Emotion

Culturally Valued Facial Expressions Enhance Loan Request Success

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Why do people share resources with some strangers, but not others? This question becomes increasingly relevant as online platforms that promote lending world-wide proliferate (e.g., www.kiva.org). We predicted that lenders from nations that value excitement and other high-arousal positive states (HAP; e.g., United States) would loan more to borrowers who show excitement in their profile photos because the lenders perceive them to be more affiliative (e.g., trustworthy). As predicted, using naturally occurring Kiva data, lenders from the United States and Canada were more likely to lend money to borrowers ($N = 13,500$) who showed greater positive arousal (e.g., excitement) than were lenders from East Asian nations (e.g., Taiwan), above and beyond loan features (amount, repayment term; Study 1). In a randomly selected sample of Kiva lenders from 11 nations ($N = 658$), lenders from nations that valued HAP more were more likely to lend money to borrowers who showed open "excited" versus closed "calm" smiles, above and beyond other socioeconomic and cultural factors (Study 2). Finally, we examined whether cultural differences in lending were related to judgments of affiliation in an experimental study (Study 3, $N = 103$). Compared with Koreans, European Americans lent more to excited borrowers because they viewed them as more affiliative, regardless of borrowers' race (White, Asian) or sex (male, female). These findings suggest that people use their culture's affective values to decide with whom to share resources, and lend less to borrowers whose emotional expressions do not match those values, regardless of their race or sex.

Keywords: ideal affect, emotion, lending, smiles, resource sharing

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Humans must share resources to survive and thrive, and frequently do so with kin and other ingroup members. However, people also share resources with complete strangers. Under those circumstances, how do people decide whom to trust? Previous theory and empirical research suggest that people share more resources with strangers who are of similar race, gender, occupation, neighborhood, and religion (e.g., Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Flip-pen, Hornstein, Siegal, & Weitzman, 1996; Fong & Luttmer, 2009; Galak, Small, & Stephen, 2011; Levine & Thompson, 2004; Preston & Ritter, 2013; Tajfel, Billig, Bundy, & Flament, 1971), presumably because common group membership signals shared cultural values and, therefore, elicits trust. However, are there other signals of shared cultural values that transcend these social categories? Here we propose that one cue that people use to determine a match or fit in values is emotional facial expression. Moreover, we predict that because cultures vary in the emotions they regard as ideal, the specific emotional facial expressions that signal a match also differ across cultures.

Culture and Resource Sharing

Despite work suggesting that people share resources with strangers with whom they perceive as having shared values and ideals (e.g., Ferraro & Cummings, 2007), surprisingly few studies have directly examined whether this is the case. Understanding how cultural values shape resource sharing is particularly relevant as peer-to-peer economies such as microlending—loans provided by individuals (vs. banks or credit organizations)—become more popular worldwide, increasing the likelihood of individuals sharing resources with people from cultures different from their own. For instance, as of June, 2018, over $1.16 billion no-interest loans have been provided through Kiva (www.kiva.org), an online microlending platform that matches potential lenders and borrowers

across the world. On this platform, borrowers post loan requests along with a plan for repayment for a specific period of time. Lenders view these requests and choose whether to contribute. Lenders typically fulfill some but not all of the loan amount, so most borrowers receive loans from multiple lenders, and loans that are not fully funded within a set period of time "expire" (i.e., are not fulfilled). Because most lenders on Kiva are primarily from the United States, and most borrowers are primarily from Latin America, Asia/Pacific Islands, and Africa, it is an ideal platform to examine the role of cultural values in resource sharing. Indeed, consistent with a "cultural match or fit" explanation, one study revealed that Kiva lenders favored borrowers who were from nations that were more culturally similar to their own in terms of values (Burtch, Ghose, & Wattal, 2013).

However, does cultural matching extend beyond social categories such as gender, race, or national origin to even more personal characteristics, such as emotional facial expression? This question becomes increasingly relevant as online lending platforms proliferate, and individual borrowers' emotional expressions and other personal characteristics become increasingly available to potential lenders. For instance, previous findings suggest that borrowers who show greater positive arousal (e.g., excitement) in their profile photos were more successful in their loan requests (Genevsky & Knutson, 2015). While it may be that individuals who show greater positive arousal elicit greater trust, this may be particularly true for lenders from the United States, which places a premium on excitement, enthusiasm, and other high-arousal positive states (HAP; e.g., Tsai, Knutson, & Fung, 2006), and who comprise the greatest percentage of Kiva lenders. In other words, borrowers who show greater positive arousal in their personal profile photos may receive more loans because they fit the "ideal affect" (i.e., the affective states that people value and ideally want to feel) of U.S. lenders. If this is the case, borrowers who show greater positive arousal should be less successful securing loans from lenders whose cultures place less of an emphasis on HAP than the United States—such as many East Asian cultures (Tsai et al., 2006). Thus, lenders may be more likely to fund borrowers whose emotional expressions match their cultural ideal, and this may occur regardless of borrowers' race, sex, or country of origin.

To test this hypothesis, we conducted three studies. Before describing those studies, we briefly present Affect Valuation Theory (AVT), the framework that motivated this research.

Affect Valuation Theory (AVT)

AVT (Tsai, 2007, 2017) is a theoretical framework that distinguishes people's "ideal affect" (i.e., affective states they would ideally like to feel on average) from their "actual affect" (i.e., affective states they actually feel on average) and predicts that cultural factors shape ideal affect more than actual affect. AVT has received empirical support in many studies (e.g., Tsai, 2007, 2017; Tsai et al., 2006; Tsai, Louie, Chen, & Uchida, 2007; Tsai, Miao, Seppala, Fung, & Yeung, 2007; Tsai, Miao, & Seppala, 2007). Specifically, European Americans tend to value HAP, such as excitement and enthusiasm more than Hong Kong Chinese, whereas Hong Kong Chinese tend to value low-arousal positive states ("LAP"), such as calmness and peacefulness more than European Americans (Tsai et al., 2006; Tsai, Miao, Seppala, Fung, et al., 2007; Tsai, Blevins, et al., 2018, Study 1). The greater

emphasis on HAP has also been observed in other North American contexts: for instance, one study found that European Canadians valued HAP more than Hong Kong Chinese did, although the two groups did not differ in their valuation of LAP (Ruby, Falk, Heine, Villa, & Silberstein, 2012). We have observed similar differences between European Americans and individuals from other East Asian cultures including Korea, Japan, and Taiwan (e.g., Park, Blevins, Knutson, & Tsai, 2017; Tsai et al., 2016; Tsai, Louie, et al., 2007).

These cultural differences in ideal affect hold above and beyond differences in actual affect, and are reflected in popular media, including children's storybooks, women's magazines, social media photos, and even leaders' official website photos (Huang & Park, 2013; Tsai et al., 2016; Tsai, Louie, et al., 2007). Moreover, cultural differences in ideal affect predict a variety of behaviors, such as whether people choose stimulating versus soothing consumer products (Tsai, Chim, & Sims, 2015) and whether they dread or look forward to old age (Tsai, Sims, et al., 2018). Cultural differences in ideal affect also predict decisions in various social contexts. European Americans are more likely to: (a) choose excited versus calm faces when asked which they would like to view again (Park, Tsai, Chim, Blevins, & Knutson, 2016), (b) hire excited versus calm applicants for an internship (Bencharit, Ho, et al., 2019), and (c) select an excitement versus calm-focused physician as their primary care provider (Sims et al., 2018) compared with their Hong Kong Chinese counterparts. In addition, European Americans are more likely to choose an excited versus calm candidate to be their leader compared with their Hong Kong Chinese peers, particularly during organizational growth (Bencharit, Ko, et al., 2019).

Ideal Affect and Resource Sharing

While previous research suggests that peoples' actual affect can influence their willingness to share resources with strangers (e.g., Bartlett & DeSteno, 2006; Capra, 2004; DeSteno, Bartlett, Baumann, Williams, & Dickens, 2010; Genevsky & Knutson, 2015; O'Malley & Andrews, 1983), relatively little research has examined whether people's ideal affect also has an impact on resource sharing. In a first demonstration, we found that when individuals were given an option to share a monetary endowment with a recipient without any expectation of return (i.e., in a "Dictator Game"), European Americans offered more money to recipients who showed excited versus calm facial expressions than did Koreans because they valued HAP (vs. LAP) more, which increased their trust of excited (vs. calm) recipients (Park et al., 2017). These findings held regardless of the amount of money initially endowed as well as recipients' race or sex, suggesting that "ideal affect match"—when targets showed the emotions that people value—mattered more than matches in these social categories. These findings also held above and beyond participants' actual experience of HAP and LAP, suggesting that ideal affect match exerts independent effects. Moreover, lenders' judgments of recipients' dominance and competence did not account for cultural differences in giving, suggesting a specific role for judgments of trustworthiness in giving.

Although previous research suggested that smiles with greater intensity (i.e., more excited smiles) were viewed as more affiliative (Wang, Mao, Li, & Liu, 2017), studies also indicate that European Americans perceive excited (vs. calm) targets as conveying more

affiliation (extraversion, agreeableness, trustworthiness, and related traits) than Hong Kong Chinese across various scenarios (e.g., when judging faces, viewing Facebook profiles, or hiring an intern; Park et al., 2018; Tsai, Blevins, et al., 2018). Indeed, a previous study found that Americans rated bigger "lower-half" (mouth) smiles as more trustworthy than did Japanese (Ozono et al., 2010). While these situations have not involved resource allocation, judgments of affiliation may be particularly important when deciding with whom to share resources. This may be because when assessing whether to give to a stranger, people implicitly determine whether that stranger might reciprocate and/or use the resources in ways that are consistent with their values. Emotional expressions may provide one channel for conveying a cultural match in values.

Limitations of Previous Work

Existing research on the influence of ideal affect match on resource sharing, however, has several limits. First, the money exchanged in Park et al. (2017) was a relatively small amount ($6 or $14), and was endowed by the investigator. Therefore, it is unclear whether the influence of ideal affect match extends to real life, when people must allocate their own money. Second, it is unclear whether ideal affect match predicts resource sharing when there is some expectation of return, as in the case of financial lending, which more closely resembles resource sharing in real life. On the one hand, ideal affect match may matter even more in these contexts because lenders rely on borrowers to return their money. On the other hand, in the face of an expectation of return, ideal affect match may not matter as much as other characteristics (e.g., financial loan features). Third, it remains unknown whether national levels of ideal affect predict resource sharing with excited versus calm targets above and beyond other socioeconomic national indicators, such as gross domestic product (GDP) per capita, democratization, and human development (Einolf, 2017).

