secret bank and credit-card codes. They receive advance-fee proposals on laundering money, investments, and lotteries. In a digital environment, it is easier for criminals to get access to personal information (Facebook, Twitter, LinkedIn) and bank accounts. Financial institutions are in a continuous cyber fight with hackers, phishers, and illegal transactions.

Consumers may be both perpetrators and victims of financial fraud. As perpetrators of financial fraud they may evade taxes (chapter 8), submit fraudulent claims to insurance companies (chapter 5), or accept payments on E-bay for products they never deliver to buyers (telemarketing fraud). As victims of financial fraud, consumers are hurt or, in some cases, ruined by the fraudulent behavior of others.

In this chapter, the behavior of criminals ("confidence" or con artists, fraudsters) trying to sell fraudulent financial "products" (investment plans) will be discussed, as well as the reactions and responses of their prospective or actual victims. Examples are "Palm Invest" (real-estate investments in Dubai), the investment funds of Bernard

Madoff, Nigerian advance-fee fraud, and lottery fraud. The study by Pak and Shadel (2007) is an example of research on fraud directed at retiring people possessing wealth from selling their company or real estate, and wanting to use this wealth as retirement income.

Financial fraud against government, such as tax evasion, and against organizations, such as insurance fraud, corruption, embezzlement, cyber fraud such as phishing, and "white collar crime" are well-researched areas. These types of fraud have negative consequences for consumers too. Corruption, broadly defined as the use of public office for private gain, is an example. Consumers have to pay additional costs to bureaucrats to obtain permissions, official documents, and government services. They may have to pay police officers not to get traffic fines.

Internet fraud is pervasive. Two-thirds of Americans who use the Internet, or as many as 116 million people, received at least one online scam offer in 2013 (Shadel, Pak, and Sauer, 2014). The statistics on the prevalence of fraud against people are underestimating the problem, because people do not like to admit having been victim of financial fraud. Thus, many cases of fraud victimization remain unreported. Victims fear ridicule and stigmatization and do not report what happened to them. Of known investment fraud victims, 12 percent denied ever losing money to an investment (FINRA, 2007). Only half of known lottery fraud victims admitted to having been scammed/swindled in the previous three years (AARP, 2003). Police units may not have the resources to respond, have a belief in the complicity of the victim, or may not perceive the victim as a victim at all. Tens of billions of dollars/euros are lost each year to tens of millions of victims. The US attorney general has named financial fraud a top priority, after terrorism and violent crime. The financial costs of fraud also include the costs of detection and prosecution. Nonfinancial costs are physical, psychological, and temporal costs, such as illness, depression, denial, shame, anger, regret, losing sense of security, and lower quality of life. It is difficult or impossible to find reliable data on these less tangible costs of fraud (Gee, Button, and Brooks, 2011).

In this chapter, we discuss fraudsters who perpetrate fraud, methods they use to influence their (prospective) victims, and characteristics of victims who fall for fraud. Financial fraud consists of consumer-targeted scams, schemes, and swindles (Deevy, Lucich, and Beals, 2012). *Financial fraud* is a misrepresentation or concealment of facts to a financial product, service, or transaction purposefully made by sellers/fraudsters to deceive (potential) customers and sell products or services that will financially harm or ruin the customer (Titus, Heinzelmann, and Boyle, 1995).

There are several types of financial scams, such as phishing, advance-fee scams, lottery scams, and investment scams. A variety of other scams can be mentioned such as scams related to job search, guaranteed employment, investment seminars, dating, sex services, and telemarketing. These scams often involve advance payments for services and products that never will be delivered.

Phishing is an attempt, usually by email, to acquire confidential information from the prospective victim such as bank account or credit card numbers, usernames, passwords, PIN, and security codes by masquerading as a trustworthy entity. The trustworthy entity may be a bank, a credit-card company, an auction site, an online payment processor such as PayPal, or a "recovery IT team." Phishing is typically carried out by email spoofing or instant messaging, and it directs potential victims to enter their confidential bank information on a fake website. This fake website looks similar to the bank or credit-card company on behalf of which the fraudsters claim to operate. The fake website or the attachment to the email may contain malware, such as a hidden key logger recording the keys struck on a keyboard, while users of the keyboard are unaware that their actions are being recorded. In this way, PIN and security codes, usernames and passwords may become known to fraudsters. Sometimes phishing is done by a telephone call "from the bank or credit-card company." The message may be about misuse of the bank account or for "verification purposes." Consumers are often requested to react immediately (*urgency*), otherwise their bank account or credit card will be blocked. Consumers who provide this confidential information are likely to lose their money to fraudsters.

Phishing is usually done with long lists of email addresses obtained from membership lists or fabricated with random-trial processes. For phishing fraud with large databases, a response rate of less than 1 percent may already be profitable for criminals. *Spear phishing* is phishing with email addresses and the actual names of the prospects. These databases are usually smaller. The personalized messages look more authentic and trustworthy than impersonalized messages. It is more likely that people respond to personalized messages.

Phishing is still growing. Social media such as Facebook, LinkedIn, and Twitter are also used to lure people to give their confidential information. On Facebook, you are in a community of "friends" and in such a community you tend to trust people, even fraudsters behaving like "friends." The invitation to connect on LinkedIn is a notorious way of fraudsters to get into contact with prospects. According to the third Microsoft Computing Safer Index in 2014, the annual worldwide impact/damage of phishing may be as high as five billion dollars.

An *advance-fee scam* consists of a message that a large sum of money from an inheritance, lottery, or a company has to be transferred with a request to the potential victim to assist in this transfer for a percentage of the sum of money. The victim has to pay an advance fee to obtain the large sum of money or his part of it. Phishing is often included because bank account details may be asked to transfer the large sum of money, but is actually used for "cleaning" the victim's bank account. The letters or emails of these scams used to come from Nigeria and other West-African countries.

A *lottery scam* is also an advance-fee scam, an email message "out of the blue" that you have won a big prize in a lottery or sweepstake you did not enter, often a famous overseas lottery such as the Spanish El Gordo or a nonexisting Google, Microsoft, or Princess Diana lottery. Victims are asked for an advance fee, for taxes, insurance, courier charges, whatever, in order to receive the big prize. It often includes phishing elements, such as asking for bank account details, for subsequent identity and money theft.

An *investment scam* is an email message about a promising investment in a company, real estate, or investment fund. The investment opportunity may even exist, such as investing in Palm Island real estate in Dubai, but the fund will take the money without actually investing it. Typically, unusually high and stable guaranteed returns of 10–12 percent and even higher are promised. An investment scam may be a *pyramid game* or *Ponzi scheme*, in which returns to first investors are paid with the investment capital of later investors, rather than from profit earned from investments.[1] Often, investors are asked to reinvest their returns. After a few rounds, the number of new investors becomes too small to pay the promised returns to earlier investors and to support the pyramid. Actually, the pyramid needs exponential growth to remain existent. After a number of rounds, the pyramid will collapse and investors will lose their money. Charles Dickens already described pyramid games in his books *Martin Chuzzlewit* (1844) and *Little Dorrit* (1857). Bernard Madoff's investment plans were largely pyramid games. This pyramid collapsed in 2008 during a market downturn and defrauded many organizations and individuals.[2]

In 1997, Albania suffered from an almost total economic collapse because the majority of the population invested in a national pyramid swindle to "get rich quickly." Many Albanians lost their life savings in this scam. Pyramid swindles in China led to rioting and deaths as thousands of investors lost their savings in fraudulent investment deals in 1998. For poor people, pyramid games are like magic: they expect the game will solve their financial problems.

Tactics of Fraudsters

Pak and Shadel (2007) studied the tactics of fraudsters in US investment scams directed toward people at the age of retirement. Their study was sponsored by the AARP, the American Association of Retired Persons. The objective of the fraudsters is to persuade these people to invest their retirement money in questionable investment funds. Two roles of fraudsters are distinguished: the opener and the closer. The *opener* or *profiler* is collecting information about the prospective victims or "marks" from social media such as Facebook, LinkedIn, and Twitter, from personal weblogs, from organizational websites of companies and associations, and from newspapers and magazines. Openers even advertise to obtain responses from consumers. If a consumer answers an ad for the scammer's services, the mark qualifies himself as having good scam potential. Openers collect information about age, family composition, work or retirement, wealth, home ownership, lifestyle, hobbies, suggestibility, preference for charities, and even risk preference and greed. Openers may call their prospective victims to obtain information. They also apply phishing techniques to obtain bank and credit card details of their prospects or marks. Openers sell lists with information on prospective victims or marks ("sucker lists") to closers. *Closers* use these prospect profiles for personalization of their "sales pitches."

The sales pitch of investment scams are directed toward persuading "prospects" into investing their money in a fraudulent investment plan. In the study by Pak and Shadel (2007), prospects who did not trust the proposals made to them, informed the FBI. Their telephone lines were taken over by FBI agents and the conversations were recorded. Pak and Shadel analyzed the tapes of these conversations between fraudsters and FBI agents. They found nine cognitive heuristics (tactics) used by fraudsters:

1. *Source credibility* and *trust*: The fraudster claims to work for a reputable company and in the prospect's interest. In the first stage of the conversation, establishing personal trust is most important for the fraudster. The fraudster is a "confidence artist" (con-man) establishing trust. Source credibility is also used in phishing; the source is suggested to be a well-known bank or company and logos and house style of the bank/company are mimicked in emails.
2. *Phantom fixation*: Nigerian advance-fee scams often promise a high amount of money if the prospect participates in the laundering of the financial legacy of a Nigerian official. They promise attractive

outcomes to prospects in a lively and personalized manner—money, prize, wealth—and stimulate prospects to think about the possibilities of spending this money. If people are fixated on the overwhelming desire for the phantom, less cognitive resources are left to think about the conditions and costs to obtain the phantom (resource depletion; section "Main Theoretical Approaches" in chapter 1). According to Loewenstein (1996), the idea of instant wealth eclipses deliberation and overrides behavioral restraints. People are "out of control." All attention is on the phantom. No attention is left over for deliberation, analysis, and thinking about consequences. Their behavior is then driven by gut feelings and instinct. Greed (Krekels and Pandelaere, 2015; Seuntjens et al., 2014, 2015) dominates deliberation and careful consideration of the information.

3. *Anchoring and adjustment*: Start with a high reference price and then give the real price as a discount "especially for you" (Tversky and Kahneman, 1974). Fraudsters often work with "comparisons" suggesting their offer is a financial opportunity.
4. *Landscaping*: Regulate the number of choice options for the prospect by deleting the nonparticipation option. How do you want to participate? Leave only three participation options open and the prospect is likely to select the middle one (section "Effects of Presentation Layout" in chapter 16).
5. *Foot-in-the-door*: A small commitment of the prospect may lead to a larger consonant commitment (Festinger, 1962). The small commitment creates attitude change and thus a higher probability that the prospect will accept the larger commitment (Scott, 1977).
6. *Expert snare*: The fraudster talks to the prospect as another expert on investment and thus to a person very similar to him. The prospect does not like asking questions that may reveal his lack of knowledge and expertise. This heuristic is also used in free-lunch seminars in which the presenter behaves as an investment expert and treats the audience as experts as well.
7. *Scarcity*: This may be a scarcity of products (only a few places available), scarcity of prospects (an offer made only to a selected number of investors), or scarcity of time (urgency; you must decide today). Scarce products are perceived as more attractive than abundantly available products. In phishing too, urgency is used to get the immediate participation of prospects: "Your account will be blocked within 24 hours."
8. *Social proof* or *herding*: The fraudster tells that many other investors used this investment opportunity in the past and are very satisfied with it.

9. *Fear and intimidation*: This heuristic is used with phishing and identity theft and less with investment fraud. In phishing, fraudsters threaten blocking bank accounts or credit cards, if prospects do not react immediately.

Pak and Shadel (2007) concluded that the following heuristics are used most often: source credibility and trust (26 percent), phantom fixation (19 percent), social proof and herding (14 percent), scarcity (13.5 percent), comparisons (anchoring and adjustment, 12 percent). In the first part of the conversation, source credibility, phantom fixation, and comparisons are used to make the seller and the proposal attractive. In the second part of the conversation, social proof and scarcity are used stimulating prospects to transfer their money to the fraudster.

Note that these cognitive heuristics can also be used by salespeople in personal selling for nonfraudulent products and services speeding up the consumer decision process. Pak and Shadel (2007) used the six influence tactics Cialdini (1984) studied and reported with salespeople: reciprocation, commitment and consistency, social proof, liking (friendliness), authority, and scarcity. In their study, Pak and Shadel (2007) also distinguished five tactics and roles based on social norms:

1. *Authority role*: The fraudster takes the role of an authority (FBI agent, government authority) who should be obeyed. This often happens with a "recovery scam" in which the fraudster "helps" the victim in recovering the damage from an earlier scam. Based on loss aversion, victims may be thankful for this assistance in getting their money back. Usually, the fraudster requires an advance payment for his help. This makes the damage even larger for the victim: victims will be robbed twice.
2. *Dependent role*: The fraudster represents children or other dependent persons in need who should be helped with a donation. It is difficult for most people to refuse helping someone in need. In developing countries, tourists may be approached for financial help for medical treatment of a sick child in a hospital.
3. *Friendship role*: The fraudster emphasizes similarity and friendship with the prospect, for instance, expert snare. The conversation gets the character of a dialogue of friends, rather than a monologue of the fraudster. The victim cannot refuse to help a "friend," for instance, on Facebook.
4. *Affinity fraud*: The fraudster belongs to the same group as the prospects (similarity), for instance, church community, tennis or golf club. This similarity and affinity creates trust and source credibility.

5. *Reciprocation role*: The fraudster gives a small present to the prospect. The prospect will then "return" this with a large donation. The free-lunch seminar and the foot-in-the-door technique are examples of this role.

With a *free-lunch seminar* prospects are offered a free lunch and a seminar about investing. The presenter at the seminar behaves like an expert and highlights the benefits and returns of a specific investment fund. Attendants are persuaded to invest in this questionable or fraudulent fund. The reciprocation role is used and attendants feel the urge to do something in return for the lunch and seminar. The most important tactics used here are the authority role, friendship role, and source credibility/trust. Again, comparison (anchoring and adjustment), social proof, and scarcity elicit prospects to decide immediately to invest in the fund (Pak and Shadel, 2007).

CHARACTERISTICS OF VICTIMS

Victim profiling is a relatively well-studied area of consumer financial fraud. Profiling victims of all scams together does not result in a clear picture, because the differences between scams will be averaged out. For scams such as lottery and investment scams, contrasting profiles have been obtained (table 9.1). Note that in table 9.1 contrasting relative values and no absolute values are given. These profiles differ from the general population and from each other. Everyone may, to a certain degree, be vulnerable to these scams, also depending on skillfulness and sophistication of fraudsters and the ploy. The profiles give deviations from the averages of the general population. Note that

Table 9.1 Contrasting victim profiles of lottery and investment scams [adapted and summarized from Pak and Shadel (2007)]

	Lottery scams	Investment scams
Sociodemographics	Female dominant	Male dominant
	Single, widow	Married
	Low income	High income
	Low education	High education
Financial literacy	Low literacy	High literacy
Self-control	Low self-control	High self-control
	External control	Internal control
	Impulsiveness	Overconfidence
Time preference	Present time	Future time
Advisers	Low trust	High trust

differences in victim's age may be explained by the attractiveness of the target for the fraudster. Older people and men are more likely to possess wealth than younger people and women, and are thus more likely to be targets of fraud. High-income people are also more likely than low-income people to be targets of investment scams. Low-income people are more likely to be targets of lottery scams. Vulnerability also varies with personality variables such as gullibility, susceptibility to influence attacks and suggestions, level of self-control, and the difficulty for some polite people to say "no" to fraudsters, especially in a telephone conversation.

People with low *self-control* are impulsive and more likely to engage in risky behaviors (drinking, drug use), including financial risks such as buying products online from an unknown seller. They are thus more likely to get in contact with potential offenders and more likely to become victims of fraud. Financial fraud often requires some cooperation between fraudster and victim. The victim might be attracted by a potential gain of money (phantom fixation) from a lottery and thus cooperate with the fraudster to obtain the gain. People with high self-control will be less impulsive and more critical toward these fraudulent proposals, although they may become a victim of investment scams. Holtfreter, Reisig, and Pratt (2008) found that people with low self-control are not more likely to be targeted by fraudsters, but are more likely to be drawn into the scam and victimized.

Victims of investment scams are often men with a reasonably good level of education and financial literacy. They have cooperated with advisers such as tax advisers and financial planners, and they tend to trust advisers. "Expert snare" can successfully be applied to them, because they know some investment concepts and have some experience with investing. Victims may also be overconfident (Pressman, 1998) and fail to ask the right questions to fraudsters. Answers or nonanswers to these questions can be evidence of the questionable and fraudulent characteristics of the offer. If victims are motivated by greed, deliberation may be hampered. Other characteristics of victims are that they are emotionally and socially isolated and lonely. They may have experienced a negative life event recently, such as loss of partner, loss of job, and income decrease. They tend to listen to stories and proposals of strangers (Pak and Shadel, 2007). They have difficulty in distinguishing between honest and dishonest influence attempts. They are also more gullible (trusting) and compliant than average. This means they are somewhat naïve and do not recognize influence attempts of fraudsters.

Typical Internet behaviors of potential victims are: clicking on pop-ups, opening email from unknown sources, selling and buying

products on online auction sites, signing up for free limited-time trial offers, downloading apps, purchasing through an online payment transfer site (Shadel, Pak and Sauer, 2014). We all do these Internet acts, but potential victims more frequently than nonvictims, and this is the main reason that they became a victim. Potential victims are more often not aware that banks do not send emails to their customers asking them to click on a link to verify personal information (Shadel, Pak and Sauer, 2014). People need to be attentive to the plausibility of proposals, misspellings and grammatical errors in the language, and check email addresses of senders.

Characteristics of Fraudsters

An investment plan may start as a legitimate business that becomes "criminal" over time through the easy way investments can be collected (and not invested) or because the returns to the investors are gradually paid from the investment capital of new investors (pyramid or Ponzi scheme). Gradually, persuasion and deception become part of the business. Bernard Madoff perceived himself as an investor, not a criminal. He was also praised by others because of his clever entrance and exit strategies as an investor.

Characteristics of the fraudsters ("con artists," closers) are cognitive empathy, understanding motives and thinking of prospects, and using this knowledge in a charismatic and persuasive manner to their own benefit. At the same time, fraudsters have a low emotional empathy, not feeling the emotions and consequences for the victims. They perceive their victims or "marks" as "suckers," greedy, ignorant, and incapable, who are at least partly causing their own fate. Fraud offenders see their victims as deserving of what befalls them (Shover, Coffey, and Hobbs, 2003). Low emotional empathy is also a characteristic of psychopaths. However, it cannot be concluded that all fraudsters are psychopaths.

People working in a *boiler room* are usually motivated by greed and becoming wealthy in a short period. A boiler room is a call center where employees make their telephone calls to sell questionable investments to prospects. Dispositional *greed* is a personality characteristic related to self-interest and materialism (Krekels and Pandelaere, 2015; Seuntjens et al., 2014, 2015). Greed has both positive and negative connotations. Gordon Gekko, a fictional character in the movie *Wall Street* (1987), stated: "Greed, for lack of a better word, is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures the essence of the evolutionary spirit." In this vision, greed is the driving force for economic growth and development, as a kind of interpretation

of Adam Smith's "invisible hand" in the *Wealth of Nations* (1776). Greed that results in financial fraud is exploitative and immoral.

Shover, Coffey, and Hobbs (2003) interviewed criminal telemarketers and concluded that telemarketing and financial fraud criminals are different from earlier generations of professional thieves. Their work organizations are more permanent and conventional than before. The boiler room looks like a professional call center. The fraudsters look similar to office workers in legitimate companies. The criminal business often started as a legitimate business and gradually developed into an illegitimate one. Fraudsters often are successful salesmen, "winners," people wanting to influence prospects to accept their offer, and addicted to high income without long working hours.

Why Victims Do Not Share and Report the Fraud

Victims of fraud often think and have nightmares about the fraud. *Counterfactual thinking* (Roese, 1997) is thinking about what might have happened, how the fraud could have been prevented, if one should have behaved differently. Counterfactual thinking may be productive learning from the negative experience and preventing it happening again. Too much counterfactual thinking, however, has negative consequences such as anxiety and depression.

Social sharing (word-of-mouth) is a coping tactic when people have been victims of financial fraud. In conversations with other consumers, victims may warn them (social motive) not to engage in similar types of fraud. "Venting" is another type of social sharing to cope with negative emotions such as anger and regret. The anger of the victim may be reduced by talking about the personal consequences of the fraud and by getting support from others.

Victims often experience anger about the fraud, shaming themselves, and regretting their participated in the fraudulent transaction. These emotions are related to the type of actions victims engage in. There are several reasons why victims report or do not report to the police or to another agency the financial scam or swindle they experienced.

1. Shame and fear may be too high, and thus victims are too embarrassed to come forward and report.
2. Victims feel there is little personal benefit in reporting an incident of fraud, because the police will not find the offender or there is lack of evidence for legal action.

3. The definition of fraud is not always clear. Victims may not know whether it was really fraud or some form of incompetence or misunderstanding.
4. Victims think that the financial and behavioral costs of reporting are too high. The behavioral costs include the effort and time (opportunity costs) of reporting (Verhallen and Van Raaij, 1986).
5. Victims estimate costs of reporting as higher than expected benefits.
6. Victims are accustomed to winning and losing money with investments. They reason that losing money, even in a fraudulent way, is part of the game and thus they do not report.
7. Victims may not know where to report, to the police, to a Better Business Bureau, or to a crime control agency.
8. If anger and irritation are high, victims report and hope that offenders will be detected and punished. This is the revenge motive.
9. Victims report because they want to warn others and prevent them from falling prey to the fraud. This is a social motive.

EDUCATION OF CONSUMERS ABOUT FINANCIAL FRAUD

To be a victim of financial fraud will harm and sometimes ruin the financial future of victims, because investments have been lost and retirement income will be lower. Financial fraud is certainly not part of responsible financial behavior. It is worthwhile educating people to avoid becoming a victim. Usually, cases of successful fraud are employed to explain to consumers its method of working and also to teach them how to avoid it. Friedman (1998) recommends using a broader and more diverse database of both successful and unsuccessful fraud cases for educating consumers. In this way, more can be learned from these cases.

Specific recommendations in a program of financial education are:

1. If consumers distrust an email message, they should not reply at all. A reply provides the fraudster with information that the email address is valid.
2. The fraudster tries to dominate the telephone conversation by asking questions to the prospect. In return, the prospect should ask questions to the fraudster about his firm, his address, his license, and how the fraudster got the prospect's telephone number. Prospects dominating the conversation with this type of questions are discouraging to fraudsters.
3. Prospects should say that they have no time right now and ask for a telephone number to call back later. Usually, fraudsters will not

give their number and try to convince the prospect that they will call back later.
4. Consumers should check the information given by fraudsters on the Internet or with more knowledgeable investors or other reliable sources.
5. Consumers should be educated to recognize influence tactics and ways to react to these tactics. A training is needed to recognize heuristics and tactics used by swindlers in a conversation.
6. Inform consumers that unusually high (10–12 percent), stable and guaranteed returns are too good to be true, nonrealistic for investment plans, and should not be trusted. Investment plans usually have a high volatility of returns. Guaranteed returns are not realistic.
7. In general, consumers should be educated to discern danger signals ("red flags") in messages such as undisclosed sender, fake sender's email address, unrealistic offer, or stated urgency to respond. Consumers should know that banks, credit-card companies, and transaction processors such as PayPal do not contact their customers this way. Friedman (1998) found that "strange" characteristics of the offer including language errors are the major danger signals.
8. Consumers should be educated about escape mechanisms to ward off a scam or swindle such as declining answering the fraudster, refusing the offer for the moment or categorically, or taking steps to prevent losing money (Friedman, 1998).
9. If you do not trust the information and proposals, inform the police and other institutions about the questionable proposals.

Conclusions

Unfortunately, financial fraud is part of the environment of consumers. Examples are phishing and advance fee investment and lottery scams. Some fraudsters ("openers") collect information on prospects that can be used in interactions with potential victims. In these interactions by "closers," fraudsters use tactics based on heuristics and roles in their conversations persuading consumers to invest in a fraudulent investment plan. Frequently used heuristics are: source credibility and trust, phantom fixation, social proof and herding, scarcity, and comparisons.

Everyone may become victim of fraud, but people with low self-control are more likely to take risk and cooperate with fraudsters. Victim profiles differ for different types of scams, such as lottery and investment scams. Victims do often not report the crime because they

are ashamed and do not believe that the fraudsters will be caught and they will get their money back.

A number of recommendations are given to consumers to be aware of fraud, to recognize fraudulent messages, and to resist persuasion attempts of fraudsters.

10

Responsible Financial Behavior

This is a key chapter. Understanding consumer financial behavior is a prerequisite for helping consumers to make better financial decisions. Most people have low financial literacy (knowledge and skills) levels, and this is a cause of many mistakes and lack of appropriate actions, for instance, saving enough for retirement. Financial education may be a solution, but other ways to get around the financial illiteracy problem of consumers involve financial planning and advice. The objective is responsible financial behavior with happiness, peace of mind, and well-being as desirable consequences. This chapter can be read in combination with chapters 11 (individual differences and segmentation), 12 (confidence and trust), 13 (loss aversion and reference points), 14 (risk preference), 15 (time preference), 16 (decision-making), and 17 (self-regulation).

What Is Responsible Financial Behavior?

The goal of responsible financial behavior is, first of all, to improve personal *financial well-being*. Indirectly it also contributes to society, in the sense that people with responsible financial behavior are less likely to have financial problems such as problematic debt, and less likely to have health problems (Gathergood, 2012a) such as anxiety and depression. Financial problems may cause conflicts between partners. And financial problems take away mental resources and cause lower performance at work. Financial knowledge (literacy), skills, and advice from experts should improve happiness and financial well-being of the household. Financial well-being may be defined as a state of security and certainty that financial matters are well-organized and effective for attaining goals of the individual or household. These goals can be a desirable consumption level, lifestyle and leisure, education of the children, health care, retirement income and old-age provisions, helping other people financially, donations to charities and other "good causes," not becoming a victim of fraud, and participation in society

(social and financial inclusion). Note the latter three goals of the individual or household are contributions to society.

Responsible and sustainable financial behavior is financial behavior performed in a responsible and sustainable way, such as:

1. Expenditure based on income: not spending more money than you possess now or expect possessing in the future. This can be done on an annual basis, as in the budget estimate of a company. In Friedman's (1957) permanent income model, consumption expenditure is based on the average income of a 3- to 5-year period. In Modigliani's (1966, 1986) life-cycle model, consumption expenditure is based on the estimated life-time income.
2. Avoiding impulsive decisions and purchases, but making deliberate decisions, comparing alternatives on relevant characteristics such as the number and amount of monthly payments of a loan or mortgage, fixed or adjustable interest rate, and penalty clauses.
3. Choice of financial products and services based on the match or fit of the financial product with the present and future financial and family/household situation.
4. Seeking help of a competent financial adviser or planner, if personal knowledge and skill are insufficient or inadequate and making sure that the financial adviser works in the client's interest (section "Financial Intermediaries" in chapter 16).
5. Keeping a financial (savings) buffer for unforeseen expenditures. Some organizations give recommendations about the size of the financial buffer.
6. Retaining sufficient discretionary income for daily expenses. Discretionary income is the income left over after paying nondiscretionary (obligatory, mandatory) payments such as paying off loans and mortgages, rent, insurance premiums, subscriptions, educational costs of children.
7. Paying credit-card bills in full each month (within the grace period).
8. Taking insurance for income decline, and high and unbearable costs of damage and legal responsibility to others.
9. Taking only controllable and calculated risks with investments and credit: Never investing your total wealth, but only a part in risky assets, with, in the long term, a higher return. The other part of your wealth can be invested in bonds or other riskless assets. Diversifying risk and keeping transaction costs low.
10. Taking possible future situations (contingencies) into account such as income decline, (un)foreseen expenses, value decline of real estate, and new fiscal rulings.

This list of "ten commandments" of responsible financial behavior can easily be extended. Actually, this list should be personalized. The life goals and plans of a particular household should be stated first and then assessed whether the financial behavior of the household is responsible and effective for reaching these goals. Financial behavior should contribute to attaining the (life) goals of the household. These goals can be: (1) not going bankrupt (preventive goal), (2) maintaining or reaching the level where one can finance the desired life style (maintenance goal), (3) financing future purchases through saving and credit, and (4) becoming rich (promotional goal) (Zhou and Pham, 2004). In the ideal case, responsible financial behavior is based on a financial tailor-made plan for reaching life goals, and optimizing income and expenditure over the life cycle. Or defined even more broadly: responsible financial behavior is maximizing lifetime utility, based on trade-offs between education and work, work and leisure, owning or renting a home, spending and saving, and financial assets. Responsible financial behavior is thus based on a combination of *life planning* and *financial planning*.

The consequences of responsible financial behavior are both at the individual and the societal level. Responsible financial behavior should improve financial well-being and happiness of the household (Gathergood, 2012a). Financial problems often cause marital disagreement and conflicts (Kirchler et al., 2001). A societal consequence of responsible financial behavior is a lower need for assistance and financial support to solve debt problems. People without financial problems also perform better at work, because they worry less about money problems (figure 10.1).

