Chapter 5
The (Relative and Absolute) Subjective Value of Money

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Abstract Money is often used as a proxy for utility in economic and psychological research. Monetary sums are easily calculated and compared, and money is a stimulus with which almost all people are familiar. Even so, hedonic responses to monetary gains and losses are relatively insensitive to the absolute size of those gains and losses, and the subjective utility of gains and losses is surprisingly labile. We propose that the difficulty of evaluating the value of money stems from the abstract nature of its value and nearly infinite range. As a result, money is not evaluated on a single monetary scale, but instead on subscales composed of comparison standards that are generated at the time of judgment. Using a dual-process account, we describe how such monetary subscales are generated and when they result in more or less sensitivity to its absolute value. We identify factors that influence sensitivity to the value of money and bias its evaluation. We close with a discussion of implications for science and practice.

Money has received considerable attention in economics and the psychology of judgment and decision making, as both an independent and dependent variable. Money has long had special status as a proxy for utility, the value, or pleasure that
[AU2] an alternative yields (Bentham, 1879), because money is fungible, exists on a ratio scale, and can be easily traded for goods that yield utility in most cultures. One dollar has the same value and is interchangeable with another. Two dollars clearly has twice as much value as one dollar, and one can easily exchange dollars for euros,

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yen, yuan, renminbi, rupees, or a seemingly infinite variety of goods. Asking a person how much they are willing to pay for experiences, materials, and services (e.g., for a vacation in Hawaii, to buy a television, or have their house cleaned) provides a method that allows one to compare the value they ascribe to stimuli that are otherwise difficult or impossible to compare. Consequently, money has been used to test economic utility models, preferences, and the rationality of human judgment and decision making.

More recently, psychologists and economists have begun to study how the value of money is itself evaluated and how these evaluations change according to the context and the manner in which they are made. This is the focus of this chapter. We first provide a brief overview of literature on people's sensitivity to monetary value, which reveals that the value of money is surprisingly relative: Evaluations of monetary gains and losses are heavily influenced by how gains and losses compare to a reference point or standard, not solely according to the amount gained or lost. We propose two reasons for this insensitivity to the absolute value of money—the abstract nature of its value and the nearly infinite range of monetary values that can be judged, and describe the process by which monetary subscales are generated to evaluate money relative to comparison standards. In a two-system or dual-process framework of judgment (Kahneman & Frederick, 2002; Sloman, 1996), we propose that the value of gains and losses is influenced by the system(s) used to evaluate them. Surveying recent literature, we recognize that sensitivity to relative value seems to result from relatively automatic information processing (System 1), whereas greater sensitivity to absolute value seems to result from more systematic information processing (System 2). We identify factors that determine the system used to evaluate monetary gains and losses. Finally, we articulate novel predictions of our proposed dual-process framework, suggest implications of the research reviewed in this chapter, and indicate fruitful areas for future research to explore.

The Relativity of Value

The relationship between money and utility is imperfect, and money is evaluated with regard to its value relative to a comparison standard, rather than with regard to its absolute value. As early as 1738, Daniel Bernoulli formally recognized that the utility of money was not as linearly related to its sum (Stearns, 2000). Each unit of money a person possesses (e.g., $1) does not provide an equal amount of additional utility. Bernoulli suggested that monetary units provide *diminishing marginal utility*, whereby each additional unit (e.g., $1) increases its utility less than did the previous unit. Receiving an additional $1 yields more utility to a person with a wealth of $0 than to a person with a wealth of $1, more to a person with a wealth of $1 than to a person with a wealth of $2, and so on, until at some point it brings no noticeable increase in utility at all. The difference between the hedonic impact of receiving $1,000,000 and $1,000,001, for example, is likely to be hedonically imperceptible.

According to Bernoulli's theory, people evaluate the utility of money outcomes in terms of the final states of wealth that those outcomes produce. If Jane started

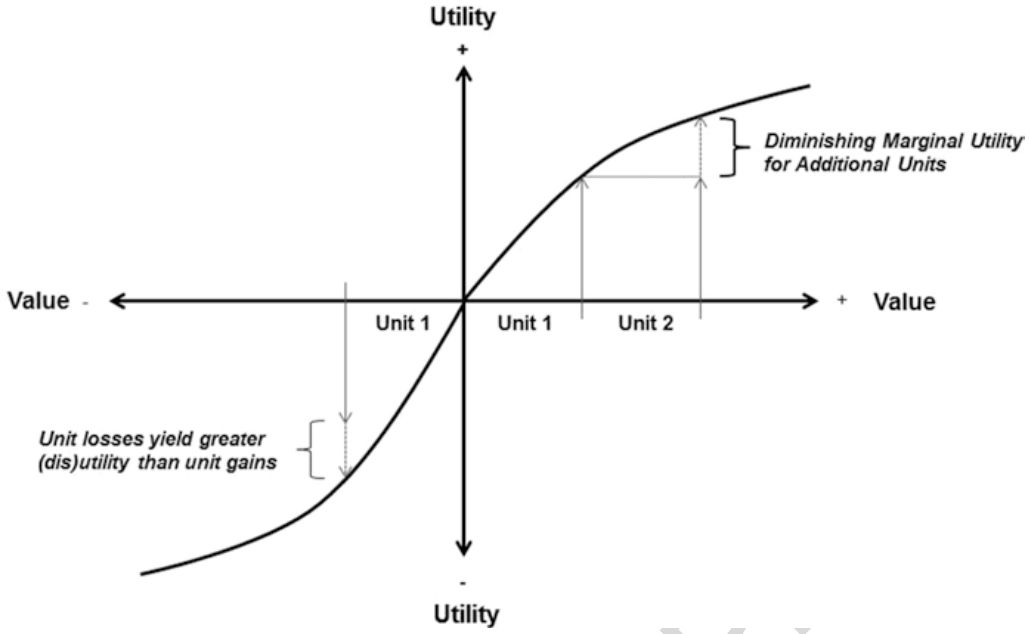

Fig. 5.1 The Prospect Theory value function

with $2 million and then lost $1 million, she should be as happy as Donald, who started with $0 and then gained $1 million, since both Jane and Donald have the same final state of wealth ($1 million). The error in this assumption was identified and addressed by Prospect Theory (Kahneman & Tversky, 1979), which demonstrated that people do not evaluate the utility of monetary outcomes according to the final states of wealth that those outcomes produce.

Kahneman and Tversky proposed that outcomes are evaluated according to the change that they produce relative to a psychological reference point. If Jane started with $2 million and then lost $1 million, whereas Donald started with $0 and gained $1 million, for example, Jane would be less happy than Donald because she would evaluate her outcome as a loss of $1 million and he would evaluate his outcome as a gain of $1 million. The reference dependence of value is one of the central insights of Prospect Theory. More generally, the Prospect Theory value function is defined by deviations from a reference point and is normally concave for gains and convex for losses. This latter feature incorporates (1) the diminishing marginal utility observed by Bernoulli, and (2) *loss aversion*, the observation that the slope of the utility function is generally steeper for losses than for gains (Fig. 5.1). In other words, losses hurt more than equivalent gains. Under most circumstances, for example, it feels worse to lose $100,000 than it feels good to gain $100,000.