The Present Studies

To address these gaps in the literature, we conducted three studies. In Studies 1 and 2, we examined whether ideal affect match plays a significant role in *real-life lending decisions*.

In Study 1, we tested whether borrowers on the Kiva platform who expressed more positive arousal (i.e., excitement) were more likely to be supported by lenders from the United States and Canada than other nations, controlling for various features of the loans. Next, in Study 2, we randomly selected a sample of online lenders from 11 nations for which we had ideal affect data, coded the facial expressions on the profile photos of borrowers to whom they lent money, and examined whether lenders' national levels of ideal affect were related their borrowers' expressions, above and beyond other sociodemographic and cultural factors. Because Studies 1–2 used preexisting data, however, we could not directly test the prediction that cultural differences in lending held across borrower race and sex, or that they were mediated by lenders' ideal affect and their judgments of borrowers' affiliation. Therefore, in Study 3, we developed a task that simulated online lending, in which participants made a series of choices to lend to borrowers whose faces independently varied with respect to emotional expression (excited, calm, and neutral), race (White, Asian), and sex (male, female). Participants then judged borrowers' affiliation and other traits (dominance, intelligence).

Study 1: Do Borrowers Who Express More Positive Arousal Receive More Loans From North American versus East Asian Lenders?

In a previous study (Genevsky & Knutson, 2015), researchers presented photos of borrowers from the Kiva Internet platform ($N = 13,500$; 7,000 whose loans were successful, 6,500 whose loans expired before funding) to independent raters and asked them to evaluate the degree to which each borrower's facial expression was positive versus negative ("valence"), the degree to which each borrower's facial expression was high versus low arousal ("arousal"), how clearly the borrower's face could be seen ("identifiability"), and how needy the borrower appeared ("perceived neediness"), along with other filler items. Borrowers who expressed more "positive arousal" (a combination of valence and arousal ratings, see below) were more likely to receive loans, controlling for borrower identifiability and borrower neediness (Genevsky & Knutson, 2015). While these ratings focused on attributes of the borrowers, attributes of lenders—including their cultural background—were not taken into account. This was the focus of Study 1.

Hypothesis

We predicted that borrowers who expressed more positive arousal would receive more loans from lenders whose nations valued HAP more and LAP less. More specifically, we predicted that borrowers' positive arousal would predict greater loan request success in the United States and Canada than in China, Hong Kong, Taiwan, Korea, and Japan.

Method

Borrowers. Borrowers' "positive arousal" and "negative arousal" scores were based on independent raters' assessments of the valence (negative to positive) and arousal (low to high) of borrowers' faces in Genevsky and Knutson (2015). As in previous work (Genevsky & Knutson, 2015; Knutson, Katovich, & Suri, 2014; Knutson, Taylor, Kaufman, Peterson, & Glover, 2005; Watson, Wiese, Vaidya, & Tellegen, 1999), positive arousal and negative arousal scores were calculated from valence and arousal ratings by projecting within-subjects mean-deviated valence and arousal ratings onto axes rotated 45° from the orthogonal axes of valence and arousal. More specifically, positive arousal = (arousal/$\sqrt{2}$) + (valence/$\sqrt{2}$), and negative arousal = (arousal/$\sqrt{2}$) − (valence/$\sqrt{2}$), based on the Pythagorean Theorem ($a^2 + b^2 = c^2$). Please see Knutson et al. (2014) for more detailed information about this calculation. Although our hypotheses focused on the effect of borrower positive arousal, we included borrower negative arousal as a control.[1]

Borrowers requested loans for use in activities involving retail (24.5%; e.g., selling beauty supplies), followed by food (21.4%) and agriculture (20.4%). The majority of the borrowers were from Latin America (32.3%) and Asia/Pacific Islands (31.7%), followed by Africa (21.2%). On average, borrowers requested $989.08 ($SD = 795.73$, ranging from $50 to $17,650) with an average repayment term of 14.68 months ($SD = 6.59$, ranging from 3–122

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[1] Sixteen loans overlapped with those in Study 2, and were dropped from Study 1 analyses to avoid overlap across the two studies; however, the results were similar when they were included in the analyses.

months). We included loans that were successful as well as those that expired before receiving the loans. Because the findings did not significantly vary as a function of loan request success, we dropped this variable from our final model.

Lenders. We tracked each borrower in the dataset by using the Kiva Application Programming Interface (Kiva API; https://build.kiva.org/) and acquired the list of lenders who loaned money to each of these borrowers and whose residential information on their profile was open to the public (73.93%; 202,864 out of 274,382 lenders). We used the lenders' residential information as a proxy for nationality and then calculated the number of lenders that supported each borrower from the 11 nations for which ideal affect data exist: the United States, Canada, the United Kingdom, Germany, France, Mexico, Korea, Japan, Hong Kong, Taiwan, and China. Although the predictions focused on the United States, Canada, Korea, Japan, Hong Kong, Taiwan, and China, data from the United Kingdom, Germany, France, and Mexico were also included. We divided this number by the total number of lenders that supported each borrower to compute a "lender ratio" for each nation of interest. For instance, if four lenders supported Borrower A, with two lenders from the United States, one from China, and the other from a nation for which we did not have ideal affect data, then for Borrower A, the lender ratio would be .5 for the United States, and .25 for China.

Study 1 Data Analyses and Results

The vast majority of lenders who lent money to the sampled borrowers were from the United States (42.02%), followed by Canada (6.57%). Lenders from the United Kingdom comprised 3.74% of loans; Germany, 2.89%; Japan, .70%; France, .67%, Taiwan, .45%; Hong Kong, .12%; Mexico, .10%, Korea, .09%, and China .08% of loans.[2]

Does borrowers' positive arousal predict ratio of lenders from North America? To test the prediction that borrowers who showed more positive arousal on their profile photos would receive more loans from North America (the United States and Canada) but fewer loans from East Asian nations (China, Hong Kong, Japan, Korea, and Taiwan), we examined the degree to which borrower positive arousal was associated with lending for each nation.

To account for large differences among the ratios of lenders from each nation (e.g., loans from U.S. lenders were normally distributed between 0 and 1, whereas loans from Taiwanese lenders were mainly between 0 and .1), we binned the range of ratios into six categories, $0 =$ 'ratio $= 0$'; $1 =$ '$0 <$ ratio $\leq .2$'; $2 =$ '$.2 <$ ratio $\leq .4$'; $3 =$ '$.4 <$ ratio $\leq .6$'; $4 =$ '$.6 <$ ratio $\leq .8$'; and $5 =$ '$.8 <$ ratio ≤ 1.0.' The results using raw ratios, however, revealed a similar pattern (see online supplementary materials Section 1). We conducted ordinal regression analyses by applying cumulative link models to the categorized ratio of lenders from different nations, entering positive arousal of borrowers as the predictor, and controlling for negative arousal of borrowers (see supplementary section 2 for results of borrowers' negative arousal).

As predicted, the more positive arousal that borrowers expressed, the greater the ratio of lenders from the United States (Estimate $= .04$, $SE = .01$, $z = 3.53$, $p < .001$) and Canada (Estimate $= .03$, $SE = .01$, $z = 2.49$, $p = .013$; see Figure 1). This

relationship remained significant after controlling for specific loan features (amount of the requested loan and repayment term, both log-transformed) and other borrower characteristics (identifiability, financial neediness, and sex) for U.S. lenders (Estimate $= .03$, $SE = .01$, $z = 2.38$, $p = .017$), but became marginally significant for Canadian lenders (Estimate $= .02$, $SE = .01$, $z = 1.74$, $p = .081$; see Table 1).

In contrast, the more positive arousal the borrowers expressed, the smaller the ratio of Taiwanese lenders who supported them (Estimate $= -.05$, $SE = .02$, $z = -2.43$, $p = .015$). Again, this relationship held after controlling for specific loan features and other borrower characteristics (Estimate $= -.06$, $SE = .02$, $z = -3.02$, $p = .003$). Borrowers' positive arousal was not significantly correlated with the ratio of lenders from the other East Asian nations examined (China, Korea, Hong Kong, and Japan) or from the other nations (Germany, France, Mexico, and United Kingdom).[3,4]

Study 1 Discussion

As predicted, borrowers who showed greater positive arousal in their profile photos were funded by a larger ratio of United States and Canadian lenders. In contrast, borrowers' positive arousal was either not significantly correlated or was negatively correlated with the ratio of lenders from East Asia. These findings are consistent with the prediction that when borrowers show expressions that match lenders' cultural ideals, they are more likely to receive loans from those lenders.

This study, however, had two major limitations. First, we did not demonstrate that these differences were because of national variation in ideal affect above and beyond other socioeconomic or cultural factors. This was difficult to assess in this study because loan requests primarily received support from lenders in the United States. Second, borrowers' expressions were rated by independent raters rather than trained coders; therefore, it is unclear what specific expressions on borrowers' faces drove inferences of positive arousal.

Therefore, in Study 2, we randomly selected a similar number of lenders from each of the above nations, downloaded the photos of the borrowers that these lenders supported, and coded their facial expressions using the Facial Action Coding System (FACS) (Ekman, Friesen, & Hager, 1978). Because Study 1 revealed no significant differences between successful and expired loan requests, we focused on successful loan requests to reduce loan heterogeneity.

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[2] Australian lenders comprised 4.45% of the loans; however, we did not include Australia in our analyses because we do not have ideal affect data from Australia.

[3] These empirical patterns held when we removed borrowers from countries that were culturally similar to lenders (see online supplementary materials Section 3).