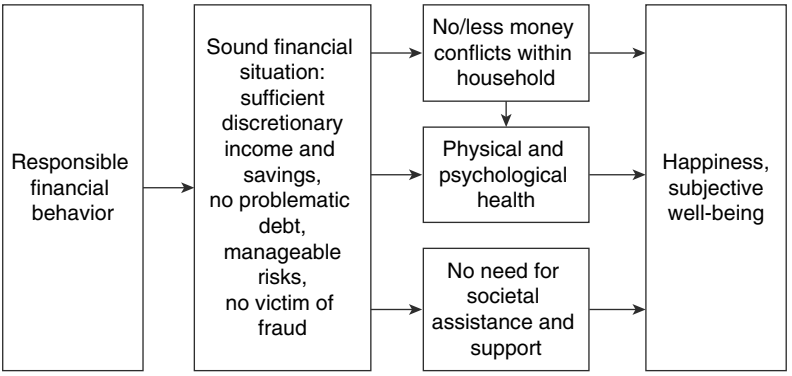

Figure 10.1 Effects and consequences of responsible financial behavior.

FINANCIAL MOTIVATION

In figure 10.2, the determinants of financial behavior (motivation, financial literacy, and skills) are depicted. These determinants depend on sociodemographic, psychological, and situational factors, as well as on financial education.

Financial motivation is the willingness to understand household money management, financial products, to take deliberate decisions, with the desire to behave in a financially responsible way. Financial motivation includes the financial responsibility people accept for their family and themselves, spending money in a responsible way to avoid problematic debt, and attaining desired goals and consumption levels. Usually, life events such as marriage and getting or losing a job are needed for people to get involved in financial affairs. Mandell (2008) found that the fear of retiring poor has motivational value for people to get involved in financial education and planning.

Financial motivation is related to *need for cognition*, the willingness to think about and understand financial matters. Motivation is a requirement for people to get involved with financial products and develop financial literacy (knowledge and skills). Antonides, De Groot, and Van Raaij (2008) conclude that an overview of personal finances is a prerequisite for financial literacy and for making effective financial decisions. This overview includes balances on bank and savings accounts, coverage of risks by insurance policies, and balance of income and expenditure of the household over time.

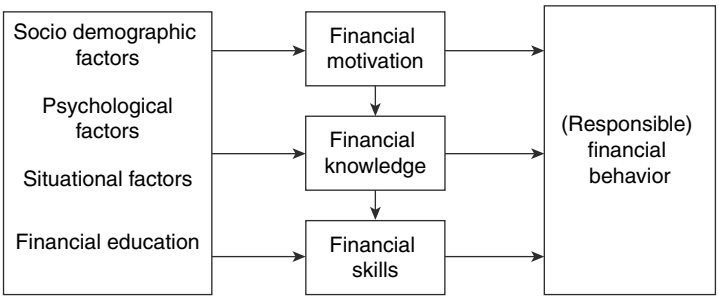

Figure 10.2 Sociodemographics, psychological and situational factors, financial education, financial motivation, financial literacy, and financial skills as determinants of (responsible) financial behavior.

Financial Literacy

Financial literacy (knowledge and skills) is the understanding of financial concepts, such as interest rate and financial risk, the understanding of financial products such as insurances and mortgages, and skills (ability) to use this knowledge for (better) financial behavior. In the PISA (Program for International Student Assessment of the OECD, 2012) project, financial literacy is defined as: knowledge and understanding of financial concepts and risks, and the skills, motivation, and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life. The first part of the PISA definition concerns desirable personal characteristics, such as knowledge and skills. The second part is about the consequences of behaving in a financially responsible way. Financial literacy, in the OECD definition, is defined so broadly that it becomes similar to responsible financial behavior.

Financial literacy includes insights whether personal knowledge is sufficient for making effective financial decisions and for solving financial problems. People should not be overconfident but should have realistic insights into their personal knowledge and skills. Overconfidence is dangerous because overconfident people think they have enough knowledge for making decisions, and are less open to changes in the environment and new information (Lusardi and Mitchell, 2007). In a German sample, it was found that many people overestimate their financial knowledge; they are (over)confident that they understand financial products and concepts, but can only answer 42 percent of the survey quiz questions correctly (OECD, 2005). If financial knowledge is insufficient, people should seek help and expert advice in making financial decisions and solving financial problems. They should know reliable information sources for obtaining relevant information for their personal situation. These sources may be found on the Internet, consumer organizations, banks, insurance companies, pension funds, intermediaries, and financial planners. The HRM department of the employer (for pension plans), bank employees, insurance companies, intermediaries, and financial planners may be consulted for help. Financial planners may be able to provide a comprehensive overview and insights into the financial state of a household. Financial literacy also includes awareness of financial risks: risks of financial products under adverse conditions

such as economic recession, personal unemployment and income loss, divorce, and disability to work.

Due to the increasing complexity of financial products, more responsibility of consumers, and the "interactions" (inferences) between financial products, people should be prepared for making important financial decisions and knowing how to handle financial products in their own short-term and long-term interests. In the United States, since the 1997–1998 academic year, the Jump$tart Coalition for Personal Financial Literacy has run large-scale surveys of high school seniors to assess their financial literacy (Mandell, 2008). These surveys show that American youth and adults do not possess the basic financial knowledge needed for making good financial decisions. This lack of financial literacy has been shown to result in poor financial decision-making. Murray (2000) stated that 25 percent of undergraduate students have four or more credit cards and about 10 percent carry outstanding balances of between $3,000 and $7,000. Financial illiteracy is also common in other developed countries such as those in Europe, Australia, Canada, Japan, South Korea, and New Zealand.

Lusardi and Mitchell (2007) conclude from a survey among US consumers that financial literacy is generally low. It is paradoxical that most respondents agree that it is important to have good understanding of personal finances, but these respondents could not correctly answer questions about interest, inflation, credit, saving, and other aspects of personal finance. Financial literacy differs largely between people (Mandell, 2008). There are gender and minority gaps: white people score higher than Afro-Americans and Hispanics; men score higher than women; adults score higher than young people. Lusardi, Mitchell, and Curto (2010) found large differences in financial literacy based on sociodemographic characteristics and family financial sophistication. A college-educated male whose parents have stocks and retirement savings is about 45 percent more likely to know about risk diversification than a female with less than high school education whose parents are not wealthy. People with low financial literacy are more likely to have problems with debt (Lusardi and Tufano, 2009), less likely to participate in the stock market (Van Rooij, Lusardi, and Alessie, 2011a), less likely to accumulate wealth and manage wealth effectively (Hilgert, Hogarth, and Beverly, 2003), and less likely to plan for retirement (Lusardi and Mitchell, 2007; Van Rooij, Lusardi, and Alessie, 2011b).

Financial literacy can be measured with financial knowledge tests. Lusardi and Mitchell (2007, 2008) developed a test with three

questions. The first two questions are about (compound) interest rate and inflation; the third question is on risk diversification. These questions have been shown to differentiate between financially naïve and sophisticated people. In the PISA project (OECD, 2012), a more extensive test of financial knowledge has been used. The highest scores on this test were obtained by students from Shanghai (China) and Flanders (Belgium). Atkinson and Messy (2012) report the results of an international OECD survey on financial literacy. Apart from general financial literacy, specific financial literacy tests have been developed, for instance, mortgage financial literacy (Gathergood and Weber, 2015), financial literacy related to stock market participation (Van Rooij, Lusardi, and Alessie, 2011a), and to retirement planning (Van Rooij, Lusardi, and Alessie, 2011b). Huston (2010) published a comparison of 71 studies on measuring financial literacy. She concluded that financial literacy is more than just financial knowledge. It consists of knowledge and skills to apply this knowledge in financial behavior. An example is the definition of the US Financial Literacy and Education Commission (2007): "Financial literacy is the ability to use knowledge and skills to manage financial resources effectively for a lifetime of financial well-being."

Improving financial literacy and skills should have a favorable effect on financial behavior. This is the case in many but not in all situations and for all consumers. Hilgert, Hogarth, and Beverly (2003) found a positive relationship between financial literacy and financial behavior (practices). The effect of financial literacy and skills is however not as strong as one would expect. Some households manage to make ends meet without much financial literacy. Other households with high financial literacy are overconfident and take high risks and get into problematic debt. Financial education has a hard time competing with a dominant consumer culture with easily available consumer credit and a strong need of many consumers to keep up with the consumption level and possessions of others (Peñaloza and Barnhart, 2011).

Financial Skill

Financial skill is the ability to use financial knowledge and financial advice for personal financial management. Financial skill is applying financial knowledge in practical situations, knowing what to do and how to do it. For children, this may be the skill of managing pocket money and saving for purchasing products. Budgeting, for instance, as a type of financial management, requires a number of financial, administrative, and computation skills. Because most financial behavior

is done online or with mobile devices, financial skills include digital literacy and skills:

1. Online digital and banking skills
2. Discipline of paying bills and taxes on time
3. Keeping track of balances of checking and saving accounts and automatic payments
4. Financial numeracy and computational skills such as addition, calculation of percentages and compound interest. Computation of compound interest is difficult for most people
5. Comparing prices, interest rates, and conditions of financial products
6. Filling out forms: tax declaration forms, application forms, insurance claim forms
7. Budgeting allocation and expenditure of money, and bookkeeping
8. Reserving money for repair, depreciation, and replacement of durable goods.

It requires conscientiousness and self-efficacy (section "Self-Efficacy" in chapter 17) to keep payment records and to organize personal financial bookkeeping, and tax declaration. Because this work is often seen as difficult and onerous, many people postpone this task (procrastination; section "Time Management and Procrastination" in chapter 15). By postponing the tax declaration to close to the deadline, rushing and consequent errors may lead to overpaying taxes. Online tools are available for bookkeeping and budgeting and banks may offer budgeting tools with the checking account.

FINANCIAL EDUCATION

An obvious model is that financial education improves financial literacy, and this affects financial behavior. There is mixed empirical evidence on the effects of financial education on financial literacy. Financial education has only weak effects on financial behavior. Many studies show that financial literacy has a strong effect on different types of financial behavior such as spending (cash flow management), saving, borrowing, planning, and investing. A number of person factors are related to financial literacy, such as numeracy (calculating skill), self-regulation, self-control, self-efficacy (chapter 17), future-time orientation (chapter 15), and taking calculated risk (chapter 14). These factors have a strong effect on financial behavior, are highly correlated with financial literacy, and, we might say, almost constitute financial literacy. This is depicted in the model of figure 10.3. The strong relationships in this model are indicated by the heavy weights of the arrows.

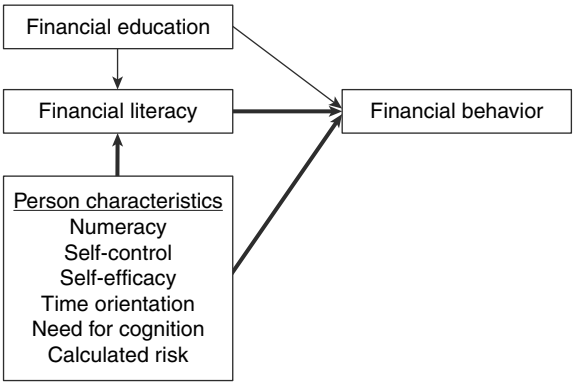

Figure 10.3 Financial education, financial literacy, person characteristics, and financial behavior (the weight of the arrows indicates the strength of the relationship).

In many studies, the effects of financial literacy on financial behavior remain significant after correcting for other explanatory factors such as level of education, age, gender, and income. The effects of financial education and socialization on financial behavior are mixed. In some studies positive effects have been obtained, but in other studies no effects could be found. Webley and Nyhus (2006) found a small but significant influence of parents on their children's conscientiousness (section "Conscientiousness" in chapter 11), future orientation (chapter 15), and saving. Mandell (2001), however, concluded that if parents are involved and discuss financial matters with their children, their children are no more financially literate than children with parents who spent little time on discussing financial matters. Willis (2009, 2011) doubts the effects of financial education on financial behavior and used the term "financial education fallacy," because financial education may make people more confident (even overconfident), but does not improve their financial ability and skills.

Fernandes, Lynch, and Netemeyer (2014) did a meta-analysis of 201 studies and found small effects of financial education, as course-type interventions, on financial behavior. These effects were even smaller for low-income people. Like other education, financial education decays over time. Even large interventions with many hours of instruction have negligible effects 20 months later. Traditional course-type financial education is not the antidote to the complexity of financial products and choice.

Students who attended a course on financial education did not score higher on financial literacy than students who did not attend, but students who played a stock market game did. The latter correlation

should not necessarily be interpreted in this causal direction. It could be that students with high financial literacy are more willing to participate in stock market games. *Gamification* of financial education may be a successful approach for young people to obtain useful insights into financial management. Financial education *apps* could also be effective. These apps can be consulted at the point of purchase or when other financial decisions have to be made. In games and apps, social comparisons with "similar" consumers may be interesting and stimulating. People like to compare themselves with others.

Financial education to be effective should be part of consumer socialization by parents, schoolteachers, and peers. Young children learn by observing, modeling, being taught to practice, and processing the information around them (Bandura, 1986). This may be unintentional, as young children emulate the behavior of their parents and accept their norms and values on spending and thrift (Mandrik, Fern, and Bao, 2005). Older children and adolescents are influenced by their friends and role models (Jorgensen and Savla, 2010). Monitoring and feedback are major learning tools for behavior. Financial education of children as a continuous effort to provide examples, norms, and feedback may have favorable effects. An experienced financial problem may be a "learning" for future behavior (Antonides, De Groot, and Van Raaij, 2008). Parents could educate their children by discussing financial practices and responsible financial behavior. Shim et al. (2010) found that direct teaching by parents influenced financial norms, attitudes, and behavioral control of first-year graduate students into a favorable direction.

Allowances or pocket money are a major educational tool in parent-child interaction on financial behavior. These allowances are either earned income or an entitled amount of pocket money (Miller and Yung, 1990). Children who are paid for doing chores are more financially literate than children that receive regular allowances from their parents. Children should be trained to make ends meet with a regular allowance, and parents should not give more money if children ask for this. Financial skills and financial planning can thus be trained in practice.

Financial education is not yet taught in most countries as a course "personal finance" at elementary schools and high schools. An exception is the large program in Brazilian high schools with repeated instructions and practicing financial skills. The skills are: saving for purchase rather than buying on credit, comparison shopping, negotiating prices with sellers, and keeping track of expenses. This program has strong effects on financial preferences and outcomes (Bruhn et al.,

2013). In a study in the Dominican Republic, researchers tested the benefits of simplicity by comparing a full-fledged financial education module with a set of simple rules of thumb. The simpler training had more effects on knowledge and behavior than the full module. For people with no prior financial education, highlighting key heuristics for daily use is more effective (Drexler, Fischer, and Schoar, 2014).

Xu and Zia (2012) concluded that conventional financial education programs in low-income countries have limited effect. But an effort in South Africa to educate through an engaging television soap opera improved financial choices individuals made. Financial messages were embedded in the program about a financially reckless character. After watching the soap opera for two months, people were less likely to gamble and to purchase goods through an expensive installment plan (Berg and Zia, 2013). In Ethiopia, disadvantaged people commonly report feelings of low internal control, such as "We have neither a dream nor an imagination" and "We live only for today." Households were invited to watch inspirational videos of individuals from their region telling how they had improved their socioeconomic position by setting goals and working hard. Half a year later, the households that watched the videos had higher total savings and had invested more in their children's education. These examples show that television and video are powerful media for reaching and convincing people, not by teaching traditional lessons, but by giving examples and role models for better financial behavior (Bernard and Taffesse, 2014). In the Ethiopian case, the videos were mainly motivational and abating people's inertia to improve their situation.

Poor people (Mullainathan and Shafir, 2013) often have a high price knowledge. Due to their low income, they are forced to look for low prices and products on sale. They are continuously trying to solve their present financial problems and thus have no or less energy and mental resources left for future situations. This may explain their present bias.

Financial education is really needed for many individuals. However, it should not be taught in an abstract economic manner with the focus on knowledge, but courses should contain practical examples and skills training on pocket money, saving and credit, and price comparisons. These examples should be appealing and useful for children and adolescents. A good example is the high-school courses in Brazil (Bruhn et al., 2013). Financial education to adults should preferably include personalized information and financial data of the student's financial situation to get students involved with relevant examples, analysis, and advice. Financial education should include "hands on"

activities, skills, tricks, heuristics, games, and exercises to be effective. In this way, financial education may have a direct effect on financial behavior. The key elements of a financial education program are thus: (1) *repeated instruction* on the basic knowledge, (2) *skill training* to apply this knowledge in practice, (3) *concrete recommendations* (rules of thumb) on what to do and how to do it, (4) using *apps* to be consulted at the time of decision, and, if possible, (5) *personalization*, using personal financial data of the student or trainee.

The main psychological requirements for financial education and responsible financial behavior are:

1. *Conscientiousness*, the willingness and persistence to record expenses for budgeting and bookkeeping purposes (chapter 11)
2. *Future-time preference*, the propensity to plan, save, and insure by considering the future financial situation (chapter 15)
3. *Self-regulation*, self-control, self-constraint, or willpower (Baumeister and Tierney, 2011), the willingness and ability to stay in control and maintain a grip on the personal financial situation (chapter 17).

If self-regulation and willpower fall short of reaching responsible financial behavior, precommitment devices such as automatic saving and automatic payment of credit-card bills and mortgages may help in reaching these goals (section "Precommitment" in chapter 17).

Financial Planning

A *financial plan* is a series of steps and measures used by an individual or household to accomplish financial goals, such as elimination of debt or creating financial provisions for retirement, or nonfinancial goals such as buying a home or taking a holiday. This often includes ways of assuring a monthly discretionary income for the individual or household, and it may include a series of steps or specific goals for spending and saving future income. The financial plan allocates future income to various categories/accounts, such as rent or utilities, and also reserves some income for short-term and long-term savings.

Financial planning consists of having an insight into the following aspects:

1. A prerequisite of financial planning is an *overview* of basic facts such as composition and financial situation of the household; stability of jobs and income(s); lifestyle and discretionary and nondiscretionary expenditure levels, and present and expected future

discretionary income. Budgeting is relevant to get insights into how much money is spent on expenditure categories. Risk propensity and attitudes of household members toward debt can also be taken into account.

2. *Life planning* is the integration of plans and goals of the household for career and income, education of children, housing, traveling, leisure, hobbies, sports, and (early) retirement. It includes a quick scan and impression of how realistic and attainable these plans and goals are and it relates plans and goals to financial products.
3. *Integrative planning*: the connection between life planning and financial products. In the financial plan, it is stated how much money should be allocated to saving and spending, how much money as provisions for education and pension, and which financial products are needed for the household, such as insurances, in order to have sufficient discretionary income and to reach plans and goals of the household within an agreed period.
4. *Contingency planning* is anticipating what may go wrong, which economic developments and emergencies may happen, and having solutions, for instance, financial buffers or credit, for these contingencies.
5. *Process planning* is the execution of the financial plan in daily life: Which tasks have to be done? Who is the financial officer, responsible for performing these tasks and their outcomes, and responsible for what should be done if outcomes fall short of the planning. And, last but not least, sticking to the financial plan, not accepting excuses and exceptions, but executing the plan during the agreed period. Many people fail to start the process to execute the financial plan because they perceive it as complex and onerous. If the plan is partitioned into a series of (relatively easy) steps to be taken, chances are higher that people will start the process. See the section on "Time management and procrastination" in chapter 15.

Designing a financial plan is usually done by a professional financial planner who, after discussion with the members of the household, and consulting their documents and bank accounts, provides a report of the present and expected future financial states of the household. This can be done as different scenarios depending on the economic developments such as inflation, interest rates, and business cycle (upswing and recession). Financial planning should not be a one-time exercise only, but should be an ongoing process taking economic, fiscal, and other developments into account. Financial planners should also take the heuristics and biases of their clients into account. Their clients may

perceive their wealth, their portfolios of insurances, and investments in a different way than the planner. The financial planner should not only teach how to do it, but should include the preferences of their clients, even if their clients feel better with somewhat suboptimal solutions. It will increase the acceptance of the financial plan and the motivation to execute the plan (Van Raaij, 2016).

Quite a number of "how to" self-help books exist on life planning and financial planning. These books come with tips and recommendations on what to do in specific cases. It is most interesting if these books start making people aware of their frustrations, desires, and life goals, and their money management and poor financial decisions. Self-insights are needed to start changing and regulating financial behavior. An example is Richards (2012, 2015), starting with life planning and using financial planning as a tool for reaching life goals, happiness, and well-being.

Schuurmans (2011) argues that financial planning should be an *integrated financial advice*, not focusing on financial products such as mortgage separately, but in combination with other financial products such as insurance and investment. "Integrated" means that the total effect of all financial products should be assessed simultaneously, and interactions between these financial products should be taken into account. Overinsurance can then be eliminated. Wealth can be activated, for instance, in an annuity. Financial planning is expensive because of the many hours an expert has to spend collecting information and writing a specific report of the financial situation of the household. Usually, the investment in a financial plan pays off by the savings and results of better financial decisions.

Poiesz and Van Raaij (2007) developed the idea of the VGA (*Virtual Guardian Angel*), a software system that "knows" the preferences of household members and monitors the financial status of a household continuously. If external developments have an impact on the financial situation of the household, the VGA provides solutions how to react and maintain stability and growth of the financial situation. The VGA is an example of general *duty of care* for the portfolio of financial products of a household. The preferred case is an integrated portfolio of financial products, even including related (nonfinancial) domains, such as home protection, maintenance of home and garden, leasing, optimalization, and replacement of durable goods such automobiles, computers, telephones, and other durables, and possible contingencies. The longer the relationship and the larger the portfolio of financial products, the more integrated and better the advices and suggestions of the VGA can be.

The developments of financial planning and the VGA may be solutions for the lack of individual financial literacy. If household members can state their preferences, plans, and goals, the VGA provides financial conditions and solutions to maintain financial stability and reach desired goals. Financial planning and VGA are control and management tools for optimizing, stabilizing, and ameliorating the financial situation. In this way, household members may spend (quality) time on other activities than the household finances, for instance, playing with their children and participating in cultural events.

Conclusions

Financial literacy is generally low in the population. Most people have difficulties understanding financial products, comparing alternatives, and making financial computations and decisions. Financial education at school and for adults may be a way to increase financial literacy. As most people are not motivated and it involves learning more about the risks and options of financial products, financial education should include training in practical skills and using relevant information (apps) and should be entertaining and motivating by using video and giving examples and role models.

Conscientiousness, self-regulation, self-control, self-efficacy, precommitment, and future-time preference are important factors to maintain a grip on the financial situation. Precommitment devices are instruments to exert self-control to avoid problematic debt. Self-regulation will be discussed in chapter 17.

A remedy to low financial literacy is financial planning and advice to individuals. People understand that financial matters are important for them and need help to get insights into their financial situation and opportunities and implement these insights into responsible financial behavior.

Part II

11

Individual Differences and Segmentation

Economists prefer relationships at the aggregate level; psychologists usually focus on the individual level. Relations at the aggregate level may be misleading if segments exist of people with different behavior. This chapter is about how people differ in their sociodemographic variables and other factors related to financial behavior. Personality is one of the factors explaining differences in financial behavior. The Big Five of personality factors is discussed here. Especially relevant for financial behavior are: conscientiousness and openness to experience. Consumers may be segmented into homogeneous segments or cohorts. Different policies can effectively be applied to members of different segments.

Individual Differences and Personality

It is obvious to state that people differ in their sociodemographic profiles and personalities. In this chapter, the focus is on the individual differences related to financial behavior. These differences may explain and predict how people spend their income and how people make financial decisions and buy financial products. Segments of people may be formed that are homogeneous with regard to individual differences and/or financial behavior. Consumer policy of the government and marketing management of financial institutions may treat these segments differently and more effectively, according to the segments' characteristics and behavior.

Sociodemographic variables that are "always" relevant are: age, gender, and level of education. In almost all segmentation studies on whatever topic, these variables turn out to differentiate between people. For financial behavior, also relevant are: type of education, type of occupation, household composition, discretionary income, stability of income, and stage in the family life cycle. Type of education or

occupation is relevant because people with an education or occupation in economics, accounting, or business know more about finance and understand financial products better than people with any other type of education. Other relevant characteristics for financial behavior are: conscientiousness (this chapter), financial literacy and skills, such numeracy (knowing how to calculate; chapter 10), risk preference (chapter 14), time preference (chapter 15), and self-control, self-efficacy, and self-regulation (chapter 17).

Personality is an enduring characteristic of a person that is, in the ideal case, stable across situations, and, to a certain degree, explaining and predicting the behavior of the person. Mischel (1968) developed a model of interaction between personality and situation. A personality characteristic may be more relevant and prominent in a situation that "fits" the personality characteristic. Greed is, for instance, more prominent and more predictive of behavior in a situation of dividing money between self and others.

The predictive validity of personality variables is generally quite low. Researchers agree that five robust personality variables perform better than other personality variables. These personality variables are summarized in the *Big Five* (Norman, 1963; Barrick and Mount, 1991; Nicholson et al., 2005). These Big Five personality factors are: (1) extraversion; (2) emotional stability, neuroticism, and trait anxiety; (3) agreeableness; (4) conscientiousness; and (5) openness to experience. We discuss these five personality factors below.

EXTRAVERSION

Extraversion *versus* introversion can be assessed with the following facets given in bipolar scales. These bipolar scales give an impression of the facets that belong to the bipolar extraversion-introversion factor (Norman, 1963; Costa and McCrae, 1992):

- Talkative *versus* silent
- Frank and open *versus* secretive and closed
- Assertive *versus* restraint
- Adventurous *versus* cautious
- Excitement seeking (high arousal) *versus* quiet (low arousal)
- Sociable *versus* reclusive
- Warm *versus* cold
- Active *versus* passive
- Impulsive *versus* deliberate
- Positive *versus* negative emotions

Extraversion has an established relationship with the need for arousal and therefore with sensation seeking and risk taking (Lauriola and Levin, 2001). *Sensation seeking* (Zuckerman, 1994) is motivated by the need for arousal of the central nervous system. Some people have a high optimum stimulation level (OSL; Berlyne, 1963; section "Risk Taking" in chapter 14). The high need for arousal can be met by varied, complex, novel, and intense stimulation and experiences. High sensation seekers have a high OSL, seek more stimulation, and therefore tend to take more and greater risks than low sensation seekers (Wong and Carducci, 1991), for instance, in investing and gambling. Sensation seeking and extraversion may affect financial risk taking directly or through the mediating effect of risk propensity. Young people are generally more extravert and open to new experiences than old people, and this may explain the age effect on risk taking. Young people are more risk seeking than old people.

Emotional Stability

Emotional stability *versus* instability (neuroticism, trait anxiety) can be assessed with the following bipolar facets that give an impression of the facets belonging to the emotional stability-instability factor (Norman, 1963; Costa and McCrae, 1992):

- Poised *versus* nervous and tense
- Calm *versus* anxious
- Composed *versus* excitable
- Secure *versus* insecure
- Nonhypochondriac *versus* hypochondriac
- Friendly *versus* angry and hostile
- Nondepressed *versus* depressed
- Nonvulnerable *versus* vulnerable
- Self-conscious *versus* non-self-conscious
- Deliberate *versus* impulsive

Note that trait anxiety is anxiety as a personality trait, present for an anxious person at a variety of situations and domains. Anxiety may also be a reaction to a threat, evoked only with a threat. Emotional stability, neuroticism, and trait anxiety are indicators of the higher-order personality trait *neuroticism*. Trait anxiety provides the most consistent predictions of risk taking (Lauriola and Levin, 2001). High trait-anxious individuals have a bias toward threatening information and this is a probable cause of a biased risk perception (Gasper and

Clore, 1998). This has been found to be a general tendency and is not restricted to specific situations (Butler and Matthews, 1987). People who score low on extraversion and high on neuroticism are characterized by a risk-avoiding propensity and thus by taking less or smaller financial risks.

Agreeableness

Agreeableness *versus* antagonism can be assessed with the following bipolar facets that give an impression of the facets belonging to the agreeable-antagonistic factor (Norman, 1963; Costa and McCrae, 1992):

- Good-natured *versus* irritable
- Likeable *versus* unlikeable
- Nonjealous *versus* jealous (envy)
- Mild and gentle *versus* headstrong
- Cooperative and compliant *versus* negativistic and antagonistic (competitive)
- Trusting and gullible *versus* distrusting and mistrusting
- Altruistic *versus* egoistic
- Tolerant *versus* intolerant

Agreeableness is related to friendliness and tolerance toward other people. People high on agreeableness trust others more than people low on this trait. Gullibility is an extremely high degree of trust. Gullible people trust other people and institutions, while others distrust these individuals and institutions (section "Trust" in chapter 12). Trust and gullibility may lead to easily accepting the advice of others and acceptance of financial proposals, even criminal proposals by others (chapter 9).

Greed as a personality trait (dispositional greed) is not represented in the *Big Five*, but is relevant for financial behavior. Greed is associated with insatiability, always wanting more money and more other resources (Krekels and Pandelaere, 2015). Greed is also associated with materialism, egoism and self-interest, jealousy and envy, competitiveness, and less agreeableness (Seuntjens et al., 2015). The well-being of greedy people depends on possessing resources, the more the better. For non-greedy people, a certain level of income and resources is enough, and possessing more does only marginally contribute to a higher level of well-being. See the section "Money, Social Factors and Well-being" in chapter 2.