Prospect Theory (Kahneman & Tversky, 1979) has been proven to be robust, accurately describing the anticipated (decision) utility derived from money and a variety of nonmonetary experiences. The hedonic impact of a given monetary gain or loss depends in large part on the reference point to which it is compared at the time of judgment, and surprisingly less on the absolute amount of money won or lost. It is important to note that Prospect Theory was never purported to describe

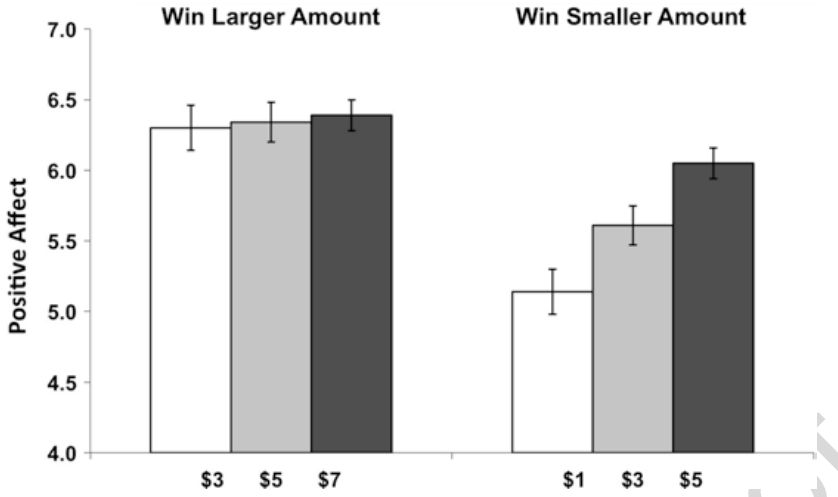

Fig. 5.2 Hedonic response to winning the larger or smaller amount on a scratch-off ticket with two values by relative value (i.e., larger or smaller) and amount won. Originally published in Kassam, Morewedge, Gilbert, and Wilson (2011, p. 603)

experienced utility—the actual pleasure and pain that is derived from experiences (for reviews, see Kahneman, 1999; Morewedge, in press). Prospect Theory does, however, generally describe experienced utility quite well, albeit with some caveats (e.g., Harinck, Van Dijk, Van Beest, & Mersmann, 2007; Kermer, Driver-Linn, Wilson, & Gilbert, 2006; Morewedge, Gilbert, Keysar, Berkovits, & Wilson, 2007).

Reference dependence has received considerable support in both field studies and experimental laboratory research. Field surveys suggest that self-reported happiness is influenced to a greater extent by people's income relative to the income of their neighbors than by their own absolute income (Easterlin, 1974, 1995, 2001). People living in richer neighborhoods report being less happy than people with similar incomes living in poorer neighborhoods, for example, and this is particularly true for people who socialize more with their neighbors (Luttmer, 2005). Laboratory studies have similarly found that people appear to be more sensitive to relative than absolute monetary values. Research participants who won the larger of two amounts of money on a scratch-off ticket (Fig. 5.2) were more sensitive to whether the amount they won was the larger or the smaller of the two amounts than to the absolute amount of money that they won (Kassam et al., 2011). Participants in the experiment were equally happy winning $7, $5, or $3, as long as the amount that they won was larger than its alternative (see also Mellers, Schwartz, Ho, & Ritov, 1997). [AU4]

People seem to be generally aware of the importance of relative value. Most people appear to believe that the amount of money that they earn relative to their peers is likely to affect them more than the absolute sum of money that they earn. Given the choice of worlds to live in below, a majority of survey respondents said that they would prefer to earn a lower absolute income but earn more than their peers (i.e., Option B) rather than earn a higher absolute income but earn less than their peers (i.e., Option A; Solnick & Hemenway, 1998).

Option A: You earn $100,000. Others earn $200,000.

Option B: You earn $50,000. Others earn $25,000.

In other words, people believe it would be worth sacrificing half of their total income to have a higher income than their peers. They exhibit this preference even when participants are told that the purchasing power of their income would be held constant in both conditions, meaning that they would be able to afford a more comfortable lifestyle in the situation in which they had a greater income but earned less relative to their peers (Option B).

Perhaps this willingness to sacrifice absolute value (e.g., greater income) for relative value (e.g., making more than one's peers) is not misguided. People are generally insensitive to differences in the absolute amounts of the money that they earn. A score of correlational studies have shown that societal shifts in income are not associated with increases in the well-being of the society (Easterlin, McVey, Switek, Sawangfa, & Zweig, 2010; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2006). Two particularly telling demonstrations of this insensitivity include the reported observation that well-being did not increase in Japan after its recovery after World War II between 1958 and 1987, despite a fivefold increase in per capita income (Easterlin, 1995), and the finding that lottery winners are not much happier than matched controls (Brickman, Coates, & Janoff-Bulman, 1978). Indeed, the relationship between income and happiness appears to best fit a log function. Increases in small incomes matter, but most benefits of greater incomes plateau at an annual income of $75,000 (Kahneman & Deaton, 2010).

These results may be partially explained by aforementioned relative comparisons to others, diminishing marginal utility, hedonic adaptation (Frederick & Loewenstein, 1999), and confounding third variables. General insensitivity to the absolute value of money gained, however, is also observed in controlled experimental settings. Participants who won $1 in a gamble with a 50 % chance of winning were as happy immediately upon learning the outcome as were participants who won $20 with the same chance of winning (Buechel, Zhang, Morewedge, & Vosgerau, 2011). Participants in an experiment who received $5 for reporting their happiness five times a week were as happy as those who received $25 for performing the same task (Morewedge, Gilbert, et al., 2007), and pedestrians given $5 to spend were as happy afterwards as pedestrians given to spend $20 (Dunn, Aknin, & Norton, 2008).

People are similarly insensitive to the absolute amount of losses that they avoid as a result of discounts (Dickson & Sawyer, 1990; Inman, McAlister, & Hoyer, 1990). The presence of a promotion (i.e., the fact that there is a price reduction) has a stronger effect on whether or not shoppers purchase a product than the absolute magnitude of the promotion (i.e., the absolute price reduction; Boutillier, Boutillier, & Neslin, 1994; Dickson & Sawyer, 1990). In other words, shoppers seem to primarily care about whether an item is on sale, but the exact amount saved as a result of the sale is less important.

The extent to which people are insensitive to absolute value is rather surprising. Money is one of the most universally familiar goods. The economies of most societies adhere to a currency-based system (Bernstein, 1965/2008). Money is a tangible

and unidimensional good that is measured on a ratio scale. It is divided into units that are easily countable and additive (McGraw, Shafir, & Todorov, 2010). The mere calculation of money is usually quite easy. It is obvious that a salary of $60,000 per year is twice as large as a salary of $30,000 per year. Unlike the value of jewels and livestock, which are also countable and additive, the value of the local currency is familiar to most people. It is the payment they receive for work and the medium they exchange for most goods.

Because of its familiarity, ease of calculation, and the frequency with which money serves as a proxy for utility, one would expect that people should be reliable in their assessments of and responses to different monetary gains and losses (Hsee, Loewenstein, Blount, & Bazerman, 1999; Morewedge, Kassam, Hsee, & Caruso, 2009). A gain of $5 should have the same effect on a person's experienced utility, whether the alternative gain was $1 or $10, and differences in the utility derived from stimuli such as a 3-day cruise, a 5-day cruise, or a case of champagne should lead to reliable differences in their associated price tags. Why then, are people so insensitive to the absolute values of monetary gains and losses and so unreliable in their assessments of the monetary value of experiences, goods, and services?

Why Are People Insensitive to Absolute Value?

We suggest that there are two main reasons for this insensitivity to the absolute value of money: Money has no intrinsic value, and there is a nearly infinite range of monetary values, which we discuss in turn.