[4] Post hoc power analyses based on the correlation coefficients between the binned ratio of lenders from the United States, Canada, and Taiwan and positive arousal level of the borrowers revealed that we had moderate to high levels of power to observe these significant associations (when $\alpha = .05$, power for the United States lenders $= .80$; power for the Canadian lenders $= .53$; power for the Taiwanese lenders $= .77$).
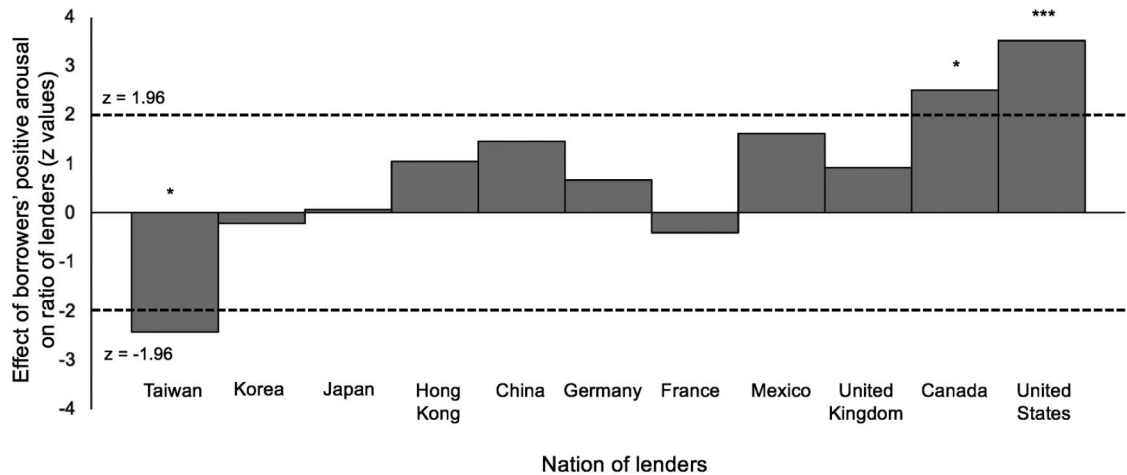
Figure 1. Relationship between borrowers' positive arousal and ratio of lenders by nation (Study 1). The more positive arousal borrowers showed, the greater the ratio of lenders from the United States and Canada, and the lower the ratio of lenders from Taiwan. The *z* values controlling for borrowers' negative arousal are depicted for illustrative purposes, and bars exceeding $z = \pm 1.96$ are statistically significant, * $p < .05$. *** $p < .001$.

Study 2: Are Lenders From Nations That Value HAP (vs. LAP) More Likely to Lend to Excited (vs. Calm) Borrowers?

We predicted that lenders from nations that value HAP (vs. LAP) more would be more likely to lend money to excited (vs. calm) borrowers, and that the effects of ideal affect would hold above and beyond other socioeconomic national indicators (such as GDP per capita, democratization, and human development) and cultural variables (individualism, relational mobility). We focused on these indicators based on the prediction that people from wealthier and more developed nations would have greater resources to lend to others, and that nations that are more democratic would value more equal resource distribution (Einolf, 2017). We focused on individualism (i.e., the prioritizing of individual needs over group needs; Hofstede, Hofstede, & Minkov, 2010) and relational mobility (i.e., the degree to which a society allows individuals to choose freely and dispose of interpersonal relationships based on personal preference; Thomson et al., 2018) because of previous work linking these constructs to the greater valuation of HAP and lesser valuation of LAP (Tsai et al., 2007).

Method

Selection of lenders. We retrieved data from 2,100,994 Kiva lenders using the Kiva Application Program Interface (Kiva API; https://build.kiva.org/). Among these lenders, we selected those whose residential address (a proxy of their nationality) was publicly available and who actually made a loan (626,284 lenders), and then among these lenders, those who were from the nations for which we had ideal affect data (516,267 lenders). Ideal and actual affect values for China, France, Germany, Hong Kong, Japan, Korea, Mexico, Taiwan, United Kingdom, and the United States were taken from Tsai et al. (2016), and ideal and actual affect values for Canada were taken from Ruby et al. (2012).[5] On the Kiva platform, borrowers' loan requests are often fulfilled by multiple borrowers rather than a single borrower. To ensure com-

parison of similar types of loans across these nations, we focused on the most frequent type of loan made between 2008 and 2013— when one lender made a loan to a borrower, who may have received other loans from other lenders. In addition, because Study 1 revealed no significant differences between successful and expired loans, we focused on loans that were successful. For some of the nations of interest, the maximum number of lenders who met these criteria was 60 (for Korea, only 58 lenders met our criteria); therefore, we selected all possible lenders from those nations. For nations with more than 60 lenders who met these criteria, we randomly shuffled the data matrix and sampled the first 60 lenders that appeared in the data file.

Borrowers. For each lender ($N = 658$), we downloaded the photos of borrowers whom they had supported from their loan request page (a total of 658 photos). Borrowers most often requested loans for agriculture (24.5%), followed by food (21.4%), and retail (17.9%). Over one-third of the borrowers were from Asia/Pacific (35.6%), followed by Latin America (32.1%), and Africa (22.5%). Borrowers requested and received on average a total of $1,045.14 ($SD = 878.77$, ranging from $75 to $9,700) from 34.65 lenders ($SD = 29.67$, ranging from 2–345), and the mean repayment term was 14.90 months ($SD = 10.27$, ranging from 5–143), suggesting that the loans were similar to those examined in Study 1. Because our results were similar when we controlled for these variables, we do not discuss them further.

FACS coding. There were 766 faces in the 658 photos. We removed faces that were part of the background image (e.g., on a poster on a wall), resulting in 708 faces. Among these faces, 60.03% were female; 37.71% were male (sex could not be determined for 2.26% of the faces, which included babies).

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[5] Because the ideal affect data from Ruby et al. (2012) used a 9-point scale, and our ideal affect data used a 5-point scale, we recalibrated the European Canadian data to a 5-point scale before calculating the ideal and actual affect aggregates.

Table 1

Regression Analyses of the Effects of Borrower Positive Arousal and Negative Arousal on the Ratio of Lenders From Each Nation, Controlling for Loan Features (Study 1)

Ratio of lenders

Predictors	From the United States Estimate (SE)	From the United States z value (p value)	From Canada Estimate (SE)	From Canada z value (p value)	From the United Kingdom Estimate (SE)	From the United Kingdom z value (p value)	From Germany Estimate (SE)	From Germany z value (p value)	From France Estimate (SE)	From France z value (p value)	From Mexico Estimate (SE)	From Mexico z value (p value)
Borrower positive arousal	.03 (.01)	2.38* ($p = .017$)	.02 (.01)	1.74† ($p = .081$)	.01 (.01)	.90 ($p = .367$)	.01 (.01)	.63 ($p = .532$)	-.01 (.02)	-.67 ($p = .504$)	.07 (.04)	1.60 ($p = .110$)
Borrower negative arousal	-.02 (.02)	-1.17 ($p = .244$)	-.02 (.02)	-1.12 ($p = .264$)	-.002 (.02)	-.13 ($p = .896$)	-.05 (.02)	-2.95** ($p = .003$)	-.02 (.03)	-.75 ($p = .456$)	-.08 (.07)	-1.14 ($p = .256$)
Loan amount (log-transformed)	.10 (.03)	3.51*** ($p < .001$)	.71 (.03)	23.71*** ($p < .001$)	.69 (.03)	22.81*** ($p < .001$)	.88 (.03)	27.03*** ($p < .001$)	.72 (.05)	15.26*** ($p < .001$)	.70 (.11)	6.14*** ($p < .001$)
Repayment term (log-transformed)	-.36 (.05)	-7.62*** ($p < .001$)	-.27 (.05)	-5.11*** ($p < .001$)	-.29 (.05)	-5.58*** ($p < .001$)	-.19 (.05)	-3.54*** ($p < .001$)	-.36 (.08)	-4.58*** ($p < .001$)	-.12 (.19)	-.61 ($p = .541$)
Borrower identifiability	.01 (.01)	.56 ($p = .575$)	.02 (.01)	2.20* ($p = .028$)	.02 (.01)	1.60 ($p = .109$)	.02 (.01)	1.73† ($p = .084$)	-.01 (.02)	-.65 ($p = .515$)	-.08 (.04)	-2.15* ($p = .032$)
Borrower financial neediness	-.03 (.01)	-2.62** ($p = .009$)	.02 (.01)	1.46 ($p = .144$)	.002 (.01)	.21 ($p = .837$)	-.003 (.01)	-.22 ($p = .823$)	-.002 (.02)	-.13 ($p = .893$)	-.02 (.04)	-.60 ($p = .550$)
Borrower sex	.08 (.04)	2.40* ($p = .016$)	.28 (.04)	7.22*** ($p < .001$)	.04 (.04)	1.13 ($p = .260$)	.08 (.04)	1.98* ($p = .048$)	.25 (.06)	4.26*** ($p < .001$)	.29 (.14)	2.06* ($p = .040$)

Ratio of lenders

Predictors	From Taiwan Estimate (SE)	From Taiwan z value (p value)	From China Estimate (SE)	From China z value (p value)	From Hong Kong Estimate (SE)	From Hong Kong z value (p value)	From Japan Estimate (SE)	From Japan z value (p value)	From Korea Estimate (SE)	From Korea z value (p value)
Borrower positive arousal	-.06 (.02)	-3.02** ($p = .003$)	.03 (.04)	.77 ($p = .442$)	.01 (.04)	.28 ($p = .781$)	-.0001 (.02)	-.004 ($p = .997$)	-.03 (.04)	-.70 ($p = .485$)
Borrower negative arousal	.05 (.03)	1.44 ($p = .151$)	-.06 (.07)	-.88 ($p = .381$)	-.01 (.06)	-.12 ($p = .901$)	-.02 (.03)	-.84 ($p = .402$)	.10 (.06)	1.49 ($p = .137$)
Loan amount (log-transformed)	.91 (.06)	15.74*** ($p < .001$)	.88 (.12)	7.24*** ($p < .001$)	.83 (.10)	8.09*** ($p < .001$)	.87 (.05)	17.93*** ($p < .001$)	1.16 (.12)	9.56*** ($p < .001$)
Repayment term (log-transformed)	.55 (.09)	5.97*** ($p < .001$)	-.88 (.20)	-4.51*** ($p < .001$)	-.51 (.17)	-3.07** ($p = .002$)	.36 (.08)	4.68*** ($p < .001$)	-.11 (.19)	-.56 ($p = .573$)
Borrower identifiability	-.04 (.02)	-1.96† ($p = .050$)	.11 (.05)	2.39* ($p = .017$)	.003 (.04)	.09 ($p = .928$)	.01 (.02)	.75 ($p = .453$)	.07 (.04)	1.58 ($p = .115$)
Borrower financial neediness	-.02 (.02)	-.77 ($p = .439$)	-.03 (.04)	-.70 ($p = .484$)	-.06 (.04)	-1.48 ($p = .139$)	.002 (.02)	.14 ($p = .889$)	-.01 (.04)	-.19 ($p = .847$)
Borrower sex	.54 (.07)	7.87*** ($p < .001$)	.21 (.15)	1.35 ($p = .176$)	.49 (.13)	3.79*** ($p < .001$)	.13 (.06)	2.23* ($p = .025$)	.22 (.14)	1.53 ($p = .125$)

Note. The ratios of lenders were categorized as indicated in the article.
† $p < .10$.   * $p < .05$.   ** $p < .01$.   *** $p < .001$.

