

## Chapter 5 1

# The (Relative and Absolute) Subjective 2

# Value of Money 3

[AU1] **Eva C. Buechel and Carey K. Morewedge** 4

**Abstract** Money is often used as a proxy for utility in economic and psychological 5  
research. Monetary sums are easily calculated and compared, and money is a stimu- 6  
lus with which almost all people are familiar. Even so, hedonic responses to mone- 7  
tary gains and losses are relatively insensitive to the absolute size of those gains and 8  
losses, and the subjective utility of gains and losses is surprisingly labile. We pro- 9  
pose that the difficulty of evaluating the value of money stems from the abstract 10  
nature of its value and nearly infinite range. As a result, money is not evaluated on 11  
a single monetary scale, but instead on subscales composed of comparison stan- 12  
dards that are generated at the time of judgment. Using a dual-process account, we 13  
describe how such monetary subscales are generated and when they result in more 14  
or less sensitivity to its absolute value. We identify factors that influence sensitivity 15  
to the value of money and bias its evaluation. We close with a discussion of implica- 16  
tions for science and practice. 17

Money has received considerable attention in economics and the psychology of 18  
judgment and decision making, as both an independent and dependent variable. 19  
Money has long had special status as a proxy for utility, the value, or pleasure that 20  
[AU2] an alternative yields (Bentham, 1879), because money is fungible, exists on a ratio 21  
scale, and can be easily traded for goods that yield utility in most cultures. One dol- 22  
lar has the same value and is interchangeable with another. Two dollars clearly has 23  
twice as much value as one dollar, and one can easily exchange dollars for euros, 24

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

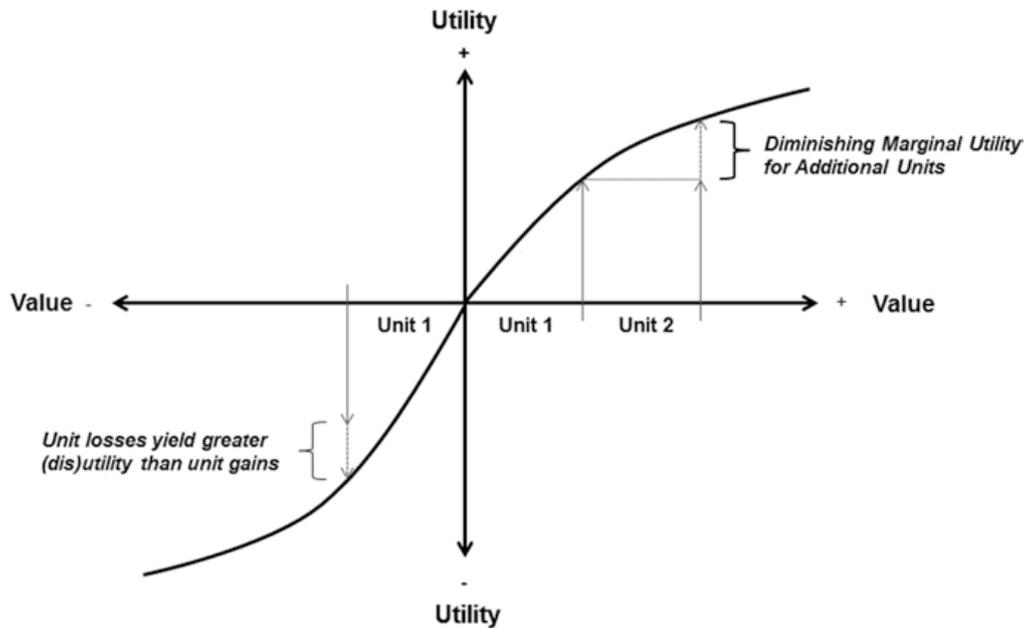
32 More recently, psychologists and economists have begun to study how the value  
33 of money is itself evaluated and how these evaluations change according to the con-  
34 text and the manner in which they are made. This is the focus of this chapter. We  
35 first provide a brief overview of literature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

[AU3]

## 52 **The Relativity of Value**

53 The relationship between money and utility is imperfect, and money is evaluated  
54 with regard to its value relative to a comparison standard, rather than with regard to  
55 its absolute value. As early as 1738, Daniel Bernoulli formally recognized that the  
56 utility of money was not as linearly related to its sum (Stearns, 2000). Each unit of  
57 money a person possesses (e.g., \$1) does not provide an equal amount of additional  
58 utility. Bernoulli suggested that monetary units provide *diminishing marginal utility*,  
59 whereby each additional unit (e.g., \$1) increases its utility less than did the previous  
60 unit. Receiving an additional \$1 yields more utility to a person with a wealth of \$0  
61 than to a person with a wealth of \$1, more to a person with a wealth of \$1 than to a  
62 person with a wealth of \$2, and so on, until at some point it brings no noticeable  
63 increase in utility at all. The difference between the hedonic impact of receiving  
64 \$1,000,000 and \$1,000,001, for example, is likely to be hedonically imperceptible.