First, money is an artificial medium whose value is contingent upon the shared agreement of the members of a society. It is thus a second-order reinforcer. Unlike touch and heat, which may be inherently pleasurable or painful depending on their intensity (Yang, Hsee, & Zheng, 2012), money only has value by virtue of the experiences its possession affords and its absence denies. Money has value because people believe and agree that it does, but when a society decides to switch from one system of currency (e.g., Deutsche Marks) to another (e.g., Euros), the original currency loses all of its value. [AU6]

Because of the artificial nature of its value, evaluating the utility of a monetary gain or loss requires more steps than evaluating the utility of a primary or natural reinforcer. Imagine, for example, that you find a $5 bill in a supermarket parking lot. How happy should this make you? First, you must evaluate the magnitude of the gain (how large or small a sum is $5), and then map this onto a scale of subjective utility. For example, you may have to compare it to other sums that have provided you utility in the past (e.g., your happiness with your salary), or consider the new experiences that it will afford (e.g., a chocolate bar). In contrast, the utility of finding a chocolate bar requires fewer steps to evaluate. You either like or dislike the chocolate, and so the evaluation only requires the assessment of the amount of pleasure (or guilt) that chocolate will afford.

The lability of these evaluations is demonstrated by the difficulty people have valuing novel stimuli and unfamiliar psychological states. People have a poor idea of what fair compensation is for the physical and psychological pain caused by an accident (Kahneman, Schkade, & Sunstein, 1998), or how much they should pay or be paid to listen to their professor read a poem. In one experimental demonstration, Ariely, Loewenstein, and Prelec (2006) first asked students of Ariely (a) whether they would *accept* $10 to listen to Ariely give a 10-min recital of Walt Whitman's *Leaves of Grass* or (b) whether they would *pay* $10 to listen to his recital. Next, they asked the students how much they would have to be paid or were willing to pay, respectively, to listen to 1-, 3-, and 6-min versions of the recital. Students who were first asked how much they would have to be *paid* to listen to the 10-min recital said they would have to be paid to listen to any of the other three versions, and that they would have to be paid more to listen to longer than shorter versions. In contrast, students who were first asked how much they would *pay* to listen to the 10-min recital were willing to pay to listen to any of the other three versions, and they were willing to pay more to listen to longer than shorter versions. The students exhibited *coherent arbitrariness*. Initially, their evaluations were arbitrary because they were not sure whether attending a recital by their professor was an experience for which they should pay or be paid. Once a price had been set for the experience, however, their evaluations were coherent as they realized that they should pay more for more of a good experience and be paid more for more of a bad experience (Ariely, Loewenstein, & Prelec, 2005). This experiment illustrates the difficulty that people have assessing the subjective utility of an artificial medium, but once the subjective utility of a medium is established, they are able to coherently assess the subjective utility of different values.

A second factor contributing to insensitivity to the absolute value of money is its nearly infinite range. Generally, the knowledge and use of a stimulus range allows people to determine the position of a stimulus in a distribution of values (Hsee et al., 1999; Janiszewski & Lichtenstein, 1999) and therefore aid the evaluability of the stimulus. Knowing that laptop screen sizes range from 10 to 20 in., for example, allows one to make the assessment that a 12-in. screen is relatively small. Not all ranges, however, yield similar degrees of sensitivity. Sensitivity to differences in the value of stimuli is a function of the breadth of the range of possible stimulus values (Volkmann, 1951). As the range of possible stimulus values increases, the noticeable difference in psychological value for each unit on that range decreases. To illustrate, the difference in weight between a MacBook Pro and a MacBook Air would be noticeable and perceived as relatively large, even by comparison of the weights of all modern portable electronic devices. The same difference in weight would become negligible when evaluating that difference by comparison to the weight of all household goods (e.g., a set including both washing machines and toothpicks) because the weights of all household goods constitute a larger range. In other words, the range of values of an external stimulus determines the ability to map the objective values of that stimulus (e.g., monetary values) onto psychological values (e.g., of its utility; Hsee et al., 1999; Janiszewski & Lichtenstein, 1999). This in turn determines how sensitive people are psychologically to changes in absolute values of the stimulus.

An infinite range upon which to evaluate a stimulus is little better than having no range at all. It is impossible to compare a specific amount to an infinitely larger or smaller sum and to determine meaningful differences between units on an infinite range. Confining the scale by which money is evaluated to the value of the world economy ($70 trillion) and the combined world debt (−$40 trillion) would still render most people insensitive to differences between all of the gains and losses that they experience in their lifetime. Compared to $70 trillion, the difference between a $25,000 salary and a $250,000 salary is fairly trivial. Even using the largest gains and losses that a person experiences in their lifetime (e.g., retirement savings and medical expenses, respectively) to evaluate the other gains and losses that they experience would mean that people would only be sensitive to major differences, such as when choosing between careers with very different salaries (e.g., circus performer versus investment banker) or deciding whether to buy a mansion or rent a mobile home.

Because of its infinite range, monetary gains and losses are not evaluated on one single scale. Instead, monetary gains and losses are evaluated on specific subscales (Emery, 1969; Thaler, 1985). These subscales are constructed at the time of evaluation and consist of comparison standards determined by the gain or loss evaluated, and the context in which the gain or loss is evaluated (Schwarz, 2007). A loss of $1,000 in retirement savings due to changes in the stock market in March 2013 (a good year for the market) is evaluated on a different scale than an equivalent loss in March 2008 (a bad year for the market), and both are evaluated on a different scale than a loss of $1,000 in income due to a tax increase. People presumably compare the performance of their investments at a specific time to the performance of the overall market at that time, and a tax increase is compared to the tax paid the previous year. As a result of this scale construction, the evaluability of a particular gain or loss can vary substantially across contexts and individuals, depending on the number and the range of comparison standards used to form a particular subscale. In the next section, we describe the process by which such comparisons are determined and judgments are made.

Comparative Evaluation and Comparison Standards

The processes involved when evaluating monetary values follow the processes by which most evaluative judgments are made. However, because of the artificial nature of money and its infinite scale, monetary judgments pose a distinct challenge for judges. The construction of subscales to evaluate the value of money leads these judgments to be especially reliant upon and influenced by the specific comparison standards that are available or made salient by the history of the judge and the context in which the judgments are made. In this section, we describe the process of comparative evaluation, kinds of comparison standards, and which standards are likely to be selected.

People make evaluative judgments, including the evaluation of money, by comparing the target of their judgment to a standard (Helson, 1964; Kahneman & Miller, 1986; Mussweiler, 2003). When evaluating the utility of a raise, for example, one might compare it to the raise received by a coworker or the raise one expected to receive. For inherently evaluable targets such as the pain from an injury or the temperature of an office, it might be possible to make basic qualitative judgments without engaging in such a comparative process (Hsee, Yang, Li, & Shen, 2009). Stubbing a toe, for instance, does not need to be compared to other experiences to be classified as painful, and one does not need a comparison standard to recognize while shivering in one's office that it is cold. Evaluating the absolute magnitude of even such basic experiences as pain and temperature (e.g., *how* painful or cold), however, involves judgments that require comparison to one or more standards (Hsee et al., 1999).