CONSCIENTIOUSNESS

Conscientious *versus* chaotic and unorganized can be assessed with the following bipolar facets that give an impression of the facets belonging to the conscientious-chaotic factor (Norman, 1963; Costa and McCrae, 1992):

- Competent *versus* incompetent
- Self-disciplined and orderly *versus* chaotic and disorderly
- Dutifulness *versus* careless
- Responsible *versus* irresponsible and undependable
- Achieving and striving *versus* complacent
- Deliberative *versus* impulsive
- Scrupulous *versus* unscrupulous
- Persevering *versus* quitting and fickle
- High willpower *versus* low willpower (akrasia)

Conscientious people are more purposeful, disciplined, and responsible in their financial behavior. They are less likely to postpone tasks they have to do, such as filling out forms and preparing a tax declaration (procrastination; section "Time Management and Procrastination" in chapter 15). They are usually well-organized and planning oriented (self-efficacy; chapter 17), and more likely to make deliberate and careful financial decisions based on relevant information and comparisons. Conscientious people are more likely to process all relevant information carefully and to keep record and have overview of their income and expenses, in order to avoid unnecessary risks. See chapters 15 (time preference) and 17 (self-regulation).

OPENNESS TO EXPERIENCE

Open *versus* closed to experience can be assessed with the following bipolar facets that give an impression of the facets belonging to the open-closed to experience factor (Costa and McCrae, 1992). Norman (1963) called this factor "culture" including artistically sensitive, intellectual, and imaginative elements. Others called this factor "intellect." Note that culture and intellect are not personality characteristics, but related to education and ability, respectively.

- Imaginative and fantasy oriented *versus* simple and direct
- Artistically and aesthetically sensitive *versus* insensitive
- Intellectual and reflective *versus* unreflective and narrow

- New ideas *versus* traditional ideas
- Polished and refined *versus* crude and boorish
- Active and impulsive *versus* passive and restraint
- High *versus* low need for cognition

People who are high on openness to experience are more innovative, creative, looking for and experimenting with new products and experiences, and more likely to try new financial products and services. They run more risk with new products, but may have a higher return on their investments. They are also people who are open and sensitive to information and education.

PERSONALITY AND FINANCIAL BEHAVIOR

Figure 11.1 gives an overview of the relationships between these Big Five personality factors and aspects of financial behavior.

High *impulsiveness* induces less carefully taken decisions and impulse purchases. Individuals who are high on impulsiveness run more risks, because they do not have the need to consider all choice alternatives or all attributes of these alternatives. Why do people not analyze choice alternatives carefully before making a decision? Either they want to make a quick decision to enjoy the benefits of the chosen alternative, to avoid the unpleasant emotions and effort arising from trading-offs alternatives and decision-making, or to avoid the opportunity costs of processing

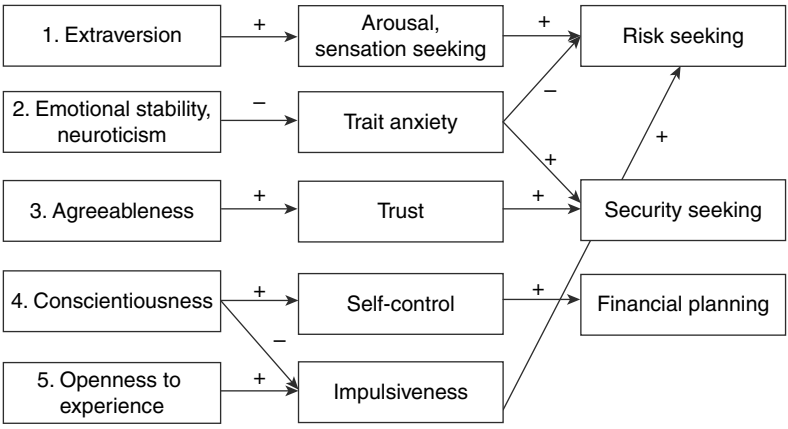

Figure 11.1 Relationships between personality variables (Big Five) and aspects of financial behavior.

information. Impulsiveness is an indicator of two higher-order personality traits: *openness to experience* and *conscientiousness*. Individuals high on impulsiveness are more open to new experiences, have a high OSL (Berlyne, 1963), and are low on conscientiousness. Openness to experience is related to a need for arousal and thus leads to risk-seeking behavior. High conscientiousness is related to processing more information about choice alternatives, focusing on the most certain alternative, and thus predicts financial risk avoidance and careful risk management.

Nicholson et al. (2005) studied the *Big Five* personality factors and concluded that risk takers score high on extraversion, openness to experience, and emotional stability, and low on agreeableness and conscientiousness. *Sensation seeking* (Zuckerman, 1994) is motivated by the need for arousal of the central nervous system. The need for stimulation and arousal can be met by varied, complex, novel, and intense stimulation and experiences. High sensation seekers have a high OSL (Berlyne, 1963) and therefore tend to take more and greater risks than low sensation seekers (Wong and Carducci, 1991). *Extraversion* has an established relationship with the need for arousal and therefore with sensation seeking and risk taking (Lauriola and Levin, 2001). Extravert people are more likely seeking sensation and taking financial risks. Sensation seeking and extraversion may affect financially risky behavior. *Impulsiveness* is an important factor in decision-making. People who take impulsive decisions are more likely to overlook relevant information and relevant options, and thus make mistakes. Impulse control is an important aspect of responsible behavior. Impulsiveness is best accounted for by hyperbolic curves, similar to hyperbolic time discounting (chapter 15). Assuming a hyperbolic discount function, the provision of rewards over time can achieve some impulse control (Ainslie, 1975).

Segmentation

A market is not homogeneous and may be segmented in homogeneous segments or submarkets of consumers. Requirements for useful market segments are (Van Raaij and Verhallen, 1994):

1. Identification of segment: each segment should be identifiable with a number of variables
2. Homogeneity and small variance within a segment: members of a segment should be similar on a number of variables
3. Heterogeneity and large variance between segments: members of a segment should be different from members of other segments

4. Segment size: the segment should be large enough for a separate treatment and policy
5. Accessibility for communication and contacts, for instance, knowing which media the members of the segment use
6. Spending power of segments: profitability of a segment for financial institutions
7. Fit of a segment fit to financial products and services: are products and services available that are useful and attractive for the segment? Or, can these products and services be developed?

Products and services may be differentiated to be appropriate for different segments. *Product differentiation* is the other side of the medal of market segmentation. As a public policy or marketing strategy, institutions may select one of more segments to focus and to target on in their approach (*targeting*). In public policy, a government may focus on segments that are vulnerable for problematic debt or do not have a savings buffer for unexpected and unforeseen expenses.

Active and passive segmentation variables may be distinguished (figure 11.2). Active variables are used to form the segments. Passive variables are used for a richer description of the segments after the segments have been formed. In *forward segmentation*, the segments are formed with individual differences as active variables, such as sociodemographic variables (age, gender, income, occupation, household composition) and psychographic variables (attitudes, opinions, lifestyle, media use, personality, and political preferences). After the segments have been formed, behavioral variables are used as passive variables to check whether the segments differ on financial behavior, such as which financial products and services they use and the intensity of the usage. The advantage of forward segmentation is that

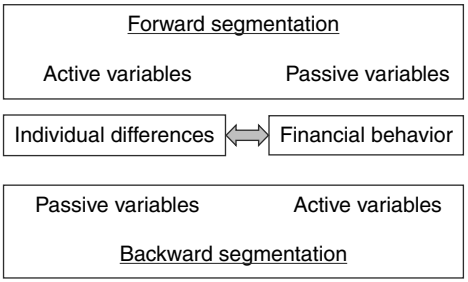

Figure 11.2 Forward and backward segmentation.

it is based on characteristics of people that may be used for knowing people better and for communicating with them. Types of forward segmentation are: geographic, demographic and psychographic segmentation.

In *backward segmentation*, the segments are formed with behavioral variables as active variables, such as the use of financial products and services. After the segments have been formed, sociodemographic and psychographic variables are used as passive variables to give a richer description of the segments. The advantage of backward segmentation is that clear differences between the segments exist in financial behavior and product use. We may then answer questions such as: What are the characteristics of people who participate in investment funds? What are the characteristics of big savers, big spenders, or people in debt?

A combination of forward and backward segmentation is *simultaneous segmentation*. Here, segments are formed based on both individual differences and behavioral variables as active variables. Other individual differences and behavioral variables may then be used as passive variable to describe the segments in a richer way (Van Raaij and Verhallen, 1994).

Relevant segmentation studies are on the order of acquisition of financial products in several European countries (Bijmolt, Paas, and Vermunt, 2004), using latent class analysis as a technique for data analysis. An overview of concepts and methods of segmentation can be found in Wedel and Kamakura's (2000) book on market segmentation.

Cohort analysis is another way to segment a market. In this approach, cohorts are distinguished based on their year of birth. The baby boomers, born after World War II, are a typical example. In cohort analysis, it is assumed that education and early youth experiences differ depending on the economic circumstances of the period people were brought up in. These youth experiences still exert influence later on in life. The baby-boom generation experienced the poverty and recovery after World War II, and this has an impact on spending and saving of this cohort. For instance, baby boomers save more than later generations. Malmendier and Nagel (2011) found differences in risk taking depending on the experiences during lifetime. The generation that experienced low stock market returns during an economic depression are less likely to take risk and participate in the stock market. Older generations have a more extended historical set of experiences than younger generations. Generations use their historical set as an anchor to adapt their risk preference based on recent

experiences. This adaptation is often insufficient. Cohort analysis is a promising research area. In recent years, more research is done on the impact of early youth experiences on present behavior.

Segmentation of Decision Styles

Consumers differ considerably in their decision styles when collecting and processing information and buying financial products. Some people find the relevant information easily themselves and make good decisions when selecting a complex financial product, whereas other consumers need an adviser to assist them in finding information and making decisions about complex financial products, such as mortgages and pension plans.

In order to find the relevant individual differences, ten bipolar questions (table 11.1) were developed in a study of the Netherlands Authority for the Financial Markets to assess the decision style of respondents (Zijlstra, 2012). The answers on these questions are self-reports on decision behavior. This study is thus an example of backward segmentation.

The questions of table 11.1 have a seven-point response scale: three degrees of agreement (completely agree, agree, somewhat agree) with each polar statement (1, 2, 3, and 7, 6, 5), and a neutral response (4) in the middle. A principal components analysis of these questions provided three components or dimensions (figure 11.3).

Table 11.1 Ten bipolar survey questions on consumer decision style [translated from Zijlstra (2012)]

How do you proceed when buying a financial product?

1. I search a large amount of information *versus* I try to restrict the amount of information
2. I take a lot of time *versus* I do it as quickly as possible
3. I consider many alternatives *versus* I consider a few alternatives
4. I do as much as possible myself *versus* I let others do as much as possible
5. I trust advisers *versus* I do not trust advisers
6. I talk a lot about it with relatives and friends *versus* I talk only a little about it with relatives and friends
7. I search until I find the best product *versus* I stop searching when I find a satisfactory product
8. I am prepared to take some risk *versus* I want as much certainty as possible
9. I like to try new products *versus* I stick with familiar products
10. I prefer simple products *versus* I also accept complex products

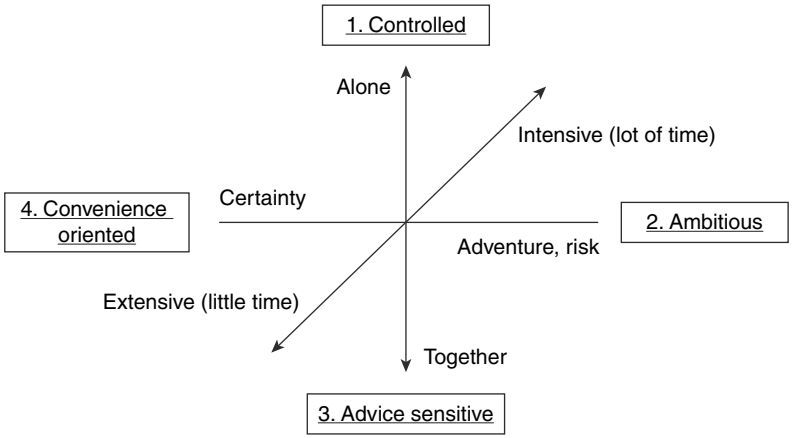

Figure 11.3 Dimensions between the four AFM (Authority for the Financial Markets) segments.

1. *Intensive versus extensive*, spending a lot of time and effort versus spending little time and effort, based on questions 1, 2, 3, and 7. Note that question 7 is on maximizing versus optimizing (satisficing) when making financial decisions (chapter 16).
2. *Adventurous versus certainty*, considering risky, new, and complex financial products or less risky, familiar, and simple financial products, based on questions 8, 9, and 10.
3. Taking financial decision *alone versus together*, based on questions 4, 5, and 6. In the case of taking decisions together, the others are advisers, relatives, and/or friends.

Based on the answers on these ten questions, respondents are segmented into four segments. These ten questions are thus the active variables with which the segments have been formed. The four segments are:

1. "*Controlled*" or "being in control" (n = 596; 49.5 percent): people who have grip on their finances. These people search a lot of information (high on "intensive") and avoid risk (high on "certainty").

   Passive variables: higher education, higher-middle income, preference for digital advice. Members of this segment do their tax declaration and insurance claims themselves.
2. "*Ambitious*" (n = 216; 17.9 percent): people who like to take some risk. These people search an average amount of information and take some risk (high on "adventurous").

Passive variables: higher education, higher income, relatively more investors, preference for cocreation advice. Members of this segment want to become wealthy.

3. "*Advice sensitive*" (n = 308; 25.5 percent): people who depend on advisers. These people rely on advisers, relatives, and friends and prefer to take decisions together (high on "together").

   Passive variables: lower education, lower knowledge, preference for "face-to-face" advice, mostly female, high confidence about future economy.

4. "*Convenience oriented*" (n = 84; 7.0 percent): people who prefer not to spend much effort on financial decisions. These people prefer to spend little effort on financial decisions (They are high on "extensive") and avoid risk as much as possible (high on "certainty").

   Passive variables: lower education, lower knowledge, preference for simple products, preference for "face-to-face" advice, low confidence about future economy.

Over time, the segment "Controlled" has increased in size, from 29 percent in 2004 to 45 percent in 2011 (Zijlstra, 2012), and 49.5 percent in 2014 (Van Esterik-Plasmeijer and Van Raaij, 2016). The segment "Convenience oriented" decreased in size, from 18 percent in 2004 to 10 percent in 2011 (Zijlstra, 2012), and 7 percent in 2014 (Van Esterik-Plasmeijer and Van Raaij, 2016). This means that now more consumers perceive themselves as being more in control than ten years ago. And consumers are less passive, inert, and convenience oriented than ten years ago. Now, they report to use more information than they did ten years ago. The average score on question 7 is a point lower in 2011 than it was in 2004. People show less satisficing behavior (Simon, 1957, 1982) in 2011 than they did in 2004. Satisficing means that search will be stopped after a satisfactory product has been found. Consumers move in the direction of more maximizing in their search; this means that they look now for better alternatives than they did ten years ago. Consumers also became more adventurous between 2004 and 2011; they tend to take more risk and tend to try more new products. This is a good sign: people tend to spend more effort and time now on financial decision-making than they did ten years ago, probably due to the financial crisis.

People with a high level of education search more and are more willing to buy a complex financial product. The interaction of level of education and gender is significant for question 4 (table 11.1). Men

with a high education are more willing to do as much as possible themselves than women with a high education. There are no differences between men and women with a low or medium level of education. Women talk more with others about financial decisions than men (question 6). Women are more risk averse and prefer more simple products than men (questions 8 and 10). Women believe they have less financial knowledge than men, although their objective knowledge scores on pension plans are equal to men.

Conclusions

Personality factors affect consumer financial behavior. Many differences between people can be assessed. As a conclusion we distinguish two main groups: the first group based on extraversion and openness to experience; the second group based on conscientiousness and emotional stability.

Extraversion and openness to experience are related to a high OSL and a high level of arousal. People with these personality factors are more adventurous and ambitious. They want more external and internal stimulation and this results in sensation seeking, impulsiveness, risk taking, and trying new products and services, also in the financial domain, for instance, in investing and gambling. If lucky, these people make more money on the stock market. If unlucky, these people are more likely to run into financial problems.

Conscientiousness and emotional stability are related to a lower level of OSL and a lower level of arousal. People with these personality factors are more careful, deliberate, and focused on certainty. They keep record of their expenses and want to have control of their finances. They are more likely to save, to be insured, and to plan for the future, including their retirement. These people score high on self-control, self-efficacy, and self-regulation (chapter 17).

Segmentation of consumers into homogeneous segments provides more insights into individual differences and targeting to specific segments increases the effectiveness of educational programs and marketing policies. Cohorts are segments with different experiences due to their education and economic circumstances during their youth.

12

Confidence and Trust

Confidence and trust are crucial for the functioning of the economy. Spending, saving, borrowing, investing, all depend on the confidence consumers have in the future economy, their personal finances, and on the trust they have in financial institutions such as banks, insurance and credit-card companies, investment and pension funds. Trust is also needed because the quality of many financial services cannot be inspected at purchase, but may become apparent years later. Without trust, transaction partners and society as a whole have to resort to legal enforcement of contracts, and this is a second-best alternative.

Confidence and Trust

According to Katona (1975), consumer spending is a function of an economic and a psychological factor. The economic factor is the *ability and opportunity to spend*: the discretionary income of households. *Disposable* or *discretionary income* is income after taxes and after paying for necessities such as basic food, clothing, rent, mortgage and credit payments, insurance premiums, and other obligatory expenditures. Consumers have the freedom (discretion) to spend or to save their discretionary income. The psychological factor is the *willingness or motivation to spend*. Consumers have become more important in the economy due to the freedom to spend or save their discretionary income. Based on Katona, table 12.1 shows the effects of income on spending. Included are income developments during last year and expected income of next year.

If consumers had an income increase and expect further increases, they become more confident (more optimistic) about the future and are more willing to engage in new investments (house, car, and other durable goods) and more willing to spend their discretionary income. If consumers have an income decrease and expect more decreases in the future, they become less confident (more pessimistic) about

Table 12.1 Effects of income changes (retrospective and prospective) on spending [based on Katona (1975)] (in general, a lower/higher level of spending means a higher/lower level of saving)

	Future income will be lower (next year)	Future income will be the same	Future income will be higher (next year)
Income has declined during the past year	Most pessimistic expectations Low level of spending	Low level of spending	Optimistic expectations Unstable spending
Income has been stable during the last year	Pessimistic expectations Low level of spending	Stable spending	Optimistic expectations High level of spending
Income has increased during the last year	Pessimistic expectations Unstable spending	High level of spending	Most optimistic expectations High level of spending

the future and are less willing to spend their discretionary income (Katona, 1975).

Consumer *confidence* in the economic policy of the government and in the development of their personal income and spending power plays a decisive role. With positive confidence (optimism) consumers spend more, take more credit, and save less. With negative confidence (pessimism) consumers spend less, take less credit, and save more. The direction and size of consumer demand is an important factor for companies selling goods and services to consumers as well as for economic policy and VAT income of governments.

In developing (scarcity) economies with low-income consumers, almost all consumer expenditure will be on necessities such as food, clothing, and housing. Little or no income is left over for discretionary spending such as for luxury products, restaurant visits, and holiday trips. And also little income can be saved as a financial buffer for unforeseen expenditures and other future spending. Consumers in these countries have less or no discretionary freedom of spending and their spending behavior can be accurately predicted.

If income increases, and consumers are able and willing to spend more, a lower proportion of the income will be spent on necessities. With a higher income, consumers get more freedom and discretionary power to spend or save part of their income. If consumers increase their spending, companies selling goods and services make more profit. If consumers save more, banks will have more capital to invest in governmental and company investment. The prediction of consumer spending and saving is of vital importance for governmental and business

policy. Binswanger (2010) finds that with a higher income the saving rate and equity share (investment) increase substantially.

Confidence is related to optimism about the future. Optimism may be a personality trait, referred to as *dispositional optimism* (Scheier, Carver, and Bridges, 1994). Puri and Robinson (2007) define dispositional optimism as generalized positive expectations of people about future events and outcomes. People tend to overestimate the probability of favorable events and underestimate the likelihood of unfavorable events happening. This is an example of the *optimism bias*. Investors tend to underestimate the chance of losing money on the stock market.

Measurement of Confidence

Consumer confidence is about the past and future of the national economy and the financial situation of the household. Some survey questions in confidence surveys are retrospective, about last year, and some are prospective, about next year. Four types of questions can thus be distinguished, as given in table 12.2. Consumer confidence in the European Union is measured with these four questions and a fifth question: "Is this a good time to buy durable goods?" Answers on these five questions are categorized into proportions of positive, neutral, and negative answers. The proportion of negative answers is subtracted from the proportion of positive answers. The Index of Consumer Confidence (ICC) is the difference of proportions of positive and negative answers. If positive answers dominate, ICC is positive. If negative answers dominate, ICC is negative.

Consumer confidence consists of two components: (1) *economic climate*, based on questions 1 and 2 on the national economy, and (2) *personal finances*, based on questions 3 and 4 on the personal

Table 12.2 Examples of four survey questions used in consumer confidence surveys

	Retrospective questions	Prospective questions
Economic climate (national economy)	1. In your opinion, how did the national economy develop during the past 12 months? Became better/worse	2. How do you expect that the national economy will develop during the next 12 months? Will become better/worse
Personal finances	3. How did your financial situation develop during the past 12 months? Became better/worse	4. How do you expect that your financial situation will develop during the next 12 months? Will become better/worse

finances (table 12.2). Scores on the economic climate are usually more extreme (deviate more from 0) than scores on personal finances. People are usually more extreme (more negative or positive) about the national economy than about their personal finances. In a period of economic crisis, media are full of negative news about government deficits, bankruptcies, and unemployment. Most people thus become pessimistic about the national economy. If they can keep their job and income, they are less pessimistic about their personal finances. The personal finances component is the best predictor of consumer spending and saving (Van Raaij and Gianotten, 1990).

In measuring consumer confidence, it is not assumed that consumers are able to give a valid account on the present and future economic situation of the national economy and their personal financial situation. The purpose of the survey is to measure opinions and sentiment of consumers. If consumers believe that the economic situation is unfavorable, they will act accordingly. This may be a *self-fulfilling prophecy*. If consumers believe that the economic situation is unfavorable and act accordingly (spend less), the economy (business cycle) will go down.

DETERMINANTS OF CONFIDENCE

Confidence comes from political and economic news in mass media and social media, and from personal experiences. Consumers are exposed to media and the Internet, use social media (Facebook, Twitter), and learn about the state of the economy. Depending on whether this news is favorable or unfavorable, consumers form an opinion on how the economy is developing. If they are asked to answer survey questions on the development of the economy, they respond using this information from mass media. News from media has a strong effect on confidence. Mass media reporting each month on the consumer confidence index reinforce the favorable or unfavorable development of the index and thus consumer spending and saving.

Social media (weblogs, Internet newsletters, Facebook, Twitter, LinkedIn) play a role when consumers communicate their opinions on the economy and governmental policy to other consumers. With social media, consumers can easily influence each other, disseminate news, give comments and recommendations, start hypes, organize protests and even boycotts. As might be expected, mass and social media have the strongest effect on the answers on the questions about the national economy (questions 1 and 2 of table 12.2).

Personal experience is different. Consumers know the development of their income, purchasing power, and job security. Personal

experiences also pertain to the financial situation and job security of relatives, neighbors, and friends. In general, personal experience has a stronger effect on purchasing and saving than news in mass media. Many people seem to consider their personal situation to be better than the situation of others. Many people thus perceive themselves as positive exceptions to the average. This is a bias, comparable to the bias that most (70 percent or more) individuals perceive themselves as more humoristic or better drivers than average (Svenson, 1981). People perceive themselves as better-off than others, except when they lost their job or experienced another unfavorable incident.

Figure 12.1 is a model of the determinants and consequences of consumer confidence. Political and economic events and news affect consumer concerns about political and economic issues. For some people news in mass media is complemented by personal experiences. These concerns are the psychological effects, the willingness to buy/save (arrows A in figure 12.1). Parallel to this are income changes, especially changes in discretionary income, affecting consumer confidence and spending. These are the economic influences, the ability to buy/save (arrows B in figure 12.1). Katona (1975) states that both determinants affect consumer confidence. The strongest effects on consumer confidence occur when the psychological and economic influences are in the same direction. If favorable political and economic news coincides with an increase of discretionary income, consumer confidence increases most, especially if these favorable developments occur over a long period. If unfavorable political and economic news coincides with a decrease of discretionary income, consumer confidence decreases most, especially if this happens over a long period.

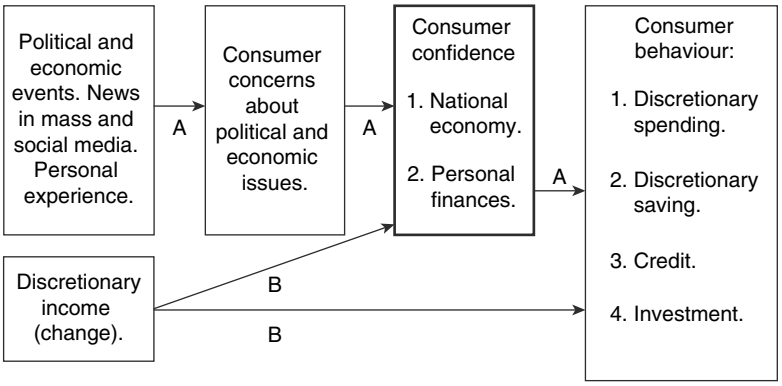

Figure 12.1 Model of the determinants and consequences of consumer confidence.

Table 12.3 Effects of political and economic news and income change on consumer confidence [based on Katona (1975)]

	Favorable political and economic news	Unfavorable political and economic news
Increase of discretionary income	1. Strong positive effect on consumer confidence	2. Moderately negative or no effect on consumer confidence
Decrease of discretionary income	3. Moderately negative effect on consumer confidence	4. Strong negative effect on consumer confidence

The four possibilities are given in table 12.3. A decrease of discretionary income (cell 3 of table 12.3) is likely to have a stronger negative effect on consumer confidence than unfavorable political and economic news in mass media (cell 2 of table 12.3).

CONSEQUENCES OF CONFIDENCE

Two confidence components are distinguished: *economic climate* and *personal finances* of households (Van Raaij and Gianotten, 1990; figure 12.1). The evaluation of personal finances is the best predictor of spending and saving (Van Raaij and Gianotten, 1990; Nijkamp, Gianotten, and Van Raaij, 2002). Dependent variables in figure 12.1 are: (1) discretionary spending, (2) discretionary saving, (3) credit, and (4) investment. *Discretionary spending* is the aggregate spending on goods and services, at the product, not at the brand level. If consumer confidence is high, luxury and more expensive brands are more likely to be bought. If consumer confidence is low, less expensive brands will be bought.

Kamakura and Du (2012) studied the effect of recession on consumer expenditure and found that expenditure for positional goods and services decreases during a recession. *Positional goods* are visible (conspicuous) and nonessential commodities, from which consumers derive utility through consumption and through the positional value of these goods. Social status is attained if consumers use more positional goods than peer consumers. The difference of usage is important. If in a recession, peer consumers, due to income constraints or low confidence, use less of these goods, "superior" consumers can use less as well, as long as the difference can be maintained. This is related to conspicuous or demonstrative consumption (Veblen, 1899).

Economizing tactics during economic recession and low consumer confidence are usually in this order: (1) buying fewer products,

(2) buying cheaper products and brands, (3) increasing or reducing product quality (increasing product quality seems to be a paradox!), and (4) changing lifestyle (Van Raaij and Eilander, 1983). Wealthy households increase the quality of their products in order to use these products longer. Wealthy households economize by investing in higher quality. Poor households have to decrease the quality of their products in order to save money. They may use these cheaper products during a shorter period.

Discretionary saving is higher when consumer confidence is low. This is not the case if discretionary income is also low. It is obvious that consumers need discretionary income for discretionary saving. The dependent variable is aggregate saving because no specific predictions can be made about the types of saving contracts.

Credit will be lower when consumer confidence is low. Consumers become uncertain about the future and want to avoid risks. This means that they want to pay off their credit and mortgage, and do not want to engage in new credit and mortgage contracts. Paying off credit reduces the risk of becoming insolvent or running into other financial problems.

Consumers are less willing to buy stocks and to participate in an investment fund when their confidence is low and uncertainty high. Putting your money at risk is not an attractive option during a recession, uncertainty, and low confidence. With high confidence, people are more willing to accept risk and buy stocks.

Yabar Arriola (2012) shows that low consumer confidence leads to *inaction*, that is, consumers wait and see until the future will become more certain. Many consumers stop their discretionary expenditure and even their contractual saving. They simply delay and postpone any economic decision that may reduce their liquidity and flexibility to prepare for unforeseen negative events that may have an impact on them. The feeling of economic uncertainty seems to block consumer decisions (inaction). Yabar Arriola argues that in times of uncertainty a need for social connection becomes activated. People want to connect with their relatives and friends for social and moral support. Advertising claims with a social content ("we") are more popular than claims with an individual content ("me").

