

# VALUING CULTURAL DIFFERENCES IN BEHAVIORAL ECONOMICS

THE ICAFI JOURNAL OF BEHAVIORAL FINANCE, VOL. IV, NO. 1, 2007, 32-47

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## *Abstract:*

*Behavioral economic research has tended to ignore the role of cultural differences in financial and economic decision-making. The authors suggest that a systematic bias affects existing behavioral economic theory—financial and economic judgments, whether rational or irrational, are often assumed to be universal. The authors conducted an empirical study in the United States and China to examine how cultural background informs economic decision-making and to test whether framing, morality, and out-group information affects judgments of financial value and property ownership across cultures.*

*Results of the study demonstrated dramatic cultural differences in financial value estimations, as well as on the influence of variables such as framing, morality and group membership. Chinese participants made higher object value estimates than Americans did, even when adjusting for differing national inflation rates. In addition, the results showed that framing effects affected both American and Chinese participants, but in different ways. Other contextual factors such as morality information and group membership also affected Chinese participants' judgments of financial values and property ownership. The results underscore the importance of understanding the influence of cultural background on economic decision-making.*

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## INTRODUCTION

By incorporating knowledge of the human mind into economic theory, behavioral economics has provided a significant upgrade to neoclassical economics. Economic models that used to assume the irrelevance of the human mind now recognize its vast importance in making predictions (Kahneman & Tversky, 1973), perceiving losses and gains (Kahneman & Tversky, 1979), and in understanding value (Tversky & Kahneman, 1974). The remarkable growth of behavioral economic theory continues; some scholars (see Jolls, 2004) now even envision the day when all economics will be behaviorally competent.

Despite the progress of behavioral economics (e.g. Lowenstein & Thaler, 1989; Thaler & Kahneman, 1991) and its increasing importance to international economic theory and markets (e.g. Shiller, 2000; Shleifer, 2000), behavioral economic theory has failed to adequately address a simple but important question: How do systematic cultural differences affect economic, financial, and legal decision-making? In light of cultural psychological research indicating that people across cultures perceive life through very different lenses (see Ji et al., 2003; Nisbett et al., 2001), one might expect that a model that espouses an understanding of the human mind would seek to understand the influences of culture. Yet, with a few exceptions (e.g. Guiso et al., 2006; Henrich et al., 2005; Licht 2001), behavioral scholarship tends to make universalistic assumptions of human behavior; knowledge of systematic differences in the way people perceive life is generally ignored (see Levinson & Peng, 2004).

The recent emergence of cultural psychology, the study of how culture affects the way people think and perceive reality, has already had a significant influence on social psychology (e.g. Miller, 1984; Shweder, 1990; Triandis, 1995). Like economic theorists, social psychologists frequently assumed (and sometimes still do) the universality of their theories and research results. For example, principles such as the fundamental attribution error, endowment effect, and others were generally assumed to be universal. Yet, beginning in the 1990's cultural psychologists such as Richard Nisbett, Kaiping Peng and others (see Ji et al., 2003; Nisbett et al., 2001) began to show that even the way people perceive the most basic events is influenced systematically by culture. Three prominent theories have helped social psychologists explain these systematic cultural differences. The first two, the individualism/collectivism model (Hofstede, 1980; Triandis, 1995) and the

theory of independent self versus inter-dependent self (Markus & Kitayama, 1991), have proven to be useful concepts in understanding social institutions and have even become prominent beyond social psychology, such as in negotiation theory (e.g. Cai et al., 2001). The third theory, one based on cognitive explanations underlying cultural differences, may shed light on how culture may influence the way people perceive economic and financial concepts. This model is advanced by Nisbett, Peng and others (see Nisbett et al, 2001).

In one study by Michael Morris and Peng (1994) that was designed to test causal attributions across cultures, participants in the United States and China viewed a computer simulation of several fish swimming. Some fish appeared to swim in the foreground of the simulation and others appeared to swim in the background of the simulation. When asked to describe what they saw, Chinese participants were more likely to describe the relative swimming behaviors of the entire group of fish, and to attribute the causes of a particular fish's movements to actions of the entire group of fish. American participants, on the other hand, were more likely to describe the swimming behaviors of an individual fish in the foreground, and to attribute the causes of that fish's movements to the internal dispositions of that fish (such as wishes, desires and characteristics). Using similar methods to Morris and Peng's study, Nisbett and Masuda (2003) found that when they changed the background of the swimming scene, Japanese participants were often unable to recognize a fish that remained in the foreground because their attention was given mainly to the background. By contrast, American participants were unaffected by changes to the background because their attention was given mainly to the fish in the foreground.