Standards used to evaluate absolute magnitude can take a variety of forms (Kahneman & Miller, 1986). One might evaluate the absolute intensity of the pain one feels by comparing it to the intensity of pain caused by a single or several past, concurrent, or future painful experiences. One could also compare it to imagined alternatives that are more or less painful (e.g., breaking the toe). People will use the comparison standard(s) that happen to be cognitively accessible at the time of judgment (Kahneman & Miller, 1986). Thus, the same experience can be evaluated by comparison to different standards depending on the context in which it is made, the time at which it is made, and the evaluator (Kahneman & Tversky, 1984).

The noninherent nature and infinite scale of money make such monetary comparative evaluations especially labile. When making judgments about money, people do not evaluate all monetary gains and losses with respect to the same monetary scale. Instead, they evaluate money on scales that are constructed on the basis of relevant exemplars, ranges, and scales that are accessible at the time of judgment (Kassam et al., 2011; Stewart, Chater, & Brown, 2006). In other words, people construct subscales to evaluate any specific monetary gains and losses based on a salient comparison standard. The price of the store brand of milk at your supermarket is compared to the prices of other brands, the price of milk at other stores, and the previous prices of milk at your supermarket. The price of gas at one station can be compared to current gas prices at other stations, to previous gas prices at that station, or even to future prices when there is a foreseeable shortage looming. Next we describe the different standards used in monetary evaluations, how standards are chosen, and how standards influence monetary evaluations.

External and Internal Standards

When evaluating the utility or value of a sum of money, people first have to identify one or more standards to which it is compared. The standards may be stimuli in the immediate context or environment in which the evaluation is taking place (e.g., the

salary earned by a colleague), or stimuli that are generated internally (e.g., a past salary, an expected salary, or an imagined alternative). Comparison standards can therefore be roughly categorized into two types of standards.

An *external standard* is a standard implicitly primed or explicitly prompted by a stimulus in the external environment of the judge. Passing by a neighbor's home or their new car might implicitly prime someone to use that home or car as an external standard by which to evaluate his or her own home or vehicle without their awareness. Implicit external standards are external standards sufficiently strong to influence judgments without one's conscious awareness. Subliminally primed prices, for instance, can influence how much people are willing to pay for products they encounter immediately after they are exposed to those primes (Adaval & Wyer, 2011). In other cases, people are explicitly aware of external standards. People compare sale prices to retail prices suggested by manufacturers. People may explicitly compare their salary to the average salary of their profession, the price of one car to the price of other cars at the dealership, and the price of a home to the selling prices of other homes in their neighborhood (Miller & Prentice, 1996).

The pervasiveness of explicit external standards is demonstrated by their impact on self-reports and behavior in experiments (Hsee et al., 1999; Kassam et al., 2011). Preferences between outcomes may reverse depending on the standards of comparison available at the time of judgment. When deciding how to settle a dispute with their neighbor over a plot of land, participants who evaluated both of two possible settlements at once (in a *joint evaluation* condition) thought that a settlement in which they would receive $600 and their neighbor would receive $800 was more acceptable than a settlement in which they would receive $500 and their neighbor would receive $500. Participants who saw and evaluated only one of these settlements (in a *separate evaluation* condition), however, thought that the settlement in which they earned more money was less acceptable than the latter in which they and their neighbor split less money equally. When both settlements could be compared side by side, participants evaluated their payment in one settlement ($600) by determining whether it was greater or less than their payment in the alternative settlement ($500). In the absence of a direct comparison to another settlement, participants evaluated their payment in the settlement by determining whether it was greater or less than the payment received by their neighbor (Bazerman, Loewenstein, & White, 1992).

Perhaps equally important, people often evaluate the value of money by comparison to *internal standards*. An internal standard is one that is stimulus independent. It is imagined or retrieved from memory. It can be a standard that is chronically accessible (e.g., a budget) or one that is temporarily accessible (e.g., the most recent similar purchase in that category; Stewart et al., 2006). A frequently used internal standard is the price one paid when making a previous purchase of a good (Mazumdar, Raj, & Sinha, 2005; Monroe, 1977). When evaluating a price of an airplane ticket from New York to Miami, for example, people are likely to compare its price to the amount they paid the last time they took the same trip.

Salient internal standards can affect evaluations of relatively unrelated financial decisions. Ungemach, Stewart, and Reimers (2011) found that British supermarket shoppers were more likely to prefer a low probability (15 %) gamble with a £1.50

payout than a higher probability gamble (55 %) with a £.50 payout immediately after shopping for groceries if more of the prices of the goods that they purchased fell between £.50 and £1.50 than if more of the prices of the goods that they purchased were below £.50 or were above £1.50. The authors suggest that when more goods fell between the two payouts (i.e., £.50 and £1.50), those intervening values made the subjective difference between the two payouts greater. As a result of the larger perceived difference between the two payouts, shoppers perceived the £1.50 payout to be larger enough that the £1.50 lottery was worth the greater risk.

Personal budgets also act as internal standards. A considerable amount of research in judgment and decision making has been devoted to how evaluations of money are influenced by internal *mental accounts*. People set up mental spending accounts that are budgets for different expenditures such as entertainment or food (Thaler, 1985). These mental accounts act as standards against which they track their expenditures. If people believe that they have overspent in one mental account (e.g., meals at restaurants), they will avoid spending in that specific category even though they will still spend freely on other items (e.g., clothing). The comparison of expenditures to these internal mental accounts explains several anomalies in consumer behavior that violate the assumption that money is fungible—that one unit of money should be interchangeable with any other unit. Losing $10 out of your wallet and losing a $10 movie ticket entail the same economic loss (i.e., $10). However, people are less likely to purchase a $10 movie ticket if they just lost a $10 ticket to see that movie than if they just lost a $10 bill which had not yet been assigned to any mental account (Heath & Soll, 1996).

Standard Selection

Which particular standards people will use to evaluate a particular monetary gain or loss is likely to be a function of the standards that are most salient (Bordalo, Gennaioli, & Shleifer, 2012), their knowledge or expertise (Fudenberg, Levine, & Maniadis, 2012; Hsee & Zhang, 2010; Morewedge et al., 2009), and the extent to which a standard can provide them with a satisfactory or self-serving evaluation (Kassam et al., 2011). Specifically, more salient standards are more likely to be selected and are thus more likely to influence the evaluation process. However, the knowledge and motivation of the judge may moderate the influence of contextually salient standards, as well as the selection of standards and evaluations. People not only use the standards that are most likely to come to mind in their evaluations, but also are likely to use the standards that provide them with a useful or satisfactory evaluation of their circumstances.

Salience. While both external and internal comparison standards can influence judgment, the two differ in their salience and likelihood of being selected as the basis of evaluation. External comparison standards are stimulus based, whereas internal standards are memory based (Lynch & Srull, 1982). Retrieving internal standards can be effortful (Rottenstreich, Sood, & Brenner, 2007). Thus, external standards have a clear advantage over internal standards unless they were recently

encountered or are chronically cognitively accessible. Frederick and Fischhoff (1998) found that willingness to pay for different quantities of household items was much more sensitive to the quantity of those items when willingness to pay was elicited in a within-subject design than in a between-subject design. Participants in the within-subject conditions presumably were more sensitive to the quantities of the items because it was easier for them to compare the amount they were willing to pay for one quantity of an item to the price they were willing to pay for a greater or smaller quantity of that item. Participants in the between-subject conditions could have retrieved internal standards relating to the price they paid for household items from memory in order to aid their evaluations of those items, but this was presumably more difficult than using the (salient and easily accessible) external comparison standards provided by the evaluation of other quantities of those items in the within-subject design.