Of these, 91.3% of the pictures depicted only one focal person. When there was more than one focal person in the picture, all of the faces were coded and submitted to subsequent analyses. However, the results were similar when we included only one person from each picture. Faces that were intentionally blurred, blocked by other objects, directed away from the camera, and not human (e.g., basic silhouettes), or that were overall difficult to code because of poor resolution were dropped, yielding a total of 694 faces.

Among the 694 faces, two blind independent coders coded 631 faces using the Facial Action Coding System (Ekman et al., 1978) to assess the presence (coded as 1) or absence (coded as 0) of various facial muscle movements ("action units" [AUs]). The remaining 63 faces were coded by one coder because the second coder was no longer available.

We focused on AUs involved in "excited" and "calm" expressions based on previous studies (Tsai et al., 2016; Tsai, Louie, et al., 2007): AU 6 [cheek raiser and lid compressor], AU 12 [lip corner puller], 25 [lips part], 26 [jaw drop], and 27 [mouth stretch]. We dropped AU 6 and AU 26/27 because they showed only moderate interrater reliability (Cohen's κ ranging from .51–.55).[6] The interrater reliability was good for AU 12 (Cohen's κ = .77) and excellent for AU 25 (Cohen's κ = .82). If at least one coder marked a certain AU as present for a given face, the AU was counted as present. If none of the coders marked a certain AU as present, the AU was counted as absent. We then categorized faces with only AU12 as "calm smiles" (or closed-mouth smiles), and faces with AU12 + 25, as "excited smiles" (or open-mouth smiles; see Figure 2, top). There were 177 excited smiles and 300 calm smiles in borrowers' photos.[7]

National levels of ideal and actual affect. We used the ideal affect and actual affect data reported in Tsai et al. (2016), Table 2. As mentioned above, for Canada, we used the European Canadian values from Ruby et al. (2012), Study 1.

National indicators and cultural factors. To test whether ideal affect match predicted lending decisions above and beyond other socioeconomic indicators, we obtained measures of democratization (Democracy index; Economist Intelligence Unit, 2017), wealth (GDP per capita, International Monetary Fund, 2018), and economic development (Human Development Index [HDI]; United Nations Development Programme, 2017) for each of the 11 nations for which we had ideal affect data. Because the United Nations Development Programme does not provide HDI for Taiwan, we retrieved this value from Taiwanese government website (http://eng.stat.gov.tw/public/data/dgbas03/bs2/gender/International%20Gender/%E4%BA%BA%E9%A1%9E%E7%99%BC%E5%B1%95%E6%8C%87%E6%95%B8.xls). In addition, we obtained measures of individualism (Hofstede et al., 2010) and relational mobility (Thomson et al., 2018; Shi, Morris, Talhelm, & Yang, in press) from previous work to examine whether ideal affect predicted excited (vs. calm) borrowers above and beyond these cultural factors.

Data Analyses and Results

Zero-order correlations (provided in online supplementary materials Section 4) revealed significant and high correlations among GDP per capita, democratization, human development, and individualism scores. Therefore, to avoid multicollinearity, we dropped democratization, human development, and individualism scores from the analyses.

Do lenders' national levels of ideal HAP (vs. LAP) predict whether their borrowers show more excited versus calm smiles? We ran mixed general linear models (GLM), treating the occurrence of borrowers' excited smiles and calm smiles as the dependent variables, and national levels of ideal and actual affect as the independent variables, with nations treated as random effects. We ran the models separately for HAP and LAP, but the results were the same when we entered all ideal and actual HAP and LAP scores in the same regression model. Although ideal and actual HAP and ideal and actual LAP were highly correlated, as in previous studies, we included both in the model to account for overlapping variance because we were interested in the independent effects of ideal HAP and ideal LAP on lending. However, when we did not covary for actual affect, the pattern of results was in the same direction (see online supplementary materials Section 5).

We controlled for the national level of GDP per capita (log-transformed) and the national level of relational mobility (Thomson et al., 2018; Shi et al., in press), to examine the influence of ideal affect above and beyond these socioeconomic and cultural factors. Because these effects also did not vary as a function of borrowers' sex, we did not include this variable in the analyses.

National ideal HAP. As predicted, lenders' national level of ideal HAP significantly predicted greater occurrence of excited smiles among their borrowers (Estimate = 1.39, SE = .65, z = 2.13, p = .033), controlling for national levels of actual HAP and other national indicators (Table 3, Figure 2). Unexpectedly, national levels of actual HAP predicted occurrence of excited smiles among their borrowers, but in the opposite direction (Estimate = −1.61, SE = .80, z = −2.02, p = .043). We initially thought that this might be related to the collinearity of actual and ideal HAP, but the direction of the relationship remained the same when we removed ideal HAP from analyses; therefore, we are unsure why lenders' national levels of actual HAP would be negatively associated with the occurrence of excited smiles among their borrowers. Neither GDP per capita nor relational mobility was significantly associated with the occurrence of excited smiles among borrowers (ps > .22; see Table 3). These effects remained similar when we replaced GDP per capita with individualism (see supplementary Section 6).

Lenders' national levels of ideal HAP also negatively predicted occurrence of calm smiles among their borrowers (Estimate = −2.35, SE = .52, z = −4.49, p < .001), controlling for national levels of actual HAP, GDP per capita, and relational mobility. Again, national actual HAP was a significant predictor, again in the opposite direction of ideal HAP (Estimate = 2.12, SE = .65, z = 3.26, p = .001). GDP per capita was also a

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[6] AU 6 was difficult to code accurately in the photos because of low resolution around the eye area. In addition, AU26 was difficult to distinguish from AU 27; therefore, we combined these codes, but even this combined code yielded only moderate inter-rater reliability. Because AU25 was always coded when AU 26/27 was coded, but the reverse was not true, dropping AU 26/27 from our analyses did not change the results.

[7] We originally coded for the intensity of each AU, but the intensity codes again showed lower reliabilities than did presence/absence codes; therefore, we focused on the latter in our analyses.
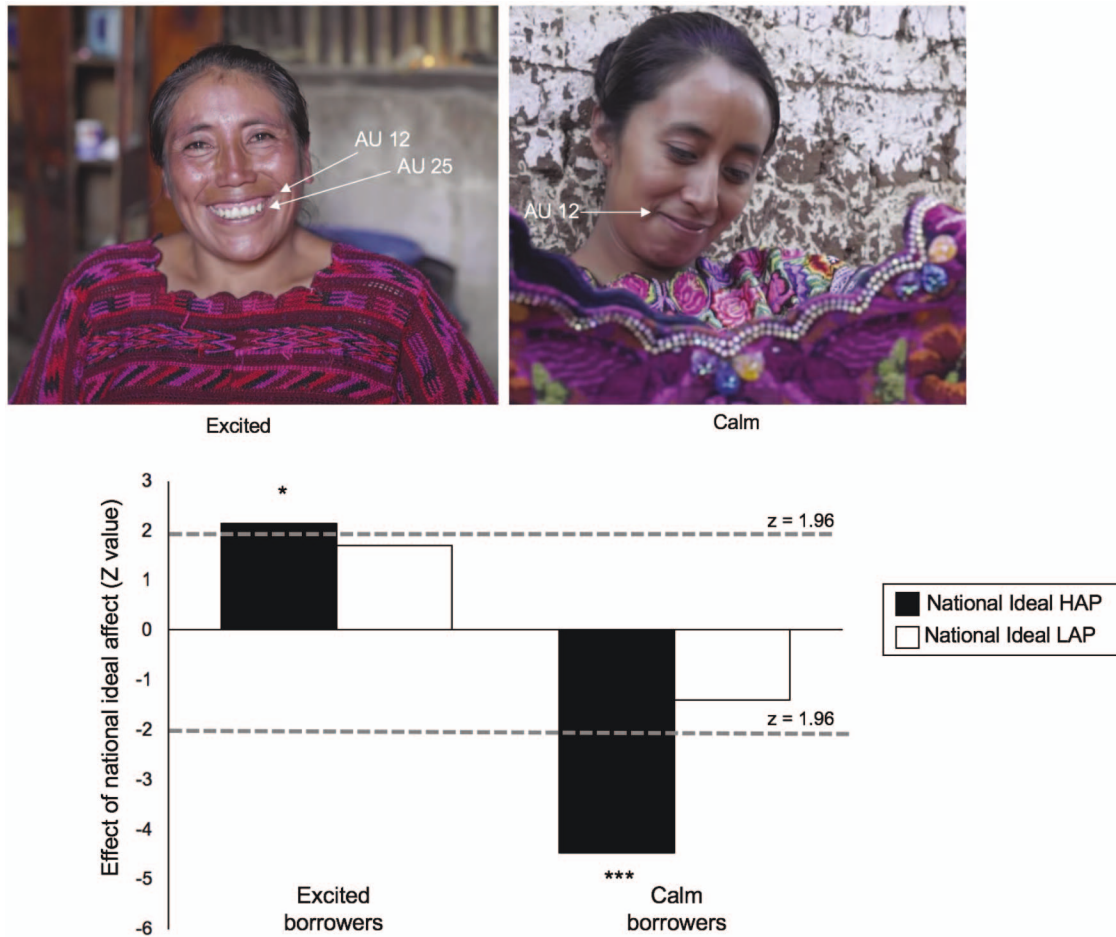
Figure 2. Action units (AU) for excited (left) and calm (right) smiles (top; Study 2). The more a nation valued high-arousal positive states (HAP), the more likely lenders from those nations supported excited borrowers, and the less likely they supported calm borrowers. National levels of ideal low arousal positive states (LAP) were not significantly associated with loans to excited or calm borrowers. The *z* values are depicted for illustrative purposes, and bars exceeding $z = \pm 1.96$ are statistically significant. * $p < .05$. *** $p < .001$. Photos courtesy of Kiva (www.kiva.org). See the online article for the color version of this figure.

significant predictor: the wealthier lenders' nations were, the greater the occurrence of calm smiles among their borrowers ($p < .001$). It is possible that lenders from nations with greater GDP had more resources overall and, therefore, supported borrowers who did not necessarily match their cultural ideals. Again, relational mobility did not emerge as a significant predictor.