Cultural psychologists that advance cognitive based theories underlying cultural differences explain the systematic cultural differences in the way people perceive reality as connected to ancient philosophy. East Asians, for example, have been shown to focus attributions more upon the context than objects, to see the world as more in flux, and to view the world in more holistic patterns compared to Westerners. Such findings can be connected to the holistic approach of ancient Chinese philosophy. In contrast, Westerners have been shown to focus attributions more upon objects than context, to see the world as more orderly than in flux, and to view the world in more linear patterns compared to East Asians. These analytic patterns can be connected to ancient Greek philosophy.

Based on cultural psychological theories, it is quite plausible that

fundamental differences in how people perceive the world might predict fundamental differences in how people make financial estimations, economic decisions, and exhibit cognitive biases. One fundamental financial concept, how people estimate the value of objects over time, often rests close to the heart of financial and economic assumptions in today's global marketplace. Another concept, property ownership, is related to principles underlying trade relationships and systems of laws. A third concept, framing effects, is important to recent discourse in behavioral economics and has a major influence on the way risk perception is modeled, particularly in economic and legal domains. By examining these fundamental financial, economic, legal and behavioral principles in a cultural psychological context, we can begin to understand not only how a variety of phenomena vary across cultures, but also how behavioral economics and finance might be modeled in a culturally competent way.

### The Present Study

In order to examine how cultural differences influence economic decision-making, we employed an empirical study across cultures that tested how culture affects financial value estimations and property ownership judgments. In addition to testing cultural effects, we also tested for framing effects (Tversky & Kahneman, 1981), morality effects (Alicke, 1992), and out-group bias (Pettigrew, 1979). We included these independent variables because of their prominent role in behavioral economic and social psychological discourse, and because they are typically assumed to be universal. We note that the framing effects we tested are not identical to the framing effects frequently tested in cognitive decision making experiments. This was the case because we tested the effects of loss and gain on intrinsic object value judgments rather than on expected utility judgments. We believed that testing object values rather than utility judgments may be a more realistic measure of framing, at least in the context of some financial and business situations. As dependent variables, we specifically chose to test financial estimations<sup>1</sup> because of their fundamental importance to financial and economic analysis. We decided to test property ownership judgments due to their vast importance to law as

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<sup>1</sup> As will become clear in our empirical study, when we refer to "financial estimations" we are referring to laypersons' judgments of the actual value of a given object (such as a gold ring). Note that this focus on financial estimations varies slightly with behavioral economic studies that focus more on the utility of an object's value than on the actual value itself. We chose to test financial estimations rather than utility judgments because we believed that value estimations are more fundamental economic judgments, and we desired to begin our empirical investigation by looking at the most fundamental economic measures.

well as trade. Our results indicate not only that economic decision-making varies systematically across cultures, but also that members of different cultures react to situational variables of framing, morality and group membership in divergent ways.

### Predictions

In applying cultural psychological theory to financial and economic decision-making, we expected that cross-cultural differences would manifest in the ways people estimate the financial value of objects and judge the ownership of property. More specifically, with respect to financial values, because Americans have been shown to be more object focused than East Asians (e.g. Morris & Peng, 1994; Nisbett & Masuda, 2003), it would be reasonable to predict that Americans will be less sensitive to contextual or situational information provided about an object's surroundings, and will be more likely to make financial judgments based upon assumed intrinsic object values. On the other hand, because Chinese have been shown to be more situation focused than Americans, one might expect that they would judge the financial value of an object in a manner more consistent with contextual cues.

As a result, one could predict that two cross-cultural effects would emerge in a study of financial value estimation. First, Chinese would be more sensitive than Americans to the economic and social context of the objects. Specifically, when the financial value of an object is being measured over time, Chinese would be more likely to incorporate social and economic factors into value estimations during the time period being referenced. Second, Chinese would be more sensitive than Americans to independent variables that manipulate aspects of context or situation (such as framing the object as lost or found, or varying the morality or group membership of a person that possesses an object).

We tested these questions in China and the United States.<sup>2</sup> Based on systematic psychological differences in cognitive orientations between

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<sup>2</sup> In addition to their differing cultural psychological profiles, these locations also represent two of the most interesting economic regions in the world. The U.S. maintains a position as an economic power. In China, the economic landscape has undergone substantial change as it has moved from a socialist planned economy to a capitalist market economy. During that time, which began in 1978, China has enjoyed phenomenal growth and inflation. Since 1985, Chinese average annual inflation rates have been around 9.13% with two periods of double digits inflation growth from 1987-1990 and 1993-1995 (figures from Chinese National Bureau of Statistics). During the same time period, the average annual inflation rates in the US have been relative stable, averaging 4.1% from 1985 to 2004 (figures from NASA), when this study was conducted.