The importance of standard salience is nicely illustrated by research examining the impact of social contact with neighbors on happiness with one's income (Luttmer, 2005). Socializing with the neighbors increases the salience of their income, and one is therefore more likely to compare their income with one's own income. Similarly, increases in changes of wealth have the greatest impact on one's happiness immediately after the increase while the amount of the last paycheck is still salient (Easterlin et al., 2010). After a few paychecks, the change in income has less impact on happiness because one's past salary and standard of living have faded into the background and the new salary and standard of living have become the status quo. Forgetting the comparison standards of the past can lead to a *hedonic treadmill*, whereby people quickly adapt to improvements in their life circumstances, making their hedonic benefits of increases in income relatively short lived (Frederick & Loewenstein, 1999).

Knowledge. Knowledge of which standards are most relevant and familiarity with relevant comparison standards also influence standard selection. Expertise or familiarity with a stimulus or stimulus values will increase the chance that a person will be able to evaluate whether external standards are appropriate comparisons or whether different standards should be considered. Imagine you are shopping for an antique chair and there is a much more expensive chair next to the one you are examining. Expertise will allow you to determine whether the more expensive chair would be a reasonable comparison standard. Expertise and familiarity also allow you to recall or generate an internal standard when none is externally available or appropriate (Morewedge et al., 2009), such as the price online for a similar chair.

Evidence from the field supports this account. Second-time homebuyers are less influenced by external standards than are first-time buyers (Northcraft & Neale, 1987). Having bought a home, people are more familiar with the value of homes in their local market (i.e., they have formed internal standards) and are less influenced by externally provided standards such as list prices. Similarly, most drivers are relatively sensitive to relatively small fluctuations in gas prices and will switch gas stations when their preferred station increases its prices (Maurizi & Kelly, 1978). The frequency with which drivers encounter gas prices enables them to form a relatively strong internal gas subscale that they can consult at any given time, in any given context, allowing them to be sensitive to small variations in gas prices.

With increased exposure to and expertise in a category, it becomes easier to generate and sample internal standards, even standards that occupy a larger range than gas prices, which in turn results in greater reliability and sensitivity in judgment of category members (Morewedge et al., 2009).

When valuing unfamiliar stimuli, people do not have reliable internal comparison standards. As a result, they often exhibit rather remarkable insensitivity to differences in absolute values. Desvousges and colleagues (1992), for example, asked three different groups of participants how much they would be willing to pay to save 2,000, 20,000, or 200,000 birds from dying in oil-polluted ponds each year. Despite a 100-fold increase in the number of birds saved, participants were willing to spend approximately the same amount to save all three bird populations (between-subjects): $80, $78, and $88, respectively. The lack of a relevant standard to which participants should compare the value of the life of a bird made them insensitive to large differences in the absolute number of birds saved. This type of scope insensitivity has been demonstrated for the valuation of other uncommon goods. Canadians are willing to pay as much to clean up all lakes in the province of Ontario as to clean up a few lakes in a smaller part of the province (Kahneman, 1986).

Motivated Selection. Not only do people use the standards made salient by their environment and memory, they also selectively choose standards and dimensions of comparisons that make them happy with themselves and their present circumstances (Kruger, 1999). People preferentially compare themselves to other people who are less fortunate and avoid comparing themselves to other people who are more fortunate (Lyubomirsky & Ross, 1997; Pyszczynski, Greenberg, & LaPrelle, 1985; Shepperd & Taylor, 1999; Taylor, Wood, & Lichtman, 1983). When the use of salient standards does not make for a favorable evaluation of a cash prize (i.e., when people could have won an amount that was larger), people engage in a motivated search for a standard that provides a more favorable comparison (i.e., compare their prize to the prospect of having won nothing at all; Kassam et al., 2011).

Comparisons and Cognitions: Determinants of Value Sensitivity

When people make monetary valuations, the particular standards salient or selected are not the sole determinants of how sensitive the judge will be to relative or absolute value. That degree of sensitivity is also largely determined by whether the judge evaluates the target by comparison standard to a single or multiple standards. Evaluations that incorporate multiple comparison standards allow for sensitivity to absolute magnitude, whereas evaluations that rely on one standard only allow for sensitivity to relative magnitude. We suggest that incorporation of multiple comparison standards is more likely when people have the motivation and the cognitive resources available to consider multiple standards and conduct comparisons between the target and those standards. In a two-system (Kahneman & Frederick, 2002) model of judgment, this would be when System 2 reasoning is brought to bear on the evaluation (i.e., in addition to System 1).

Single Versus Multiple Comparison Standards

The most primitive form of comparison occurs when the evaluation of the target is made in comparison to a single comparison standard. A person could compare her current debt to her debt the previous month to determine if it has improved or become worse, or compare the price of a concert ticket to the last ticket price she paid to determine if the concert is cheap or overpriced. The comparison of a target to a single standard only allows for a judgment of relative value, such as whether the target is greater or less and better or worse than the standard to which it is compared (Hsee et al., 1999).

If that standard contains information about the distribution of all relevant stimulus values in a range (e.g., is identified as the median or average), it can also provide some intuition about the location of the target in its range, such as whether its value is high or low. In other words, if one does not know where the standard falls in the distribution, one can only judge the target as greater or less than the standard. If one knows that the standard is in the middle of the distribution (or its more general location), one will also know whether the target is above or below the mean or mode of the distribution. For example, one can look up the blue book value of a car to gauge if its asking price is above or below its approximate market value. If one only knows the price of a similar car but does not know where that car falls in a distribution of car prices, one can only judge whether the car one is considering is being offered at a better or worse price than the car to which it is compared. Judging a target relative to a single standard, however, does not give one the precision that is afforded by having multiple standards of comparison and will not allow for absolute judgment of the target (Hsee et al., 1999).

Some sensitivity to absolute value is possible when judges possess multiple comparison standards, as sensitivity is generally dependent on knowing the range of an appropriate scale and the distance between a target and those scale endpoints (Hsee et al., 1999, 2009; Volkmann, 1951). Participants in an experiment by Hsee and colleagues (1999), for example, were asked to judge college applicants and were provided with the score of an applicant that varied between subjects from the bottom to the top of the possible range, and either (1) no information, (2) the scale mean, or (3) the highest and lowest scale value. Evaluations made by participants with no information were insensitive to the score of the candidate—candidates with high and low scores were evaluated similarly. Evaluations made by participants who knew the scale midpoint were sensitive to the relative value of the candidate's scores, but were insensitive to the absolute value of the candidate's scores. Candidates with above average scores were evaluated more favorably than those with below average scores, but there was no differentiation between candidates far and just above average or far and just below average. Only evaluations made by participants who knew the scale endpoints were sensitive to the absolute value of the score of the candidate, rating candidates in accordance with the location of their score in the distribution. Knowledge of the endpoints of the scale established its range, which allowed for the estimation of the position of a value in its distribution.

This means that multiple standards of comparison (at least two) have to be considered for the judge to exhibit some degree of sensitivity to absolute value. If the most extreme values do not represent the high and low points of the range, however, this sensitivity will not necessarily allow one to judge the "true" value of the target.