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

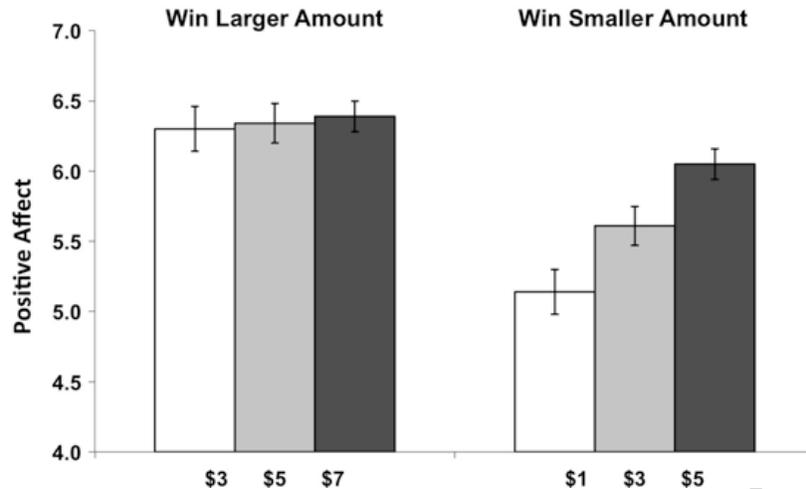


**Fig. 5.1** The Prospect Theory value function

with \$2 million and then lost \$1 million, she should be as happy as Donald, who 67  
 started with \$0 and then gained \$1 million, since both Jane and Donald have the 68  
 same final state of wealth (\$1 million). The error in this assumption was identified 69  
 and addressed by Prospect Theory (Kahneman & Tversky, 1979), which demon- 70  
 strated that people do not evaluate the utility of monetary outcomes according to the 71  
 final states of wealth that those outcomes produce. 72

Kahneman and Tversky proposed that outcomes are evaluated according to the 73  
 change that they produce relative to a psychological reference point. If Jane started 74  
 with \$2 million and then lost \$1 million, whereas Donald started with \$0 and gained 75  
 \$1 million, for example, Jane would be less happy than Donald because she would 76  
 evaluate her outcome as a loss of \$1 million and he would evaluate his outcome as 77  
 a gain of \$1 million. The reference dependence of value is one of the central insights 78  
 of Prospect Theory. More generally, the Prospect Theory value function is defined 79  
 by deviations from a reference point and is normally concave for gains and convex 80  
 for losses. This latter feature incorporates (1) the diminishing marginal utility 81  
 observed by Bernoulli, and (2) *loss aversion*, the observation that the slope of the 82  
 utility function is generally steeper for losses than for gains (Fig. 5.1). In other 83  
 words, losses hurt more than equivalent gains. Under most circumstances, for exam- 84  
 ple, it feels worse to lose \$100,000 than it feels good to gain \$100,000. 85

Prospect Theory (Kahneman & Tversky, 1979) has been proven to be robust, 86  
 accurately describing the anticipated (decision) utility derived from money and a 87  
 variety of nonmonetary experiences. The hedonic impact of a given monetary gain 88  
 or loss depends in large part on the reference point to which it is compared at the 89  
 time of judgment, and surprisingly less on the absolute amount of money won or 90  
 lost. It is important to note that Prospect Theory was never purported to describe 91



**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)

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

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

[AU4]

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

- Option A:* You earn \$100,000. Others earn \$200,000. 118
- Option B:* You earn \$50,000. Others earn \$25,000. 119

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). 120-125

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). 126-139

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). 140-150

[AU5] 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. 151-158

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 159-161

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

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

## 180 **Why Are People Insensitive to Absolute Value?**

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

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

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

248 An infinite range upon which to evaluate a stimulus is little better than having no  
249 range at all. It is impossible to compare a specific amount to an infinitely larger or  
250 smaller sum and to determine meaningful differences between units on an infinite  
251 range. Confining the scale by which money is evaluated to the value of the world  
252 economy (\$70 trillion) and the combined world debt (−\$40 trillion) would still ren-  
253 der most people insensitive to differences between all of the gains and losses that  
254 they experience in their lifetime. Compared to \$70 trillion, the difference between a  
255 \$25,000 salary and a \$250,000 salary is fairly trivial. Even using the largest gains  
256 and losses that a person experiences in their lifetime (e.g., retirement savings and  
257 medical expenses, respectively) to evaluate the other gains and losses that they  
258 experience would mean that people would only be sensitive to major differences,  
259 such as when choosing between careers with very different salaries (e.g., circus  
260 performer versus investment banker) or deciding whether to buy a mansion or rent  
261 a mobile home.