Americans and Chinese, we made the following prediction:

*Hypothesis 1: Chinese participants will make different value estimations than American participants, a result consistent both with differing styles of judgment as well as with the dramatic socioeconomic changes in China over the past twenty years.*

Given Chinese people's higher level of holistic cognitions relative to Americans, we also predicted that Chinese value estimations and property ownership judgments will be more affected by experimental manipulations to situational variables. Thus, we made the following additional hypotheses:

*Hypothesis 2: Chinese will show stronger in-group vs out-group differences in value estimations and property judgments compared to Americans.*

*Hypothesis 3: Chinese value estimations and property ownership judgments will also be more affected by morality information than Americans.*

*Hypothesis 4: Chinese value estimations and property ownership judgments will also show stronger framing (lose/find) effects than Americans.*

## II. THE EMPIRICAL STUDY- VALUE ESTIMATION ACROSS CULTURES

### Methods

*Participants.* Two hundred thirty one Chinese participants participated in the study. The average age for Chinese participants was 27.68 years old. Three hundred eighty four Americans participated in the study. One hundred forty three of these American participants were Caucasian and one hundred eighty five were Asian-American. Fifty six other Americans participated, but only seventeen listed their ethnicity. The average age for Caucasian Americans was 21.59 years old. The average age for Asian Americans was 20.39 old. No significant differences emerged between Caucasian and Asian-American responses.

*Materials.* Participants were asked to judge the financial value of four objects (a gold ring, an antique chair, commemorative coins, and a municipal bond) when a value approximately 20 years prior had been given. By examining judgments of financial values of objects, we could simultaneously evaluate cognitive understandings of economic principles

(such as inflation and return on investment) and test how situational factors (such as cognitive biases) may influence fundamental economic decision-making across cultures. The independent variables we tested included: (1) culture (Chinese v. American) (2) frame (losing v. finding the object), (3) morality information about the actors (drug dealer, nurse, philanthropist, burglar), and (4) group identity (in-group and out-group membership), hence a 2 X 2 X 2 X 2 design. Depending upon the independent variable condition, participants read variations of the following stories:

*Lisa, a prostitute, was walking along the beach when she found a gold ring in the sand. Unbeknownst to Lisa, the ring had been purchased in 1985. According to World Jeweler, an international jewelry appraisal publication, the ring was worth 100 Dollars at the time it was purchased.*

*Jason, a social worker from your home town, recently moved to a new apartment. When unpacking, he found an antique chair that was accidentally delivered to his house along with his belongings. There is no tracking label or other identification information on the chair's packaging, and the moving company tells him to keep the chair. Jason does not know how much the chair is worth. However, an old issue of Antique Magazine indicates that the chair was worth 350 Dollars in 1985.*

*Glenn is a scientist who works for an illegal organization that designs the illegal synthetic drug 'ice'. Recently, Glenn moved into a new apartment. When he was looking at the top of his closet for a place to store his extra belongings, he found a municipal bond that was purchased for 200 dollars in 1985. The bond has not yet matured. The bond does not have a name endorsed on it, so that anyone can keep it or cash it.*

*David is a drug dealer. He was recently walking in the park when he sat down on a bench to make a phone call. Looking down, he noticed an envelope partially covered in dirt. Opening the envelope, David found that the envelope contained rare commemorative coins. David does not know how much the coins are worth. David doesn't know it, but in 1985 a collectibles auction house valued the coins at 500 Dollars.*

Participants in the "low moral" condition read stories about all low moral actors. For example, instead of reading about Jason, a social worker, participants read about Jason, a burglar. Participants in the "high moral"

condition read stories about all good moral actors. For example, instead of reading about Glenn, a scientist for an illegal drug manufacturer, participants read about Glenn, an AIDS researcher. For the framing condition, half of the participants read stories about actors who found objects of value, such as in each of the examples above. The other half of participants read stories about actors who lost the exact same objects of value. For example, participants in the “low-moral lose” condition read the following story about David:

*David is a drug dealer. He was recently walking in the park when he sat down on a bench to make a phone call. As he sat down, an envelope containing rare commemorative coins slipped out of his pant pocket and onto the ground. David had received the coins from a friend, but he did not know how much they were worth. David doesn't know it, but in 1985 a collectibles auction house valued the coins at 500 Dollars.*

As a result, the only difference between the “lose” framed condition and “find” framed condition was the perspective presented. The 1985 financial anchor was identical.