People do seem to make use of the full range of externally provided comparison standards in their judgments (Moon & Voss, 2009). Lab experiments and purchase data reveal that the attractiveness of a price is influenced by the entire range and distribution of recently encountered prices (Janiszewski & Lichtenstein, 1999; Niedrich, Sharma, & Wedell, 2001; Niedrich, Weathers, Hill, & Bell, 2009). When multiple standards are available, consumers incorporate them into the subscale they generate to determine the rank and the desirability of the target price (Niedrich et al., 2001). Janiszewski and Lichtenstein, for example, gave participants ten prices of different brands within a product category before having them evaluate the price attractiveness of a target brand with a market price of $1.20. Their key manipulation was the range of prices encountered by participants prior to evaluation (e.g., $.10–1.75 vs. $.75–$1.50). The mean price was constant across conditions. Depending on its relative position within the range, the target price was perceived to be more or less attractive.

If no external standards are provided or salient, it seems that consumers can also recall comparison standards from memory such that the relative distributions of the comparison standards that are cognitively accessible will be incorporated into judgment. The decision sampling approach (Stewart et al., 2006) assumes that people evaluate the subjective value of a stimulus by establishing its rank in a set of relevant standards recalled from memory through a series of binary ordinal comparisons to those standards. In other words, one determines the rank of the target by deciding whether it is higher or lower than each of the standards that are recalled, one at a time. You might compare the cost of groceries at your local supermarket to other recent store purchases, for example, and evaluate the psychological cost of your grocery bill by how it ranks in comparison to that set of other recent purchases. Depending on whether it ranks higher or lower among the other purchases you retrieve from memory at the time of judgment, your grocery bill will then be perceived as more or less expensive by comparison. Nevertheless, if multiple standards of comparisons are recalled, the judge will be able to exhibit absolute sensitivity within the range of the recalled standards.

Two Cognitive Systems and Value

The number of comparisons of which a judge may be aware is not the sole determinant of how sensitive that judge will be to value. We propose that the cognitive processes involved in the judgment also determine whether a judge will exhibit relative or absolute sensitivity to monetary gains and losses. Mapped roughly onto a two-system model of judgment (Kahneman & Frederick, 2002), we identify the

assessment of the relative value of a monetary gain or loss with System 1, and we identify the assessment of the absolute value of a monetary gain or loss with System 2. *System 1* is a system comprising associative processes that underlie intuitions and rapid judgments to which the thinker has little conscious access. It tends to involve little effort and produce judgments in a fairly automatic fashion. *System 2* is a system comprising controlled processes to which the thinker has access. It tends to be slower, more conscious, rule governed, and require more effortful deliberation (Kahneman & Frederick, 2002; Morewedge & Kahneman, 2010). As an example, consider the equation below:

$$\$2117.00 \times \$4916.00 =$$

Recognizing that this is a math problem and realizing that its solution is a large sum are outputs of rapid judgments made by System 1 processes. Its precise solution, $10,407,172, is the output of a more effortful System 2 process. It is generally assumed that System 1 always generates some output when making a judgment, which is then accepted, blocked, or corrected by System 2 (e.g., Alter, Oppenheimer, Epley, & Eyre, 2007; Gilbert, 1999; Kahneman & Frederick, 2002; Morewedge & Kahneman, 2010).

Evidence for a two-system framework within the domain of monetary evaluations is provided by the findings of Kassam and colleagues (2011). They found that participants who won the larger of two prizes on a scratch-off ticket (i.e., $7 rather than $5, $5 rather than $3, or $3 rather than $1) were insensitive to the absolute amount of money that they won, but were sensitive to the relative amount of money that they won. People were happier winning $5 or $3 when the amount that they won was the larger of the two prizes and less happy winning $5 or $3 when it was the smaller of two prizes. For participants who won the larger of two amounts, however, they were no happier winning $7, $5, or $3 (see Fig. 5.2). Presumably, these participants were sufficiently satisfied with the larger relative value of the prize than its alternative that they were not sufficiently motivated to generate additional standards of comparison.

Participants who won the inferior of two prizes, however, were sensitive to the absolute value of that prize. Specifically, participants who won the smaller of the two prizes on their scratch-off ticket were happier when that inferior prize was $5 than $3, and happier when it was $3 than $1 (see Fig. 5.2). Presumably, these participants were not satisfied by the inferior value of their prize relative to its alternative and were thus motivated to generate additional standards of comparison. This interpretation of the results is supported by the findings of the second study in this chapter, which found that participants who received the smaller of two prizes were sensitive to its absolute value while their attention was not usurped by a cognitive load task (i.e., they were happier when they won an inferior $5 prize than an inferior $3 prize), but were not sensitive to the absolute value of their inferior prize while performing a cognitive load task (i.e., they were no happier when they won an inferior $5 prize than an inferior $3 prize).

These results suggest that when initial relative judgments are satisfactory, evaluations of gains or losses may reflect the output of System 1. When evaluations are not satisfactory or sufficient, however, people may engage in more elaborate

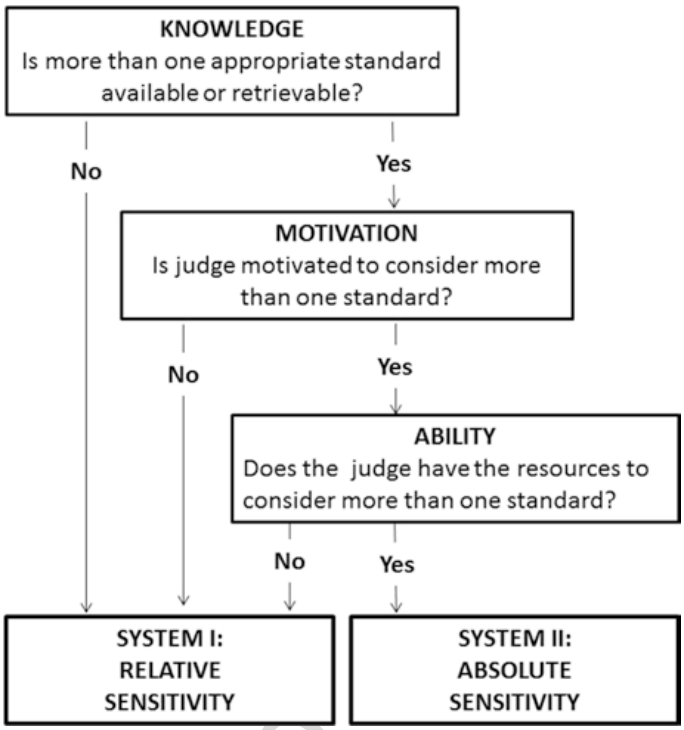

Fig. 5.3 A two-system account of relative and absolute value

System 2 processing if they have the cognitive resources to retrieve or attend to additional standards, becoming more sensitive to absolute value. That is not to say that when System 2 is involved, judgments will always fully incorporate absolute value. We suggest that the involvement of System 2 simply means that people have the capacity to be sensitive to absolute value. Other factors, such as the standards of comparison available at the time of judgment and being able and motivated to consider them, are also necessary for a judge to be sensitive to absolute value. A more detailed account of this process follows (Fig. 5.3).

System 1: Evaluating Relative Value

Judging a monetary gain or loss relative to a standard can occur with the consideration of just one comparison standard. Yet, even this simple relative judgment requires several stages to perform. First, one must identify and attend to an appropriate standard of comparison. A standard may already be salient or may be spontaneously retrieved from memory at this time. Once a standard has been selected, one must identify the attributes possessed by the standard that are similar to the target to determine the dimensions along which they are to be compared (Gentner & Markman, 1997). Next, one must perform the comparison and devote sufficient cognitive resources in order to notice differences between the value of the target and the standards to which it is compared (Martin, Seta, & Crelia, 1990; Morewedge, Gilbert, Myrseth, Kassam, & Wilson, 2010; Mussweiler, 2003).

