Cultural superstitions and the price endings used in Chinese advertising

Simmons, Lee C.; Schindler, Robert M.

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ABSTRACT

In traditional Chinese superstition, the numerical digit 8 is associated with prosperity and good luck and the digit 4 is associated with death. An examination of the price endings used in a sample of Chinese price advertisements indicates a distinct tendency to favor the digit 8 and to avoid the digit 4. These results constitute evidence of the role of superstition in the Chinese marketplace and provide guidance for setting prices in this increasingly important market.

As businesses become increasingly multinational, it is important for firms conducting business in another country to be aware of the cultural imperatives of that country or culture. Of particular importance is the nation of China, which includes the People's Republic of China (PRC), Hong Kong (now a special administrative region of the PRC), and Taiwan. Hong Kong and Taiwan are rated among the major world economies (Kotabe and Helsen 1998, pp. 26–27), and the PRC is the largest country in the world, with nearly one-quarter of the world's population. The PRC is also one of the fastest growing economies, with average growth of 10% per year from 1990 to 1997 (Wright 1999, p. 523). If this growth rate continues, China will soon become the largest market in the world.

To succeed in the Chinese marketplace, multinational firms must understand the beliefs, attitudes, and perceptions that characterize Chinese consumers (Yan 1994). An approach to this task is the systematic observation of various characteristics of the consumer–retailer interactions that have developed in Chinese society. In this article, we examine one such characteristic, the digits used in advertised prices. In particular, we examine the digits to the right of a price's leftmost digit, which we term the price's "ending digits." A price's leftmost digit (e.g., the 2 in the price ¥23,500) tends to be constrained by such factors as costs and necessary profit margins. In contrast, a price's ending digits (e.g., the 3500 in the price ¥23,500) are less constrained; varying them would have less effect on the level of the price. Without strong economic determinants, managers' decisions on price endings may become particularly sensitive to noneconomic factors, such as cultural beliefs, attitudes, and perceptions.

Lee C. Simmons and Robert M. Schindler

SUPERSTITION IN THE CHINESE MARKETPLACE

One of the fundamental cultural values that distinguishes Chinese culture from Western cultures is the perception of humans' relation to nature (Kluckhohn and Strodtbeck 1961, p. 13; see also Cho et al. 1999; Yau 1988). Western cultures, most notably the United States, associate with the mastery-over-nature position. In this perception, natural forces of all kinds are overcome or ignored when they conflict with human objectives. In contrast, Chinese culture is characterized by the harmony-with-nature position. In this perception, there is no real separation between human activities, nature, and the supernatural. Given that each of these is an aspect of a greater wholeness, each should be equally respected.

This respect for the supernatural suggests that superstition has some influence in Chinese culture. It has been observed in Chinese communities that traditional beliefs about feng shui (literally, "wind water") affect people's daily lives (Emmons 1992). People worry about bad luck and put mirrors on their homes to reflect any bad luck. On apartment doors and windows, even on those in soap operas, there are mirrors to reflect bad luck; forks to break the reflection of others' mirrors; and *fok dzi*, the Chinese characters for good luck (*fok dzi* is the Cantonese representation in English; most other Chinese words used in this article are in pinyin, the Mandarin–English representation).

Moreover, it appears that this pronounced role of superstition spills out from personal lives into the marketplace, and it affects both managers and consumers (Leung 1996; Simmons and Munch 1996). For example, in Taiwan, car sales decrease more than 30% from August 28 to September 15 each year because it is the "ghost month," the time that "proper" Chinese make obeisances to their ancestors or else those who are not happy return to the land of the living and make things difficult (*The Economist* 1993). It has been observed that, before opening their stores in the morning, owners of small shops touch everything in the store with a large denomination bill to let the items "know" they should be sold. Some companies call in geomancers to determine whether a building or office faces in the correct direction to appease the wind and water spirits, and an office building may remain empty because of bad feng shui (Gargan 1997). At business-related banquets, considerable efforts often are made so that the number of guests, the number of courses, and even the placement of people are correct according to feng shui principles.

SUPERSTITION AND PRICE-ENDING CHOICE

In the U.S. market, there have been several surveys about the digits used in the endings of advertised prices (e.g., Kreul 1982; Rudolph 1954; Schindler and Kirby 1997; Twedt 1965). These surveys all have reported the predominance of prices that end in the digit 9, such as $2.49 or $199. Business managers in the United States seem to believe that consumers

tend to "round down" or otherwise ignore one or more of the digits to the right of a price's leftmost digit. If U.S. consumers ignore such digits, then the use of the digit 9 in price endings is a practical choice, because it is the digit of the highest value (Brenner and Brenner 1982).