Materials were created in English with consideration for cross-cultural understanding of the concepts. The 1985 financial anchor values were given to Americans in US Dollars and to Chinese in Chinese currency (RMB). The survey was translated into Mandarin Chinese by a bilingual research associate and back translated into English by a bilingual research assistant. Resolution of translation discrepancies was made by group consensus of the authors and translators.

The dependent variables measured financial estimates of object values and property ownership judgments regarding the lost or found objects. For the financial estimations, participants were given the following written instruction: “Please give your best estimate of how much the coins are worth today. Do not give a range. Only give an exact amount.” In order to work with comparable value estimates, we converted raw dependent variable value estimation scores into a summary index that presents the ratio of value increase from the objects’ anchor value in 1985. For example, a person that estimated the ring’s value to be \$1,000 (recall that the ring’s value in 1985 was \$100) was converted to a 10.0 ratio, indicating that the current value of the item was estimated as 10 times greater than the 1985 value.

For the property ownership judgments, participants were asked



questions designed to test judgments of who owned the object, the finders' rights to transfer the object, and how participants would divide the proceeds of the object between the loser and the finder if a judge ordered it. The transfer questions in particular were designed to match qualities of ownership considered part of property's "bundles of rights" in Western societies. The ownership questions included:

- *Who is the owner of the ring?*
- *Does the person have the right to sell the ring (1-5 scale, ranging from "definitely not" to "definitely")?*
- *Does the person have the right to give the ring to a friend as a present (1-5 scale, ranging from "definitely not" to "definitely")?*
- *Does the person have the right to write the ring into her will so that her daughter will get it upon her death (1-5 scale, ranging from "definitely not" to "definitely")?*

Participants then read that a judge had ordered the object sold for the amount they specified as the object's value. They were then asked:

- *How much of the amount should the person who found the ring receive?*
- *How much of the amount should the person who lost the ring receive?*

*Procedures.* We administered the questionnaires to students in China and the United States. American participants at a major public university participated as part of a psychology course credit requirement. Chinese participants were recruited through the psychology department at a major public university in Beijing. Participants in China were each paid a small amount to participate.

### A. Results

*Cultural Differences in Value Estimations.* The results show that Chinese estimated values of all four objects higher than Americans. For the ring, Chinese estimations were 19.95 times the 1985 value while American estimations were only 4.70 times the 1985 value,  $F(1, 577) = 9.02$ ,  $p < .01$ . For the antique chair, Chinese estimations were 12.02 times the 1985 value while American estimations were only 2.83 times the 1985 value,  $F(1, 576) = 32.80$ ,  $p < .001$ . For the bond, Chinese estimations were 11.55 times the 1985 value while American estimations were only 4.90 times the 1985 value,  $F(1, 575) = 20.61$ ,  $p < .001$ . For the coins, Chinese estimations were

14.74 times the 1985 value while American estimations were only 3.99 times the 1985 value,  $F(1, 574) = 36.51, p < .001$ . We also combined each participant's estimations across the four stories and generated a combined index for each participant. We ran a  $2 \times 2 \times 2 \times 2$  Multivariate Analysis on this combined index and found main effects for culture such that Chinese made significantly higher value estimations than Americans,  $F(1, 578) = 39.57, p < .001$ .

Table 1 displays the 1985 value anchors given to participants, as well as the inflation adjusted amounts<sup>3</sup> and the raw American and Chinese value judgments for each of the four objects. When value judgments were adjusted for inflation in the two countries, the results of a T-test indicated that, generally, Chinese still made higher value estimations than Americans, for the chair,  $T(575) = 3.528, p < .001$ , and for the coins  $T(573) = 3.421, p = .001$ , and marginally for the ring,  $T(576) = 1.82, p = .071$ .<sup>4</sup> The difference between inflation adjusted value estimations for the bond was not significant, a result that will be discussed below. For example, for the value of the coins, Americans estimated an inflation-adjusted value of 2.28 times the 1985 value. Chinese estimated an inflation-adjusted value of 4.72 times the 1985 value. These results indicate that, even taking into account the vastly different inflation rates, Chinese generally perceived more appreciation in the value of the objects than Americans. Table 2 displays the mean value ratios as scored by participants, as well as the inflation adjusted value ratios taking into account inflation in the two countries.