Since monetary gains and losses are unidimensional and quantified, relatively limited resources should be necessary to judge whether one gain or loss is bigger or smaller than another gain or loss. In other words, System 1 can be used to determine the value of a monetary gain or loss relative to a comparison standard (Kassam et al., 2011). Two caveats to this statement must be expressed: First, mapping the value of a gain or loss onto a utility judgment may be more complicated and noisy (Stevens, 1975). Second, assessing the relative values of two more complex stimuli, such as two job offers, may require the simultaneous comparison of too many of their attributes to be performed without effortful deliberation. Thus, System 2 processing may be necessary to make even relative judgments when determining the value of nonmonetary stimuli.

Stage 2: Evaluating Absolute Value

Evaluating the absolute value of gain or loss and mapping it to a location on a psychological scale of relevant gains or losses requires attending to multiple standards in the environment or recalling additional internal comparison standards from memory.

People not only have to be motivated to generate a scale that enables absolute judgment by recruiting additional comparison standards, they also must have the time and ability to attend to multiple comparison standards or retrieve additional comparison standards from memory. Although participants who received the smaller of two cash amounts in Study 2 of Kassam et al. (2011) were motivated to retrieve additional comparison standards to increase their satisfaction with the amount that they won, they appeared only to be able to do so when their cognitive resources were not usurped by a cognitive load task. Concurrent tasks performed at the time of judgment may thus impair one's ability to retrieve and consider the multiple comparison standards necessary to be sensitive to absolute value.

One important determinant of the attentional resources available to perform such judgments may be the intensity of the affect state one experiences while performing the judgment. Intense experiences consume cognitive resources by drawing attention to the experience itself and away from consideration of comparison standards that are required for more systematic processing and sensitivity to value (Buechel et al., 2011; Morewedge et al., 2010). Hsee and Rottenstreich (2004), for example, found that the amount of money people were willing to pay to save 1 versus 4 pandas (in a between-subjects elicitation process) was more sensitive to the number of pandas that would be saved when the pandas were represented as dots (evoking a mild affective response) rather than as pictures of pandas (evoking a stronger affective response).

Another example of the influence of intense affective states on sensitivity to value comes from the domain of affective forecasting. Affective forecasts are predictions of the hedonic impact of future events, such as a prediction of how happy one will feel if one's football team wins a game (e.g., Morewedge, Gilbert, &

Wilson, 2005). People make affective forecasts by simulating the future experience and its context and noting their affective response to the simulation, which is then translated into a prediction (Gilbert & Wilson, 2007). The accuracy of affective forecasts is typically determined by comparing the predictions made by forecasters to the hedonic states reported by people having the forecasted experience (i.e., experiencers).

Buechel et al. (2011) found that the different affective intensity of the act of making an affective forecast and the act of having the corresponding experience can lead forecasters and experiencers to exhibit different sensitivity to the size of a monetary gain. Specifically, they found that forecasters thought that they would be happier if they won $20 than $1 in a gamble with a 50 % chance of winning, but experiencers reported being equally happy if they won the gamble, regardless of the amount that they won.

The reason for the difference in sensitivity to variations in outcome magnitude, they argue, stems from the difference in the intensity of the affective state evoked by the simulation of an event used to make an affective forecast and the corresponding forecasted experience. Hedonic experiences typically evoke a more intense affective response than do mental simulations of those experiences. The greater intensity of hedonic experiences leads them to usurp more attentional resources than do simulations of those experiences, which means that experiencers are usually less likely to attend to alternative possible experiences that they might have had (e.g., winning various other amounts of money) and engage in the complex comparisons that are required to be sensitive to absolute value. As a result, experiencers may have only had the resources available to compare the amount they won to its alternative ($0), whereas forecasters may have had the resources to compare the amount won to other alternatives, such as their hourly wage or the number of lunches for which it would pay. This greater sensitivity of affective forecasters to absolute monetary values is observed in field surveys, as people consistently overestimate the extent to which income affects their well-being (Aknin, Norton, & Dunn, 2009).

Distortions of Scale and Value

Comparison standards afford the ability to evaluate monetary gains and losses that would otherwise not be evaluable because of their abstract nature and nearly infinite range. However, the particular comparison standards used may also distort the perception of their value.

In a classic example of such a distortion, Kahneman and Tversky (1984) found that subjects were more willing to drive 10 min to another store in order to save $5 on $15 calculator than to drive 10 min to save $5 on a $125 jacket. In other words, the same savings of $5 was perceived to be of greater value when compared to a good that cost $15 than to a good that cost $125. Morewedge, Holtzman, and Epley (2007) showed that shoppers spent 36 % more during a shopping trip after their larger financial resource accounts were made cognitively accessible (e.g., they were

asked if they possessed checking and savings accounts) than after their smaller financial resource accounts were made cognitively accessible (e.g., they were asked about items in their wallet to make their cash on hand salient). This did not appear to be due to a perception that the dollar cost of goods was greater, but rather that the dollar cost of goods was subjectively more expensive when compared to the smaller resource accounts than when compared to the larger resource accounts.

Gourville and Soman (1998) demonstrated how temporal reframing influences [AU7] the evaluation of expenditures by altering the standards retrieved from memory to which expenditures are compared, which has implications for how certain expenses should be framed. When a transaction is framed as a series of small daily expenses (e.g., "Less than $1 a day"), he argued that transaction prompts the comparison of the expense with small everyday expenses that are perceived as affordable (e.g., a cup of coffee or newspaper). When a transaction is framed in terms of a monthly or annual payment, however, it is compared to other monthly or annual expenses (e.g., a car or mortgage payment). Expenses, such as a charitable donation, that are given a pennies-a-day framing will thus be perceived to be relatively trivial and affordable if their daily cost would be less than or similar to the cost of small daily expenses. If their daily cost would be much larger than small daily expenses, however, they will be viewed unfavorably and as unaffordable. A larger expense would thus be perceived more favorably if instead it is framed as a monthly or annual expense because it will be evaluated by comparison to larger expenses such as utility, car, or mortgage payments.

Even arbitrary comparison standards can influence scale generation and distort judgments of value. The amount of money people request to listen to an annoying sound or how much they are willing to pay for a bottle of wine can be influenced by arbitrary anchors made salient prior to the judgment, such as the last four digits of their social security number (Ariely et al., 2005; Ariely, Loewenstein, & Prelec, 2003). People may realize that the anchor itself does not aid the evaluability of a target variable, but the search for an applicable comparison standard and the scale used to make the judgment of the target are both influenced by the cognitive accessibility of the anchor (Frederick & Mochon, 2012; Mussweiler & Strack, 1999; [AU8] Simmons, LeBoeuf, & Nelson, 2010). Consequently, when judging the value of a bottle of wine, for example, participants with higher social security numbers were willing to pay more for the bottle than were participants with lower social security numbers, possibly because the higher numbers made anchor consistent information about wine more accessible. That is, they were more likely to retrieve examples of pricey wine bottles from memory such as $30 bottles of Bordeaux as a basis for the value of the target bottle than $8 boxes of White Zinfandel.

More generally, the extent to which a judgment is susceptible to external influences (i.e., anchors, context, and external standards) is influenced by the judge's expertise or knowledge, as well as her motivation and ability to engage in more systematic assessments of value (i.e., involve System 2). The ability to retrieve consistent internal comparison standards allows for some resistance to contextual and temporal influences. On the other hand, some subscales are not familiar enough to allow the retrieval of internal standards (Ariely & Loewenstein, 2000; Morewedge et al., 2009).