The Chinese culture's respect for the supernatural suggests that a survey of price endings used in Chinese price advertising might show a different pattern from that in the United States. Numerical digits tend to have traditional, superstitious meanings in the Chinese culture, and two in particular, the digits 8 and 4, have evaluative connotations that may affect their use in prices (Lip 1992, pp. 21, 31; Schmitt and Pan 1994). The digit 8 in Chinese (*ba*) is similar in pronunciation to *fa*, which means "to get rich" or "enrichment," and to *fu*, which means "lucky." The digit 8 is thus associated with both prosperity and good luck, two characteristics that are particularly desirable in commercial interactions. For example, many Chinese entrepreneurs chose August 8, 1988 (the Chinese do not name months, so the date is represented as 8/8/88), as the date to start their new businesses (*Xin Min Wan Bao* 1988). The digit 4 (*si*) is pronounced exactly the same as "to die," except for the tone, and is thus associated with death. Although this meaning is not related more to pricing than to other contexts, the negative connotation of the digit 4 appears strong enough to have widespread effects. For example, it has been found that among Chinese and Japanese people living in the United States, deaths from chronic heart disease peak on the fourth day of the month, possibly from the stress associated with connotations of the digit 4 (Phillips et al. 2001). Although the digit 9 carries a meaning of "longness" that can be interpreted positively as "longevity," this meaning is not considered relevant in commerce. A Beijing marketing executive noted, "no one would want to have their price last forever" (Sun 2001).

The role of superstition in the Chinese marketplace suggests that the traditional meanings of these digits influence managers' choices of the more arbitrary price digits used in advertising directed at Chinese consumers. In particular, we expect that a survey of price endings would show these meanings to influence the incidence of the digits 8 and 4. The favorable superstitious meaning of the digit 8 implies that it would be overrepresented among price-ending digits. The unfavorable superstitious meaning of the digit 4 implies that it would be underrepresented among price-ending digits.

In previous surveys of price endings that appeared in print advertising (all carried out in the United States), a price ending is almost invariably represented by the single rightmost digit of the advertised price (e.g., the 5 in $6.95). The problem with us-

HYPOTHESES

ing the single rightmost digit to represent price endings in Chinese price advertising is that because of the relatively low value of the currency units, these numbers almost always are the digit 0 (e.g., ¥450,000). If we assume that a price's rightmost nonzero digit tends to be more salient to consumers than are zeros that follow to the right, then using a price's rightmost nonzero digit is similar to using the single rightmost digit to represent a price's ending. When it happens that there is no nonzero digit among a price's ending digits, there is no ending digit to be more salient than 0; in such cases, the digit 0 is an appropriate representation of that price's ending. Thus, for a one-digit representation of price ending in Chinese-language price advertising, we use the price's rightmost salient ending digit. For most prices, the rightmost salient ending digit is the rightmost nonzero digit, such as the 8 in ¥6,800 or the 5 in ¥265,000. For those prices in which there are no nonzero ending digits, such as ¥70,000, then 0 is considered the rightmost salient ending digit.

By observing the rightmost salient ending digits of prices advertised in Chinese-language print advertising, we gain a systematic indication of the influence of superstition in the Chinese marketplace by noting the occurrence of the digits 8 and 4. Because of the favorable meaning ascribed to the digit 8 in traditional Chinese culture, we expect the digit 8 to be used more often than chance would predict. Thus, our first hypothesis is the following:

H_1: The digit 8 is overrepresented with respect to chance among the rightmost salient ending digits of advertised prices.

Because there are ten digits in a decimal number system, the proportion of occurrences of the digit 8 (or any other single digit) due to chance alone would be one in ten.

Because of the unfavorable meaning ascribed to the digit 4, we expect this digit to be used less often than chance would predict. Note, however, that the expectation that at least one of the ten decimal digits (i.e., 8) is overrepresented complicates the calculation of the chance percentage of the remaining digits. For example, if an overrepresented digit occurred 55% of the time, the other nine digits would occur only 45% of the time. Even if the distribution of these digits were due to chance alone, each would occur only 5% of the time. To prevent the overrepresentation of some digits from causing the underrepresentation of others, we adopt a more stringent criterion for underrepresentation. We consider that a digit is underrepresented if it occurs less than chance would predict among only those digits that are not overrepresented. Thus, our second hypothesis is the following:

Lee C. Simmons and Robert M. Schindler

H_2: The digit 4 is underrepresented with respect to chance among those rightmost salient ending digits that are not overrepresented.