**Table 1**

Values Estimations by Country

	Values (1985)	CPI Adjusted Values (2004)		Value Estimations (2004)	
		<i>U.S.</i>	<i>China</i>	<i>U.S.</i>	<i>China</i>
Ring	100	175.60	321.31	469.97	1994.70
Chair	350	614.60	1093.08	991.93	4206.27
Bond	200	351.20	624.61	982.35	2310.92
Coin	500	878.00	1561.54	2002.38	7371.79

<sup>3</sup> To calculate the inflation adjusted values, we used the Consumer Price Index (CPI) for the US as provided by the National Aeronautics and Space Administration. For China, we used CPI figures as reported by the Chinese National Bureau of Statistics.

<sup>4</sup> For these t-tests, equal variances were not assumed.

**Table 2**

Value Estimation Ratios (1985-2004) by Country

	Value Judgment Ratios		Ratios Adjusted for Inflation	
	<i>U.S.</i>	<i>China</i>	<i>U.S.</i>	<i>China</i>
Ring	4.70	19.95	2.68	6.21
Chair	2.83	12.02	1.61	3.85
Bond	4.90	11.55	2.80	3.70
Coin	3.99	14.75	2.28	4.72

Table 3 shows the value estimations in terms of annual percentage increase assumed from 1985 to 2004. These results raise two interesting points. First, they indicate that participants' assumptions regarding object appreciation outpaced inflation, but did so in a somewhat modest way. Second, these results highlight how big the mean differences were between American and Chinese estimates. For example, Americans estimated that the chair value increased by an average of under 6% per year. Chinese estimated that the chair value increased by an average of 14.81% per year. Americans estimated that the ring value increased by an average of 8.98%. Chinese estimated that the ring value increased by an average of 18.09% per year. See Table 3.

There were some notable differences in value estimations between the objects. Out of the four objects possible, Americans judged the bond as the highest appreciating object since 1985. Chinese, however, judged the bond as the lowest appreciating object, perhaps indicating systematic cultural differences in the types of objects that are perceived as gaining the most value over time (which may have cross-cultural implications in expected investment return). This phenomenon may explain the failure to find significant differences between Americans and Chinese on the inflation adjusted bond scores. It is interesting to note that in both countries, bonds are government-issued securities, while the other objects are not. Other than with respect to bonds, Americans and Chinese agreed upon which objects appreciated the most. Both Americans and Chinese believed that the gold ring appreciated more than the coins, which in turn appreciated more than the antique chair. See Table 2.

**Table 3**Average Annual Assumed Percentage Appreciation by Country<sup>5</sup>

	<i>U.S.</i>	<i>China</i>
Ring	8.98	18.09
Chair	5.96	14.81
Bond	9.25	14.56
Coin	8.01	16.12

*Cultural Differences in Property Ownership Judgments.* The results indicate that Chinese and Americans judged property ownership rights differently in certain instances. Although differences were not significant in judgments of who owned the property (loser or finder) for three of the four objects, Chinese were more likely than Americans to judge that the finder of the property had the right to give the ring away,  $F(1, 576) = 6.78, p < .01$ , more likely to judge that the finder had the right to pass on the property via will,  $F(1, 576) = 4.89, p < .05$ , and marginally more likely to judge that the finder had the right to sell the property,  $F(1, 576) = 3.08, p = .08$ . Consistent with these results, Americans were more likely than Chinese to award a larger percentage of proceeds to the loser for each item of property, for the ring,  $F(1, 567) = 5.28, p < .05$ , for the chair,  $F(1, 568) = 11.15, p < .01$ , for the bond,  $F(1, 566) = 19.44, p < .001$ , and for the coins,  $F(1, 564) = 42.65, p < .001$ .

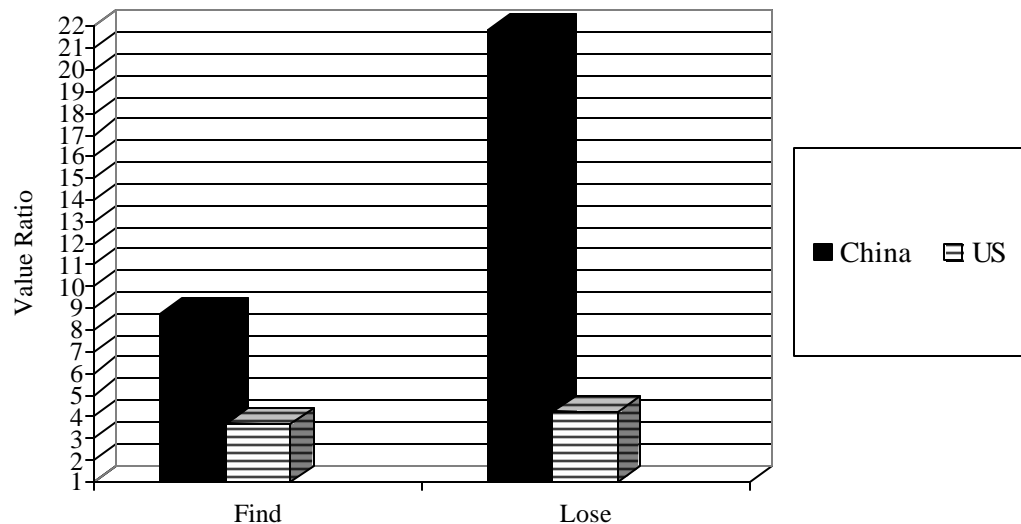
*Framing, Morality and Out-Group Effects.* Some of the most interesting results related to the interaction between culture and the other independent variables. A MANOVA was conducted on the composite index to test main effects and interaction effects of all of the independent variables. In addition to the main effect for culture, the results showed a main effect for the frame (lose/find) variable, such that participants who