262 Because of its infinite range, monetary gains and losses are not evaluated on one  
263 single scale. Instead, monetary gains and losses are evaluated on specific subscales  
264 (Emery, 1969; Thaler, 1985). These subscales are constructed at the time of evalua-  
265 tion and consist of comparison standards determined by the gain or loss evaluated,  
266 and the context in which the gain or loss is evaluated (Schwarz, 2007). A loss of  
267 \$1,000 in retirement savings due to changes in the stock market in March 2013 (a  
268 good year for the market) is evaluated on a different scale than an equivalent loss in  
269 March 2008 (a bad year for the market), and both are evaluated on a different scale  
270 than a loss of \$1,000 in income due to a tax increase. People presumably compare  
271 the performance of their investments at a specific time to the performance of the  
272 overall market at that time, and a tax increase is compared to the tax paid the previ-  
273 ous year. As a result of this scale construction, the evaluability of a particular gain  
274 or loss can vary substantially across contexts and individuals, depending on the  
275 number and the range of comparison standards used to form a particular subscale.  
276 In the next section, we describe the process by which such comparisons are deter-  
277 mined and judgments are made.

## 278 **Comparative Evaluation and Comparison Standards**

279 The processes involved when evaluating monetary values follow the processes by  
280 which most evaluative judgments are made. However, because of the artificial  
281 nature of money and its infinite scale, monetary judgments pose a distinct challenge  
282 for judges. The construction of subscales to evaluate the value of money leads these  
283 judgments to be especially reliant upon and influenced by the specific comparison  
284 standards that are available or made salient by the history of the judge and the con-  
285 text in which the judgments are made. In this section, we describe the process of  
286 comparative evaluation, kinds of comparison standards, and which standards are  
287 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*** 324

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

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

331 An *external standard* is a standard implicitly primed or explicitly prompted by a  
332 stimulus in the external environment of the judge. Passing by a neighbor's home or  
333 their new car might implicitly prime someone to use that home or car as an external  
334 standard by which to evaluate his or her own home or vehicle without their aware-  
335 ness. Implicit external standards are external standards sufficiently strong to influ-  
336 ence judgments without one's conscious awareness. Subliminally primed prices, for  
337 instance, can influence how much people are willing to pay for products they  
338 encounter immediately after they are exposed to those primes (Adaval & Wyer,  
339 2011). In other cases, people are explicitly aware of external standards. People com-  
340 pare sale prices to retail prices suggested by manufacturers. People may explicitly  
341 compare their salary to the average salary of their profession, the price of one car to  
342 the price of other cars at the dealership, and the price of a home to the selling prices  
343 of other homes in their neighborhood (Miller & Prentice, 1996).

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

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

370 Salient internal standards can affect evaluations of relatively unrelated financial  
371 decisions. Ungemach, Stewart, and Reimers (2011) found that British supermarket  
372 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.

*Saliency.* While both external and internal comparison standards can influence judgment, the two differ in their saliency 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

414 encountered or are chronically cognitively accessible. Frederick and Fischhoff  
415 (1998) found that willingness to pay for different quantities of household items was  
416 much more sensitive to the quantity of those items when willingness to pay was  
417 elicited in a within-subject design than in a between-subject design. Participants in  
418 the within-subject conditions presumably were more sensitive to the quantities of the  
419 items because it was easier for them to compare the amount they were willing to pay  
420 for one quantity of an item to the price they were willing to pay for a greater or  
421 smaller quantity of that item. Participants in the between-subject conditions could  
422 have retrieved internal standards relating to the price they paid for household items  
423 from memory in order to aid their evaluations of those items, but this was presum-  
424 ably more difficult than using the (salient and easily accessible) external comparison  
425 standards provided by the evaluation of other quantities of those items in the within-  
426 subject design.

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

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

450 Evidence from the field supports this account. Second-time homebuyers are less  
451 influenced by external standards than are first-time buyers (Northcraft & Neale,  
452 1987). Having bought a home, people are more familiar with the value of homes in  
453 their local market (i.e., they have formed internal standards) and are less influ-  
454 enced by externally provided standards such as list prices. Similarly, most drivers  
455 are relatively sensitive to relatively small fluctuations in gas prices and will switch  
456 gas stations when their preferred station increases its prices (Maurizi & Kelly,  
457 1978). The frequency with which drivers encounter gas prices enables them to form  
458 a relatively strong internal gas subscale that they can consult at any given time, in  
459 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. Desvouses 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).