Trust

Trust and confidence are different concepts, although in many languages the same word is used for both the terms, such as "Vertrauen" in German. Trust has a concrete object. We trust or distrust other persons,

financial advisers, intermediaries, banks, and other financial institutions. We also trust or distrust consumer organizations and governmental institutions such as the central bank and governmental policy. Trust is a vital factor in the economy; it is needed for society to function (Mosch, Prast, and Van Raaij, 2006). Luhmann (2000) states that both confidence and trust are crucial components for the functioning of society. Trust is "gambling" on the future behavior of persons and institutions (Sztompka, 1999). Lewis and Weigert (1985) state that trust means acting as if future uncertainties are certainties. Trust is never absolute but always conditional and contextual. If there were no uncertainties, expectations, and risks, "trust" would have no meaning.

John Stuart Mill (1848, p. 131) stated that "the advantage of mankind of being able to trust one another, penetrates into every crevice and cranny of human life: The economical is perhaps the smallest part of it, yet even this is incalculable." Trust does not only facilitate transactions and avoids control, it also contributes to better human relationships and well-being. According to Fukuyama (1995), trust is the cultural key to prosperity. The level of trust in a society shapes the nature of economic transactions and institutions. High-trust countries are characterized by a high degree of spontaneous sociability. Individuals in these countries are able to build strong relationships outside family/relatives structures. High-trust countries are able to generate large corporations in modern society. People in low-trust countries are not inclined to trust people outside their family or clan. They tend to form smaller family-run firms. Traditionally, nations such as Southern Italy and China are low-trust countries, whereas nations such as Japan, Germany, the Scandinavian countries, and the United States are high-trust countries.

Trust is related to macroeconomic growth (Zak and Knack, 2001). In a principal-agent model, the investor may be the principal and the broker the agent. The principal has to trust the agent to work on his behalf: The broker is paid by the principal and has to work to the benefit and interest of the investor. The agent should have no conflict between the principal's and his own interests. If the agent earns more on specific transactions than on other transactions, he may give a biased advice to the principal (section "Financial Intermediaries" in chapter 16). If investors do not trust brokers, the level of investment and thus economic performance and growth will be low. In table 12.4, examples of principal-agent relationships are given. In these cases, the principal pays the agent and the agent "works for" the principal and may cheat the principal. The principal has to control or to trust the agent on the quality and benevolence of his work. Note that in some

Table 12.4 Examples of principal-agent relationships (and trust involved)

Principal	Agent	Chapters
Customer	Retail bank	2, 3, 4
Creditor	Debtor	4
Insurer	Insured	5
Member of pension fund	Pension fund	6
Investor	Broker, investment fund	7
Tax authority	Tax payer	8
Employer	Employee	
Client	Adviser, intermediary, financial planner	10, 16

cases, the roles of principal and agent are bidirectional: The insured is the principal and pays the insurer to cover the costs of his accidents. Inversely, the insurer is the principal and controls or trusts the insured not to submit fraudulent claims.

Trust is also related to better microeconomic work performance (Falk and Kosfeld, 2006). With lack of trust, more control is needed. Control has the association of distrust, and people often react to control by lower performance. Taxpayers perceive control as a signal of distrust, and react to it by lower rather than higher compliance (section "'Cops and Robbers' or 'Clients and Services'" in chapter 8). The costs of distrust and control are thus the control costs themselves and the "hidden" costs of lower performance and lower compliance.

Institution trust is trust in the personal financial institution (bank, insurance company, pension fund, broker, etc. of which the person is a customer). Institution trust is positively related to person trust and system trust. *Person trust* is the trust in other persons. In a high-trust society, trust is the default, people trust others, including strangers, unless there is reason for distrust. In a low-trust society, people tend to trust their relatives but not, as a default, strangers (Fukuyama, 1995). Person trust is usually higher than system trust and institution trust. *System trust* concerns the trust in the "financial system" of banks, insurance companies, pension funds, financial advisers, brokers, and so on (Hansen, 2012). People tend to trust their own bank more than the financial system: institution trust is often higher than system trust. This can be explained by cognitive dissonance reduction (Festinger, 1962). People justify their choice of a bank by the personal experiences they have with personnel and the Internet site of their bank. Knowledge from personal experience is often more favorable than news about banks received from mass media, because mass media tend to focus on unfavorable and negative news.

Stock market participation is also a matter of trust (Guiso, Sapienza, and Zingales, 2008). People who do not trust the information about the value of stocks and the stock market as a system, as well as people who do not trust brokers, are less likely to participate. They fear that they will be cheated. The collapse of companies such as Enron and Parmalat and other corporate scandals reduced the trust people have in business and financial systems (system trust). Consumers have to trust financial institutions such as banks and insurance companies to keep their savings, and for long-term contracts such as mortgages, pension plans, and insurance contracts. Institutions have to trust each other and the government. In case of distrust, less or no transactions will take place and more juridical precautions will be taken, and this increases the costs and slows down the speed and effectiveness of transactions. With high trust, mistakes will be forgiven (Van Esterik-Plasmeijer and Van Raaij, 2016). With low trust, incidents and mistakes with the institution will not be forgiven but perceived as "proof" that the institution cannot be trusted.

Trust is different from satisfaction. Trust is looking forward to an institution as a whole and expecting a certain level and direction of future performance of the financial institution. Satisfaction is looking backward to specific services and concluding that these services were better than expected or at least according to expectations, and thus satisfactory (Oliver, 1997). If worse than expected, dissatisfaction will result. After a number of satisfactory experiences, customers raise their expectations and then satisfaction is more difficult to attain. If the standard in an industry goes up, expectations will go up, and product/service quality has to be higher in order to meet expectations and to be satisfactory to customers. This is a kind of "hedonic treadmill" of satisfaction and rising expectations.

Determinants of Trust

Trust may be defined as the belief that the bank, insurance company, or other institutions will act in the customer's interest, that the institutions do not exploit the lack of information (asymmetry, vulnerability) of customers, and that the institutions are not (only) motivated by self-interest. Trust is especially needed if the quality of products and services cannot be completely assessed before purchasing ("credence goods"; Wolinsky, 1995). The quality of a *credence good* cannot be ascertained before purchase and will become apparent only by using the product or will never become apparent at all. Medical treatment, car repair, "green" energy, and financial advice are examples of

credence goods. Suppliers of credence goods possess more information than their customers (information asymmetry). Customers select credence goods based on trust and on *certifications* or quality marks by trusted "third parties." Another factor is that financial products such as mortgages, pension plans, and life insurance are bought as long-term contracts for periods of 20–30 years. Customers want to be as certain as possible that the financial institution is still present at the end of the contract or when a claim to the insurance company or pension fund will be made.

Six determinants or drivers of trust may be distinguished, based on Pirson and Malhotra (2008) and Van Raaij (2009). [See also Gärling et al. (2009, pp. 30–31).][1]

1. Competence, ability
2. Stability, solvency, predictability
3. Integrity, fairness
4. Customer orientation, benevolence
5. Transparency, openness
6. Value congruence, value similarity

Competence consists of knowledge of an institution about financial products, marketing, and customers. Competence is mainly a *dissatisfier* (Herzberg, Mausner, and Snyderman, 1959). Consumers assume that a company or the government is competent. It is a necessary requirement. Thus, competence does not lead to more trust, but incompetence is the major reason for distrust.

Stability relates to the size, strength, solvency, and history of a company, the expectation that the institution is financially sound and will not go bankrupt. Larger and stronger financial institutions already existing for a long time are more trusted than smaller, more recently originated companies. Stability is related to predictability. Consumers have the impression that the behavior of stable institutions as compared to unstable ones can be better predicted. If consumers have doubts about the solvency of their bank, they might transfer their savings to another bank. If many customers do this, as was the case with Greek banks in the summer of 2015, banks must close down because they will be unable to pay all customers. This is called a *bank run*. It may be wise individually to "save" your savings from an insolvent bank. But collectively, it is a self-fulfilling prophecy that the bank will become insolvent.

Integrity is the fair, unbiased, and noncorrupt way a financial institution treats its customers. Components of integrity are treating similar

customers in the same way and fair manner (procedural justice, procedural fairness, or procedural utility) and keeping promises. Business ethics are mainly focused on integrity. Supervisory institutions, such as the SEC (Securities and Exchange Commission) in the United States, evaluate stock brokers on the integrity of their procedures.

Customer orientation or benevolence of a company means that the company acts in the interests of their clients, and not only in their own interests. Does the company develop products customers need and want? Does the company accept its responsibility and correct mistakes? Customer orientation is related to the marketing and customer policy of a financial institution.

Transparency is the openness about contracts and procedures, open and clear communications, thus no "small print" and hidden costs. Does the company inform customers also about the costs and not only about the benefits of products? A higher transparency may, in the short term, lead to a lower trust, because negative attributes of the company will become apparent.

Value congruence is the similarity of the values of the company and its clients. Customers trust a company more if a company has the same values as they have. A company that does not invest in the military industry, but only in sustainable development, is trusted by customers that have the same values. These customers are also more loyal to the company. Value congruence is an underrated attribute of companies to gain more trust.

Of these six determinants or drivers of trust, the first four (competence, stability, integrity, and customer orientation) are necessary characteristics of the financial institution to be trusted. These four characteristics are *dissatisfiers* or *inhibitors*. If a financial institution has an insufficient level of these characteristics (Herzberg, Mausner, and Snyderman, 1959), consumers do not trust this institution. These insufficiencies cannot be compensated by other determinants. For instance, a bank cannot compensate incompetence by being transparent. The last two determinants (transparency and value congruence) are *satisfiers* or *enhancers*. A financial institution may use these determinants to differentiate itself from competitors and to position itself among other financial institutions.

As said before, trust is a basic condition of our society and a necessary element of relationships and transactions. For consumers, trust in financial institutions or advisers facilitate transactions and increase peace of mind. It also helps consumers to get assistance with organizing their financial matters in a more effective and efficient way (Poiesz

and Van Raaij, 2007). Consumers should, however, remain critical and not blindly trust financial institutions.

Conclusions

Psychological factors play an important role in the economy and cannot be ignored in explaining and predicting consumer spending, saving, borrowing, and the state of the national and international economy. Confidence in the economy and trust in governmental and financial institutions are needed for an economy to function effectively.

Political and economic news in the media and consumer concerns about political and economic issues such as unemployment, job certainty, inflation and interest rates, future income, affordable pensions, and costs of health care determine confidence. Confidence in personal finances is a determinant of consumer discretionary spending, saving, and borrowing. Confidence may also have effects on insurance, investing, pension saving, and tax compliance.

Trust is crucial for the economy to function and is required for transactions of consumers with financial institutions. Drivers of trust are: competence, stability, integrity, customer orientation, transparency, and value congruence. Trust facilitates the transactions of consumers with financial institutions, helps consumers to "forgive" incidents with these institutions, and provides peace of mind.

13

Loss Aversion and Reference Points

Comparisons and perceptions of gains and losses are judged from an individual or social reference point. Gains and losses have a different emotional impact. A loss has a much stronger negative impact than an equivalent gain has a positive impact. People take more risk to avert a loss than to reach a gain. The value function of prospect theory explains these differences and the motivational effects of comparisons, gains, and losses in financial behavior. Hedonic framing is strategic aggregation of segregation of gains and losses to ameliorate the outcome.

Losses and Gains

Many consumers regularly check their financial gains and losses: how much did I earn or lose, and how much can I spend? Gains are, for instance, an increase of regular income, windfall gain, unexpected income, such as a lottery prize or an inherited sum of money, received interest, received credit, and value increases of stocks. Examples of losses are: money spent, paid insurance or pension premiums, goods or money lost or stolen, money lost with gambling, tax payments, and value decreases of stocks. People tend to consider their gains and losses rather than their wealth position or financial status.

Gains and losses are judged from a reference point: the personal financial situation at an earlier point in time or at an expected future situation. A silver medalist at the Olympic Games often had winning the gold medal as a reference point. Then, the silver medal is perceived as a loss rather than a gain. This causes low satisfaction with the silver medal. A bronze medal winner at the Olympic Games often had winning no medal as a reference point. In this case, the bronze medal becomes a gain and gives high satisfaction (Medvec, Madey,

and Gilovich, 1995). After a financial gain or loss, the personal financial situation has improved or deteriorated and will become a new reference point for gains, losses, and future comparisons. This is a continuous process of adaptation to new levels of personal wealth and new reference points.

In these comparisons, losses loom larger than gains. People are more influenced by potential or actual losses than by potential or actual gains. The brain reacts stronger on losses than on gains (Tom et al., 2007). Consequently, people spend more effort and take more risk-averting losses than obtaining gains (Kahneman and Tversky, 1979). In case of a loss, total wealth decreases, and this is very painful to most people. Actually, it is 1.5–2 times as painful as a gain is joyful. *Loss aversion* is thus a more dominant motivator of behavior than the possibility of obtaining a gain. However, losses do not always loom larger than gains. We return to this in the section titled "Emotional and Motivational Impact of Gains and Losses" in this chapter.

The theory on *regulatory fit* (Higgins, 1998, 2005) can explain some individual differences with regard to losses and gains. Framing outcomes in terms of loss or gain will have different effects on people or situations with a prevention or promotion focus. Prevention-focused people tend to avoid negative outcomes in their pursuit of goals, and are more susceptible to loss frames. In prevention situations, for instance, with danger and threat, people try to avoid or minimize losses. Promotion-focused people tend to pursue positive outcomes eagerly, and are more susceptible to gain frames. In promotion situations, for instance, with opportunities and aspirations, people try to reach or maximize gains.

PROSPECT THEORY

Kahneman and Tversky (1979) developed prospect theory as an alternative to (subjective) expected utility theory.[1] The value curve of prospect theory is given in figure 13.1. The values on the horizontal axis are objective gains or losses. The values on the vertical axis are subjective: positive or negative utilities, values, evaluations, experiences, or emotions about the gains or losses. Different interpretations are given in the literature about the vertical axis. The "value" is a subjective interpretation or evaluation of a gain or loss. The value of a gain of 40 units is +125 and this is not twice as large as the value of a gain of 20 units (which is +100). This is an example of the diminishing marginal utility of additional gains and thus a concave curve in the first quadrant of figure 13.1. The same is true for losses. The value of a loss of 40 units is

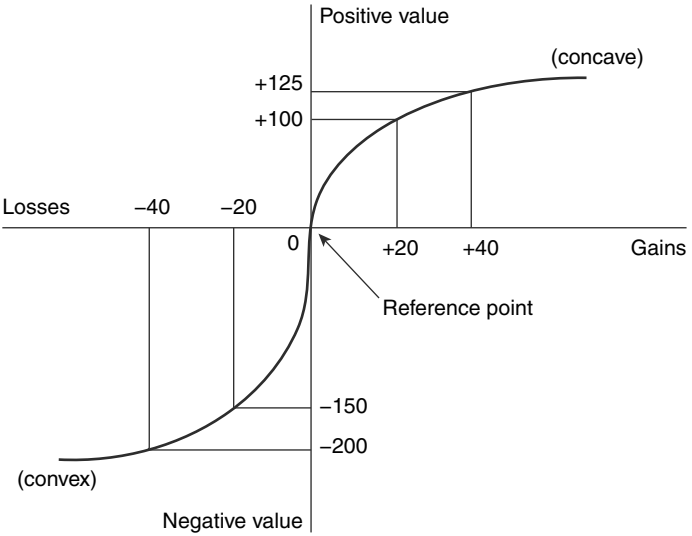

Figure 13.1 Value curve of prospect theory (Kahneman and Tversky, 1979).

–200 and this is not twice as large as the value of a loss of 20 units (which is –150). The curve is convex in the third quadrant of figure 13.1, showing diminishing marginal disutility of additional losses. The zero point is the reference point from which gains and losses are judged.

In prospect theory, gains and losses are not symmetrical. Losses have a larger negative value than corresponding gains have a positive value (figure 13.1). A loss of 40 is experienced as more painful (–200) than a gain of 40 is experienced as pleasurable (+125). Because of this, loss aversion is a stronger motivator for behavior than gain seeking. The asymmetry of gains and losses is an explanation for many heuristics and financial behaviors, such as the disposition effect for investors (chapter 7), the endowment effect for owners, and the framing effect (in terms of gains or losses) for information provision in general (chapter 16).

Many times, we may frame a message in positive (gain) or in negative (loss) terms. A "bonus" is a gain (extra income) and a "malus" or fine (less income) is considered to be a loss. For instance, if consumers pay a bill on time, they may deduct 2 percent of the amount to be paid. If they pay the bill too late, they have to add 2 percent to the amount. According to prospect theory, people are more motivated to avoid the additional payment of 2 percent than they are motivated to obtain the discount of 2 percent.

Note that receiving a bonus is considered to be a gain during the first years. If the bonus has been given during a number of years, people tend to establish a new reference point with the bonus included. If the bonus will not be given in a specific year, for instance, due to the economic crisis, this will be perceived as a loss. Income obtained from overtime work may also be integrated with regular income to a higher reference point. Due to a process of adaptation, reference points change over time and become benchmarks for new gains and losses.

The *disposition effect* is the tendency of investors to sell stock that has increased in value (to obtain a gain) rather than selling stock that decreased in value (to accept a loss) (Shefrin and Statman, 1985). In case of decreased value, investors hope that the value of the stock will increase and postpone selling it to avoid a loss (chapter 7). People do not take a risk but sell their winning stock, whereas they take a risk not selling their losing stock.

The *sunk-cost effect* is the tendency to continue investing in a project, even if it is clear that the project will not be successful (Arkes and Blumer, 1985). People want to use services they already paid for such as season tickets. They want to use their health care insurance and visit the doctor more often than is really needed. Not using these already paid services is perceived as waste (loss) of money (chapters 2 and 5).

The *endowment effect* is the tendency to ask a higher price (WTA, willingness to accept) for a good in possession than the price one is willing to pay (WTP, willingness to pay) for the same good, not in possession: WTA > WTP (Kahneman, Knetsch, and Thaler, 1991). Sellers are unwilling to give up a good in their possession, feel emotional attachment to the good, and perceive selling as a loss. Thus, loss aversion applies. Buyers do not feel this loss and their WTP is lower than the WTA of the sellers. Buyers may perceive buying the good as a gain, but are unwilling to pay the high price that the sellers ask. Emotional attachment is an explanation why sellers ask a too high price for the house they have lived in with memories of all the experiences they had living in the home. Sellers do not have this emotional attachment and are not willing to pay the high price. Attachment is only an explanation for the endowment effect for specific goods with such an attachment.

The use of *reference points* leads to the more general conclusion that almost all human evaluations and judgments are relative rather than absolute. People easily compare options, alternatives, and positions, and judge qualitatively which one is better (ordinal comparisons), not always assessing how much better. Ordinal judgments are much easier to do than absolute judgments and cardinal comparisons, assessing quantitatively how much better a specific option is.

Suppose a debtor has many credit-card debts to pay off (Amar et al., 2011; chapter 4). If these debts are segregated, completely paying off a small debt removes more negative value than paying off part of a large debt. This can be seen in figure 13.1. Paying off a debt (loss) of 20, removes 150 units of negative value, whereas paying off a debt (loss) of 40 down to 20, removes only 50 units of negative value.

Hedonic Framing

In hedonic framing, gains and losses are purposefully combined (aggregated) or not combined (segregated) in such a way that the final result has the highest utility or value (Thaler, 1985). Four cases can be distinguished: (1) segregation of gains, (2) aggregation of losses, (3) aggregation of a small loss with a large gain, and (4) segregation of a small gain with a large loss.

Segregation of gains: The first gain has a higher value (utility) than the second gain added to it. Thus, gains should be separated in time to provide the highest utility. The first gain of +20 has a utility of +100. The second gain added to the first gain provides an additional utility of +25. The total utility is +125. If the second gain is separated in time, it will also provide a utility of +100. The total utility then is +200 (figure 13.2); 200 > 125. Segregating gains provides more utility than aggregating.

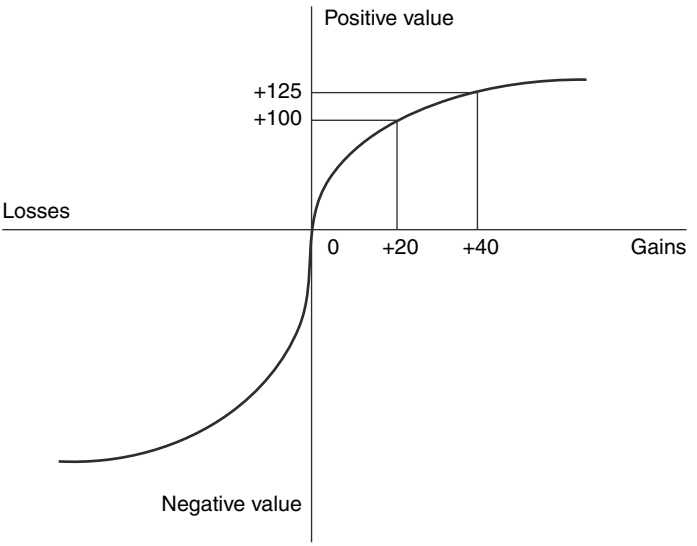

Figure 13.2 Segregation of gains.

Santa Claus should make separate packages of all presents and give these presents separately rather than putting all presents into one box.

Aggregation of losses: The first loss has a higher disutility than the second loss added to it. Thus, losses should be aggregated in time to provide the lowest disutility. The first loss of –20 has a utility of –150. The second loss added to the first loss provides an additional utility of –50. The total utility is –200. If the second loss is separated in time, and people have adapted to the loss with a new reference point, it will also provide a utility of –150. The total utility is then –300 (figure 13.3); A disutility of 300 is larger than a disutility of 200. Aggregation of losses provides less disutility than segregation of losses. To give an example: a credit card aggregates small payments (losses) during a month into one large payment. It makes these losses less painful because the total bill to be paid is only presented once a month, instead of a list of separate bills to be paid. Another example is that two items of bad news ("losses") should be communicated in one message rather than in two messages separated in time.

Aggregation of a small loss with a large gain: The disutility of a small loss is larger when it is separated from a large gain than when it is subtracted from a large gain. A gain of +40 provides a utility of +125. A loss of 20 gives a utility of –150. The total utility is +125–150 = –25 (figure 13.4). If we subtract the loss of 20 from the gain of 40, the total

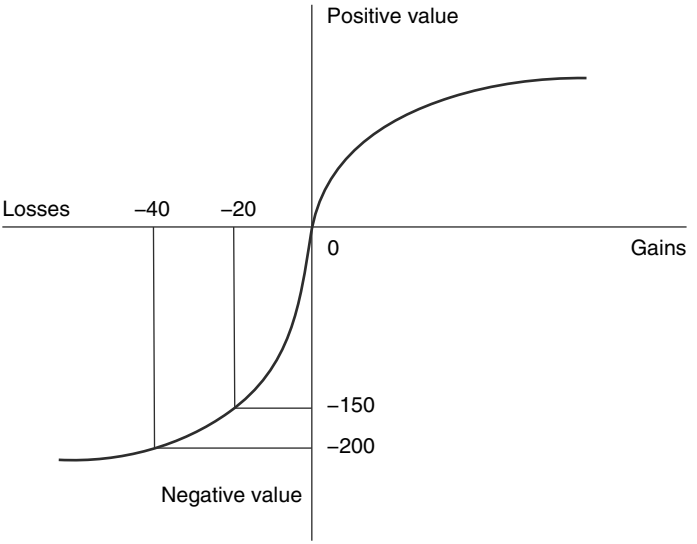

Figure 13.3 Aggregation of losses.

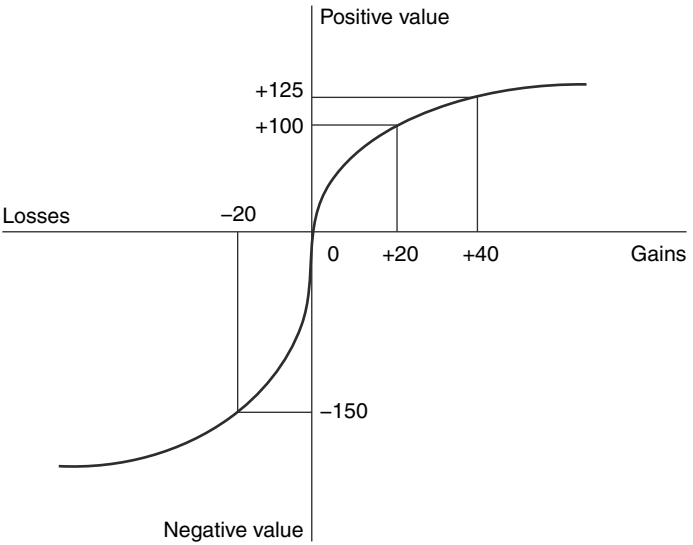

Figure 13.4 Aggregation of a small loss with a large gain.

utility is +125–25 = +100; 100 > –25. This is similar to the balance account of a business, in which gains and losses are aggregated into one number. It is the total profit or loss that matters for the business.

Segregation of a small gain with a large loss: The utility of a small gain is larger when it is separated from a large loss than when it is subtracted from a large loss. A gain of +20 provides a utility of +100. A loss of 40 gives a utility of –200. The total utility is +100–200 = –100. If we subtract the gain of 20 from the loss of 40, the total utility is –200 +50 = –150 (figure 13.5); A disutility of 100 is smaller than a disutility of 150. This is called the *silver-lining effect*: the sun behind the rain clouds (Thaler, 1985). The small gain makes the loss less dramatic and more acceptable. In a message from the bank that the costs of a bank account will increase, often a small gain is included, for instance, that the website has been improved and is now faster and more efficient. This makes the total message more acceptable for customers.

In the above examples, it is assumed that the combination of losses and gains takes place "at the same time" and that the combined effect will be judged. If there is a time interval between the loss and gain, people adapt to the change after the first gain or loss and form a new reference point. This will change the effect of the second gain or loss. How long the time interval between changes may be is not certain. At least,

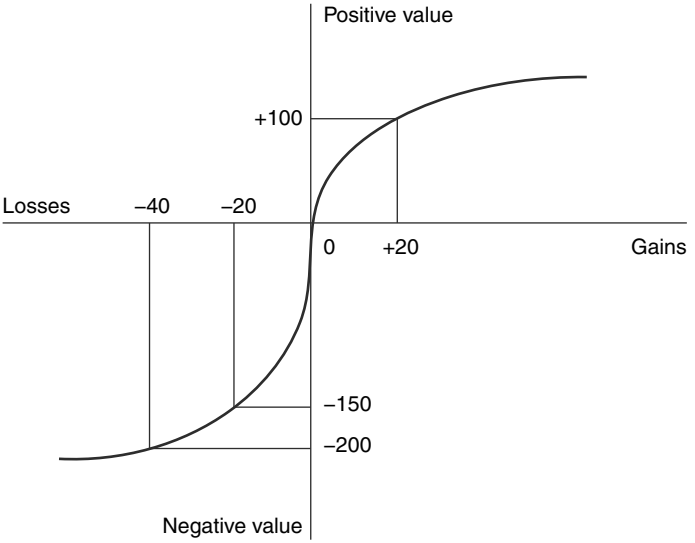

Figure 13.5 Segregation of a small gain with a large loss.

in these examples of hedonic framing, people should not have adapted to the first loss/gain before they experience the second loss/gain.

STATUS QUO BIAS AND DEFAULT OPTIONS

The *status quo bias* (Samuelson and Zeckhauser, 1988) is a preference for the present situation or the option already in possession. Hartman, Doane, and Woo (1991) found that California electric power consumers preferred the contract they already have over a new contract, even if the new contract is better. Johnson et al. (1993) studied automobile insurance in the neighboring US states of New Jersey and Pennsylvania. Motorists in New Jersey are offered a cheaper policy as the *default option* with the opportunity to acquire an unrestricted right to sue at a higher price. Since this option was made available, 83 percent of the drivers elected the default option. In contrast, in Pennsylvania, the default is the expensive option with the opportunity to opt for a cheaper policy. Of the motorists offered the New Jersey plan, only 23 percent selected the more expensive plan. Of the motorists offered the Pennsylvania plan, 53 percent retained the more expensive plan. This means that most people tend to accept the insurance plan as offered to them, and do not change this plan. An explanation is that

changing an insurance policy makes you responsible for the change. You may regret opting for a cheaper policy, because you reduce the coverage or quality of the insurance. This is a potential loss. You anticipate regret not opting for a more expensive policy, because you have to pay a higher price. This is a loss you have to accept now (section "Status Quo Bias in Insurance" in chapter 5).

A *default option* is an option that is offered to consumers with the opportunity to change or replace the option within a specific time interval, if consumers prefer another option. If consumers do not change the option within the time interval, they will receive the default option. Extensions of insurance policies or subscriptions are often offered as defaults that may be changed within a specific time interval. Many consumers do not change the default (status quo bias) and thus receive the default option (section "Effects of Presentation Layout" in chapter 16).

Apart from loss aversion and anticipated regret, another reason for not changing the default is simply *inertia*. It is a lot easier and less time consuming to accept a default option than to change it. Inaction (not doing anything) is a lot easier than action and is a reason why stable states endure for a long time. This is probably the main reason why consumers leave default options unchanged. It is also the base for the *status quo bias*, the preference not to change and stick to prior decisions (Samuelson and Zeckhauser, 1988).

Probabilities of Gains and Losses

Gains and losses may be expected with a certain probability. Tversky and Kahneman (Kahneman, 2011) developed the "fourfold pattern" with gains and losses versus high and low probabilities. Cases 1 and 2 have high probabilities, whereas cases 3 and 4 have low probabilities. The "gain" cases are 1 and 3. The "loss" cases are 2 and 4.