<sup>5</sup> We calculated this assumed appreciation rate using the following formula: Final value = Base value  $\times (1 + X)^{n-1}$ , where Base value refers to the object value in 1985; Final value refers to the object value in 2004; X refers to assumed annual percentage of appreciation; N is 19 (from 1985 to 2004).

read about a person losing an item scored the item as more valuable ( $m = 13.14$ ) than participants who read about a person finding the identical item ( $m = 6.18$ ),  $F(1, 578) = 14.56$ ,  $p < .001$ . See Figure 2. This main effect is consistent with prospect theory in that losses loom larger than gains. However, because this study tested intrinsic financial values (by asking the value of the object), rather than the perceived utility, our results indicate that prospect theory's effects might in part derive from assumptions regarding intrinsic value rather than utility. There were no main effects for the morality and in-group/out-group variables, though interesting interaction effects did emerge.

The MANOVA on the composite index indicated a significant interaction effect for the culture and framing (lose/find) variables. This interaction effect appeared to demonstrate that much of the framing main effects can be explained by an interaction with the culture variable,  $F(1, 578) = 12.19$ ,  $p = .001$ . This interaction effect appeared to indicate that Chinese value estimations varied greatly based on the framing variable ( $m \text{ lose} = 21.84$ ;  $m \text{ find} = 8.70$ ), while American value estimations only varied slightly based on the framing variable ( $m \text{ lose} = 4.25$ ;  $m \text{ find} = 3.67$ ). Figure 2 shows the interaction effect between culture and the framing variable.

**Figure 2: Framing Effects in Value Estimations**



Interestingly, these results show that Chinese displayed framing and loss aversion patterns that are more consistent with prospect theory than

American responses. We note that these results may be puzzling on the surface. Yet we believe that they derive from the fact that framing effects may be context and domain specific. Because making intrinsic value estimations requires focusing more on the object relative to utility judgments, asking about intrinsic object values may have been enough to cause Americans to focus on the object (and thus ignore the context of the frame, reducing framing effects). Because Chinese, however, are already more likely to focus on the context than Americans, asking about intrinsic value was not enough to shift or diminish Chinese participants' sensitivity to contextual information. Chinese thus continued to focus on the situation and showed sensitivity to the contextual effects of framing even when asked about intrinsic value. Thus, our intrinsic measure of financial value may have taught us an important lesson about framing effects across cultures; they are context and domain specific. While we may be able to shift context in order to alter or eliminate a frame, we must not assume that such a technique will affect all cultures similarly.

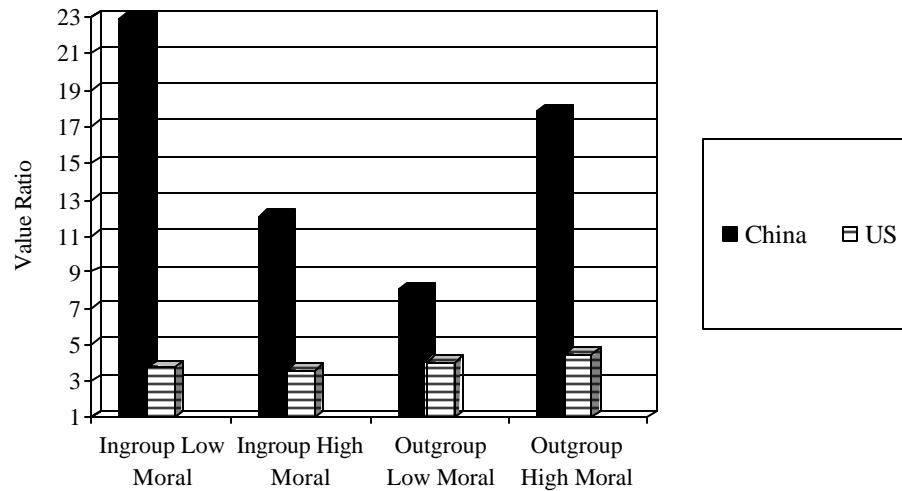
There was also a significant two way interaction for the in-group/out-group variable and morality variable,  $F(1, 578) = 8.70, p < .01$ . This interaction effect appeared to show that participants scored object values as highest for low-moral in-group members ( $m = 13.31$ ) and lowest for low-moral out-group members ( $m = 6.07$ ).