502 *Single Versus Multiple Comparison Standards*

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

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

526 Some sensitivity to absolute value is possible when judges possess multiple  
527 comparison standards, as sensitivity is generally dependent on knowing the range of  
528 an appropriate scale and the distance between a target and those scale endpoints  
529 (Hsee et al., 1999, 2009; Volkmann, 1951). Participants in an experiment by Hsee  
530 and colleagues (1999), for example, were asked to judge college applicants and  
531 were provided with the score of an applicant that varied between subjects from the  
532 bottom to the top of the possible range, and either (1) no information, (2) the scale  
533 mean, or (3) the highest and lowest scale value. Evaluations made by participants  
534 with no information were insensitive to the score of the candidate—candidates with  
535 high and low scores were evaluated similarly. Evaluations made by participants  
536 who knew the scale midpoint were sensitive to the relative value of the candidate's  
537 scores, but were insensitive to the absolute value of the candidate's scores.  
538 Candidates with above average scores were evaluated more favorably than those  
539 with below average scores, but there was no differentiation between candidates far  
540 and just above average or far and just below average. Only evaluations made by  
541 participants who knew the scale endpoints were sensitive to the absolute value of  
542 the score of the candidate, rating candidates in accordance with the location of their  
543 score in the distribution. Knowledge of the endpoints of the scale established its  
544 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

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

595 
$$\$2117.00 \times \$4916.00 =$$

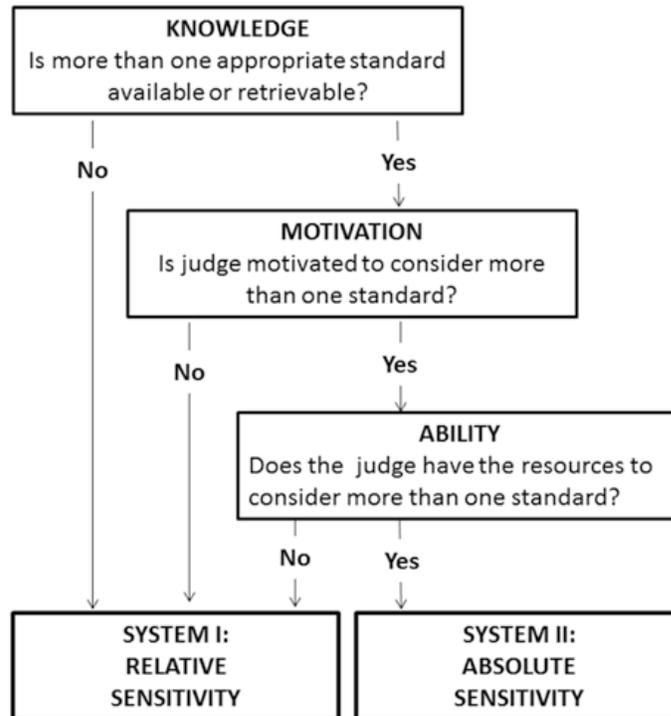
596 Recognizing that this is a math problem and realizing that its solution is a large  
597 sum are outputs of rapid judgments made by System 1 processes. Its precise solu-  
598 tion, \$10,407,172, is the output of a more effortful System 2 process. It is generally  
599 assumed that System 1 always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

603 Evidence for a two-system framework within the domain of monetary evalua-  
604 tions is provided by the findings of Kassam and colleagues (2011). They found that  
605 participants who won the larger of two prizes on a scratch-off ticket (i.e., \$7 rather  
606 than \$5, \$5 rather than \$3, or \$3 rather than \$1) were insensitive to the absolute  
607 amount of money that they won, but were sensitive to the relative amount of money  
608 that they won. People were happier winning \$5 or \$3 when the amount that they  
609 won was the larger of the two prizes and less happy winning \$5 or \$3 when it was  
610 the smaller of two prizes. For participants who won the larger of two amounts, how-  
611 ever, they were no happier winning \$7, \$5, or \$3 (see Fig. 5.2). Presumably, these  
612 participants were sufficiently satisfied with the larger relative value of the prize than  
613 its alternative that they were not sufficiently motivated to generate additional stan-  
614 dards of comparison.