In the first case, the choice is between 95 percent chance of winning €10,000 and a sure gain of €9,500. People are thus pretty sure that they will win €10,000. They do not like to miss this gain and regret this, and thus avoid the small risk of not getting it by accepting the sure gain of €9,500. A kind of "bird in the hand" approach. In this situation, people might even accept smaller sure gains. Missing a large gain causes disappointment and regret. People want to avoid this disappointment, anticipate regret, and become risk averse.

In the second case, the choice is between 95 percent chance of losing €10,000 and a sure loss of €9,500. People do not like to accept the sure loss of €9,500. They rather take the risky option of 95 percent

chance of losing €10,000, because this includes a 5 percent chance of losing nothing. People are risk seeking to avoid a large loss. This is surprising, because taking the risky option may lead to an even larger loss. But they prefer to gamble in order to avoid a large sure loss.

A comparable case is the player who already has lost much money in the casino. He does not want to accept this loss, and at the end of the evening he takes high risks to win his money back. In this case, the motivation is not the fear of losing money, but the nonacceptance of a loss and using the (small) chance of recuperating the loss. In the same way, business people may invest in a risky project hoping to recuperate earlier losses and avoid bankruptcy of their company. Nick Leeson of Barings Bank in Singapore took extreme risks in 1994–1995 to recoup his losses in trading. He betted on the Nikkei Stock Average to recover after the Kobe earthquake. With a total loss of £827 million ($1.4 billion or €1.2 billion), Barings Bank went bankrupt. Jérôme Kerviel of the French bank Société Générale made an even larger loss of €4.9 billion ($7 billion) in trading in 2008.

In the third case, the choice is between 5 percent chance of winning €10,000 and a sure gain of €500. People prefer to take the small chance of getting the high gain of €10,000 rather than accepting a small gain of €500. They prefer to gamble and accept the risk of getting nothing. Gambles and lotteries are popular when prizes are very large. People tend to be rather indifferent about the low chances of winning these prizes.

In the fourth case, the choice is between 5 percent chance of losing €10,000 and a sure loss of €500. People do not like to run the chance of losing €10.000. They rather take the sure option of losing/paying €500. In this situation, people might even accept larger sure losses. People are risk averse to avoid a large loss. This resembles paying an insurance premium of €500 and eliminating the chance of a large loss of €10,000. They prefer to pay a small amount, eliminate worry, and purchase peace of mind.

People are risk averse (cases 1 and 4) to be certain of obtaining a large gain or avoiding a large loss. People are risk seeking (cases 2 and 3) in the hope of getting a large gain or avoiding a large loss. These four cases are a link to chapter 14 on risk preference.

EMOTIONAL AND MOTIVATIONAL IMPACT OF GAINS AND LOSSES

Loss aversion and gain seeking are both basic motivations of people. According to prospect theory (figure 13.1), loss aversion is a stronger

motivator than gain seeking, because the negative value of a loss is twice as large as the positive value of an equivalent gain. In evolutionary terms, a mistake (loss) in hunting may cost your life and a missed gain is disappointing but not deadly.

Do losses always loom larger than gains? Novemsky and Kahneman (2005) describe the boundaries of loss aversion. They conclude that money given up in purchases is not subject to loss aversion, although the act of paying may be aversive to people. Intentions are a moderator of loss aversion. Budgeting intentions distinguish between expenditures within and outside a budget. Planned expenditures within a budget are not treated as a loss, because the intention already was to spend the budget (Heath and Soll, 1996). An expenditure outside a budget, an unplanned purchase, may be treated as a loss and thus evoke loss aversion. The reference point in these cases is the expected state after spending the budget. The focus is on spending the budget and obtaining the benefits of the expected state. Ariely, Huber, and Wertenbroch (2005) define two other moderators: emotional attachment and the seller-buyer perspective. *Emotional attachment* is a reason why people do not want to give up a good and consider giving it up as a loss. People may be emotionally attached to goods they own and goods they consider for ownership, for instance, they want to buy at an auction. This is an explanation for the endowment effect (section "Prospect Theory"). In a transaction, sellers have to give up a good, whereas buyers have to give up money (*seller-buyer perspective*). Giving up a good is more painful than giving up money, although experienced sellers (traders) are accustomed to this and feel less or no loss aversion. They possess goods for trading and not for personal use or consumption.

Losses loom larger than gains, only if gains and losses are compared and assessed simultaneously on a common scale (in a questionnaire). If losses and gains are evaluated separately, loss aversion may not be found. Comparing a particular loss with other losses, the reference point is the size of the loss, possibly the foregone loss, a neutral state, and the reference point is not a gain. Similarly, comparing gains, the foregone gain, or a neutral state is the reference point and not a loss (McGraw et al., 2010).

Conclusions

Prospect theory is a successful behavioral theory to explain a number of anomalies in economics and finance such as disposition effect and status quo bias. Gains and losses are perceived and evaluated from a

reference point, for instance, an earlier state. Losses are more painful than equivalent gains are enjoyable. Loss aversion is a stronger motivator than gain seeking. Cases of hedonic framing show that aggregating and segregating gains and losses may ameliorate the total evaluation.

With the intention of spending a budget, no loss aversion will occur. An emotional attachment to a good will stimulate loss aversion. The loss of a good for seller is stronger than the loss of money for a buyer. Further, losses only loom larger than gains if gains and losses are evaluated simultaneously. If losses are evaluated separately, no loss aversion will occur.

The four cases of gains and losses with high and low probabilities show that people are risk averse to be certain to obtain a large gain or avoid a large loss. People are risk seeking in the hope of getting a large gain or avoiding a large loss.

14

Risk Preference

Many financial decisions are related to risk. Risk preference is not only an important concept for investment behavior (chapter 7), but also for consumer credit (chapter 4), insurance (chapter 5), pension plans (chapter 6), tax behavior (chapter 8), and becoming a victim of fraud (chapter 9). Risk is experienced by most people as the likelihood of loss. In most cases, risk cannot be established objectively but is perceived risk, depending on people's interpretation of risk-relevant information. People differ in their risk preference and risk taking, based on personal characteristics and situational factors such as framing.

Risk

Although the ancient Greeks had the necessary mathematical abilities, they did not have the concepts of chance, probability, and risk. The first book on the mathematics of games and chance appeared in the sixteenth century, the *Liber de Ludo Alaea* by Girolamo Cardano (1501–1576), professor at the universities of Pavia and Bologna, Italy. Philosophers and mathematicians as Blaise Pascal, James Bernoulli, and Thomas Bayes developed the ideas of risk and chance further. Pierre-Simon, the Marquis de Laplace (1749–1827), survived the French Revolution and wrote his *Théorie Analytique des Probabilités* in 1812. Then, British biometricians as Galton, Edgeworth, Pearson, Gosset, and Fisher crafted modern statistical science with chance, risk, and probability as core concepts. Bernstein (1998) describes the history of risk up to present game theory, portfolio selection, prospect theory, and behavioral finance.

Risk is a core concept in financial behavior and behavioral finance. People take financial risks with their personal loans, credit, mortgages, trading in the stock market, purchasing products, gambling, accepting jobs, and in contacts with fraudsters. Financial decisions of consumers and investors are related to risk, since outcomes of these decisions

are often highly uncertain. Uncertainty is the lack of knowledge of the possible positive and negative outcomes of a decision and the size of these outcomes. Risk pertains to knowledge of possible outcomes and their probabilities. In popular language, uncertainty and risk are often mixed up. Risk is also associated with gains and losses, and their probabilities. Risk perception is the idea people have about the probability and size of the risk, and this may differ from objective risk. Risk perception is subjective, guided by the availability and interpretation of information on the relevant factors and relationships.

Risk can be defined by a probability of success or failure, if data exist of the occurrence of similar successes or failures in the past. If no similar cases exist, there is uncertainty about the probability estimates. Economic risk taking may pertain to best and worst outcomes, their scenarios and likelihoods. Risk may have a probability estimate, whereas uncertainty does not have a probability estimate.

In economics, risk is defined as variance of outcomes, both positive and negative outcomes. Risk perception is related to variance of portfolio returns. Veld and Veld-Merkoulova (2008) found that stock investors use more than one risk measure, and semi-variance of returns is the most popular risk measure. Semi-variance includes only the shortfall or downside, the negative deviations from the mean or other benchmark. This corresponds with prospect theory that losses loom larger than gains. Bond investors favor probability of loss as a risk measure. Possible benchmarks and their usage are: initial investment (59 percent), risk-free rate of return (28 percent), market return (7 percent), and other (6 percent). The initial investment or original purchase price are the mainly used as benchmarks. Investors do not want to sell at a price lower than the original purchase price.

In psychology, risk is perceived as the likelihood of a loss, thus only negative outcomes are taken into account. The question is whether people are variance averse (as in economics) or loss averse (as in psychology). Duxbury and Summers (2004) compared both in an experimental design and obtained support for loss aversion, as would be predicted from prospect theory (Kahneman and Tversky, 1979). According to this theory, people are about twice as much negatively affected by a loss than they are positively affected by an equivalent gain. Risk perception is thus motivated by loss aversion rather than variance aversion. It is known that people take more risk to avoid a loss (Kahneman and Tversky, 1979). People take also more risk when being optimistic and confident about the future.

In the conceptualization of risk in economics, there is no difference between actual and perceived risk because people are supposed

to make a correct assessment of risk. In psychology, risk is defined as a subjective construct and the result of an interpretation process. Risk may therefore have different meanings to different people in different contexts and this makes risk no longer an objective but a subjective construct: *perceived risk*. People are more sensitive to perceived than to objective risk (Diacon and Ennew, 2001) and objective assessments of probability have only a weak impact on decision-making (Capon, Fitzsimons, and Prince, 1996). In this chapter, we focus on financial risk, although other types of risks exist such as health and physical risk, social risk, and temporal risk.

Risk Perception

Risk perception is the individual's assessment or interpretation of how risky a choice is. Risk perception is an estimate of the degree of situational uncertainty, controllability of uncertainty, and the confidence in these estimates (Sitkin and Weingart, 1995). Risk perception consists of a combination of uncertainty, lack of knowledge, and the seriousness of possible consequences (Fischhoff et al., 1978).

A number of factors influence risk perception (figure 14.1). Loss aversion is probably the underlying motivation becoming manifest in many other factors. Regret avoidance has a similar function as loss aversion. People anticipate regret about the outcome of a wrong decision and want to avoid this. Time preference may play a role in the sense that future losses are more dominant for people with a future-time preference than for people with a present bias. People differ in their risk perception, based on their past experiences, available information, interpretation and sense-making of this information, shortcomings in information processing, biases and heuristics, mood, and even wishes and desires. People give, for instance, too high probability estimates of a lottery prize that they want to win.

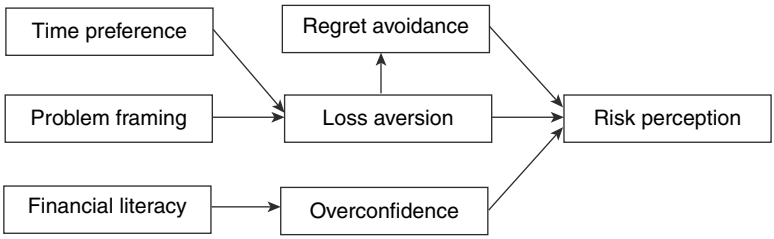

Figure 14.1 Determinants of risk perception.

Whether the problem is *framed* in a positive or negative way has an impact on the risk perception of individuals (Kahneman and Tversky, 1979). If a problem is framed in a negative way, loss aversion may be induced. Individuals in favorable circumstances (gain domain) behave more risk averse because they feel they have much to lose. Individuals in unfavorable conditions (loss domain) may feel they have the possibility to recoup a loss and therefore express more risk seeking (Sitkin and Pablo, 1992). Another interpretation is that people in the gain domain are satisfied with their gain and do not want taking risks in obtaining a larger gain. People in the loss domain are dissatisfied and do not want to accept the sure loss and take more risks to avoid the loss. A positively framed financial situation of consumers will thus induce risk-averse choices, whereas a negatively framed financial situation will induce risk-seeking choices to avoid or recoup the loss. The impact of framing on choice may be nonconscious. People may be unaware that they are influenced by framing or other elements of their information environment.

There are also nonconscious priming effects on risk perception and attitude. Gilad and Kliger (2008) found that a success story as a prime (versus a nonsuccess story in the control group) caused professional investors to have a riskier attitude. Investors may be unaware of these nonconscious effects on their attitude and behavior. Usually, they will rationalize afterward that their decision was based on a conscious and careful analysis of relevant information.

Risk Preference

In economics, the concept of *risk propensity* is a mediating variable between personal characteristics and (risky) financial behavior. In psychology, the concept of *risk preference* is often used instead. Risk preference is an individual's tendency of avoiding or seeking risk. Risk-avoiding decision-makers are more likely to attend to negative outcomes and thus to overestimate the probability of loss. Risk-avoiding decision-makers require a higher probability of gain to tolerate the possibility of failure (Schneider and Lopes, 1986). Risk-seeking decision-makers are more likely to attend to positive outcomes and are overestimating the probability of gain (Brockhaus, 1980; Vlek and Stallen, 1981). Risk-avoiding decision-makers are more pessimistic about outcomes than risk-seeking decision-makers.

Cultural differences also play a role in risk preference. Weber & Hsee (1998) found differences in risk perception between Chinese (PRC) versus American (USA), German and Polish people. Chinese

people have a higher risk preference than people from the other nations. This can be explained by the collectivistic-individualistic dimension of cultural differences. The Chinese culture is collectivistic and Chinese people may expect that other people of their in-group will help them out if they have a negative outcome. This is called the "cushion hypothesis." At the same time, Chinese people are similar to the other nations in their attitudes towards perceived risk.

People with a high risk preference are more likely to buy risky financial products such as stocks. They will benefit from the upside effects of these products in periods of economic upswing and growth, whereas in periods of economic recession they may run into problems and are confronted with the downside effects of financial products.

The distinction between risk avoidance and risk seeking is similar to the distinction in *regulatory focus theory* (Higgins, 1998, 2005) between *prevention focus* (avoiding negative outcomes) and *promotion focus* (striving for positive outcomes). Products such as stocks and trading accounts have a promotion focus and thus achievement of gains, whereas products such as mutual funds and retirement accounts have a prevention focus and thus avoidance of loss (Zhou and Pham, 2004). Positively or negatively framing a product may induce a promotion or prevention focus. Regulatory fit does not only depend on person or situation, but also on the product concerned. The product is obviously part of the situation. Investors may keep separate accounts for promotion (achieving gains) and prevention (avoiding losses). It may explain why people oppose the idea of allowing pension funds and social security funds (prevention focus) to be invested in the stock market (promotion focus).

To a certain extent and for some people, risk preference is a stable person characteristic, since it is enduring over time and has been learned through socialization or acculturation. Risk preference may also be explained by inertia, that is, habitual or routine ways of handling situations, including risky situations. These routine patterns tend to persist over time generating relatively stable behavior. Decision-makers who have been risk averse in the past will continue to make cautious decisions, whereas decision-makers who were risk seeking will continue to make adventurous decisions (Kogan and Wallach, 1964; Rowe, 1977; Slovic, 1972).

Still, decision-makers will seek risks in the domain of gains, if prior risk-seeking strategies have been successful (Osborn and Jackson, 1988; Thaler and Johnson, 1990). If a strategy of risk-averse decisions has been successful in the past, people will continue to make cautious decisions. Reinforcement of prior behavior is a strong inducement to continue this behavior. In contrast to the stability of successful

decision-makers, unsuccessful decision-makers will search for success by changing their strategies. Unfavorable outcomes urge a change in strategy (Weber and Milliman, 1997). Patterns of routine behavior will not persist if this is proven to be unsuccessful. Feedback and knowledge of outcomes, positive and negative reinforcements, induce adaptation to new situations and circumstances. In this way, risk preference is subject to change. This accounts for the capacity of people to adapt to new situations, to take past experiences into their present decisions, and learn from their experiences (Sitkin and Weingart, 1995).

However, risk preference is also influenced by the attribution of success and failure to the actions of the decision-makers themselves or to situational factors beyond their control. This can be explained by causal attribution theory (Weiner, 1985) (see table 17.1). People tend to attribute successful investment outcomes to themselves and investment failures to others or to circumstances. This leads to an incomplete and biased learning of events and even to an unjustified overconfidence in personal investment capabilities.

Risk propensity is a behavior-related concept and often measured by analyzing behavior patterns of persons or groups. Risk preference is an attitude-related concept and usually assessed by questionnaires. Kogan and Wallach (1964) developed the Choice Dilemma Questionnaire (CDQ) for measuring risk preference, but the CDQ is also used to assess risk propensity (Harrison et al., 2005).

Intermediaries and advisers tend to underestimate the risk preference of their clients. They judge people who are risk averse as less risk averse than they really are. And they judge risk-seeking clients as less risk seeking than they really are (Hsee and Weber, 1997; Faro and Rottenstreich, 2006). Due to this underestimation of risk aversion and risk seeking, intermediaries give a biased advice to their clients. Computerized simulation techniques allow decision-makers to "experience" the risk and volatility of investments before they decide which one to choose (Goldstein, Johnson, and Sharpe, 2008). This may result in better and more stable "buy and hold" decisions of investors (less transactions), leading to a higher return.

Risk Taking

Situations where risk is involved are stock markets and casinos. Many consumers have become wealthy enough for participating in an investment fund or investing by themselves. In the long term (10–15 years), this gives a higher return than saving money. The casino is the home of gambling and risk taking as entertainment. Gambling is done for

the excitement of taking risks and making a fortune, usually forgetting the cases of misfortune and loss. Risk takers are not only active in the stock market and casino, they are also more likely to take credit and are often not properly insured against losses caused by accidents and theft. Risk takers are, however, not only reckless gamblers, they often have a higher rate of return on their investments than risk-averse investors.

Financial risk taking is determined by perceived risk and other factors, such as objective or goal of the investment, and choice situation with an overload of alternatives and information. For instance, investing only a small part of one's wealth may be a risky investment but this affects personal well-being less than investing all assets in a pension plan consisting of stock investments. This means that the proportion of total wealth invested determines the risk.

A tenet of *prospect theory* (Kahneman and Tversky, 1979) is that reference points have a strong influence on risk taking. Gains and losses are determined by reference points. A gain is a positive deviation from the reference point of wealth. If the gain has been incorporated into a new reference point, it is no longer a gain. In the same way, if a loss has been incorporated into a new reference point, it is no longer a loss. In the domain of gains, people are risk averse, while they are risk seeking in the domain of losses. Prospect theory does not take the personal history of success and failure into account, except for adaptation to a new reference point after incurring financial gains or losses.

Personal factors affecting risk taking include gender, level and type of education, income, wealth, and age. To start with *gender*, men are more willing to take risks than women (Byrnes, Miller, and Schafer, 1999; Felton, Gibson, and Sanbonmatsu, 2003), and consistent with this, women are more risk averse in making financial decisions than men (Donkers and Van Soest, 1999). Women tend to own less risky assets than single men or married couples. They tend to reduce their risky assets when the number of children increases, in contrast to single men and married couples without children (Jianakoplos and Bernasek, 1998). Powell and Ansic (1997) investigated in an experimental study whether women are more risk averse as a personality trait or due to familiarity, ambiguity, and framing of the task. Men and women adopt different strategies in financial decision-making, irrespective of familiarity, ambiguity, and framing. Women try avoiding the worst situation to gain security, their loss aversion is high, and they take less risk. Men try achieving the best possible gains and are thus more risk taking. Women are less self-confident than men and attribute their performance to good luck rather than to skill and internal control (section "Attribution Processes" in chapter 17).

Wang (2009) concludes that male investors have a higher objective and subjective financial knowledge (literacy) and stronger risk taking than female investors. Subjective knowledge mediates the relationship between objective knowledge and risk taking. Subjective knowledge reflects overconfidence in information processing and decision-making (see section "Theories of Reasoned Action and Planned Behavior").

He, Inman, and Mittal (2008) studied the effects of gender and gain/loss orientation. Decisions mainly driven by gain achievement, for instance, investment decisions, fit men's risk taking preference, promotion focus, and orientation toward self and success. Conversely, decisions mainly driven by loss avoidance, for instance, insurance decisions, fit women's prevention focus and orientation toward communion and harmony. Gender thus has an effect on risk taking through gain/loss orientation. Felton et al. (2003) found that optimistic men make riskier choices than women and pessimists. The trait of optimism plays a role in this case, that is, a stable tendency to hold positive outcome expectancies for future events. Optimists take more financial risk and believe that persistent effort is useful while pessimists take less risk and are more likely to withdraw. Optimists engage in active coping and are more likely to take risks to avoid a loss.

Age is also a known factor influencing risk behavior: older individuals take less risk than younger people (Jianakoplos and Bernasek, 2006). Another relevant personal factor is financial knowledge or rather, for many consumers, the lack of it (Antonides, De Groot, and Van Raaij, 2008). People with a low knowledge of financial products and their risks are more likely to buy financial products that do not match with their needs and/or their financial budgets and run the risk of financial loss.

A basic concept is *optimum stimulation level* (OSL). People receive stimulation from their environment and through internal means. People differ in the optimum level. Some people prefer high OSL, whereas others prefer low OSL. If the environment is too complex or too busy, the stimulation level may become too high for some people and they try reducing the level by withdrawal or by simplifying the environment, for instance, by overlooking details. On the other hand, if the environment is not stimulating enough, people seek to increase the level by exploratory behavior such as variety seeking and risk taking (Berlyne, 1963). People with high OSL accept more risk and are more impulsive than people with low OSL. Steenkamp and Baumgartner (1992) found that people with high OSL are more curious and their information search is inspired by curiosity. High-OSL people also seek more variety (different products and brands), gamble

more, and gamble for higher stakes. They often lack self-control to restrain themselves and avoid problematic financial outcomes.

Personality variables related to high OSL and risk taking are: extraversion and impulsiveness (Nicholson et al., 2005; section "Extraversion" in chapter 11). *Extraversion* is related to the need for stimulation and arousal (activation of the central nervous system) and therefore with sensation seeking and risk taking (Lauriola and Levin, 2001). External stimulation and internal arousal coincide. *Impulsiveness* is an important factor in decision-making. People who take impulsive decisions are more likely to overlook relevant information and relevant options, and thus easily make mistakes.

Trait anxiety provides the most consistent predictions of risk taking (Lauriola and Levin, 2001). High trait-anxious individuals have a bias toward threatening information and this is a probable cause of a biased risk perception (Gasper and Clore, 1998) and less risk taking. This has been found to be a general tendency and is not restricted by situations (Butler and Matthews, 1987). People who score low on extraversion and high on neuroticism are characterized by a risk-avoiding propensity and thus by taking less and/or smaller financial risks. *Conscientious* people are more likely to process all relevant information carefully and keep record of their income and expenses, and avoid unnecessary risks.

Duclos, Wan, and Jiang (2013) found that social exclusion increases financial risk taking. People feeling socially isolated compensate for their lack of popularity by taking financial risk at obtaining benefits in life. Zhu et al. (2012) demonstrated that participation in an online community increases people's financial risk-seeking tendencies. Members believe that other members of the community will help them if difficulties should arise, especially if they have strong ties with other members. These examples show that both social isolation and integration induce financial risk taking. Financial risk taking is lower with independence, weak ties to others, and less conviction that others will help you out. Online peer-to-peer lending platforms may induce others to borrow and underestimate the risk of debts not being paid off. Members of an online brokerage firm may buy riskier stock than they would in an offline situation.

Conclusions

Risk is an important element of financial behavior. Many decisions have to be taken without knowing the consequences with certainty. People try to find relevant information on the drivers of risk and the

impact of these drivers on risk. This information and interpretation may not be correct and consequently perceived rather than objective risk is used in evaluations and decisions. The likelihood of loss and loss aversion are the major drivers of perceived risk.

People differ in their risk preference and risk talking, based on person characteristics such as gender, income, age, and personality. Men have a stronger promotion focus and try to achieve gains by risk taking. Women have a stronger prevention focus, take less risk, try to avoid losses and maintain wealth. Situational factors related to risk perception are framing, goal of investment, social exclusion, and inclusion.

15

Time Preference

Time preference is another basic concept in financial behavior, because many financial contracts such as mortgages, life insurance, and pension plans have a duration of 20–40 years. Saving and investing are financial behaviors directed toward the future. Some people are more present-time and others more future-time oriented. Time preference is the preference for spending now (present bias) or for saving for future spending (chapter 3) and for retirement (chapter 6). Time preference is also relevant for buying insurance (chapter 5) and for buying and selling stock (chapter 7). Future-time preference and procrastination (postponing tasks such as retirement saving) are related to self-regulation (chapter 17).

Time Perspective

In 1930, Fisher published his book *The Theory of Interest, as Determined by Impatience to Spend Income and Opportunity to Invest It.* There is a clear distinction in this title between people who are impatient and impulsive in spending their money now and those who are less impatient and save/invest their money for the future. This distinction became known in economics as *time preference*. Positive time preference is related to spending now, whereas negative time preference is related to spending in the future. This bipolarity is also expressed as a myopic (present) versus a farsighted (future) view. Note that only the present and the future and not the past are considered in the concept of time preference.

Time perspective as defined by Lewin (1951) is the totality of an individual's view of his/her psychological past and future existing at a given time. Past and expected future events have an impact on present behavior because they are present at the cognitive level of behavioral functioning. In existential philosophy, time plays a major role in how people experience the world (Heidegger, 1927; Husserl, 1964). In

Bandura's (1997) self-efficacy theory there is a tripartite influence of time on efficacy beliefs and self-regulation: past experiences, current appraisals, and reflections on future options (section "Self-Regulation" in chapter 17). Time perspective is often a nonconscious process in which personal and social experiences are placed in time frames that give order, meaning, and coherence to these experiences and events. Time frames may be cyclical (recurrent patterns and "seasons," such as in farming) or linear (continuous flow in which the past is gone forever). People use past experiences (learnings) for their present functioning by recalling and restructuring similar situations of the past and applying what they learned to the present situation. Others are more influenced by goals and by anticipations and expectations about future events. They are structuring and imagining future events and thinking about how to reach these events. A third group is more present-time oriented and concerned what to do now and enjoying the moment.

Zimbardo and Boyd (1999, 2008) developed a questionnaire measure of time perspective, both as a way how people put their experiences in time frames, and as an individual difference variable. They distinguish five time segments of people:

1. *Past-negative*, with an aversive view of the past: What has gone wrong? Aspects are: missed opportunities, regret, depression, and anxiety. They selectively remember unfavorable events.
2. *Present-hedonistic* with an orientation of present pleasure and enjoyment, associated with sensation seeking and impulsiveness, little concern for future consequences, and positive time preference.
3. *Future*, with an emphasis on planning, conscientiousness, resisting temptations, achieving goals, and being on time. They have a negative time preference and are high on self-regulation (section "Self-Regulation" in chapter 17).
4. *Past-positive*, with a nostalgic view of the past: childhood, traditions, and "good old times." They selectively remember favorable events from the past. "Better safe than sorry" applies to them.
5. *Present-fatalistic*: external control, being helpless and hopeless, and influenced by outside forces and bad luck. They are high on depression, anxiety, and aggression, and low on self-regulation (section "Self-Regulation" in chapter 17).

INTERTEMPORAL DECISIONS

People tend to ask a high premium (compensation or discount rate) for a delay in receiving their money, usually higher than the current

interest rate. The general pattern is that the demanded premium (as a percentage) is higher for a small than for a large amount of money. It is also higher for a short than for a long period of time. For a long period of time and a large amount of money, the demanded premium is close to the interest rate and thus more reasonable. Discount rates are higher for gains than for losses. People want to be paid more for delaying a gain (e.g., receiving a prize) than they are willing to pay for delaying a loss (for instance, paying a fine). People are less anxious to postpone a loss or debt. However, some people want to pay off a debt quicker than they have to, simply because they do not like to be "in debt."

Why do people demand a larger compensation (percentage) for delaying a small amount than for a large amount? The perceived difference between €100 now and €150 in one year looks larger than between €10 now and €15 in one year. People are thus more willing to wait a year for €50 than for €5. Another possible explanation is that consumers consider small windfall gain in terms of consumption and spending (current income account), and consider large windfall gain in terms of saving (current savings account) (section "Income and Saving" in chapter 3). The opportunity cost of waiting for a small amount is then considered as foregone consumption, whereas the opportunity cost of waiting for a large amount is perceived as forgone interest. Foregone consumption is more vivid and tempting than foregone interest, and this may explain the higher opportunity costs for a small amount.

Models and theories that explain and predict these intertemporal differences in preference and valuation are: (1) the hyperbolic discounting model, (2) prospect theory and reference points over time, and (3) construal-level theory. Hyperbolic discounting and prospect theory are concerned with the valuation of amounts of money in the near-future or distant-future. Intertemporal construal-level theory is mainly concerned with the mental representations (perceptions) of near-future and distant-future points in time.

Hyperbolic Discounting

Samuelson (1937) proposed the *discounted-utility (DU) model* with a constant discount rate for modeling intertemporal choice. In this model, future gains and losses will be discounted at a constant discount rate, similar although not the same as the interest plus inflation rates. According to the DU model, the compensation you accept (WTA) for delaying the consumption for a certain period of time should be

the same as the price you are willing to pay (WTP) to speed up the consumption for the same period of time. The DU model became popular, mainly because of its simplicity, although many anomalies have been found undermining the predictive validity of the model.