This interaction effect can be better explained by reference to two three way interactions: group X morality X frame, and group X morality X culture. The group X morality X frame effect on the composite index,  $F(1, 578) = 8.58, p < .01$ , suggested that the above two way interaction between group membership and morality was more salient for the loss condition than for the find condition. In-group low moral actors and out-group high moral actors who lost the objects received the highest value estimations. These results seem to suggest that people make value estimations based upon monetarily irrelevant information, including socially sensitive categories such as group membership.

The three way interaction of group X morality X culture on the composite index,  $F(1, 573) = 7.62, p < .01$ , appeared to indicate that while US participant responses only varied slightly across morality and group, Chinese participant responses judged financial values much differently based on group and morality. Chinese participants scored the highest values as those of low moral in-group members ( $m = 22.90$ ). The lowest values were of low moral out-group members ( $m = 8.00$ ). High moral out-group members ( $m = 17.85$ ) and high moral in-group members ( $m = 12.11$ ) received value scores in the middle. Figure 3 shows the three way

interaction of group X morality X culture and illustrates the large variance in Chinese value scores based on group and morality. Once again, these results suggest not only that financial values can be very susceptible to seemingly irrelevant information, but also that Chinese are more sensitive than Americans to contextual information and variables. See Figure 3.

**Figure 3: Out-Group Effects, Morality Information, and Cultural Differences**



*Framing and Other Effects on Ownership Judgments.* A series of chi-squares indicated that culture sometimes interacted with the frame on property ownership measures. In these instances, judgments of ownership depended upon whether the story was told from the loser or finder’s perspective, and upon the culture of the participant. The effect appeared to indicate that Americans were more likely to favor the party they read about in the questionnaire (this effect occurred significantly for three of the four scenarios) while Chinese were likely to favor the party they did not read about in the questionnaire (this effect occurred significantly in two of the four scenarios). For example, Americans who read about the finder of the chair were more likely than those who read about the loser of the chair to indicate that the finder owned the chair,  $p < .001$ . 42% of Americans (71 of 170) who read about the finder indicated that the finder owned the chair, while only 16% who read about the loser (28 of 177) indicated that the finder owned the chair. For the coins, Chinese who read about the loser were more likely than those who read about the finder to indicate that the finder owned the coins,  $p < .001$ . 18% of Chinese (22 of 120) who read

about the finder indicated that the finder owned the coins, while 55% (61 of 110) who read about the loser indicated that the finder owned the coins. For the ring, 38% of Americans (65 of 170) who read about the finder indicated that the finder owned the ring, compared to 23% (40 of 177) who read about the loser,  $p=.001$ . Chinese once again displayed opposite results. 18% of Chinese (21 of 120) who read about the finder indicated that the finder owned the ring, compared to 34% (38 of 111) who read about the loser,  $p=.01$ . These results are consistent with the cultural psychological theories that Eastern Asians tend to pay more attention to the background while Americans tend to focus more on the foreground (see Nisbett & Masuda, 2003).

An ANOVA also indicated framing effects on American judgments of property transferability. When Americans read about a person finding the property (compared to when they read about a person losing the property), they were more likely to believe that person finding the property had the right to transfer it via sale, gift, or will, for selling it,  $F(1, 345) = 13.41, p<.001$ , for gifting it,  $F(1, 345) = 7.99, p<.01$ , and for willing it,  $F(1, 345) = 7.18, p<.01$ . Thus, the simple framing of the story had significant effects on American ownership judgments. These results may have significant implications in the context of litigation.