To assess the magnitude of these effects, we used the 'predict' function in R. When national actual HAP, GDP per capita, and relational mobility were set at average levels, the probability that funded borrowers would have excited smiles was .35 when national ideal HAP was 1 *SD* above the mean, and was .17 when national ideal HAP was 1 *SD* below the mean. In other words, the likelihood that funded borrowers showed an excited smile in their profiles was twice as large if the lender was from a nation that placed a high value on HAP versus a nation that placed a low value on HAP.

Based on similar analyses, the probability that funded borrowers would have calm smiles was .26 when national ideal HAP was 1 *SD* above the mean and was .62 when national ideal HAP was 1 *SD* below the mean. In other words, the likelihood that funded borrowers showed a calm smile in their profiles was more than twice as large if the lender was from a nation that placed a low value on HAP versus a nation that placed a high value on HAP.

National ideal LAP. Contrary to our predictions, however, lenders' national levels of ideal LAP did not significantly predict the occurrence of calm smiles among funded borrowers (Estimate = -1.01, *SE* = .72, $z = -1.41$, $p = .160$), controlling for actual LAP, GDP per capita, and relational mobility. While national actual LAP was a significant predictor of calm smiles among funded borrowers (Estimate = 1.77, *SE* = .75, $z = 2.36$, $p = .018$), none of the other predictors were significantly associated with the occurrence of calm smiles among borrowers. National ideal LAP also did not predict occurrence of excited smiles among funded borrowers (Estimate = 1.19, *SE* = .70, $z = 1.69$, $p = .091$), while national actual LAP was marginally related to the occurrence of the excited smiles among funded borrowers (Esti-

Table 2
National Levels of Ideal and Actual HAP and LAP (Study 2)

Nation/ location	Ideal HAP (*SE*)	Ideal LAP (*SE*)	Actual HAP (*SE*)	Actual LAP (*SE*)
Canada	4.21 (.08)	3.81 (.09)	3.11 (.11)	2.70 (.11)
China	3.05 (.07)	3.75 (.06)	2.50 (.08)	3.08 (.07)
France	3.67 (.05)	4.26 (.04)	2.64 (.05)	2.94 (.06)
Germany	3.41 (.06)	4.37 (.05)	2.79 (.07)	3.48 (.06)
Hong Kong	3.20 (.08)	3.94 (.07)	2.50 (.07)	2.89 (.07)
Japan	3.14 (.05)	3.63 (.05)	2.30 (.04)	2.90 (.05)
Korea	3.41 (.05)	3.46 (.06)	2.79 (.05)	2.70 (.06)
Mexico	3.05 (.05)	3.78 (.06)	2.70 (.05)	3.00 (.07)
Taiwan	3.35 (.07)	3.84 (.07)	2.61 (.07)	2.77 (.06)
United Kingdom	3.50 (.06)	3.98 (.05)	2.48 (.05)	2.92 (.06)
United States	3.79 (.08)	3.94 (.07)	2.94 (.08)	3.04 (.09)

Note. HAP = high arousal positive states; LAP = low arousal positive states. National levels of ideal and actual HAP and LAP for Canada were retrieved from Ruby, Falk, Heine, Villa, and Silberstein (2012) and calibrated to a 5-point scale. National levels of ideal and actual HAP and LAP for the rest of the nations were retrieved from Tsai et al. (2016). 1 = *not at all*, 5 = *all the time*.

mate = -1.38, *SE* = .74, $z = -1.87$, $p = .062$). Greater relational mobility predicted a lower occurrence of calm smiles among funded borrowers, $p = .044$.[8]

Study 2 Discussion

Together, Studies 1 and 2 suggest that ideal affect match matters for lending in the real world. In Study 1, borrowers who showed higher positive arousal were more likely to receive loans from lenders from the United States and Canada, but not lenders from China, Hong Kong, Japan, Korea, or Taiwan, even after controlling for various loan features. In Study 2, lenders from nations that valued HAP were more likely to have supported borrowers with excited smiles and less likely to have supported borrowers with calm smiles, even after controlling for GDP per capita, relational mobility, and actual HAP. Contrary to our hypotheses, national levels of ideal LAP did not predict the likelihood of supported borrowers showing calm or excited smiles; instead, actual LAP and relational mobility mattered more.

Studies 1 and 2, however, were limited in two important ways. First, the use of field data in Studies 1 and 2 limited specific knowledge about the lenders and borrowers. For example, even if a Kiva lender's residential address was in the United States, we could not determine that specific lender's race, country of origin, or ideal affect. Second, because these studies included field data, we also could not control borrowers' race or sex. Therefore, we could not examine whether the effect of ideal affect match interacts with or even might result from matches in race or sex. Finally, we could not test whether individuals' ideal affect and judgments of borrowers' affiliation mediated differences in lending to excited and calm borrowers. Therefore, to address these limitations, we conducted experimental Study 3, in which we presented European Americans and Koreans with borrowers whose features systematically and independently varied by race (White, Asian), sex (female, male), and emotional expression (excited, calm, and neutral). We also assessed participants' ideal and actual affect and their judgments of borrowers' affiliation and other traits. We specifically focused on European American and Korean samples, who

were included in Studies 1 and 2, and whom we have studied in our previous work on giving (Park et al., 2017).

Study 3: Does Ideal Affect Match Influence Lending in the United States and Korea?

We hypothesized that: (a) European Americans would lend more to excited (vs. calm) borrowers relative to Koreans, regardless of borrowers' race or sex, (b) these cultural differences would be mediated by ideal affect and judgments of affiliation, with European Americans valuing HAP (vs. LAP) more and judging excited (vs. calm) borrowers to be more affiliative than Koreans, and (c) lenders' ideal affect would predict lending decisions above and beyond their actual affect.

Method

Participants. Seventy European American university students (67.1% female) recruited from the Stanford paid subject pool and 64 Korean university students (54.7% female) recruited from Seoul National University participated in a study on "decision-making and psychological processes." This sample size was determined in advance to provide power of .80 to detect differences between the two cultural groups, based on an effect size of $d = .50$ from previous research (Park et al., 2018). European Americans were required to: (a) have been born and raised in the United States, and (b) have parents and grandparents who were born and raised in the United States. Koreans were required to: (a) have been born and raised in Korea, and (b) have parents and grandparents who were born and raised in Korea. Based on their responses to measures of cultural orientation (see below), European Americans reported being highly oriented to American culture ($M = 4.30$, *SE* = .05, on a scale ranging from 1 = *not at all* to 5 = *extremely*). Koreans reported being highly oriented to Korean culture ($M = 4.07$, *SE* = .06) and moderately oriented to American culture ($M = 2.98$, *SD* = .98).

Participants were excluded from analyses for failing to correctly categorize more than half of the emotional expressions (3 European Americans and 4 Koreans), for reporting that they had previously participated in a similar study (6 European Americans and 4 Koreans), and for never varying their lending decisions across all trials (11 European Americans and 3 Koreans). These exclusions resulted in a final sample of 50 European Americans and 53 Koreans, although the results were similar when we included all participants in the analyses. The cultural groups differed in age, family socioeconomic status, family annual income, and annual personal income. However, results did not significantly differ when we statistically controlled for these differences (see supplementary Section 7); therefore, these factors are not discussed further.

Borrower facial stimuli. We used the same computer-generated facial stimuli as in Park et al. (2017), which were pretested in Park et al. (2016). In Park et al. (2017), these

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[8] Power analyses using R package "SIMR" (Green & MacLeod, 2016) revealed that we acquired a moderate to high level of power to detect the associations between ideal HAP and the occurrence of excited smiles (power = .76) and between ideal HAP and the occurrence of calm smiles (power = .99).

Table 3
*Regression Analyses for Study 2 for National Ideal HAP (Top) and National Ideal LAP (Bottom)
Predicting Likelihood of Funded Borrowers With "Excited" vs. "Calm" Expressions*

	Occurrence of excited borrowers		Occurrence of calm borrowers	
Predictors	Estimate (*SE*)	*z* value (*p* value)	Estimate (*SE*)	*z* value (*p* value)
National ideal HAP	1.39 (.65)	2.13* (*p* = .033)	−2.35 (.52)	−4.49*** (*p* < .001)
National actual HAP	−1.61 (.80)	−2.02* (*p* = .043)	2.12 (.65)	3.26** (*p* = .001)
GDP per capita (log-transformed)	−.23 (.22)	−1.04 (*p* = .298)	.64 (.18)	3.50*** (*p* < .001)
Relational mobility	−.69 (.57)	−1.22 (*p* = .221)	.38 (.44)	.87 (*p* = .386)

	Occurrence of excited borrowers		Occurrence of calm borrowers	
Predictors	Estimate (*SE*)	*z* value (*p* value)	Estimate (*SE*)	*z* value (*p* value)
National ideal LAP	1.19 (.70)	1.69† (*p* = .091)	−1.01 (.72)	−1.41 (*p* = .160)
National actual LAP	−1.38 (.74)	−1.87† (*p* = .062)	1.77 (.75)	2.36* (*p* = .018)
GDP per capita (log-transformed)	−.08 (.19)	−.45 (*p* = .656)	.20 (.19)	1.07 (*p* = .285)
Relational mobility	−1.10 (.54)	−2.01* (*p* = .044)	.35 (.52)	.66 (*p* = .508)

Note. HAP = high-arousal positive states; LAP = low-arousal positive states; GDP = gross domestic product.
† *p* < .10.   * *p* < .05.   ** *p* < .01.

computer-generated stimuli yielded similar results as did more realistic faces, but provided better control over facial features.

Twelve types of borrower faces varying in expression (excited, calm, and neutral), race (White, Asian), and sex (male, female) were generated using the Facegen Modeler program (http://facegen .com). Neutral faces were included as fillers (see supplementary Section 8 for results with neutral faces). We created two different facial identities per type, resulting in 24 different borrowers in total. We counterbalanced whether participants saw a particular borrower's excited or calm expression as well as the order in which excited versus calm borrowers were presented. Since we had two different borrower identities of the same expression, race, and sex (e.g., White, excited, and male borrower), we averaged the amounts participants lent to the same type of borrowers for our analyses. However, our results were similar when we ran mixed models, treating participants and different borrower identities as random effects.