People value money that they will receive in the future, considerably lower than money they receive now. They require a compensation (premium) for receiving the money later, with relatively smaller compensations, as percentages, for longer time periods of delay. Thaler (1981) asked people to state the amount of money they require to receive $15 at a later point in time: one month, one year, or ten years later. The median responses were, respectively: $20, $50, and $100. These are premiums of 345, 120, and 19 percent, respectively. The required compensations as percentages decline when time intervals become longer. A hyperbolic function fits these and similar data better than an exponential function (Ainslie, 1975). The term *hyperbolic discounting* is used to describe these compensations with the present as the reference point. Hyperbolic discounting means that people have a declining rate of time preference (figure 15.1). The decline is steep in the near future and becomes more moderate in the distant future. The steep decline for the near future is also an indication of *present bias*, a preference for receiving money today rather than in the future.

Time discounting includes a risk. Receiving a payment later includes the risk that the amount will not be paid then, because of a changed (pension) system or because the bank or insurance company has gone bankrupt. If people do not trust the system or financial institution, they prefer immediate payment (section "Trust" in chapter 12). This

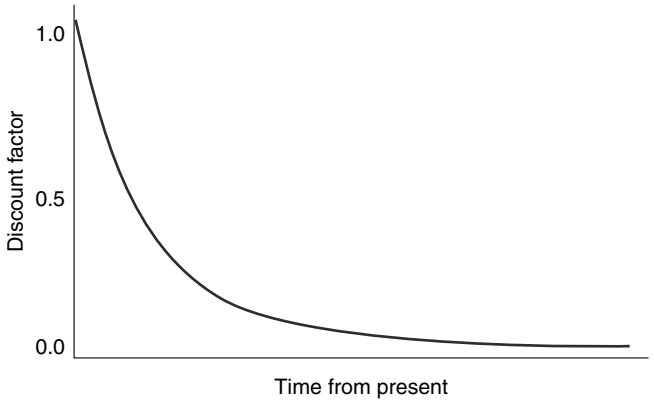

Figure 15.1 Hyperbolic discount function.

is an important reason to prefer a payment now rather than later. People want a compensation for the risk they incur with a later payment. In the *Convex Time Budgets* approach (Andreoni and Sprenger, 2012a,b) a risk element is included. Money allocated to be paid later is paid out with a varying probability. Time discounting is thus based on time (receiving the payment at a later time) and risk (probability of receiving the payment).

Reference Points over Time

Reference points are an important part of prospect theory (Kahneman and Tversky, 1979; section "Prospect Theory" in chapter 13). Receiving and paying money are perceived as gains and losses from the perspective of a reference point. An example may clarify this. Loewenstein (1988) did an experiment in which participants could delay or speed up receiving a gift certificate of $7. Participants could receive their certificate in either one, four, or eight weeks. For instance, a participant with a four-week gift certificate could trade this in for an eight-week certificate and receive a premium for the delay. A participant with a four-week certificate could trade this in for a one-week certificate and pay a premium for the speeding up.

The compensation asked (willingness to accept, WTA) for delaying the payment is significantly larger than the compensation paid (willingness to pay, WTP) for speeding it up. There is an asymmetry in the compensation people want to receive (WTA) or to pay (WTP) for delaying/deferring or speeding up the gain: WTA > WTP. This anomaly, a deviation from the DU model, is called *asymmetric discounting*. Obviously, a delay of eight weeks requires a higher compensation than a delay of four weeks. The disutility of delaying to receive an amount of money is larger than the utility of speeding up to receive the same amount of money. This can be explained by loss aversion. From the present as a reference point, the delay is perceived as a loss, whereas the speeding up is perceived as a gain. The disutility of delaying ("losing") money is larger than the utility of speeding up ("gaining") the same amount of money. Prospect theory (Kahneman and Tversky, 1979) provides an explanation for this asymmetry. Losses are more negatively evaluated than equivalent gains are positively evaluated. Thus, people want to receive a larger compensation for a delay ("loss") than they are willing to pay for speeding up ("gain"). This can be explained with the value function of prospect theory (figure 15.2).

A delay from one to four weeks requires a higher premium than a delay from four to eight weeks. The present is the reference point in

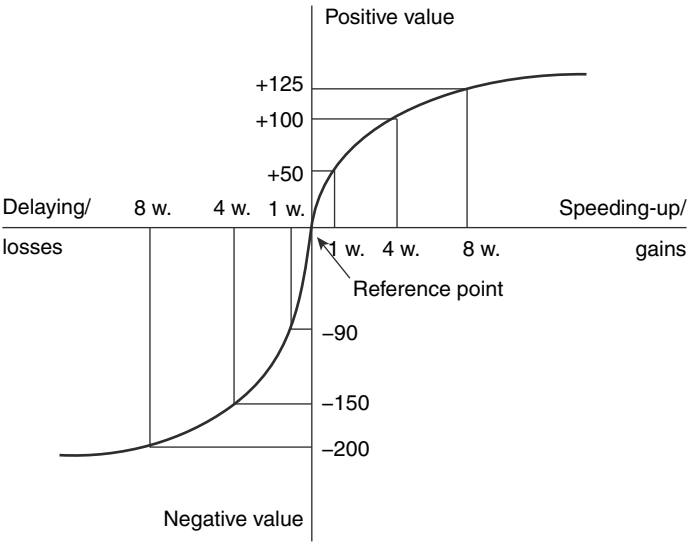

Figure 15.2 Prospect theory and asymmetric discounting.

these cases. Delaying from one to four weeks has a value of (–150) – (–90) = –60. Delaying from one to eight weeks has a value of –110. Delaying from four to eight weeks has a value of –50 (figure 15.2). The value of –60 requires a higher compensation than the value of –50. This corresponds with prospect theory and the hyperbolic discounting function.

For speeding up there is a similar reasoning. Speeding up from four to one week has a value of +50. Speeding up from eight to one week has a value of +75. Speeding up eight weeks rather than four weeks has a value of +25 (figure 15.2). The value of +50 requires a higher payment than the value of +25. The willingness to pay (WTP) for speeding up is lower than the willingness to accept (WTA) for delaying the same time interval. This also corresponds with prospect theory. The hyperbolic discounting function, however, is silent about the asymmetry of delaying and speeding up.

Receiving money is a positive experience. What about negative experiences? Would people want to pay a lot to delay a negative experience such as cleaning the house? And would people want to pay a lot to speed up a positive experience such as receiving a bunch of flowers? No, it is quite the reverse. People like to delay the positive experience and keep the attractive anticipation of the positive experience ("savoring"). In a similar way, people like to speed up the negative experience in order to

avoid the anticipation of it ("dread"). It seems that people prefer an increasing order of utility: first the negative experiences and then the positive ones, or, in other words, first the pain and then the pleasure. People want to remove the negative experiences (dissatisfiers) as soon as possible and keep the positive experiences for later (satisfiers). People also want the positive experiences in an increasing order: first the least and then the more positive experiences, according to their expectations.

We can summarize these anomalies (deviations from rationality) as follows:

1. Gains are discounted more than losses (sign effect).
2. Small outcomes are discounted more than large outcomes (magnitude effect).
3. Delay-speedup asymmetry: People want more compensation (WTA) for a delay than they are willing to pay (WTP) for a speedup.
4. Preference for improving sequences: In a sequence of dinners, take the best dinner at the last date of the sequence.
5. Preference for spreading and variety: spread the different options over time and avoid a subsequence of similar options.

In table 15.1, the first three anomalies are presented in a more elaborate way.

The *sign effect*: Gains are discounted more than losses. People want more compensation (WTA) for delaying a gain than they are willing to pay (WTP) for delaying an equivalent loss (comparisons 1a and 3a). And how is WTP for speeding up a gain compared to WTA for speeding up a loss (comparisons 6a and 8a)?

The *magnitude effect*: Small sums of money are discounted more than large sums of money. People want relatively more compensation (WTA), as a percentage, for delaying to receive a small gain than a large gain (comparison 3b). Do people also want more relative compensation (WTA) for delaying to pay a small loss than a large loss (comparison 4b)? To my knowledge, there is no empirical research on comparison 4b. In a similar way, people want to pay more (WTP), as a percentage, for speeding up a small gain than for a large gain (comparison 7b). People want more compensation (WTA), as a percentage, for speeding up a small loss than for a large loss (comparison 8b).

The *delay-speedup asymmetry*: People want more compensation (WTA) for delaying a gain than they are willing to pay (WTP) for speeding it up (comparisons 1b and 3c). People want more compensation (WTA) for speeding up a loss than they are willing to pay (WTP) for delaying a loss (comparisons 6b and 8c).

Table 15.1 Comparisons of WTP and WTA for delaying or speeding up small or large (magnitude) gains or losses (sign)

	Gain	Loss
Delaying a large amount	1a. WTA1 > WTP2 (sign) 1b. WTA1 > WTP5 (delay/speed up)	2. WTP2
Delaying a small amount	3a. WTA3 > WTP4 (sign) 3b. WTA3 > WTA1 (magnitude) 3c. WTA3 > WTP7 (delay/speed up)	4a. WTP4 4b. WTP4 > WTP2 (magnitude)
Speeding up a large amount	5. WTP5	6a. WTA6 > WTP5 (sign) 6b. WTA6 > WTP2 (delay/speed up)
Speeding up a small amount	7a. WTP7 7b. WTP7 > WTP5 (magnitude)	8a. WTA8 > WTP7 (sign) 8b. WTA8 > WTA6 (magnitude) 8c. WTA8 > WTP4 (delay/speed up)

WTP: willingness to pay; WTA: willingness to accept payment/compensation.

An example may clarify anomalies 4 and 5: if there are three dinner options for five weekends (eat at home, fancy French and lobster restaurant), and each restaurants may be chosen only once, the following sequence is preferred most: (1) eat at home, (2) eat at home, (3) fancy French restaurant, (4) eat at home, (5) fancy lobster restaurant. This sequence is improving, starting with eating at home, while the restaurants are chosen for the last weekends. And spreading (variety) is present: eat at home between two restaurant dinners (Loewenstein and Prelec, 1993). Restaurant dinners seem to be more enjoyable if preceded by eating at home. This is a contrast effect increasing the differences between the two dinners. In a similar way, people prefer an increasing wage profile over flat or decreasing wage profiles during a period of time, holding total wages constant (Loewenstein and Sicherman, 1991). Pointing out that the flat and decreasing wage profiles have a higher value because the money comes earlier and part of it can be saved, did not change this preference. It is easier to adapt consumption to an increasing than to a decreasing wage profile. People may also have the illusion that increasing wages correspond with an increasing performance of the employee or an increasing appreciation of the employer. It also corresponds with inflation and the value of money, and it is a "common" wage profile.

Weber et al. (2007) developed *query theory* as a psychological mechanism for explaining the delay-speedup asymmetry in discounting and it provides a possible solution to correct for this asymmetry. In query theory, the thoughts of the participants of delay-speedup experiments are listed. These thoughts are either "impatient" and favoring the present or "patient" and favoring the future. These thoughts are used by the participants to construct their preference for receiving a gift now or later. Participants in the delay condition queried reasons (thoughts) supporting immediate consumption first, and this inhibited querying reasons supporting delayed consumption. Arguments favoring immediate consumption are thus more accessible than arguments favoring delayed consumption. This accessibility of arguments is a cause of discounting delayed outcomes more. In the speedup condition, participants queried reasons supporting delayed consumption first, and this inhibited querying reasons supporting immediate consumption. Arguments favoring delayed consumption are thus more accessible than arguments favoring immediate consumption. This accessibility of arguments is a cause of discounting delayed outcomes less. The order in which the arguments come to mind seems to determine the preference for immediate or delayed consumption.

Construal-Level Theory

Construal-level theory (CLT; Trope and Liberman, 2003, 2010) states that temporal distance is also a psychological distance. In CLT, temporal, spatial, and social distances are considered as psychological distances. Social distance is the distance between social groups and classes in society. CLT states that similar processes of construal are present in all three types of psychological distance.

Time changes people's mental representations (construals) and responses to events. This regards both past and future events. Distant-future events are often evaluated in abstract terms (high-level construals), whereas near-future events are evaluated in concrete terms (low-level construals). The same is true for near-past and distant-past events with, respectively, low-level and high-level construals. An example of a high-level construal is "having an overview of personal finances," and an example of a low-level construal is "entering your expenses into a budgeting system." Some differences between high-level and low-level construals are given in table 15.2.

People perceive distant-future events often with a promotion focus (Higgins, 1998), in which the positive and motivational aspects are dominant. These events are goal-related and abstract; events and

Table 15.2 Comparison of high-level and low-level construals [adapted from Trope and Liberman (2003)]

High-level construals	Low-level construals
Distant future	Near/proximal future
Abstract	Concrete
Superordinate	Subordinate
Goal relevant	Operations relevant
Promotion focus	Prevention + promotion focus
"Why?"	"How?"

situations one aspires and wants to reach. The main concerns is "why" people want to reach these events and states. People may be too optimistic and overconfident about their success, whereas performing the activities, pessimism may prevail whether the work will be successfully finished at all. Near-future events are often operational and related to "how" to perform an activity or to organize an event. It is often a trade-off and balance of a prevention (avoidance) and a promotion (approach) focus concerns (Pennington and Roese, 2003). The main concerns is then "how" people can realize these events and states. This is rather similar to Vallacher and Wegner's (1986, 1987) *levels of action identification* (LAI). Abstract behavior may be defined as a category of acts belonging together because the acts are directed to the same goal, for instance, getting a higher retirement income. Concrete behavior consists of the acts contributing to this goal, for instance, searching on the Internet for a retirement capital insurance.

People aspire or start engaging in an activity with a high-level construal (mental representation) of the activity and the goals or benefits of this activity, for instance, a vacation trip (promotion focus of possible activities and excursions). When they actually start working on the activity, it becomes more concrete and cumbersome, for instance, packing your luggage and traveling to the airport (prevention focus of not forgetting something). When starting a project, people may be too optimistic and overconfident about finishing and attaining the goal of the project, and when performing the activity, they become more realistic about it. In the behavioral costs/benefits approach (Verhallen and Van Raaij, 1986), it is found that perceived benefits (advantages) are dominant at the start of a project and in the long term, when considering the project, whereas perceived and actual costs (disadvantages) are dominant in the process of performing the project.

Construal-level theory makes a similar distinction of high-level and low-level construal for the past. We often remember distant-past

events in a more global and abstract way, and near-past events in a more concrete way. However, often we also remember concrete acts of a distant-past if these acts have a strong meaning to us, for instance, the loss of a relative or a car accident. The meaning of the past may be related to specific concrete acts (low-level construal) that have taken place and to global and selective memories (high-level construal).

Construal level theory distinguishes only two levels of construals: high-level and low-level construals for distant and proximal events. For an intermediate temporal distance, intermediate-level construals may be distinguished, probably a mix of abstract and concrete high- and low-level construals.

MEANING STRUCTURE ANALYSIS

Meaning structure analysis (MSA) states that products and events have at least three levels of meaning (Gutman, 1982; Reynolds and Gutman, 1988). At the basic attribute level, products have concrete-technical characteristics. At the benefit level, products have benefits (and costs) for the users. At the value level, products are associated with values and lifestyle. In a similar way, behavior has three levels: (1) specific concrete acts to be done (subordinate), (2) interrelated acts/behaviors with a common goal, and (3) superordinate behaviors related to values (Vallacher and Wegner, 1986, 1987), such as sustainability.

A technique used in meaning structure analysis is *laddering*. With laddering, the "why" question starts with concrete attributes going up to values. The "how" question starts with values going down to concrete attributes. This is shown in figure 15.3. The why questions are: why is this attribute important? Why is this benefit important? An example of why questions in the case of a mortgage with a fixed interest rate: Question 1: Why is a fixed interest rate important? Answer 1: Because

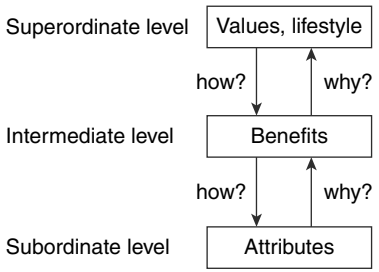

Figure 15.3 Levels of meaning structure analysis.

with a fixed interest rate, I pay the same amount every year. Question 2: Why is it important to pay the same amount every year? Answer 2: With the same amount I am more certain and confident about the future. The how questions are: How can this value be realized? How can this benefit be realized? An example of how questions are in the case of a mortgage with certainty and confidence as core values: Question 1: How can certainty and confidence be realized? Answer 1: With a fixed amount to pay every year. Question 2: How can the fixed amount to pay be realized? Answer 2: With a fixed interest rate.

DISTANT- AND NEAR-FUTURE PERSPECTIVES

In table 15.3, the distant- and near-future perspectives are compared, based on prospect theory (PT), hyperbolic discounting (HD), construal-level theory (CLT), behavioral cost/benefit approach (BC/B), levels of action identification (LAI), and meaning structure analysis (MSA). The distant-future perspective takes a superordinate perspective, whereas the near-future perspective takes a subordinate perspective.

TIME MANAGEMENT AND PROCRASTINATION

Timing and managing tasks over time is an important part of financial planning and realizing objectives. Some of these tasks have deadlines and their completion becomes more urgent close to the deadline, for instance, a tax declaration. Deadlines have *calendar effects.* Suppose,

Table 15.3 Comparison of distant-future and near-future perspectives in several models and theories

Distant-future perspective	Near-future perspective	Model/theory
Large loss	Small loss	PT
Lower utility/value	Higher utility/value	HD
High-level construal	Low-level construal	CLT
Abstract	Concrete	CLT
Benefits	Costs	BC/B
Interrelated behaviors	Separate acts, operations	LAI
Values, lifestyle	Attributes	MSA
Superordinate	Subordinate	CLT, MSA
Why?	How?	MSA

BC/B: behavioral costs/benefits; CLT: construal-level theory; HD: hyperbolic discounting; LAI: levels of action identification; MSA: meaning structure analysis; PT: prospect theory.

it is March 10 now. The deadline for a task may be March 31 or April 2. March 31 (this month) is perceived as much closer than April 2 (next month), and people start working on the task sooner with a "this month" deadline. This month is perceived as "current time," whereas next month is perceived as "future time." In this approach it is assumed that people categorize and distinguish "current time" from "future time," just as they distinguish "current income" from "future income" (Shefrin and Thaler, 1988). In a micro-saving program, Indian farmers were offered a savings account with an incentive for achieving a savings target of Rs. 5,000 (€71.2 or $78.0) within six months (Tu and Soman, 2014, Study 1). For farmers approached in June, the deadline was in December; for farmers approached in July, the deadline was in January. Farmers with the December deadline opened their account and started saving earlier than farmers with the January deadline, although both groups had the same six months available. Starting a task soon improves the chance of getting things done on time. The saying "well begun is half done" is ascribed to Aristotle and Mary Poppins. Also, giving "gentle reminders" that the deadline is approaching, reminds people to start with the task.

Other tasks such as retirement saving have no deadline, and may be postponed too long to contribute substantially to a higher retirement income. People are often too optimistic and underestimate the time needed for completing tasks, such as a tax declaration. They expect their tasks to be finished early before the deadline and ignore past experience (*planning fallacy*; Buehler, Griffin, and Ross, 1994). Although the planning fallacy is an example of overconfidence, it is not necessarily a bad thing. If we were not optimistic about completing a task, we would never start. Close to the deadline, we may regret that we ever promised ourselves or others to finish the task. But after a stressful completion of the task just in time before the deadline, we feel proud about ourselves.

Procrastination manifests itself by starting too late with a task or working too slowly to successfully completing the task on time (Steel, 2007). The word "procrastination" consists of the Latin "pro" (in favor of) and "crastinus" (of tomorrow). Procrastination is related to time management of performing and finishing tasks, thus to self-efficacy (O'Donoghue and Rabin, 1999, 2001). In this sense, procrastination is related to the personality characteristic conscientiousness (section "Conscientiousness" in chapter 11). Procrastination is often a troublesome phenomenon and most people perceive it as unfavorable, bad, and harmful. In our complex society, people must organize and complete many tasks in time for meeting deadlines, avoiding penalties, not

overpaying taxes, and not foregoing income. Note that procrastination is not necessarily always unfavorable. Bernstein (1998, p. 15) explained, "Once we act, we forfeit the option of waiting until new information comes along. As a result, no acting (inaction) has value. The more uncertain the outcome, the greater may be the value of procrastination." Thus, in some cases procrastination is a wise course of inaction. It is assumed that procrastination got its negative meaning during the Industrial Revolution (*ca.* 1750), when industrial processes and activities had to be carefully organized, coordinated, and planned.

What are the reasons or causes of procrastination?

1. *Task aversiveness*: Unattractive and aversive tasks are more often postponed than attractive tasks (Blunt and Pychyl, 2000).
2. *Task difficulty*: Difficult tasks and tasks that are expected to be difficult are more often postponed than easy tasks.
3. *Task importance*: Important tasks often require a lot of time and effort. People postpone these tasks till "they have enough time" or enough cognitive capacity (Shiv and Fedorikhin, 1999) for performing these tasks.
4. *Task size*: Small tasks are less demanding, easier and quicker to do, and often go first. Some people look to the number of tasks they have to do and finishing some easy tasks is satisfying because this reduces the number of tasks they still have to do. This is a reason that large and important tasks are often postponed. A remedy is to divide the large task into small subtasks that each can be done quickly (partitioning).
5. *Task uncertainty*: If it is uncertain how long it will take completing a task, it is difficult planning the task. This is a reason for postponement. A task may contain uncertainties such as dependency on whether information will be available on time or whether two parties will reach an agreement on time.
6. Low levels of *self-control* and *self-efficacy* are related to procrastination (sections "Self-Control" and "Self-Efficacy" in chapter 17). People with low self-control and self-efficacy are chaotic and undisciplined and tend to postpone tasks.
7. A low level of *conscientiousness* is related to procrastination (section "Conscientiousness" in chapter 11). Nonconscientious people are unsystematic and tend to postpone tasks.

What are the unfavorable and favorable consequences of procrastination?

1. Procrastination often leads to poor performance (making mistakes and forgetting to include things) due to the time pressure close

to the deadline. People who cannot cope with stress will perform poorly close to the deadline.

2. Procrastination may also lead to better performance because close to the deadline, the arousal (activation of central nervous system) is high and most cognitive and emotional resources are dedicated to the task. If people can cope with stress, this will usually increase performance. Some people prefer to start with a task close to the deadline, because then they will perform more efficiently and effectively than starting long before the deadline. Long before the deadline they spend too much time on details of the task, and this is less efficient considering the amount of time spent. Note that this is a favorable effect of procrastination.
3. Procrastination may first improve *mood* because the onerous task is temporarily removed from conscious thinking. Later on, as the deadline is approaching and time pressure is increasing to perform the task, mood will worsen due to stress and uncertainty.
4. Postponing attractive tasks may be favorable because it shows the ability to delay immediate gratification. People who are able to delay gratification, if needed, have more self-control and are better planners and performers. See the "marshmallow experiment" described in section "Impulsiveness and Delay of Gratification" in chapter 17 (Mischel, Shoda, and Rodriguez, 1989; Mischel, 2014).

How to overcome procrastination of aversive, difficult, important, large, and uncertain tasks? Partitioning of the onerous task into smaller subtasks may be a solution, for instance, the "quick enrollment" suggested by Choi, Laibson, and Madrian (2006). In the *partitioning* approach, participation in a pension plan is divided into two less-complex steps. In the first step, people decide to participate or not. During a few months, people get accustomed to their participation and change their attitude accordingly [*self-perception theory* (Bem, 1972): attitude change based on behavioral change]. In the second step, it becomes easier to make specific decisions on how much to save and on other specifications. This two-step or foot-in-the-door (Scott, 1977) approach is more successful than the one-step approach in which people have to decide all at once. Other ways to overcome procrastination are accepting a (quick) satisficing rather than a (time consuming) maximizing strategy to perform the task. And third is imposing a deadline for consumers by offering an attractive alternative that can only be obtained before a certain date (scarcity).

In the SMarT (Thaler and Benartzi, 2004) program, a future salary increase is selected as an event to enroll in a pension program. A part of the salary increase will then be saved in the pension program and

a part will be kept for consumption. The future moment is important because people are more willing to accept starting saving in the future than starting now. The future amount of saving is perceived as a smaller "loss" than the "loss" of present saving. (Hyperbolic) discounting is an explanation for this willingness to save in the future. It is important to make the commitment now to start saving in the future (section "Pension Knowledge" in chapter 6).

Instead of consciously postponing the task, people might repress and forget to do the task. Unattractive tasks are more likely to be repressed and forgotten than attractive tasks. *Repression* is an unconscious process of removing information or tasks to be done from conscious memory in order to "solve" the conflict or dissonance between thinking about the task and not wanting to do the task. Repression is a Freudian explanation of procrastination.

CONCLUSIONS

Future-time preference is important for several types of financial behavior of consumers, for instance: saving, saving for retirement, investing, taking insurance, spending windfall gains, tax declaration, and selecting an annuity period of a pension plan. Many people prefer spending money now (present bias, positive time preference) than saving it for later (negative time preference).

Several theories can explain how people mentally represent and evaluate present, near-future, and distant-future amounts of money or tasks. Hyperbolic discounting is a model that fits the future discounted amounts of money to receive or to pay. Construal-level theory explains the mental representations of near-future and distant-future tasks and how this contributes to planning activities and procrastination. Some "anomalies" from neoclassic economics are the *sign effect* (gains are discounted more than losses), the *magnitude effect* (small sums of money are discounted more than large sums of money), the *delay-speedup asymmetry* (people want more compensation for delaying a gain than they are willing to pay for speeding it up). People also want more compensation (premium) for speeding up a loss than they are willing to pay for delaying it.

Procrastination is the postponement of aversive, large, difficult, uncertain, or important tasks. Troublesome is that people postpone important and large tasks such as pension saving. Several ways exist to abate troublesome procrastination, such as the SMarT method, and partitioning a large task into smaller tasks. People scoring high on self-regulation and conscientiousness are more likely not to postpone these tasks.

16

Decision-Making, Decision Architecture, and Defaults

This chapter is on the presentation of information to consumers, and how this affects their decision-making and choice. There are several effects of information presentation on decision-making and choice. Important factors in decision-making are: problem, person, information supply, decision process, and social context. Defaults and nudges are designs of information presentation to influence financial and other behavior into a direction that is "desirable" for the person involved and for society.

Information Environments

Decision-making about complex financial products is not an easy task. Often much information is already available or can be found on the Internet. But how reliable is this information? How trustworthy are the information sources? Is there too much information to process (information overload)? Which information is relevant and which is not? How difficult is the information and are we able to understand the information and the consequences of our decision? How accurate should be the outcome of a decision process, and how much effort should we spend to reach this level of accuracy? People have to find a strategy to handle information and a decision process to choose. This may be a maximizing strategy to find the best alternative from a set of possible alternatives. This is effortful because all or most information has to be processed. It could also be an optimizing or satisficing strategy to find an acceptable alternative by spending less effort. This is a trade-off between effort and the quality of the outcome.

Five main groups of factors play a role in financial decision-making: problem, person, information supply, decision process, and social context. In table 16.1, the major factors are given (Payne, Bettman, and

Table 16.1 Factors in decision-making

Problem	Objective of the decision-making Task variables: information load, importance, complexity, and difficulty Context variables: urgency, time pressure, distraction
Person	Ability, financial literacy Prior knowledge, expertise Motivation, need for cognition
Information supply	Information sources, reliability, trustworthiness Availability of information Information presentation: sequence, framing, text versus figures and graphs Decision architecture
Decision process	Conjunctive process, elimination by aspects Disjunctive process Lexicographic process Linear-compensatory process Maximizing or satisficing
Social context	Accountability to partner, group member

Johnson, 1993). People are usually flexible and adapt to these factors in their information processing and decision-making.

PROBLEM FACTORS

Decision-making is needed to solve a problem, to select a financial product or service, or to change a product or service. The goal or objective is to find a product or service that meets certain criteria, the "best" product or service available, or a quick solution to an urgent problem. The problem may be well defined and without risk, such as finding an automobile insurance. These insurances may be compared on a comparison site on price and other characteristics. Sometimes, a problem is not well defined, such as finding the best way to save or to invest for retirement. The alternatives are difficult to compare and there is risk and time preference involved. For the latter problem, different scenarios about future economic developments may be sketched and the most likely scenario selected. And then the product must be selected that fits in the scenario. Most consumers will need an expert to advise them on this problem.

Task variables are: information load, importance, complexity and difficulty. *Information load* pertains to the number of alternatives from which a selection has to be made, and the number of attributes

or characteristics of these alternatives. Alternatives are complex if many characteristics are present. People experience a higher information load if many alternatives are present than if alternatives have many attributes. People are most comfortable with five plus/minus two alternatives. For simple alternatives, choosing from a set of seven alternatives can be done. For complex alternatives, a choice from three alternatives is manageable. If people are confronted with too many alternatives (information overload), they tend to delay, postpone, and even cancel the decision (Iyengar and Lepper, 2000; Markus and Schwartz, 2010; Schwartz, 2004). An overloaded environment provides too much stimulation and requires too high levels of arousal (activation of the central nervous system). People want to decrease their arousal by reducing the level of stimulation, and leave the overloaded environment (Berlyne, 1963). Offering too many alternatives does not increase the quality of the decision, because people are unable to compare all alternatives carefully and may overlook relevant information. Schwartz (2004) calls this the "tyranny of choice." Paradoxically, consumers say in surveys that they want to choose from a large assortment of alternatives, because this provides them autonomy and "freedom." Their need for variety is better served with a large assortment. In practice, however, consumers have problems with choosing from a large set of alternatives.