Group membership and morality effects also affected Chinese judgments of some property ownership questions. Results of a MANOVA indicated a main effect for group membership on the right to pass on the property by will,  $F(1,230) = 4.28, p<.05$  such that when Chinese participants read about out-group members, they gave greater rights to the finder to will the property. There was also a main effect amongst Chinese participants for the morality variable, such that participants who read about low moral individuals judged the finder as having a greater right to gift the property compared to participants who read about high moral individuals,  $F(1, 230) = 4.90, p<.05$ . These two variables, morality and group membership, also had a significant interaction effect amongst Chinese participants, such that people who read about low moral out-group members were given greater rights to gift and sell the property, for selling it,  $F(1, 230) = 4.69, p<.05$ , and for gifting it,  $F(1, 230) = 5.95, p<.05$ . Note that this effect corresponded to the same interaction effect on financial value estimations.



### III. DISCUSSION OF EMPIRICAL RESULTS: BRIDGING BEHAVIORAL ECONOMICS AND CULTURAL PSYCHOLOGY

The primary objectives of our empirical study were to examine cultural differences and the influence of contextual factors on people's financial values estimates. The study demonstrated that there are dramatic cultural differences in the ways that people make financial estimates. In general, Chinese estimated object values as much higher than Americans and did so by a large margin. Initially, these results might appear to be consistent with economic conditions—China has witnessed more inflation than America over the past twenty years. Yet even adjusting for the uneven inflation rates did not explain our results. Chinese still assumed higher object appreciation than Americans did. The reason for this fundamental difference in value estimations is initially unclear. One possibility is that Chinese responses more accurately reflect Chinese financial conditions than the published inflation rates in China. However, such a possibility is difficult to account for and measure.

Consistent with psychological theory proposing models of East Asian holistic rationality, our findings also show that Chinese people were more sensitive to our behavioral experimental manipulations. Contextual information, such as framing effects, an actor's morality, and group membership affected participants' estimates of financial value, particularly for Chinese. Group membership and morality information have long been implicitly assumed by economists to be irrelevant to the financial values of given objects. Similarly, legal scholars have assumed that these factors are irrelevant to ownership rights. However, this study found that such experimental manipulations do affect value estimates and property ownership judgments, and that the strength and persistence of these effects depends upon the cultural background of the people making the judgments.

The fact that financial value estimations are susceptible to contextual variation, such as framing effects, group membership and morality information implies that value estimations are not solely guided by the intrinsic value of the property combined with economic conditions. Instead, our results indicate that financial value estimations are a function of at least four factors: the perceived intrinsic value of the objects, the social and situational characteristics of the object possessor, the culture of the perceiver, and contextual factors (such as socioeconomic conditions or supply and demand). In order to understand the value of objects, one has to understand at least all four components. This holistic approach is perhaps most relevant for understanding the value estimations of East Asians. In fact, such a holistic model of economic rationality is consistent with cultural

psychological theories of East Asian epistemologies.

While we do suggest that a universalistic approach to financial principles would be better guided by reference to cultural variation, we are not suggesting that the basic principles of behavioral finance and behavioral economics are wrong. Rather, the results of this study show that certain elements of prospect theory are valid. For instance, the frame (lose/find) variable showed that framing effects and loss aversion operate in value estimations. People valued objects framed as lost to be more valuable than objects framed as found. Still, the cultural difference existed there as well. Chinese made much higher estimations for objects lost than objects found, particularly when the people who lost the objects were low moral out-group members.

#### CONCLUSION

Understanding how individuals estimate the financial value of given objects is relevant to the basic assumptions of modern behavioral, social, and economic sciences. Few previous studies have examined individuals' financial value estimating behavior across cultural groups and situational conditions. This study found that cultures differ in their value estimations and property ownership judgments, as well as their tendency to take social and contextual information into account when making those estimations. These cultural differences may lead to real life economic and business implications-- in international business transactions, in understanding economic incentives and self interest, in corporate strategic planning, in evaluating asset portfolios and investments, and in legal decision-making.

Like the economic sciences that it embraces, scholarship in behavioral economics should embrace culture as an important variable in decision-making. Though previous studies have begun to suggest that cultural variation must be understood as a systematic influence in decision-making, most behavioral economic scholarship continues to assume that deviations from expected utility are universal. But as our results have demonstrated, all people do not deviate from expected utility in the same way. Scholarship in behavioral economics and finance thus sits at an interesting crossroads. It properly embraces the role of humanity and human thought in economic decision-making and it actively seeks to improve models of economics and law by adding an understanding of the way people think. But it fails to recognize that the human understanding it

embraces is at best a Western-only human understanding.<sup>6</sup>

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<sup>6</sup> It may, however, be a Western human understanding that ignores not just international differences, but even the cultural diversity within Western societies. Such cultural diversity, within an increasingly diverse United States for example, would be better reflected with a culturally competent model of behavioral economics.

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