Others might contain such a wide range of potential comparison standards that might make the retrieval of a representative sample difficult or impossible. Gains and losses that might have to be mapped on these forms of subscales should be especially prone to the influence of contextual differences.

Implications for Science, Practice, and Well-Being

Many scientists and practitioners rely on money as a measure of utility or value. As reviewed in this chapter, the reliability of estimates of the utility and value of money is largely contingent on the comparison standards used to form the subscales upon which monetary gains and losses are evaluated, and the extent to which judges are sufficiently motivated and have the cognitive resources necessary to be sensitive to its absolute value. Thus, the way in which people evaluate the subjective value of money has important implications for both science and practice.

Science

A variety of contextual and individual factors determine the comparative processes involved in monetary judgments. Research outlined in this chapter suggests that when researchers make conclusions and comparisons about utility derived from money and people's willingness to pay for goods, they must not only consider the standards that might be used to generate subscales (including factors such as the number and the salience of standards), but they should also consider factors that determine the ability and motivation of judges to engage in the more effortful (System 2) processing that is required for them to be sensitive to absolute value.

The framework we suggest may help to explain apparent inconsistencies and controversies in the literature. Different models of decision making make different predictions about how value is represented and assessed, for instance, which has led to controversies among researchers about which models are more accurate in their description of how judgments are made (Vlaev, Chater, Stewart, & Brown, 2011). Adaptation level and price perception models argue that stimulus values, such as prices, are compared to a single reference value (Helson, 1947), whereas range-frequency theories assume that multiple previously encountered values are considered when making a judgment (Parducci, 1965). Evidence outlined in this chapter suggests that whether judgments are relative compared to one reference price or absolute and based on a range of reference prices may depend on the level of processing engaged when making those judgments (Fig. 5.3). In other words, whether the adaption level model or the range-frequency model provides better descriptive validity in a given domain might be a function of the number of available external or internal comparison standards, as well as the motivation and resources available to consider more than one comparison standard at the time of judgment.

[AU9]

Future research might be able to reconcile the validity of different models by identifying the circumstances under which these various models make better predictions.

Another example of an important and controversial topic is to what extent goods and experiences affect happiness (Van Boven, 2005). This topic not only has theoretical relevance for psychologists and economists, but also has practical implications for the understanding of well-being. Research presented in this chapter suggests that whether having or spending more money does actually increase happiness might depend on how happiness and its antecedents are operationalized. As intense affective experiences usurp attention (Buechel et al., 2011) and interfere with more effortful System 2 processes, it is important to consider how much affect a stimulus or question evokes at the time of judgment. Differences in the evocativeness of measures of life-satisfaction (a more abstract and less evocative measure) and measures of emotional well-being (a more emotionally evocative measure), for example, might explain the stronger relationship of the former with differences in income (Diener, Kahneman, Tov, & Arora, 2010; Kahneman & Deaton, 2010). More generally, given that stimuli and judgments vary inherently in the amount of affect they evoke or entail, it is important to consider the intensity of affect elicited by different experimental procedures that are used to measure the assessment of value or utility when interpreting their results.

Future work could more systematically evaluate which utility measures are most likely to be sensitive to differences in gains and losses as well as income and wealth, and when greater sensitivity to the value of money might lead to more optimal or suboptimal decision making. Future research is needed to further test how discrepancies in cognitive resources available at the time of a decision and at the time of the experience lead to better or worse choices. As reviewed, mental simulations of experiences evoke a less intense affective state than the actual experience and therefore allow for the involvement of more System 2 processing in judgments. If judgments and choices for future (simulated) experiences involve System 2 processes, whereas experiences are only evaluated with System 1 processes, choices made by simulating future experiences are likely to exhibit systematic errors. Paradoxically, such judgments and choices might be better when the judges are not motivated to engage in careful simulation or have the cognitive resources to do so.

Practice

This chapter suggests when people will be more or less sensitive to the value of money, and when and how this might benefit practitioners such as marketers or nonprofits soliciting charitable giving. Unless people are highly familiar with the ranges of prices for a particular kind of product or kind of charitable donation, people should be relatively insensitive to the magnitude of prices and requests. People may not be aware that a good is being offered for the best price or has the

best value, for example, if they are not aware of how it compares to the prices and values of relevant alternative goods. It is particularly difficult to evaluate monetary values when no comparison standard can be retrieved from memory, as in the case of charity solicitations, where the value of the purchased unit (e.g., a life or a service) is unknown. It is thus crucial to aid scale generation by providing salient external comparison standards or by encouraging consumers to recall their own internal standards when practitioners want people to be sensitive to monetary values or the value of their money.

Hsee, Zhang, Lu, and Xu (2013) found that having participants create their own comparison standard can lead to increased sensitivity to monetary value. When participants were first asked how much they were willing to donate to assist one victim, participants' donations were much more sensitive to the number of victims that they were asked to help in a subsequent request than when they did not first create such a scale. In other words, once their willingness to pay per unit was elicited and stated, participants were subsequently willing to donate more money to help a greater number of victims. Using a similar strategy, marketers could provide a unit scale or have customers create a scale by either providing the price of a single unit or asking customers how much they would be willing to pay for a single unit before eliciting their willingness to pay for multiple units. A realtor, for example, might ask clients how much they are willing to pay for a single bedroom in order to help them decide whether to buy a 2-bedroom apartment or if the price of a 3-bedroom apartment is worth the additional cost. Conversely, when sensitivity to monetary value is undesirable, scale generation should be inhibited. This chapter suggests that one way to inhibit scale generation is by impairing the ability to engage in System 2 processing, for example, by increasing cognitive busyness or intense emotion evoked during judgment.

Conclusion

The value of money is not easy to evaluate, despite its status as a stimulus that is quantified and familiar. In this chapter we have suggested that this difficulty stems from two factors. First, money itself is not inherently evaluable. It is a second-order reinforcer measured on an artificial scale. Making judgments about the utility it yields requires the mapping of monetary scales onto psychological utility scales. Second, monetary values encompass an infinite range of values. This wide range means that there is not one scale by which all gains and losses are evaluated. The resulting need to construct subscales to evaluate gains and losses at the time of judgment leads to insensitivity in judgment. The comparison standards that comprise those subscales thus may change from one context, person, and time to the next, leading to unreliable and inconsistent judgments. People may be sometimes happier with smaller than larger gains (and larger than smaller losses), depending on the particular scale and comparison standards evoked at the time of judgment.

An employee might be happier with a job offer if her initial salary offer was $75,000, which she negotiated up to $80,000, than if she had been offered a $85,000 salary without a chance to negotiate further.

We have reviewed the literature on comparative judgment that outlines how people generate scales to evaluate monetary gains and losses and we have identified how standards are selected and judgments are made. Depending on the number of standards considered during judgment, comparison standards allow evaluations that range from crude judgments of relative value that require fewer cognitive resources to perform (System 1) to more sophisticated judgments of absolute value that require more cognitive resources (System 2). More sophisticated judgments are likely when the judge possesses extensive knowledge of possible stimulus values, which allows the retrieval of internal standards from memory, and has the ability and the motivation to engage in such retrieval processes or attend to relevant standards in her environment. Given the infinite range of monetary values, however, absolute sensitivity when evaluating all monetary values on a single scale should not be possible. Absolute sensitivity is limited to the specific subscales that are generated to evaluate monetary gains and losses at the moment of judgment. In other words, absolute sensitivity is still relative.

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