How to solve the problems of information overload? First of all, some assortments can be divided into subgroups, for instance, a menu card into dishes with meat, fish, and vegetarian dishes. Consumers first select one of these subgroups, and then a specific dish. In many assortments, such a stepwise choice is possible. In some assortments, a clear "winner" is present dominating most or all other alternatives. Then, choice becomes easy. Decision aids may be present, asking for your importance rating of attributes and then computing the total utility of each alternative. See the section in this chapter on decision processes.

Context variables are urgency and time constraints. Under *time pressure*, people tend to look for negative aspects of alternatives and then reject these alternatives. Wright (1974) found that under time pressure, people use negative evidence, and select the first alternative without a negative aspect. Under conditions of moderate *distraction*, negative evidence is also a way to reject alternatives and to retain acceptable ones. Prospect theory (chapter 13) predicts that negative evidence (to reject an alternative) has a stronger effect than positive evidence (to accept an alternative). Distraction employs cognitive resources (resource depletion; section "Main Theoretical Approaches" in chapter 1) and thus less resources are left for comparing alternatives and choosing.

In cases of information overload, people are not only experiencing task difficulty, they are also less satisfied with their choice. They keep thinking that other alternatives could have been better than the chosen one and experience regret. They may also experience opportunity costs of missing the benefits of nonselected alternatives. The problems of the choice situation have impact on the experienced utility of the chosen alternative. Shying away from complex decisions may be motivated by anticipating regret and opportunity costs. Thus, the decision process has impact on ("molds" or "leaks into") the satisfaction with the choice and the chosen alternative (Keys and Schwartz, 2007).

Information Supply

Information is often abundantly available on the Internet and in advertisements in printed media, television and radio. Advertisements in printed media, television, and radio may trigger a need or a possible solution of a problem. Online search often provides a lot of information on the characteristics of the choice alternatives, their prices, and the stores where the products may be bought. Besides the product information from producers and retailers, often *reviews* of other customers can be consulted to find out how satisfied others are about the quality of products and service of the suppliers. These reviews may contain a quality rating and a verbal account of the experience. For instance, financial advisers are rated on friendliness, client orientation, and competence. Review systems vary in reliability and trustworthiness. In a good review system, not only clients with an extremely positive or negative opinions, but "all" customers should give a rating. The ratings should be a "moving window" of recent clients, say clients of the past three months.

Consumer organizations and independent websites provide comparative test information on products and services. Most consumers know that producers and retailers may be biased in their information presentation as they may depict products in the most favorable way, emphasizing the benefits and deemphasizing the weak aspects. Other consumers may also be biased, because, if they are dissatisfied, their reviews may be written to vent their anger, to harm the supplier, or to warn other consumers. The comparative test results are "unbiased" and often based on sound research. Nevertheless, negative reviews of other consumers, even if based on a small number of cases, often cause people to reject that alternative. Negative evidence has a stronger effect on the buying decision than positive evidence.

In many markets, "all" choice alternatives are available at the same time. In some periods, an alternative is "on sale" and cheaper, or new

alternatives are introduced on the market. This means that prices and availability change and consumers have to decide to buy now or later. In a changing market with a "nonsimultaneous" set of alternatives, consumers do not know how the market will change and can only maximize or optimize their choice based on the available alternatives.

Information is often supplied in the form of tables or rankings. Some consumer organizations, such as the Consumer Union, publish comparison tables with brands or product variants as rows and attributes/characteristics as columns. Consumers may start reading such a table with the most important characteristic first and selecting the brands with the highest scores on this characteristic. Then they may move to a second characteristic and keep the brands that have the highest scores on both characteristics. They use a conjunctive or elimination by aspects (EBA) decision process (Tversky, 1972). They are trading off characteristics and price to find an alternative with an optimal trade-off between quality and price. Other consumer organizations, such as the German Stiftung Warentest, publish the results for all brands and product variants in separate boxes. Consumers then have to form an overall impression of each alternative and compare these overall impressions to find the best alternative. Information in the table format facilitates specific comparisons, whereas the separate format facilitates separate "overall" impressions as a base for choice.

Comparison sites in the Internet often give price rankings of products and additionally scores on other characteristics. In this format, the relative position in the ranking and thus prices become salient and more dominant for consumers to select an alternative. Giné, Martinez Cuellar, and Mazer (2014) studied decision-making and choice of low-income people from Mexico City. They were invited to choose the best one-year 10,000 peso (€526 or $579) loan product from a random list, similar to locally available loan information. Another group used a user-friendly summary sheet with loan information, designed by the Consumer Financial Credit Bureau of Mexico. Only 39 percent of the first group could identify the best loan, while in the second group this was 68 percent. This shows that the format of information presentation has a strong effect on finding the best alternative.

Most information on financial products is available as "advertising" in print media and online. The information source is producer or retailer of the product, and the intention is to inform and persuade potential customers (prospects) to buy. The message may be one-sided and a comparison with products of competing suppliers is usually absent, which makes it difficult for consumers to find out whether the

product is a good choice or not. The reliability and trustworthiness of the information may be questionable. Online financial information is usually searched by Google search. The first page of search "hits" is then dominant for consumers to select an alternative.

Financial Intermediaries

Consumers who experience lack of knowledge and/or information overload may hire the services of a financial *intermediary* or adviser. An intermediary helps to find and structure the relevant information for making decisions, gives explanation and advice, and orders a particular financial product ("execution") for the client. The client has to trust the intermediary to work for the client's interests (section "Trust" in chapter 12). There may be a conflict of interest: The intermediary may not advice the financial product that is the best for the client, but the product on which he/she makes the largest profit. One way to diminish or "solve" this conflict of interest, is *disclosure* to the client that the intermediary has this personal interest. With the disclosure, the client has been warned, may expect a biased advice of the intermediary, and may "discount" the advice given to him/her before making a decision. Actually, this is asking too much of a client. Clients tend to believe the provided information, even knowing that it may be biased. If clients "discount" the information, they adjust and discount advice not as much as they should, and often do not know which aspects to discount. After disclosure, the adviser feels morally licensed and thus less responsible for the information he/she provides and may even exaggerate the bias to correct for the effect of disclosure. Disclosure also reduces legal liability. From experiments, Cain, Loewenstein, and Moore (2005) concluded that there are perverse and adverse effects of disclosure. They conclude that disclosure fails to solve the problems of conflicts of interest and may make matters even worse.

Another solution for conflict of interest is to separate the roles of advising and buying. Consumers pay the intermediary for the hours needed to give the advice. The intermediary may order the product but is not allowed to make a profit from this transaction. Consumers with high opportunity costs (high income) and/or low financial literacy are more willing to pay for financial advice than consumers with low opportunity costs and/or high literacy. Buying advice saves search costs and often contributes to a better decision, and is thus a wise investment with a high return. Lee and Cho (2005) find that many consumers are unwilling to pay a fee for financial advice and should

be taught about the value of financial advice. For young people the value may be a better organization and execution their financial matters, and for older people the value of better financial planning for retirement.

Not only intermediaries but advice devices may also provide personalized information and advice. Knowing some characteristics of the client such as age, income, family composition, and preferences, the advice device or "angel" may preselect alternatives that fit clients best. The client may then choose an alternative from this preselection. This saves time and effort, and results in a better choice. A few steps beyond this, the "angel" becomes a virtual adviser, and selects the "best" alternative for each client, based on the information the client provides and data from prior encounters with the same client. The "angel" becomes a decision-maker on behalf of the client and replacing the client. A high level of trust is needed to believe that the angel knows the client's preferences correctly and decides in the client's interest. Poiesz and Van Raaij (2007) call this the *Virtual Guardian Angel* (VGA).

Person Factors

Person or individual difference factors play a role in decision-making. People with a high ability and a high level of financial literacy are able to process more and more difficult information than people with a low ability and financial literacy. Prior knowledge and expertise play a similar role. Experts understand financial information more easily, distinguish between important and less important information, and know where to look for. Experts, however, may be overconfident about their own experience, not read and process the information carefully, and make mistakes (Glaser, Nöth, and Weber, 2004).

Simon (1982) introduced the concept of "*bounded rationality.*"[1] Human rationality is bounded, because there are limits to our cognitive capacity, available information, and time. As a consequence of this, in a complex and/or overloaded information environment, we are unable to choose the best option or making the best decision. A solution is to accept a satisficing (good enough) rather than a maximizing (the best) (see also the next section on "Decision Process"). Bounded rationality is an early core concept of behavioral economics.

Some people are motivated to select the "best" alternative from a choice set. Schwartz (2004) called them "*maximizers.*" Others are satisfied with a "good" alternative that meets the requirements and criteria they have. These people are called "*satisficers*," in reference

to Simon's (1982) concept of "satisficing." Maximizers spend a lot of time deciding on the "best" alternative, and fear they missed the "best" one, due to incomplete information. Satificers stop searching as soon as they find a "good" alternative. They may realize that there may be better alternatives, but don't like to spend much time on finding these alternatives. Satisficers are happier with their choice than maximizers. The "quest for the best" is obviously not something that makes you happy.

Motivated people are more persistent in trying to understand and to process financial information. People with a high need for cognition are more motivated to understand and process the information and to reach acceptable outcomes. See chapter 7 on investment behavior and chapter 11 on individual differences.

Decision Process

The traditional decision process in economics is the computation of the expected value of (risky) alternatives/options and then choosing the alternative with the highest expected value. Although this is seldom done by decision-makers, it is a valuable benchmark for comparing actual decision outcomes. It is also decision rule for decision support systems to select the "best" alternative.

Confronted with a high number of alternatives, a *conjunctive process* may be used. In a conjunctive process, alternatives are eliminated that do not meet certain criteria. All other alternatives are kept for further analysis, for instance, for another conjunctive process with stricter criteria. A conjunctive process is a kind of screening of alternatives to retain the acceptable ones. Wright (1974) found that under time pressure, people use a conjunctive process to reject the alternatives with negative aspects. After this screening, they select an alternative without negative aspects.

Satisficing as a search and choice strategy is related to the conjunctive process (Simon, 1979, 1982). "Satisficing" is a Scottish word introduced by Simon as an alternative for "satisfying." Satisficing is a two-stage process. In the first stage, criteria are set that have to be met by the alternatives, for instance, a maximum price or a minimum quality. This is related to the aspiration level. In the second stage, the first alternative that is found that meets these criteria or this aspiration level, will be selected. Ölander (1975) found that for nonsimultaneous sets of alternatives, often a satisficing strategy is followed.

Elimination by aspects (EBA; Tversky, 1972) is a type of conjunctive process in which aspects (attributes) of the alternatives are assessed

one at a time. Alternatives that do not meet a criterion are eliminated until one alternative remains. Alternatives that "survive" the conjunctive processes will be processed more carefully, and one of these will be selected. The *lexicographic process* is sequential conjunctive process, as in a alphabetically ordered lexicon: words are first ordered by the first letter and then by the second letter, and so on. An example may clarify this. First, all alternatives are compared on price, and alternatives that are too expensive are eliminated. Sometimes, alternatives that are too cheap will be eliminated as well, because consumers do not trust these alternatives. In the next step, a quality aspect may be judged, and alternatives that do not meet this quality standard will be eliminated. This process will continue till only one alternative remains and that alternative will be chosen.

In contrast, in a disjunctive process an alternative will be selected because of an "outstanding" characteristic. In a first round, the unacceptable alternatives may have been eliminated by a conjunctive process. For the remaining alternatives, a *disjunctive process* will be applied and an alternative with one or more outstanding characteristics will be selected. Outstanding characteristics are a famous brand name, an attractive price/value trade-off, a temporary price discount, or a unique product characteristic that other alternatives do not possess. Disjunctive decisions could be based on emotion and liking a particular alternative or well-known brand.

In a maximizing process, all alternatives will be compared, for instance, with a *linear-compensatory process*. With this process, all attributes of all alternatives are evaluated, the importance of each attribute will be assessed, and the weighted attributes scores will be added. The alternative with the highest weighted sum will be selected. The importance of attributes may differ between persons. Some people give a higher weight to sustainability than others. Maximizing is often an effortful process to perform without computational support. This process is compensatory because a low score on one attribute may be compensated by a high score on another attribute. A high price may be compensated with a high quality. In a conjunctive process, alternatives with a high price might have been eliminated in the first round without considering their high quality. In decision support systems, usually linear-compensatory processes are applied to select the "best" alternative(s).

Financial decision-making is not only an individual but also a social process. People are accountable to their partner for their decision, ask for a "second opinion" of their partner or friend, or people make financial decisions together. Many households divide tasks and one person

may perform the role of "financial officer" (Ferber and Lee, 1974) and prepare financial decisions on spending and on deciding on complex financial products such as a mortgage, life insurance, or pension plan.

Decision Architecture

Defined in a broad way, decision architecture is the design of equipment or information systems in such a way that the number of errors made by users is minimized. An example: users of an ATM (automatic teller machine) tended to forget taking their bank card after they received their banknotes. ATMs now first ask customers to take their bank card before the banknotes are given. In this way, the error is eliminated of leaving the bank card in the machine.

A designer of an information system, for instance, a website, should keep in mind what people are looking for, how easy or difficult it is for them to find the relevant information, and how people proceed selecting information and making a choice. A "difficult" website is frustrating for consumers who cannot find where they are looking for, and for website owners who might miss a purchase. Good websites have a logical order of pages and topics on pages, and if not, a search engine to find the relevant information. In some cases, the provided information may be incomplete, for instance, credit card companies do not always provide full information on all interest costs and administration charges connected to the use of a credit card.

Thaler and Sunstein (2008) introduced the concept of *nudge*, an element of an information system or environment that helps or pushes consumers in selecting a "desirable" alternative. "Desirable" means here from the consumer's perspective. In such an information system or environment, the "desirable" alternatives get a more prominent place or are the first ones presented (primacy effect) and their likelihood of being selected will thus increase. This is criticized as being paternalistic, because the designer or seller determines what should be chosen. Thaler and Sunstein (2008) call it *libertarian paternalism*, because consumers still retain their freedom to choose what they want. A GPS as a navigation system to reach your destination does not restrict your freedom, because you still may take another route, if you want, but it helps reach your destination more easily. Sunstein (2014) provided a list of ten types of nudges for public policy programs that can help people make better choices and behave in a financially more responsible way. The concept of nudge is quite broad in this list, as simplification, warnings, disclosure, reminders, and feedback on past behavior are all included as types of nudges.

Nudging is a "soft" way of influencing behavior by providing information at the right time, place, and level of complexity, and making the "desirable" alternatives more prominent in the decision architecture. Nudges should not take the form of manipulation or trickery. Nudges do not use coercion and do not change permissions to or prices of alternatives. Traditional ways of influencing behavior are mandates and bans, excluding alternatives or behaviors by law, for instance, forbidding theft and fraud. Economic incentives are subsidies on desirable behaviors, making these behaviors less expensive. Economic disincentives are taxes on undesirable behaviors, making these behaviors more expensive. In comparison, nudges are relatively inexpensive, often easy to apply, and have the potential to promote and facilitate elements of responsible financial behavior.

Defaults

Many consumers have problems selecting complex financial products, such as their health insurance or how to invest their pension money. Many health insurance companies provide a default. For new customers, this is a standard option that is acceptable but not necessarily optimal for all customers. For present customers, it is usually the same option as they had before. If customers do not react before the deadline and change this option, they will receive the default option. Many consumers plan to compare the default option to other options, but cannot find time or are not motivated enough to do so [status quo bias (Samuelson and Zeckhauser, 1988), laziness, procrastination (section "Time Management and Procrastination" in chapter 15)] and thus receive the default option.

In Sweden, people have to select their own portfolio of up to five funds for investing their pension money. Initially, there were 456 funds to choose from. One fund was chosen as a default option, but it was recommended to change the default. Information about the funds was available, including past performance, risk, and fees. But actually, during the period 2000–2003, the loss of the default portfolio (–29.9 percent) proved to be smaller than the average loss of the portfolio people selected themselves (–39.6 percent) (Cronqvist and Thaler, 2004). The return for the period 2000–2007 was +21.5 percent for the default portfolio and +5.1 percent for the self-selected portfolio. One of the mistakes Swedes made was investing too much in Swedish firms (*home bias*). Another mistake investors make is to focus too much on past performance (recent returns) of the funds. Past performance is no guarantee for future performance.

An internationally spread portfolio performed better than a portfolio with stocks of Swedish firms only. Compared with the standard portfolio, Swedes who selected their own portfolio, selected a higher proportion of stocks, and took more risk; were more active traders, and made more transaction costs; and bought too many stocks of Swedish firms. Doing it yourself is not always better than having it done by professional traders. Lessons to be learnt are that the architecture of the information provided is crucial for how consumers make decisions, in the Swedish case the focus on past performance of the funds. The funds advertised their past performances and suggested that people buy based on past performance of the funds. Home bias is another issue. Many investors prefer local companies that they know better than foreign companies. They are more willing to "support" local firms. And last but not least, transaction costs are much higher if investors deviate from the default.

Actually, there are four types of defaults possible:

1. A *continuation default* or "repeat," the same option for the next period, for instance, the same insurance policy as last year. This option might have small changes due to new regulations, taxes, and inflation indexation.
2. *Standard default* for new customers, usually the most frequently sold and most popular option.
3. *Segmented default*: Homogeneous segments are formed based on customer characteristics and different defaults are offered to different segments.
4. *Individually computed default*: based on customer characteristics and preferences, a default is offered to each customer individually. The VGA is an example of calculating the "best" option for each customer (Poiesz and Van Raaij, 2007). Customers will perceive this as a personally recommended option and are likely to accept this option (chapter 10). In case of a large heterogeneity of preferences, this individually computed default is the only one possible.

EFFECTS OF PRESENTATION LAYOUT

By designing websites one can help consumers to find relevant information. The order and layout of presentation influences information processing. There are several ways the structure of presentation affects choice: primacy and recency effects, and the middle-option bias. Some people select an alternative from the first ones presented in a long list or pull-down menu (*primacy effect*), whereas others wait until they

have seen the last ones and select one of the last ones seen (*recency effect*). In general, the primacy effect is more dominant with choice. If the brands are ordered alphabetically, brands names starting with an "a" or "b" have an advantage because of the primacy effect. Note that in these lists or pull-down menus the alternatives are not ordered according to price or quality.

If three price alternatives are offered, for instance, a cheap, middle, and expensive option, many consumers will select the middle option (*middle-option bias*; Simonson, 1989). They use price as an indicator of quality and may conclude that the cheap option must have a low quality. The expensive option may have a high quality, but is too expensive. The middle option may have the right balance of quality and price, and is thus a good compromise. In health care insurance, often three options are offered: (1) a budget policy, with a limited choice of doctors and hospitals, (2) a standard policy, with a large choice of doctors and hospitals, and (3) a restitution policy, with a free choice of doctors and hospitals. Many consumers will select the middle option in such a choice situation, also because "standard" is perceived as a default option. In supermarket assortments, often a cheap or expensive option is often added to sell the middle option. The expensive option as a "loss leader," will raise the price reference point and make the price of the middle option more acceptable. A "loss leader" in an assortment is an alternative on which a loss is made, but this alternative remains in the assortment, mainly to sell other alternatives.

Wilson and Nisbett (1978) found that people select the right-most alternative of five alternatives presented horizontally with a distance of 90 centimeters between the alternatives (nylon stockings), not ordered by price or quality. They explain this result as a recency effect by the tendency of consumers to consider the alternatives from left to right, as we do in reading. However, if five alternatives are presented horizontally only a few centimeters from each other, not ordered by price or quality, people tend to select from the three middle ones and especially the middle one. This is also the case if these five alternatives are presented vertically (Rodway, Schepman, and Lambert, 2012). A central position is a preferred position, not only in group portraits but also in product presentations (merchandising) in stores (*center-stage effect*). The center-stage seems to provide information to consumers, probably subconsciously, on what to choose. People may infer that center-stage alternatives are more popular and are thus a good choice (Valenzuela and Raghubir, 2009). Consumers may also believe that marketers organize product layouts representing consumer preferences with the most liked options in the middle. This is the consensus

heuristic or herding (section "Herd Behavior" in chapter 7) to follow what others prefer and do. The *consensus heuristic* is following the assumed opinion of others. Note that here, the middle ones do not necessarily have a better price/quality trade-off, but it is only the location of the alternatives in the layout. The center-stage effect is different from the middle option. The *middle option* is located in the middle of a price-quality trade-off dimension, and is perceived as being a good compromise of quality and price.

Ariely (2009) gives another example of the effect of presentation of alternatives. Suppose, a weekly magazine offers three annual subscription options:

A. Subscription to online version: $59
B. Subscription to printed version: $125
C. Subscription to printed plus online version: $125

Which subscription do you prefer? In a sample, 16 percent selects option A and 84 percent option C. Nobody selects option B. Option B is completely dominated by option C that offers more for the same price. If A, B, and C are offered, people prefer C. We could omit option B, because it is not selected by anyone. If the choice is reduced to options A and C, 68 percent selects option A and 32 percent selects option C. This is a clear case of *preference reversal.* After omitting B, the preference for C declines and the preference for A increases. Option B may be seen as a *decoy* increasing the choice of option C. When A, B, and C are offered, people focus on the dominance of option C over option B, and select C. If B is omitted, people compare A and C and a majority concludes that the online version is a good choice and selects A.

The above example is a case of *asymmetrically dominated alternatives.* Suppose there are two damage insurance policies available on the market: options A and B (table 16.2). This seems to be a "reasonable" market with an expensive high-coverage policy A and a cheap low-coverage policy B. If we add option C to make option A more attractive (table 16.3), option A will be selected more frequently. If we add option D to make option B more attractive (table 16.4), option B will be selected more frequently. The added options C and D are *decoys*, not primarily added to be sold, but to make other options more attractive.

According to classical economic theory, the addition of a new option should not change the preference for options A or B. Preferences should be stable and not affected by irrelevant options. Options C and

Table 16.2 Two options: A and B

	A	B
Price	€40	€30
Coverage	High	Low

Table 16.3 Three options: A, B, and C

	A	B	C
Price	€40	€30	€40
Coverage	High	Low	Medium

Table 16.4 Three options: A, B, and D

	A	B	D
Price	€40	€30	€30
Coverage	High	Low	Very low

D are "loss leaders" not to be sold primarily, but to increase the attractiveness of other options.[2] This effect is thus also called the *attraction effect*.

Nonconscious Influences

In the foregoing, decision-making and choice are mainly consciously controlled (System 2; section "Dual-Systems Models" in chapter 1) processes. In some cases such as positive/negative framing and the attraction effect, people may be unaware how they process information and why they choose a particular alternative. People are also unaware of the influence of *priming*. Priming is the effect of a consciously or unconsciously perceived stimulus on judgment and/or behavior. For example, if people are exposed (primed) to high/low numbers, they are more/less willing to pay a high price for a product, being unaware of this effect. This is an example of an automatic process (System 1). If these high/low numbers are relevant, for instance, product prices, it makes sense to use these numbers as an anchor in the evaluation of prices. If these high/low numbers are irrelevant, for instance, the last two digits of your social security number, it does not make sense to use these numbers as an anchor in the evaluation of prices. But even

irrelevant primes may have an effect on the willingness to pay a particular price.

Nonconscious elements often play a role in evaluations and choice, separately or in combination with conscious elements. We may trust a company or a brand, like an advertisement or a financial adviser, and this affects our decision. But afterward we rationalize that the decision was based on considering relevant product characteristics and trading off quality and price. Gilad and Kliger (2008) primed the risk preferences of professional investors and found that the primed group made riskier financial decisions than the unprimed control group. The professionals made also riskier decisions than students. Note that even room temperature or the weather may nonconsciously affect financial decisions.

CONCLUSIONS

Decision-making on (complex) financial products is influenced by the decision environment and architecture. Information (over)load, time pressure, and distraction may have negative effects on the decision quality. More information is not necessarily better. With time pressure and distraction, people look for negative evidence to reject alternatives. Information is supplied in different structures and formats, and it is not always easy to find the "best" or an acceptable alternative. Financial intermediaries may help, but should advice in the customer's interest, not their own interest.

"Maximizers" are people who want to select the "best" alternative and spend much time and effort on the choice. "Satisficers" look for an alternative that is good enough for meeting their criteria. Several types of decision processes can be followed, depending on the goals and the stage in the process.

The decision architecture may contain nudges and defaults. Nudges are pushes in the "right" direction by making "desirable" alternatives more prominent in the environment. Defaults are "standard" options offered to customers. Consumers are free to change defaults if they want. If they don't, they will receive the default. Several presentation effects are known: primacy and recency effects, middle option bias, and attraction effect. Often, people are unconsciously influenced by these effects and biases, although afterward they will give a rational explanation of their choice.

17

Self-Regulation

This is another key chapter, just as chapter 10. Self-regulation is a basic concept for financial behavior. Self-control and self-efficacy are required to perform the continuous process of self-regulation. Self-control is adhering to executing financial plans, intentions, and commitments. Self-efficacy is the competence of executing courses of action required to deal with prospective situations. Are people able to control and regulate themselves not to be impulsive, not to spend too much, save enough, also for retirement, avoid problematic debt, insure their possessions and risks, pay their taxes on time, and not become a victim of financial fraud? Delay of gratification, lack of willpower, and lack of self-control are the major psychological obstacles for successful self-regulation. Formulated in positive terms: do people select the right financial and life goals, and are people consistent and persistent in their goal achievement, and resistent to temptations?

Why Is Self-Regulation Important?

Probably the most important psychological factor for responsible financial behavior is *self-regulation*. People need to be in control of their financial situation in order to make the right decisions, take effective measures, and persist in their endeavors of improving or maintaining their financial situation. Having attainable financial and life goals and a corresponding financial plan, and behaving persistently according to this plan is a way of maintaining grip on the personal financial situation and behaving in a financially responsible way (chapter 10). Self-regulation has two foci (Higgins, 1998). *Promotion focus* concerns reaching positive, favorable, desired, and ideal states, such as mastery, happiness, and well-being. *Prevention focus* concerns avoiding and staying away from negative, unfavorable, and undesired states such as problematic debt and being the victim of fraud. And it has the "ought" aspect of duties, obligations, and requirements. Note that promotion focus has "gain"

elements, whereas prevention focus has "loss" elements. Self-control may be exerted to prevent negative states by (1) avoiding temptations and thus desires, (2) controlling impulsive spending, (3) increasing willpower (Baumeister and Tierney, 2011), and (4) if needed, apply precommitments. Self-regulation also includes not postponing important financial tasks and decisions, and managing time to optimize work, leisure, social relations, and the financial management of the household (section "Time Management and Procrastination" in chapter 15). Being in control also implies being responsible for one's decisions and behavior. Schelling (1992) used the term "self-command" and states that this may become a new discipline.

This chapter starts with causal attribution processes, answers on why things happen, how successes and failures can be explained, and what we conclude and learn from our experiences. Next, two models of purposefully planned behavior, the TRA and TPB models, will be discussed. Then follow impulsiveness and impulse control. Delay of gratification is another way of impulse control, in the same way as precommitment devices. Self-control, self-efficacy, and self-regulation are the main concepts of this chapter.

Elster (2000) cites the story of Ulysses and the Sirens. It is an example of self-regulation by fighting temptations. Ulysses created the opportunity to listen to the singing of the Sirens without becoming a victim of them. He had to restrict his freedom and his men's hearing temporarily in order reaching his long-term goal of going home safely. The advice of Circe to Ulysses was:

> First you will come to the Sirens who enchant all who come near them. If anyone unwarily draws in too close and hears the singing of the Sirens, his wife and children will never welcome him home again, for they sit in a green field and warble him to death with the sweetness of their song. There is a great heap of dead men's bones lying all around, with the flesh still rotting off them. Therefore pass these Sirens by, and stop your men's ears with wax that none of them may hear. But if you like you can listen yourself, for you may get the men to bind you as you stand upright on a cross-piece half way up the mast, and they must lash the rope's ends to the mast itself, that you may have the pleasure of listening. If you beg and pray the men to unloose you, they must bind you faster. (Homer, 800 BC, *Odyssey*, Book XII, translated by Samuel Butler)

Attribution Processes

Historically, the concept of self-regulation has been developed from earlier concepts such as locus of control. Rotter (1966) distinguished

two sources or "loci" of control of reinforcement: internal and external locus of control. People with an *internal locus of control* believe that the future is in their own hands. They are active decision-makers and spend efforts to realize their dreams and plans, and create, as much as possible, their own future. They monitor their financial situation and, if needed, take measures to consolidate or improve their financial situation. People with an *external locus of control* are, however, fatalistic and believe that the future is not in their own hands, but in the hands of others or depending on circumstances. They perceive themselves as victims of others or of circumstances that are beyond their control. They are passive decision-makers, often do not take appropriate measures, complain about their situation, may participate in lotteries to improve their financial situation, and do not try to influence their future themselves. However, note that people with internal control often have a higher education, higher income, and have creative and managerial jobs, and this may also explain their ability to take actions and control their personal financial situation. Perry and Morris (2005) find that "externals" score lower on financial knowledge and on responsible financial behavior. "Internals" are more motivated and perceive better results if they apply financial knowledge in their own financial behavior. "Internals" are more in control, try harder, and are less likely to give up than "externals."