If there is an overrepresentation of the digit 8 and an underrepresentation of the digit 4 among Chinese price endings, we can determine the pervasiveness of this tendency by examining whether the pattern is as likely to occur for high-priced items as it is for low-priced items. More expensive items are associated with greater perceived risk (Erevelles, Roy, and Yip 2001). This greater risk might elicit a more extensive information search during the shopping process, thereby leading to increased expertise that might dilute the influence of superstitious meanings. In addition, more expensive items are targeted to the more affluent segments of the Chinese market. Consumers in these segments are likely to be more educated and perhaps less influenced by traditional Chinese superstitions. Thus, our third hypothesis is the following:

H_3: Overrepresentation of the digit 8 and underrepresentation of the digit 4 are more pronounced among lower-priced items than among higher-priced items.

METHOD

To survey the price endings used in print advertising, we sampled advertisements from newspapers, as has been done in previous price-ending research (Kreul 1982; Rudolph 1954; Schindler and Kirby 1997; Twedt 1965). To ensure breadth in the sample, we collected price advertisements from a set of Chinese communities that were likely to differ in beliefs about the strength of traditional digit meanings and the importance of cultural superstitions: Shanghai in the PRC, Hong Kong, and Taiwan. For each community, we selected price advertisements from one or more widely read newspapers. Shanghai price advertisements are from *Xin Min Wan Bao* (*Bright Star Evening News*); Hong Kong price advertisements are from *Dong Fang Ri Bao* (*Eastern Daily*), *Sing Dao Ri Bao* (*Economic Times*), and *Ping Guo Ri Bao* (*Apple Daily*); and Taiwanese price advertisements are from *Lian Hau Bao* (*United Daily*), *Ming Bao* (*People's Press*), and *Zhong Guo Shi Bao* (*China Times*).

All of the advertisements were selected by individuals who were not aware of the purpose of the study. We asked them simply to select typical price advertisements from the major newspaper(s) of their cities. All of the advertisements are from newspapers published in January and February 1996. For those advertisements that contained more than one price, a single price was selected from the advertisement at random.

This sampling procedure resulted in a total of 499 advertised prices: 93 from Shanghai, 200 from Hong Kong, and 206 from

Taiwan. Shanghai prices are in yuan (¥), Hong Kong prices are in Hong Kong dollars (HK$), and Taiwanese prices are in new Taiwan dollars (NT$). Fewer prices were selected from Shanghai newspapers than from newspapers of the other two Chinese communities because there were relatively few price advertisements in *Xin Min Wan Bao* at the time of the study.

Data Coding

To achieve consistency in the analysis, we recorded all of the prices in Arabic numerals whether they appeared in an advertisement as Arabic numerals, Chinese characters, or a combination of the two. Unless the advertisement specifically indicated decimal digits (e.g., the 8 and 0 in ¥41.80), we used only the digits constituting the integer price in the analyses (e.g., NT$1,200).

RESULTS

For each of the 499 sampled prices, we used the procedure described previously to identify the rightmost salient ending digit. The distribution of these price-ending digits is shown in Figure 1. If chance alone operated, each digit would occur 10% of the time. The distribution of rightmost salient ending digits differs considerably from chance (X^2 [9] = 576.97; $p < .001$).

The occurrence of three digits (5, 8, and 9) was greater than the 10% chance expectation. The differences from 10% were statistically significant for the digits 5 and 8, but not for the digit 9 (binomial tests; $p < .001$; $p < .001$; $p = .20$, respectively). Furthermore, the digit 8 occurred significantly more often than the digit 5, the next most commonly occurring digit (X^2 [1] = 58.37; $p < .001$), which makes 8 the most

Figure 1.
Distribution of
Rightmost Salient Ending
Digits in Sampled Prices

Lee C. Simmons and Robert M. Schindler
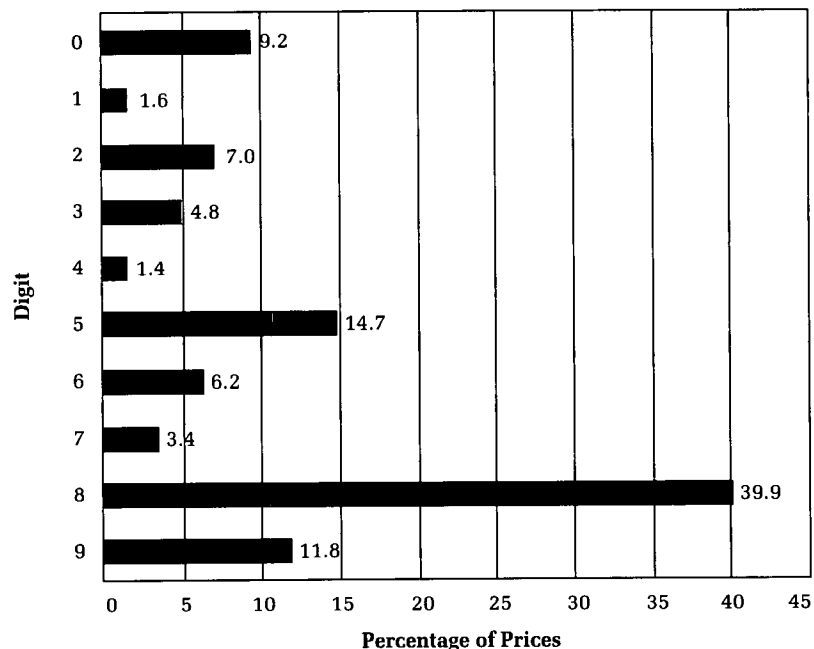
commonly occurring rightmost salient ending digit among the prices in the sample. These results provide strong support for H_1.