615 Participants who won the inferior of two prizes, however, were sensitive to the  
616 absolute value of that prize. Specifically, participants who won the smaller of the  
617 two prizes on their scratch-off ticket were happier when that inferior prize was \$5  
618 than \$3, and happier when it was \$3 than \$1 (see Fig. 5.2). Presumably, these par-  
619 ticipants were not satisfied by the inferior value of their prize relative to its alterna-  
620 tive and were thus motivated to generate additional standards of comparison. This  
621 interpretation of the results is supported by the findings of the second study in this  
622 chapter, which found that participants who received the smaller of two prizes were  
623 sensitive to its absolute value while their attention was not usurped by a cognitive  
624 load task (i.e., they were happier when they won an inferior \$5 prize than an inferior  
625 \$3 prize), but were not sensitive to the absolute value of their inferior prize while  
626 performing a cognitive load task (i.e., they were no happier when they won an in-  
627 ferior \$5 prize than an inferior \$3 prize).

628 These results suggest that when initial relative judgments are satisfactory,  
629 evaluations of gains or losses may reflect the output of System 1. When evaluations  
630 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).

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

## 662 *Stage 2: Evaluating Absolute Value*

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

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

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

688 Another example of the influence of intense affective states on sensitivity to  
689 value comes from the domain of affective forecasting. Affective forecasts are pre-  
690 dictions of the hedonic impact of future events, such as a prediction of how happy  
691 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 a \$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

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

739 Gourville and Soman (1998) demonstrated how temporal reframing influences  
740 the evaluation of expenditures by altering the standards retrieved from memory to  
741 which expenditures are compared, which has implications for how certain expenses  
742 should be framed. When a transaction is framed as a series of small daily expenses  
743 (e.g., “Less than \$1 a day”), he argued that transaction prompts the comparison of  
744 the expense with small everyday expenses that are perceived as affordable (e.g., a  
745 cup of coffee or newspaper). When a transaction is framed in terms of a monthly or  
746 annual payment, however, it is compared to other monthly or annual expenses  
747 (e.g., a car or mortgage payment). Expenses, such as a charitable donation, that are  
748 given a pennies-a-day framing will thus be perceived to be relatively trivial and  
749 affordable if their daily cost would be less than or similar to the cost of small daily  
750 expenses. If their daily cost would be much larger than small daily expenses, how-  
751 ever, they will be viewed unfavorably and as unaffordable. A larger expense would  
752 thus be perceived more favorably if instead it is framed as a monthly or annual  
753 expense because it will be evaluated by comparison to larger expenses such as util-  
754 ity, car, or mortgage payments.

[AU7]

755 Even arbitrary comparison standards can influence scale generation and distort  
756 judgments of value. The amount of money people request to listen to an annoying  
757 sound or how much they are willing to pay for a bottle of wine can be influenced by  
758 arbitrary anchors made salient prior to the judgment, such as the last four digits of  
759 their social security number (Ariely et al., 2005; Ariely, Loewenstein, & Prelec,  
760 2003). People may realize that the anchor itself does not aid the evaluability of a  
761 target variable, but the search for an applicable comparison standard and the scale  
762 used to make the judgment of the target are both influenced by the cognitive acces-  
763 sibility of the anchor (Frederick & Mochon, 2012; Mussweiler & Strack, 1999;  
764 Simmons, LeBoeuf, & Nelson, 2010). Consequently, when judging the value of a  
765 bottle of wine, for example, participants with higher social security numbers were  
766 willing to pay more for the bottle than were participants with lower social security  
767 numbers, possibly because the higher numbers made anchor consistent information  
768 about wine more accessible. That is, they were more likely to retrieve examples of  
769 pricey wine bottles from memory such as \$30 bottles of Bordeaux as a basis for the  
770 value of the target bottle than \$8 boxes of White Zinfandel.

[AU8]

771 More generally, the extent to which a judgment is susceptible to external influ-  
772 ences (i.e., anchors, context, and external standards) is influenced by the judge's  
773 expertise or knowledge, as well as her motivation and ability to engage in more sys-  
774 tematic assessments of value (i.e., involve System 2). The ability to retrieve consistent  
775 internal comparison standards allows for some resistance to contextual and temporal  
776 influences. On the other hand, some subscales are not familiar enough to allow the  
777 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.

[AU9] 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.

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

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

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

### 849 *Practice*

850 This chapter suggests when people will be more or less sensitive to the value of  
851 money, and when and how this might benefit practitioners such as marketers or  
852 nonprofits soliciting charitable giving. Unless people are highly familiar with the  
853 ranges of prices for a particular kind of product or kind of charitable donation,  
854 people should be relatively insensitive to the magnitude of prices and requests.  
855 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.

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

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

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