A third locus of control is *belief in powerful others*, such as political parties, labor unions, or consumer associations (Levenson, 1981). Belief in powerful others means that the internal control is perceived as ineffective, due to lack of personal power. Joining forces with others is then a solution, for instance, becoming a member of a labor union or consumer union, or organizing protest meetings and consumer boycotts. In this way, people, supported by others, may experience some control of their circumstances and their future.

In the Rotter/Levenson approach, people may have a dominant locus of control or a profile of internal/external/powerful-others control, depending on the situation and their personal abilities and experiences. The concept of *self-control* is rather similar to Rotter's (1966) internal locus of control, but it is more operational and practical.

Monitoring of expenses and having an overview of the personal financial situation is a necessary prerequisite for self-regulation. Actually, the same prerequisites are required for self-regulation as are necessary for financial planning (section "Financial Planning" in chapter 10).

Internal and external locus of control are related to causal attribution, the tendency to infer the cause of an event. Why did the event or outcome happen? In the case of internal attribution, the cause of the

Table 17.1 Causal attribution to internal/external and stable/unstable causes [adapted from Weiner (1985)]

	Stable causes	Unstable causes
Internal attribution	Ability, intelligence, knowledge, skill	Effort, fatigue, behavioral costs
External attribution	Task difficulty	Luck, chance

outcome can be attributed to ability, skill, or motivation of the actor. According to *causal attribution theory* (Weiner, 1985), people behave like pseudoscientists. Outcomes, successes, and failures are attributed/ascribed to the most likely causes. In this attribution, people are biased and self-serving. They tend to attribute successes to themselves, and failures to others or to circumstances. Common causal attributions are given in table 17.1. Successes are often internally attributed to ability, intelligence, skill, effort, or behavioral costs. Failures are often externally attributed to task difficulty, (bad) luck, and chance. The perceived causes of success and failure share three common properties: *locus*, *stability*, and *controllability*, with *intentionality* and *globality* as related causal structures. Note that Rotter's (1966) concept "locus of control" becomes confusing in this context. It is not "locus *of* control" but locus *and* control (and stability).

Stability: Attribution to a stable cause is more predictive for the future than attribution to an unstable cause. Stable causes are characteristics of actors (ability, intelligence, skill) or tasks. Unstable causes are specific to the case, such as the effort, fatigue, and behavioral costs of the actor. Actors who spend a lot of effort in a specific case may not spend that much effort in another case. Bad luck in a specific case is not predictive of luck in another case. Stability is usually stability over time. If an actor concludes that he/she is not competent in filling out tax forms, this is a stable internal attribution and predictive of filling out tax forms in the future. *Globality* is a type of stability over situations. An actor may conclude that he/she is not competent in filling out forms in general, and not only tax forms.

Some causes are specific to a situation, whereas other causes can be generalized to other and many situations. An actor may attribute his/her failure to fill out a tax form to his/her low knowledge of taxes or to low intelligence, both stable internal attributions. Low tax knowledge is task specific, whereas low intelligence is a global cause and can be generalized to a large variety of tasks. If people attribute many of their failures to low intelligence, they acquire *learned helplessness* (Abramson, Seligman, and Teasdale, 1978) and lower self-confidence

and self-esteem. Many people with a low level of education perceive financial products and tasks as "too difficult," which is less global and thus less destructive for their self-esteem than admitting that they are "too stupid" for these products and tasks.

Controllability: If an actor is in control of the cause, he/she is also responsible for the effect. If an agent is not in control, because he/she could not influence the effect or did not have the relevant information, he/she cannot be praised or blamed for the effect. If an actor is in control, and helps or harms another person with his/her action, *intentionality* is inferred. If actors intentionally harm another person, they will be blamed for that. If actors intentionally help another person, they will be praised for that.

Emotions can be classified in these attribution conditions. Anger may be the result if a failure is attributed to an actor who is in control, especially if this is perceived as intentional. Shame and guilt are the consequence of a personal failure while being in control. Pride and self-esteem are the consequence of a personal success while being in control (Weiner, 1985).

Causal attribution is a natural start of a learning process on "why" things happen. Thus, it is also the start of better understanding of actors and their environments and managing new cases. Investors typically are proud of their successes (internal attribution) and blame others or circumstances for the failures (external attribution). They also tend to overestimate their controllability. Due to these attribution biases, investors and people in general deceive themselves to a certain extent, do not learn enough from their successes and failures, and may become overconfident.

Theories of Reasoned Action and Planned Behavior

Self-regulation is based on well-informed deliberation and decisions with a high level of rationality. Although there are cases of intuitive "System 1" decisions that turned out to be right, in most cases "System 2" decisions are needed for successful self-regulation (Kahneman, 2003, 2011; section "Dual-Systems Models" in chapter 1). Fishbein and Ajzen (1975) developed the *Theory of Reasoned Action* (TRA). Reasoned actions are based on information acquisition and processing, deliberation, and well-informed decisions. In the TRA model, attitudes toward objects and behaviors are measured. For instance, attitude toward objects, such as stocks or the stock market, or attitude toward behavior, such as buying and selling stocks. Attitudes

toward behavior are more relevant and predictive than attitudes toward objects. In this chapter, we focus on attitudes toward behavior.

The *attitude toward behavior* is a belief-based evaluation of the favorability of performing the behavior, for instance, an evaluation of the favorability of saving in the present situation. The relevant beliefs can be related to interest rate, inflation rate, confidence, and the wish to form a financial buffer. These beliefs are evaluated in terms of favorability. How favorable is the interest rate for saving? Or how favorable is positive confidence (optimism) for saving? The sum of all beliefs multiplied by their evaluations constitutes the attitude toward behavior. If b_i is a belief about the consequences of the behavior, and e_i is the evaluation of this belief, A is the attitude toward this behavior. Σ is the sum of n (belief × evaluation) products.

$$A = \Sigma\, b_i\, e_i, \quad \text{with } i = 1, \ldots, n. \tag{1}$$

The *subjective norm* is the perception of a person of social pressure of referent persons who are important for him/her, to perform a specific behavior, for instance, whether one should save or not. Referent persons may be the partner, relatives, friends, advisers, or authorities. If b_i is a normative belief about the social pressure, and m_i is the motivation to comply with referent i, SN is the subjective norm toward this behavior. Σ is the sum of n (belief × motivation to comply) products.

$$SN = \Sigma\, b_i\, m_{i,} \quad \text{with } i = 1, \ldots, n. \tag{2}$$

The *behavioral intention* is the motivation and plan to perform a certain behavior, for instance, saving. In the TRA model, the intention is the weighted sum of attitude and subjective norm. w_1 and w_2 are the weights of attitude and subjective norm, respectively, and indicate the relative importance of the (personal) attitude and (social) subjective norm. If $w_1 + w_2 = 1$, the intention is a weighted average of attitude and subjective norm. If $w_1 > w_2$, the personal attitude is more important and more influential on the intention than the subjective norm.

$$I = w_1 A + w_2 SN. \tag{3}$$

The intention to perform the behavior is a predictor of actual behavior. Intention is a good predictor of behavior, if:

- intention and behavior are measured close to each other in time (short time interval);

- intention is described as a specific behavior to be performed; and
- no obstacles, such lack of money and time, are present to perform the intended behavior.

The *Theory of Planned Behavior* (TPB) of Ajzen (1988, 1991) is an extension of Fishbein and Ajzen's (1975) TRA. The main addition in TPB is the concept of perceived behavioral control. Perceived behavioral control of the situation is a factor that increases the correspondence between intention and behavior. In situations of perceived behavioral control of the situation, people are more able to behave according their intentions. Intentions are then predictive of actual behavior. Perceived behavioral control is thus a type of ability. Without perceived behavioral control of the situation, other people, constraints, lack of resources, lack of time, or other factors may hinder, impede, or prevent actors to behave according to their intentions. There may be an interaction between behavioral intention (motivation) and perceived behavioral control (ability). In many other models of behavior, both motivation (willingness) and ability play a role.

IMPULSIVENESS AND DELAY OF GRATIFICATION

Restraint and control of impulsive decisions, for instance, impulsive spending, is an important part of self-regulation. High *impulsiveness* may result in less carefully taken decisions and overspending. Individuals high on impulsiveness run more risks, because they do not consider all choice alternatives or all attributes of these alternatives. There are a number of reasons why people do not analyze choice alternatives carefully before making a decision:

1. They want to make a quick decision to enjoy the benefits of the chosen alternative.
2. They want to avoid the unpleasant emotions and effort arising from comparing and trading-off alternatives.
3. They want to avoid the opportunity costs and time of processing information.

Impulsivity is an indicator of two higher-order personality traits: *conscientiousness* and *openness to experience* (sections "Conscientiousness" and "Openness to Experience" in chapter 11). Individuals who are high on impulsiveness are more open to new experiences and are low on conscientiousness. Openness to experience is related to a need for arousal and thus leads to risk-seeking. High conscientiousness

is related to processing more information about choice alternatives, focusing on the most certain alternatives, and thus a financial risk-avoiding propensity.

For some people, impulsivity even becomes *compulsive shopping*, an almost uncontrollable addiction to shop and buy clothing, shoes, or other goods. Women may become victim of compulsive shopping for fashion clothing. Men may be compulsive for other goods such as technical gadgets. Compulsive shopping often leads to financial problems, marital conflict, and even bankruptcy (Faber, O'Guinn, and Krych, 1987).

Delaying attractive consumption or deferring income (with interest) to the future is an important aspect of self-control and self-regulation. Mischel did a number of experiments on delay of gratification (enjoyment of consumption). In these experiments, children were given the choice between one reward provided immediately and two rewards if they waited for about 15 minutes, during which the tester left the room and then returned. The reward was a marshmallow, a cookie, or a pretzel. During these 15 minutes, the reward was present in front of the child. In follow-up studies, it was found that children who were able to wait for the preferred (double) reward, tended to have better life outcomes, as measured by test scores, educational attainment, body mass index, and income (Mischel, Shoda, and Rodriguez, 1989; Mischel, 2014). At the age of nine and ten, children develop their ability to wait and to shift their attention away from immediate to later and larger reward (Mischel and Metzner, 1962). Note that these experiments were done with children and that the reward was present during the experiments. This makes it difficult to generalize the conclusions to adults who generally have more self-control than children. In general, rewards for adults are abstract and often not present during the delay of gratification.

Precommitment

According to Strotz (1956), self-control may be imposed or strengthened by *precommitment*, creating a contract or circumstances that force people into the desirable behavior, for instance, retirement saving by an "automatic" tax-deferred 401(k) saving contract with a bank. Note that precommitment is rather paradoxical. Willpower may not be strong enough and people create a temporary restriction of their freedom in order to attain a long-term goal such as retirement income. Self-imposed restrictions imply a lower level of freedom for a specific period. These restrictions are a way of reaching a goal or to improve the future financial situation. A precommitment may be told

to friends and relatives, for instance, to stop overspending. Breaking a commitment will then harm a consistent and positive image to others and to oneself (Cialdini, 1984). People will keep their commitments to avoid reputational damage.

Assuming that people want to improve their financial situation, exert self-control, behave more deliberately and less impulsively about spending, *precommitment devices* could help them to attain these goals. Some precommitments devices are:

1. Live a frugal life and *pay off your study debt* as quickly as possible from your first monthly salaries. See the example of the *expedient payees* of section "Paying Off Debt" in chapter 4.
2. *Automatic saving* each month and not making a savings decision each time, because lack of willpower creates the opportunity to make an exception in particular months. Another precommitment device is a savings account without the option of withdrawal for six or twelve months or until a specified target has been met (Ashraf, and Yin, 2006).
3. *Automatic payment* of credit-card bills, insurance premiums, and mortgage interest in order not to forget or postpone these payments.
4. Financing the purchase of a good or service with a loan rather than using your savings, to keep the savings intact (section "Psychological Factors and Credit" in chapter 4). This precommitment will cost money, because the interest rate paid on credit is higher than the interest rate received on savings. Note that automatic saving could do the job of replenishing the savings at a lower cost than taking credit.
5. Precommitment for *future saving* such as the *SMarT program* (Thaler and Benartzi, 2004) for retirement saving (section "Pension Knowledge" in chapter 6).
6. *Restrictions on spending*, such as calculating the amounts spent at the supermarket by self-scanning the total price of the products in the trolley. Cash payment with bills and coins is more aversive and painful than payment with a credit card. Cash payments are thus more restrictive than credit card payments (section "Paying Methods and Spending" in chapter 2).
7. On the other hand, the total amount spent on a credit card, adding up a number of small expenses, provides more insight into total monthly spending than separate transactions.
8. Keep your *discretionary income* low ("just enough") and earmark other income for special purposes such as saving or paying off debt. This earmarked money is another mental account, not part

of the discretionary income, and should/will not be used for daily expenses.

9. Pay too high income tax each month and get money back at the end of the fiscal year (*windfall gain*). This is a "gift to yourself" and can be used for saving or for a special purpose. This is also a costly precommitment, because usually you will not receive any interest on this money. If the tax authority will pay an interest rate higher than the current bank interest rate, this is an economically sound precommitment.

Note that precommitment devices 4, 8, and 9 are based on *mental accounting*, keeping money in separate accounts to avoid spending the money as discretionary income.

Consistent and persistent financial planning is not a simple precommitment device. It concerns choosing the best plan that the individual is actually able to adhere to, for instance, a budgeting or savings plan, and behaving according to this plan. Conscientiousness and willpower (Baumeister and Tierney, 2011) are needed for consistent planning and behavior.

Related to consistent planning is having values and norms promoting responsible financial planning and behavior. These may be religious or humanistic norms of not spending too much on luxury for oneself, sometimes even living a frugal life. According to these norms and values, part of excess income should be given to the church, to charities, to people in need, or to other good purposes.

Self-Control

In the foregoing, the concept of self-control has been mentioned several times. A definition of self-control or "being in control" is: adhering to executing financial plans, intentions and commitments, staying within boundaries of "appropriate" spending, saving and debt, and adhering to norms and values of responsible financial behavior. Self-control is thus the ability to stay within acceptable boundaries and not deviating too much from the plan. Having financial plans, intentions, and commitments; monitoring the personal financial situation; and having an overview of income and expenses (chapters 2 and 10) are necessary preconditions for self-control.

The following aspects of self-control can be distinguished:

1. Believing that your behavior is largely in your own hands (internal locus of control; section "Attribution Processes")

2. *Self-discipline* to perform the required actions such as saving and debt repayment, on time, especially if there are no deadlines
3. Avoiding dangerous situations, especially on the Internet, in order not to become a victim of financial fraud (chapter 9)
4. Avoiding and resisting temptations and immediate gratification, if needed with help of precommitments
5. Resisting impulsive actions outside the boundaries of appropriate behavior
6. Taking only calculated risk (chapter 14), not gambling with your money

Ameriks et al. (2007) developed the EI (expected-ideal) gap as a measure of self-control. "Expected" is what you expect to do; "ideal" is what you should do, according the ideal situation. A small EI gap corresponds with high self-control, and is correlated with conscientiousness. They also found that self-control problems are smaller for older people.

Self-control is related to self-efficacy and self-regulation. *Self-control* is the appropriate execution of financial plans and resisting deviations from these plans. *Self-efficacy* is the ability or competence to execute actions in a particular situation, including the knowledge and skills to plan and execute these actions. *Self-regulation* is monitoring personal behavior, comparing behavior and outcomes of personal behavior with reference points, and, if needed, taking corrective actions. Self-control and self-efficacy are required to perform the continuous process of self-regulation. People differ in their level of self-regulation and most of them are far from perfect. A new "homo psychologicus" with perfect self-regulation has not been born.

Self-Efficacy

Self-efficacy is the competence of executing courses of action required to deal with prospective situations (Bandura, 1982, p. 122; 1997). For instance, what to do and how to claim compensation for damage from an insurance company. Or when and how to buy and sell stocks online. People's beliefs and evaluations of their personal efficacy influence the causal attributions they make, their aspirations, how much effort they spend, how long they persevere in the face of difficulties and setbacks, the stress they experience in coping with demands, and their vulnerability to depression (Bandura, 1986, 1991, 1997). People who regard themselves as highly efficacious attribute their failures to insufficient effort (and try harder), whereas people who regard themselves as inefficacious think that their failures are stemming from

low ability (and give up). The more capable and competent people judge themselves to be, the higher the goals they set for themselves, the more persistent they are in attaining these goals. Self-efficacy in a domain such as finance may lead to mastering and even enjoyment.

For dissatisfiers, people behave like a negative feedback control system. A dissatisfier is a negative discrepancy between the performance and the standard. Removal of the dissatisfier restores the equilibrium. Negative feedback may help to remain on course. For satisfiers, people set goals and standards and then receive feedback on how close they are to the goal. By setting goals, people increase the positive discrepancy, and then try to reach these goals by reducing the discrepancy.

Affective self-reactions to achievements provides positive or negative motivation. Satisfaction with accomplishment is a positive motivator. Discontent with deficient performance is a negative motivator. For a simple task, success is solely attainable by increased effort, which is an unstable attribution. In contrast, for a complex task with strong cognitive demands, satisfaction with progress leads to stable internal attributions, such as ability, high competence, high self-esteem, and high self-confidence. Dissatisfaction with progress, however, may lead to stable external attributions such as task difficulty, or it may lead to stable internal attributions such as low competence, low self-esteem and low self-confidence. In the latter case, people are more likely to give up.

Financial tasks such as choosing a pension plan or a mortgage are often perceived as difficult and unattractive. Personal self-efficacy may be perceived as insufficient for these tasks. The concepts and argumentation in the information on these financial products may be difficult to understand. Dissatisfaction with progress may lead to attributions of low personal ability and competence. People are then more likely to shy away and give up understanding the information and give up making a deliberate choice.

Successes in the past will raise self-esteem and self-efficacy. Seeing other people succeed also has a positive effect on self-efficacy (social modeling and learning; Bandura, 1982), especially if the other person is perceived as similar to oneself.

STAGES OF SELF-REGULATION

The major stages and mechanisms of self-regulation are: (1) self-monitoring one's behavior; (2) comparing and evaluating one's behavior in relation to personal and social reference points, standards, and environmental circumstances; and (3) taking effective self-corrective actions (Bandura, 1991; figure 17.1).

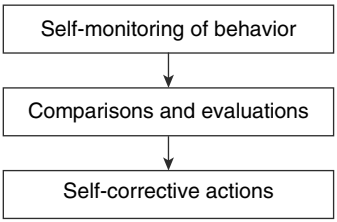

Figure 17.1 Stages and mechanisms of self-regulation.

In the first stage, *self-monitoring* is observing and interpreting one's own behavior. This is not a simple "audit" of own performance, but often a biased process, because mood, emotion and preexisting cognitive structures play a role. Causal attributions and self-serving biases are present and distort a correct interpretation of the monitoring of personal financial behavior. By self-monitoring, recurrent patterns of one's own behavior, for instance, spending patterns, may be discovered and thus self-knowledge and self-insights will increase. Self-monitoring may contain framing, putting self-observations in a positive/favorable or negative/unfavorable perspective. This is similar to a past-positive or past-negative time perspective (Zimbardo and Boyd, 1999, 2008). With a past-positive perspective, events and behaviors are perceived in a constructive manner to learn from for future behavior (internal control). With a past-negative perspective, events and behaviors are perceived with anger and regret to be shamed and depressed, and fatalistic about future events and behavior (external control). Fatalistic and depressed people usually do not set goals for themselves. The past-positive and present perspectives are starting points for self-regulation.

When people know and evaluate their (financial) performance, they may be dissatisfied and inclined to set goals for improvement. These goals are self-motivating, and if improvements can be observed in the short term, this is rewarding and fostering self-esteem. Goals may be to save energy, or to save for a future transaction. Fast feedback on going in the right direction of reaching these financial goals provides motivation for further actions. For instance, after setting an energy-saving goal of 10 percent on a living-room thermostat and smartphone app, this will provide immediate feedback how close you are to reaching the goal (Verhallen and Van Raaij, 1981; Van Houwelingen and Van Raaij, 1989). This is motivating to continue saving energy and thus money. Similar apps have been developed to monitor the financial situation of consumers providing feedback on reaching saving and

debt repayment goals. Bandura and Cervone (1983) conclude that people who set no goals for themselves, achieve no change and are surpassed by those who set low, easily attainable goals. They are, in turn, outperformed by those with high aspirations and setting high goals. Even if these high goals cannot be achieved, people with high goals perform better than people with low goals.

Immediate feedback on performance is more effective than delayed feedback. Spending, saving, and paying off debt provide an immediate feedback on the balances of the bank accounts. The expedient payees of section "Paying Off Debt" in chapter 4 are an example of people who set a high goal of paying off debt and succeeded in attaining their goal in a short period. Functions of feedback information are: (1) learning function on the consequences of specific behaviors, such as the financial costs of eating out or energy use; (2) habit formation, when habits are being set and reinforced, for instance, shopping in the supermarket in a specific order; (3) adhering to standards and norms such as spending limits; (4) internalization of behavior by reinforcing behavior and their corresponding attitudes; and (5) reward function, because it is satisfying and rewarding to reach goals (Van Raaij and Verhallen, 1983). Feedback is an underused and promising way to reinforce "desirable" behavior.

The importance and valence of the specific behavior will affect goal setting and goal attainment. In valued domains, people are more motivated reaching their goals. Attending to one's accomplishments is encouraging. Failures, however, may be discouraging and undermining one's sense of efficacy and self-esteem. Causal attribution of success and failure plays a role in continuing efforts or in giving up attaining these goals. In valued domains, not attaining a goal is motivating to expend more effort reaching the goal. In less valued domains, not attaining a goal is frustrating and leads to less effort or even complacency about reaching the goal.

The concept of self-monitoring is also used for expressive behavior in social situations (Snyder, 1974, 1987). In this context, high self-monitors are persons adapting their behavior to the social situation they are in. They behave as it is required by the situation, as they see it. Thus, they adapt like a chameleon to their environment. Their behavior is not so much based on their attitudes and intentions, but on their environment. High self-monitors usually show a low intention-behavior consistency. In contrast, low self-monitors are persons behaving according their own attitudes, norms, and intentions, irrespective of the situation. Low self-monitors usually show a higher intention-behavior consistency.

Comparisons: People compare their behavior and results of goal attainment with their own standards and reference points. These reference points are also based on the reactions of significant others, the tuition of others, and the examples others set (*social modeling*). Often, performance can only be evaluated in relation to the attainment of others. Social comparisons can be made with specific other persons or with group performance. Most people are interested to know how others perform in similar circumstances. How do other households with a similar composition and income spend their money? How much energy do others use in a similar home? These comparisons should, if needed, lead to correct behavior in the right direction.

Self-corrective actions: Many people reward themselves after attaining a goal. Having accomplished a difficult or unattractive task, you feel you deserve a piece of chocolate. If there are no supervisors or deadlines, self-control and self-discipline are needed to perform successfully. Self-control and self-regulation are related to time management to plan tasks, and persistence in finishing tasks on time. Most people obtain more satisfaction and happiness from a job well done than from material rewards and gifts to themselves.

Self-regulation is also related to time preference, present bias, and procrastination (section "Time Management and Procrastination" in chapter 15). A low level of self-regulation means a strong preference for present rather than future consumption. A high compensation is then required deferring people from spending their money now rather than in the future. People with a low level of self-regulation and low self-control prefer to consume a good now rather than to postpone the consumption to a later time. People with a low level of self-regulation will usually save less and borrow more than people with a high level of self-regulation. People with grip on their finances tend to save more than people who are less in control.

Self-regulation may result in a new habit, an almost automatic and effortless (System 1) behavior, such as checking one's bank accounts regularly. In some cases, however, self-regulation requires behavioral costs. Refraining from immediate consumption or other urges and desires is effortful. It is effortful resisting temptations and coping with stress, for instance when trying to get out of problematic debt. It requires a lot of cognitive resources of people not buying attractive goods and not spending too much. If these resources are not available due to other tasks and worries (resource depletion; section "Main Theoretical Approaches" in chapter 1), self-regulation may fail (Vohs and Heatherton, 2000; Muraven and Baumeister, 2000). If people have to exert self-control at a task, they may have less cognitive

resources and energy available for self-control at the next task. People may give up and take the easy way of short-term rewards and satisfaction rather than long-term and difficult to assess benefits. Feedback may not always be present to stimulate reaching long-term, ambitious, and difficult goals.

Self-Regulation and Poverty

Age, level of education, and income are related to self-regulation and the ability to postpone consumption. Older people, people with a higher income, and people with a higher level of education are more able to postpone consumption. Gurin and Gurin (1970) criticize these relationships and implicit blame toward people with a low income and low education. The experience of lack of opportunities may explain why immediate consumption is preferred. Future rewards may be highly insecure for some people and in some situations. Lack of trust in institutions and the reward system may induce people to immediate rather than delayed consumption. Consumers with a low income have to spend more time and effort on saving or borrowing the money needed for a purchase. As soon as this budget has been obtained, they may be more impulsive and spend less time on comparing alternative products and brands before they buy.

Mullainathan and Shafir (2013) studied the effects of scarcity and poverty on cognitive functioning (section "Psychology of Poverty" in chapter 2) and concluded that poverty depletes cognitive resources by worrying about money to pay for necessary products and services. In developing countries, poor people also worry about daily food, clean water, and firewood for cooking. These cognitive resources are then no longer available (resource depletion; section "Main Theoretical Approaches" in chapter 1) for other purposes such as thinking about which product or brand to buy and making decisions about financial reservations for the future. This explains the present bias of poor people and their lack of self-regulation. Actually, poor people and people on the edge of poverty need to make better financial decisions than wealthy people, because they lack a buffer or margin for errors and mistakes.

Conclusions

Self-control and self-efficacy are required to perform the continuous process of self-regulation. Self-control is adhering to executing financial plans, intentions, and commitments. Self-efficacy is the

competence of executing courses of action required to deal with prospective situations. For self-regulation, people have to develop attainable life goals and corresponding financial goals.

Second, they have to understand the relevant information on financial products, monitor their own financial behavior, and draw unbiased causal attributions and conclusions about it. Comparison of the personal financial situation with benchmarks help to understand personal shortcomings and achievements. Both the financial goals and the comparison with "similar" others are benchmarks.

Third, people have to make decisions regarding what and how to change their financial behavior into the desired direction. They may use feedback information to assess whether the discrepancy between the actual state and the goal is narrowing.

Fourth, if willpower is insufficient, keeping on the right track may be facilitated by precommitments and temporary restrictions of freedom. Ultimately, reaching one's life and financial goals is rewarding and boosts self-esteem, satisfaction, happiness, and well-being.

Notes

1 Introduction

1. George Katona (1901–1981), Hungary-born psychologist, studied and worked as a journalist in Berlin, Germany, at the time of hyperinflation (1927). He was one of the first to apply psychology in macroeconomics. In 1933, he moved to the United States and at the University of Michigan (Ann Arbor), he developed the Index of Consumer Sentiment to predict consumer spending and saving (chapter 12). He is the founding father of economic psychology and also one of the first to use the concepts of psychological and behavioral economics. See Katona (1975, 1980) and Wärneryd (1982).

7 Investment Behavior

1. Note that this paragraph, based on Oberlechner and Osler (2012), is not on individual investors, but on experienced and inexperienced professional currency traders. If inexperienced professional traders show overconfidence, it is assumed that individual investors may also be overconfident.
2. Note that part of this paragraph, based on Oberlechner and Hocking (2004), is not on individual investors, but on professional currency traders.

9 Victims of Financial Fraud

1. Charles Ponzi (1882–1949) was a fraudulent investor living in the United States. The *Ponzi* scheme is named after him. See also Pressman (2009).
2. Bernard Madoff (born 1938) was sentenced in 2009 to 150 years of imprisonment. An estimated $65 billion has been lost by his investment operations.

12 Confidence and Trust

1. In an ongoing research project on trust in financial institutions (banks and insurance companies), the impact (weights) of these six determinants on trust have been assessed (Van Esterik-Plasmeijer and Van Raaij, 2016), as well as the effects of trust on loyalty to the financial institutions. The

results of these surveys will be published in 2016–2017. Working papers of this research can be obtained from the authors.

13 Loss Aversion and Reference Points

1. In the original formulation "prospect" meant "lottery." It can also mean "expectation." In marketing, a prospect is a potential customer. Daniel Kahneman (born 1934), an Israel-born psychologist, lived in France and moved to the United States. He studied decision-making under uncertainty and the use of heuristics. With Amos Tversky, he developed prospect theory (Kahneman and Tversky, 1979). For his contributions to behavioral economics, he received the Nobel Prize in economics in 2002. He is the author of the book *Thinking, Fast and Slow* (2011).

16 Decision-Making, Decision Architecture, and Defaults

1. Herbert A. Simon (1916–2001), born in Milwaukee, studied decision-making, organizational behavior, artificial intelligence, and many other interdisciplinary topics. He mainly worked at Carnegie-Mellon University in Pittsburgh. He received the Nobel Prize in economics in 1978.
2. A loss leader is also a product priced very cheaply to attract customers to a store. In the store, these customers may also buy other products with a higher margin for the retailer.

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