Instruments.   All study materials were translated and back-translated into Korean by two independent translators.

Actual and ideal affect.   We administered the Affect Valuation Index (AVI; Tsai et al., 2006) to measure participants' actual affect and ideal affect. Participants rated how often they actually felt and how often they ideally wanted to feel 39 different affective states over the course of a typical week, using a scale ranging from 1 = *never* to 5 = *all the time*. These states sampled each octant of the affective circumplex as well as other emotional states: elated, enthusiastic, euphoric, excited, strong, content, happy, satisfied, peaceful, calm, relaxed, serene, fearful, hostile, nervous, sad, unhappy, ashamed, disgusted, stressed, guilty, contemptuous, fatigued, angry, lonely, dull, sleepy, sluggish, astonished, surprised, aroused, rested, energetic, quiet, still, idle, passive, inactive, and no emotion (Barrett & Russell, 1999; Larsen & Diener, 1991; Watson & Tellegen, 1985). We created actual HAP (Cronbach's α = .86 for European Americans, .85 for Koreans) and ideal HAP (Cronbach's α = .82 for European Americans, .80 for Koreans) aggregates by averaging ratings of actual and ideal "enthusiastic," "excited," "elated," "euphoric," and "strong," respectively. We created actual LAP (Cronbach's α = .88 for European Americans,

.82 for Koreans) and ideal LAP (Cronbach's α = .73 for European Americans, .84 for Koreans) aggregates by averaging ratings of actual and ideal "calm," "relaxed," "peaceful," and "serene," respectively.

To account for possible cultural differences in response styles (Chen, Lee, & Stevenson, 1995), we ipsatized ideal affect scores by calculating the overall mean and *SD* of all ideal affect items, subtracting this overall mean from each ideal affect item, and then dividing each item by the overall *SD*. Finally, the HAP items and the LAP items were aggregated to create ipsatized ideal HAP and ideal LAP aggregates. The same procedure was applied to the actual affect items. Subsequent analyses used these ipsatized scores, although the results were similar with raw scores (see supplementary Section 9a).

Cultural orientation.   To determine the degree to which participants were oriented to American and Korean cultures, European Americans completed the American version of the 15-item General Ethnicity Questionnaire (GEQ-A; Tsai, Ying, & Lee, 2000), and Koreans completed the Korean version of the GEQ. Internal consistency estimates were high (Cronbach's α = .81 for European Americans, .82 for Koreans). Koreans also responded to the question, "Overall, how oriented are you to American culture?"

Lending task.   Participants played 24 trials of the lending task, with each trial featuring a different borrower. For each trial, European American participants were given an endowment of $10, presented with a picture of the borrower's avatar face (Figure 3A), and then had the opportunity to lend from $0 to $10 in one-dollar increments to that borrower. Korean participants were given an endowment of 10,000 Korean won, roughly the same value as $10, presented with a picture of the borrowers' avatar face, and then had the opportunity to lend from 0 to 10,000 Korean won in 1,000 increments to that borrower (see online supplementary materials Section 10 for the actual study instructions). Before analysis, the amounts Koreans lent to borrowers were converted to dollar amounts by dividing by 1,000.

Social judgments.   After completing the task, participants were presented with a subset (12 out of 24) of the borrowers' avatars and asked to rate how *trustworthy*, *friendly*, *benevolent*,
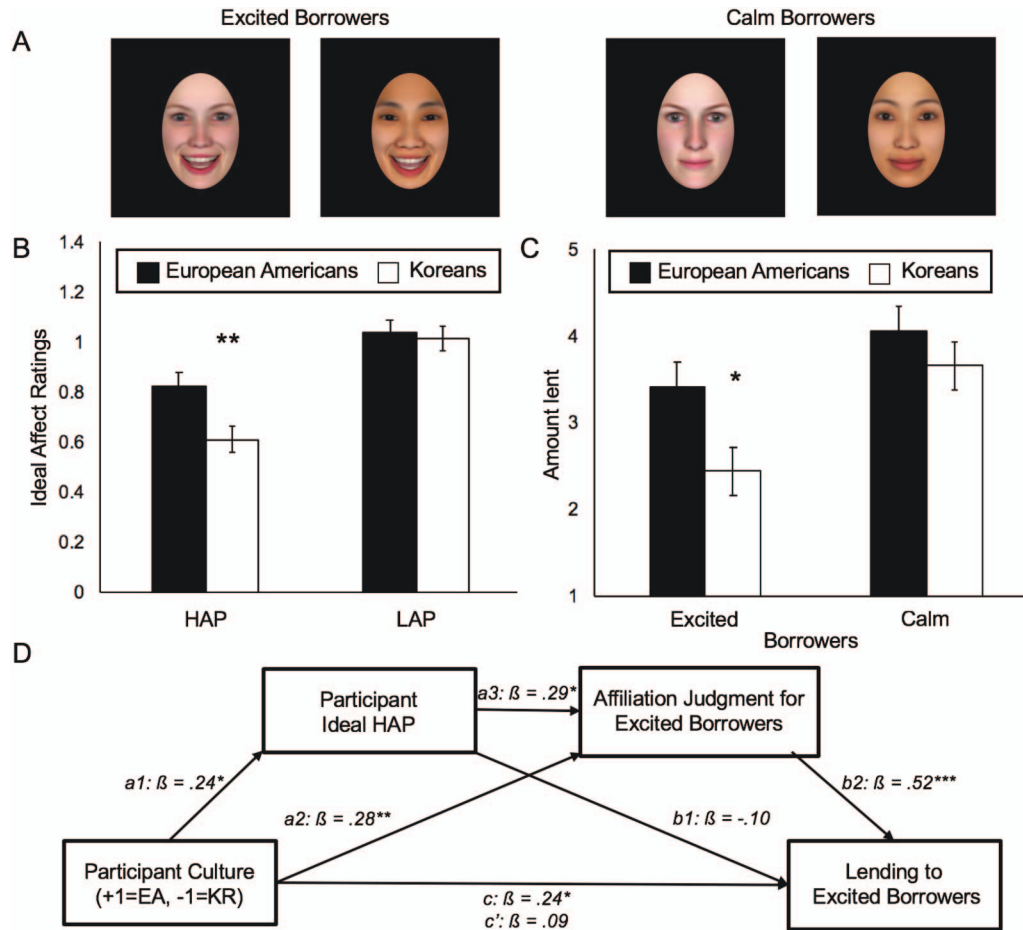
Figure 3. Ideal affect, affiliation, and financial lending (Study 3). (A) Stimuli varied by expression (excited, calm), race (White, Asian), and sex (male, female), (B) European Americans valued high-arousal positive states (HAP) more than Koreans; no significant cultural differences emerged in valuation of low arousal positive states (LAP), (C) European Americans lent more to excited borrowers than Koreans; no significant cultural differences emerged in lending to calm borrowers, (D) Compared with Koreans, European Americans lent more to excited borrowers because they valued HAP more and perceived excited borrowers as more affiliative. Standardized β values and unstandardized codes (European American [EA] = 1, Korean [KR] = −1) are reported for ease of presentation. HAP = high-arousal positive states; LAP = low arousal positive states. * $p < .05$. ** $p < .01$. *** $p < .001$. Error bars are *SE*s. See the online article for the color version of this figure.

honest, *assertive*, *dominant*, *intelligent*, *financially needy*, and *physically attractive* each borrower was on a scale ranging from 1 = *not at all* to 7 = *extremely*, along with other filler items.[9] Based on previous research (Tsai, Blevins, et al., 2018), we averaged trustworthiness, friendliness, benevolence, and honesty ratings to create an "affiliation" aggregate (mean Cronbach's α = .88, *SD* = .03, range = .82 to .92 for European Americans; mean Cronbach's α = .88, *SD* = .03, range = .85–.92 for Koreans for each Expression × Race × Sex target group). We averaged dominance and assertiveness ratings to create a "dominance" aggregate (mean Cronbach's α = .79, *SD* = .08, range = .62–.91 for European Americans; mean Cronbach's α = .50, *SD* = .10, range = .32–.66 for Koreans). The intelligence item was used as a measure of competence, as in previous research (Tsai, Blevins, et al., 2018).

Procedure. Participants were told that they would see the avatar identities selected by each borrower. To increase the cred-

ibility of the avatar faces, participants were themselves asked to choose the avatar that they identified with most among 12 faces that also varied by expression (excited, calm, and neutral), race (White, Asian), and sex (male, female), but that did not overlap with those used in the lending task. We asked participants to choose their own avatars to increase the likelihood that they would believe that the avatars they viewed were chosen by other participants.

Participants were then told that they were assigned to the role of "lender" and would decide whether or not to lend their money (an

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[9] Filler items included how positively participants felt when they saw the faces ("positivity"), how negatively they felt when they saw the faces ("negativity"), how aroused they felt when they saw the faces ("arousal"), to what degree the borrowers were physically similar and familiar, and to what degree the borrowers were aroused (see supplementary Section 11c–d for analyses with these variables included).

endowment of $10 or 10,000 won per borrower) to each of 24 different "borrowers," whose avatar identities they would see. Participants were told that the borrowers were previous study participants who were in financial need, that the selected borrower would repay the money in 6 months, and that in a similar study, 97% of borrowers returned the money. To maintain incentive compatibility, participants were told that one of the borrowers would be randomly selected at the end of the study to receive the amount that participants had decided to lend them, and that participants would receive the amount that they kept for themselves for that randomly selected trial. In reality, there were no actual borrowers; however, participants received the amount they kept for themselves in a randomly selected trial at the end of the session in addition to their compensation for study participation.

After completing the task, participants were presented with a subset (12 out of 24) of the borrowers' avatars and asked to rate each borrower along the traits described above. Participants then completed the AVI and several filler questionnaires.[10] Participants were shown the avatar faces one more time and asked to indicate their emotional expression, race, and sex. Finally, participants were thanked and paid. Approximately 2–3 months after the session, they received the amount they had lent to the borrower in the randomly selected trial. Participants were debriefed after all data collection was complete. All procedures were approved by the Stanford Institutional Review Board (Protocol 34588, "Psychology of decision-making").

Study 3 Data Analyses and Results

As reported above, we excluded data from seven participants who perceived the emotional expressions as different from intended. Of the remaining participants, the majority correctly identified the race (85.4%) and sex (83.5%) of the 12 avatar faces. Participants who misidentified the race or sex misidentified at most 2 out of 12 faces. We used two-tailed significance tests for all analyses. Given that we had a priori hypotheses about the direction of the cultural differences, we used Fisher's least significant difference (LSD) for all simple effect analyses. Before testing our hypotheses, we first examined whether European Americans valued HAP (vs. LAP) more than Koreans, as in previous work.

Did European Americans value HAP more and LAP less than Koreans? We conducted a 2 (Participant Culture: European American, Korean) × 2 (Ideal Affect: HAP, LAP) repeated-measures of analysis of variance (ANOVA), treating participants' culture as a between-subjects factor, and ideal affect as a within-subject factor. Actual HAP and LAP were entered as covariates to control for the overlap between ideal affect and actual affect. Because participants' sex did not alter the results, we removed it from the final model to increase statistical power.

A significant main effect of participant culture, $F(1, 98) = 8.57$, $p = .004$, $\eta_p^2 = .08$, indicated that European Americans ($M = .93$, $SE = .03$) reported wanting to feel more positive affect (HAP and LAP) than did Koreans ($M = .81$, $SE = .03$). A significant main effect of ideal affect, $F(1, 98) = 14.28$, $p < .001$, $\eta_p^2 = .13$, indicated that participants valued LAP ($M = 1.03$, $SE = .04$) more than HAP ($M = .72$, $SE = .04$).

Although the predicted interaction between Participant Culture × Ideal Affect was not significant, $F(1, 98) = 2.51$, $p = .116$, $\eta_p^2 = .03$, because we had specific pairwise hypotheses, we conducted follow up pairwise comparisons. As predicted, European Americans valued HAP ($M = .83$, $SE = .05$) more than did Koreans ($M = .61$, $SE = .05$), $p = .005$, 95% confidence interval (CI) for difference = [.07, .36], $\eta_p^2 = .08$. However, contrary to previous results (Park et al., 2017), European Americans and Koreans did not significantly differ in their valuation of LAP (European American $M = 1.04$, $SE = .05$; Korean $M = 1.01$, $SE = .05$), $p = .721$, 95% CI for difference = [−.11, .17], $\eta_p^2 = .001$ (Figure 3B).

To assess whether there were differences in actual affect, we also conducted a 2 (Participant Culture: European American, Korean) × 2 (Actual Affect: HAP, LAP) repeated-measures of ANOVA, with actual affect as a within-subject factor and participants' culture as a between-subjects factor, controlling for ideal HAP and LAP. There were no significant main effects of participant culture or actual affect, $ps > .23$. The Participant Culture × Actual Affect interaction was also not significant, $F(1, 98) = 1.94$, $p = .167$, $\eta_p^2 = .02$.

In summary, consistent with previous research (Park et al., 2017), European Americans wanted to feel more HAP than did Koreans. However, contrary to previous findings, there were no significant differences in ideal LAP between European Americans and Koreans. The cultural groups did not differ in actual HAP or actual LAP.

Hypothesis 1: Do European Americans lend more to excited (vs. calm) borrowers than Koreans? We conducted a 2 (Participant Culture: European American, Korean) × 2 (Borrower Expression: Excited, Calm) × 2 (Borrower Race: White, Asian) × 2 (Borrower Sex: Male, Female) repeated-measures ANOVA on the amount participants lent to different borrowers, treating participant culture as a between-subjects factor and borrower expression, borrower race, and borrower sex as within-subject factors. Because participants' sex did not significantly change the results, this variable was omitted from the model to increase statistical power.

A significant main effect of borrower expression on lending ($F(1, 101) = 41.58$, $p < .001$, $\eta_p^2 = .29$), indicated that excited borrowers received less money ($M = 2.93$, $SE = .20$) than did calm borrowers ($M = 3.86$, $SE = .20$), 95% CI for difference = [−1.22, −.65]. As predicted, however, the Participant Culture × Borrower Expression interaction was significant, ($F(1, 101) = 3.92$, $p = .050$, $\eta_p^2 = .04$; Figure 3C). Pairwise comparisons revealed that European Americans lent more to excited borrowers ($M = 3.41$, $SE = .29$) than did Koreans ($M = 2.45$, $SE = .28$), $p = .018$, 95% CI for difference = [.17, 1.76], $\eta_p^2 = .05$. Contrary to predictions, but consistent with cultural similarities in ideal LAP, we did not find significant differences in the amount that European Americans and Koreans loaned to calm borrowers (European American $M = 4.06$, $SE = .29$; Korean $M = 3.67$, $SE = .28$), $p = .330$, 95% CI for difference = [−.40, 1.18], $\eta_p^2 = .01$. Consistent with previous research, these effects were not significantly modulated by borrower race or sex.

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[10] Participants also completed the Circumplex Scales of Interpersonal Values (Locke, 2000), Short Schwartz's Value Survey (Lindeman & Verkasalo, 2005), Interpersonal Reactivity Index (Davis, 1980), and Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003). These questionnaires were part of our standard battery of questionnaires but were not analyzed for the purposes of this article.

To assess the magnitude of these effects, we calculated the mean difference in the loan amounts made to excited borrowers by European Americans and Koreans (Mean difference = $.96, SE = .40). The mean difference of $.96 is 39.2% of the amount Koreans gave to the excited borrowers on average, indicating that excited faces received loans from European Americans that were on average 39.2% greater than those from Koreans. This translates to a Cohen's d = .47. To make this number more interpretable, we converted Cohen's d to Cohen's U_3, the percentage of the treatment group that is above the control group (http://www.stat-help.com/). This revealed that the average European American loaned more to excited borrowers than did 68% of Koreans.[11]

Hypothesis 2: Are cultural differences in lending mediated by ideal affect and judgments of affiliation? We first examined whether there were cultural differences in judgments of affiliation, and then examined whether cultural differences in lending were mediated by ideal affect and affiliative judgments.

Cultural differences in social judgments. We conducted 2 (Participant Culture: European American, Korean) × 2 (Borrower Expression: Excited, Calm) × 2 (Borrower Race: White, Asian) × 2 (Borrower Sex: Male, Female) repeated-measures ANOVAs on the social judgments, treating participant culture as a between-subjects factor, and borrower expression, borrower race, and borrower sex as within-subject factors. Because participants' sex did not significantly change the results, participant sex was omitted from the model to increase statistical power.

Affiliation. There was a significant main effect of borrower expression on the affiliation aggregate, $F(1, 101)$ = 19.47, p < .001, η_p^2 = .16. Across cultural groups, calm borrowers (M = 4.41, SE = .08) were rated as more affiliative than were excited borrowers (M = 3.92, SE = .10).

This effect was modified by a significant Participant Culture × Borrower Expression effect, $F(1, 101)$ = 25.73, p < .001, η_p^2 = .20. European Americans rated excited borrowers as more affiliative than did Koreans (European American M = 4.26, SE = .14, Koreans M = 3.59, SE = .13, p = .001, 95% CI for difference = [.29, 1.05], η_p^2 = .11), whereas Koreans rated calm borrowers as more affiliative than did European Americans (Korean M = 4.63, SE = .11, European American M = 4.19, SE = .11, p = .006, 95% CI = [−.76, −.13], η_p^2 = .07). Koreans rated calm borrowers as more affiliative than excited borrowers, p < .001, 95% CI for difference = [−1.35, −.74], η_p^2 = .31, while European Americans did not significantly differentiate between excited and calm borrowers, p = .647, η_p^2 = .002.[12]

Other ratings. For ratings of *dominance, intelligence, financial neediness,* and *physical attractiveness,* there were significant main effects of borrower expression. Across cultural groups, participants rated the excited borrowers as more dominant, less intelligent, more financially needy, and less physically attractive than the calm borrowers (*Dominance*: $F(1, 101)$ = 8.18, p = .005, η_p^2 = .08, Mean of excited borrowers = 4.07, SE = .10, Mean of calm borrowers = 3.78, SE = .08; *Intelligence*: $F(1, 98)$ = 62.31, p < .001, η_p^2 = .39, Mean of excited borrowers = 3.61, SE = .10, Mean of calm borrowers = 4.58, SE = .09; *Financial neediness*: $F(1, 100)$ = 9.41, p = .003, η_p^2 = .09, Mean of excited borrowers = 3.43, SE = .11, Mean of calm borrowers = 3.12, SE = .09; *Physical attractiveness*: $F(1, 96)$ = 17.95, p < .001, η_p^2 = .16, Mean of excited borrowers = 3.28, SE = .12, Mean of calm borrowers = 3.77, SE = .10).

A significant main effect of participant culture on intelligence ratings, $F(1, 98)$ = 4.58, p = .035, η_p^2 = .05, indicated that European Americans (M = 4.25, SE = .11) rated borrowers as more intelligent than did Koreans (M = 3.94, SE = .10). However, there were no significant main effects of participant culture for any of the other social judgments (online supplementary materials 11b). There were also no other significant main effects or interaction effects involving participant culture and borrower expression for any of these judgments.

Mediational analyses. Because analyses indicated significant cultural differences in lending to excited borrowers (but not calm borrowers) and in ideal HAP (but not ideal LAP), we examined whether cultural differences in lending to excited borrowers were mediated by affiliative judgments of excited borrowers and ideal HAP. Participant actual HAP was also entered in the model to control for associations between ideal HAP and actual HAP, and to examine the effect of ideal HAP above and beyond actual HAP (see online supplementary materials Section 9b for results without covarying actual HAP). To analyze the extent to which the effect of culture on the loan amount to the excited borrower was associated with ideal HAP and affiliation ratings, we then conducted serial mediation analysis (bootstrapped n = 10,000) using the "PROCESS" macro (Hayes, 2012, 2013). Serial mediation suggests that the mediators are causally linked together in a serial order to explain the links between the predictor and outcome variables. The "PROCESS" macro tests this by calculating the indirect effects of the serial links between the predictor and the outcome, varying the in-between mediator(s) (Hayes, 2012).

Analyses supported the mediational model. First, Participant Culture (1 = EA, −1 = KR) significantly predicted participant ideal HAP controlling for participant actual HAP (B = .10, SE = .04, β = .24, t = 2.61, p = .010, 95% CI = [.02, .18]; path a1, Figure 3D). Second, ideal HAP significantly predicted participants' affiliation ratings for excited borrowers (B = .70, SE = .27, β = .29, t = 2.58, p = .011, 95% CI = [.16, 1.24]; path a3). Third, these affiliation ratings significantly predicted greater loans to excited borrowers (B = 1.06, SE = .23, β = .52, t = 4.70, p < .001, 95% CI = [.61, 1.51]; path b2). The significant effect of Participant Culture on the amount lent to the excited borrowers (B = .50, SE = .21, β = .24, t = 2.44, p = .017, 95% CI = [.09, .91]; path c) became nonsignificant after entering ideal HAP and affiliation ratings of the excited borrowers in the model (B = .18, SE = .18, β = .09, t = 1.02, p = .312, 95% CI = [−.17, .54]; path

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[11] We conducted a post hoc power analysis for Study 3, based on Cohen's d = .47, which revealed a post hoc power of .66.

[12] We also found a significant Participant Culture × Borrower Expression × Borrower Sex interaction, $F(1,101)$ = 9.35, p = .003, η_p^2 = .09. Follow-up comparisons revealed that across borrower sexes, European Americans rated excited targets as more affiliative than did Koreans, whereas Koreans rated calm targets as more affiliative than did European Americans; however, this effect was more pronounced for male than female borrowers (supplementary Section 11a). Also, although there was an unexpected Participant Culture × Borrower Expression × Borrower Sex × Borrower Race interaction, $F(1,101)$ = 4.10, p = .046, η_p^2 = .04, across Borrower Sex × Borrower Race groupings, European Americans always rated excited borrowers as more affiliative than did Koreans, and Koreans always rated calm borrowers as more affiliative than did European Americans.

c'). The indirect effect from Participant Culture through ideal HAP and affiliation ratings on the amount lent was significant (Standardized Indirect Effect = .04, SE = .02, 95% CI = [.01, .10]).

None of the other social judgment ratings (e.g., dominance, intelligence) significantly mediated the cultural differences in lending to excited borrowers (see online supplementary materials, Section 11b–d).[13]

Hypothesis 3: Does ideal affect predict lending decisions above and beyond actual affect? When substituting participant actual HAP for participant ideal HAP in the above model, and covarying for ideal HAP, the model was not significant (Standardized indirect effect = −.004, SE = .01, 95% CI = [−.04, .004]), suggesting that ideal HAP but not actual HAP contributed to the observed effects.

Study 3 Discussion

As predicted, and consistent with our previous research, European Americans lent more to excited borrowers compared with Koreans, regardless of borrowers' race and sex. This difference was mediated by ideal HAP (above and beyond actual HAP) and judgments of affiliation of the excited borrowers. Contrary to Park et al. (2017), however, we did not find cultural differences in giving to calm borrowers, perhaps because unlike that sample, European Americans and Koreans in this sample did not differ in their valuation of LAP.

General Discussion

In three studies, we found consistent cultural differences in lending to borrowers depending on their emotional facial expressions. In Study 1, borrowers who showed greater positive arousal in their photos were more likely to receive loans in the United States and Canada than in China, Hong Kong, Japan, Korea, and Taiwan. These findings held even after controlling for different economic features of the loans. Study 2 focused on the facial expressions of borrowers who had received loans from lenders from these nations. Lenders from nations that valued HAP were more likely to have loaned money to borrowers with excited smiles but less likely to have loaned money to borrowers with calm smiles. These findings held after controlling for gross domestic product per capita, which has been posited to increase resource sharing, and other cultural variables (individualism, relational mobility). Thus, ideal affect match also matters for resource sharing in the real world, when people are sharing their own money, and when there is some expectation of return.

Study 3 provided evidence that cultural differences in lending are linked to cultural differences in ideal affect and judgments of affiliation. European Americans lent more to excited borrowers than did Koreans, in part because they viewed excited borrowers as more affiliative. Judgments about the dominance, intelligence, and financially neediness of borrowers did not play a role. Thus, in multicultural worlds where people are exposed to individuals of varying races and sexes, they may consciously or unconsciously use a stranger's emotional expression as an initial cue to judge how affiliative that stranger is, and by extension, whether those individuals can be trusted with limited resources (Tsai, Blevins, et al., 2018). These findings replicate previous evidence that judgments of trustworthiness mediated cultural differences in giving, even when there was no expectation of return (Park et al., 2017).

Contrary to previous findings, however, national and individual differences in ideal LAP were not associated with loan success for calm borrowers. This finding contradicts previous results that ideal LAP predicts consumer behavior. For instance, the more people value LAP, the more likely they are to choose calm- versus excitement-focused physicians (Sims, Tsai, Koopmann-Holm, Thomas, & Goldstein, 2014). However, the current findings are consistent with previous findings that people's ideal HAP but not their ideal LAP predicted affiliative judgments of excited versus calm strangers (Tsai, Blevins, et al., 2018). Furthermore, in Study 3, the lack of association may be attributable to a lack of cultural differences in ideal LAP, largely because of European Americans valuing LAP more now than in the past. We are currently examining whether European Americans' ideal LAP has indeed significantly increased over time, and if so, what might have caused this increase, as well as how stable these changes are. It is possible that temporary changes in ideal affect do occur, particularly for ideal LAP, but that these temporary changes may have weaker links to resource sharing and other outcomes than more stable levels of ideal affect. We are currently exploring these possibilities.

Overall, these findings provide evidence that in the case of resource sharing, lenders give more to borrowers who not only are similar in terms of conventional social categories such as race and sex, but also appear to match lenders' ideal affect, based on their emotional facial expressions. Indeed, in the current research, the effect of ideal affect held when we controlled for other borrower social characteristics (race, sex), other socioeconomic and cultural factors (GDP per capita, relational mobility), and economic features of the loans themselves (amount, repayment). Moreover, we found that lenders' *ideal* affect predicted their lending decisions above and beyond their actual affect, demonstrating yet another case where how people want to feel matters for behavior above and beyond how they actually feel.

Implications for Resource Sharing

These findings advance research on lending specifically and resource sharing more generally in several ways. First, while previous studies demonstrate that people attend to others' positive emotion in social relationships (Campos, Schoebi, Gonzaga, Gable, & Keltner, 2015), few studies have examined how these emotional processes play themselves out in lending relationships, especially relative to other factors that have received greater empirical attention, such as loan features or borrowers' apparent financial neediness. Second, to our knowledge, this is the first study to demonstrate that real microlending decisions depend on an *interaction* or match between emotional characteristics of lenders and borrowers. Although previous studies have demonstrated that emotional features influence resource sharing, they tend to focus on only one end of person-to-person choices to share resources (i.e., either givers or receivers; Bartlett & DeSteno, 2006; Capra, 2004; DeSteno et al., 2010; Genevsky & Knutson, 2015; O'Malley & Andrews, 1983).

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[13] Among filter items, physical attractiveness, positivity, and negativity mediated the effect of ideal affect match on lending to excited borrowers; however, these ratings were highly correlated with affiliation ratings (absolute *r* values > .60) and, therefore, could not be distinguished from affiliation ratings in the same model (see supplementary Section 11d).

Finally, this study extends our understanding of the role that culture plays in lending by directly measuring lenders' cultural values regarding emotion and demonstrating that cultural matching extends to personal characteristics such as emotional expression. These findings also suggest that individuals may use emotional expressions as a powerful ingroup signal. Unlike race and sex, however, people tend to be less aware of emotional expression as an ingroup indicator. Further, because culture—through ideal affect—guides lenders to view certain borrowers as more trustworthy, lenders from a specific culture may unknowingly misjudge the trustworthiness of borrowers from a different culture. For instance, borrowers on the Kiva website who expressed calm were less likely to receive loans from lenders whose nations valued excitement, even though they may have displayed emotions that are valued by their own cultures. One unintended consequence may be that the individuals who are the most trustworthy in their own cultures may end up receiving the fewest loans from lenders from another culture. Conversely, the people who are the least trustworthy in their own cultures may actually receive the most loans if they show the emotions valued by potential lenders from another culture. Thus, borrowers who deserve resources the most or could use those resources most effectively may be the least likely to receive them.

Implications for Emotion and Prosocial Behavior

These findings also have implications for understanding connections between emotion and prosocial behavior. Previous research has demonstrated that positive emotions mediate prosocial behavior not only toward close others (Kogan et al., 2010) but also toward strangers (e.g., Bartlett & DeSteno, 2006; DeSteno et al., 2010). However, most of this work has focused on how people's actual affective experience shapes their prosocial behavior. The current work demonstrates that peoples' ideal affect might also play an important role in resource sharing. Thus, people not only share more with others who are similar in how they actually feel, but also in how they ideally want to feel.

Directions for Future Research

The limits of the current research raise interesting directions for future work. First, future studies might examine factors that moderate the influence of ideal affect match on different types of resource sharing. For instance, does having more time to deliberate reduce the effects of ideal affect match on resource sharing? Second, while the first field study controlled for factors such as loan amount requested, loan repayment terms, borrower identifiability, and borrower perceived neediness, future studies might systematically vary these factors, as well as others (e.g., borrower repayment history), to determine the effect of ideal affect match relative to these other factors. In addition, while Study 3 yielded significant effects, future studies with larger sample sizes (and greater power) might reveal additional effects. Similarly, future studies should examine whether these findings generalize to other types of lending and to other online platforms beyond Kiva.

Third, the first two studies focused on 11 nations for which ideal affect data were available. Ideal affect measures from other nations might facilitate interesting comparisons beyond Western versus East Asian cultures, and highlight whether ideal affect match

varies for nations that differ along various dimensions including historical heterogeneity (Rychlowska et al., 2015) and egalitarian values. Assessment of ideal affect in different regions within nations might also prove enlightening (Talhelm et al., 2014). Fourth, future studies should examine whether borrowers' emotional facial expressions actually predict whether they use loans effectively and are more or less likely to repay their loans, and if this varies by culture. Finally, while most people have considered the pernicious effects of racial and gender biases, few are aware of the effects of potential affective biases. Future work might explore whether explicitly or implicitly educating lenders about cultural differences in ideal affect might alter their judgments of others' emotional expressions, and ultimately, their willingness to share resources with them.

In summary, our findings suggest that across cultures, when presented with the opportunity to share resources with strangers, people base their decisions on others' emotional facial expressions, and whether these expressions match how they ideally want to feel.

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