Exclusion of the three overrepresented digits leaves seven digits that were not overrepresented among the rightmost salient ending digits of the advertised prices (0, 1, 2, 3, 4, 6, and 7). Note that the distribution of these seven digits differs from the distribution that would be expected from chance alone (X^2 [6] = 52.00; $p < .001$). If one in seven (the proportion .1429) is used as the chance expectation, the occurrence of only two of these seven digits, 1 and 4, was significantly less than chance would predict (binomial tests; for both $p < .001$). There was no significant difference between the rates of occurrence of the digits 1 and 4 (X^2 [1] < 1). Thus, these results support H_2.

As we argued previously, we judged the rightmost salient ending digit to be the price-ending representation that is most comparable to the one used in previous price-ending studies. However, other price-ending representations are possible. For example, another plausible one-digit representation of a price ending is the single rightmost digit for two- and three-digit prices and the third digit from the left for all prices of four or more digits. Use of this price-ending measure still indicates that the digit 8 is favored and the digit 4 is avoided: The digit 8 occurs more often than chance would predict (27.3% of the endings; binomial test; $p < .001$), and the digit 4 is underrepresented among the digits other than 0, 5, 8, and 9 (.2% of the endings; binomial test; $p = .048$).

Furthermore, if the use of only one digit to represent a price ending is dropped and all ending digits in the surveyed prices are tallied, the digit 8 still occurs more often than chance would predict (35.5% of all nonzero digits; binomial test; $p < .001$). The digit 4 still occurs infrequently (3.3% of all nonzero digits) and less often than chance would predict among the digits other than 0, 5, 8, and 9 (binomial test; $p = .002$). Consequently, the key results of this study appear robust with respect to the measure used to represent a price ending.

To obtain a further measure of the reliability of these findings, we examined the price-ending distribution in each of the three Chinese communities included in our sample. In each community, the digit 8 occurred among the rightmost salient ending digits far more often than chance would predict (Shanghai, 58.1%; Hong Kong, 47%; Taiwan, 24.8%; binomial tests; for all $p < .001$). Furthermore, in each of the three communities, the digit 4 occurred infrequently (Shanghai, 0%; Hong Kong, 2%; Taiwan, 1.5%), less often than

Consistency Across Price-Ending Representations

Consistency Across Communities

chance would predict among the seven rightmost salient ending digits that were not overrepresented (binomial tests; $p = .025$; $p = .041$; $p = .007$, respectively). Thus, the support in the data for the overrepresentation of the digit 8 and the underrepresentation of the digit 4 is consistent across each of the three Chinese communities we examined.

Comparison of High- and Low-Priced Items

To determine whether the occurrence of the price-ending digits 8 and 4 differed between higher- and lower-priced items, we divided the 499 prices in the sample into two groups. For each of the three Chinese communities, we classified an item as higher priced if its price was greater than or equal to the median price of the sampled items from that community. The median prices were ¥2,300 for Shanghai, HK$165,000 for Hong Kong, and NT$2,450,000 for Taiwan. We classified items with prices less than these median prices as lower priced.

There was no significant difference in the incidence of the digit 4 between the higher- and the lower-priced items (1.2% and 1.6%, respectively; $X^2 [1] < 1$). However, for the digit 8, the two groups did differ. For the higher-priced items, 33.2% of prices ended in the digit 8. For the lower-priced items, 46.6% ended in an 8. This lower proportion of endings in the digit 8 among the higher-priced items was statistically significant ($X^2 [1] = 9.32$; $p = .002$).

DISCUSSION

The results of this study show that the superstitious meanings attached to certain digits in traditional Chinese culture correspond to the use of those digits in the endings of advertised prices. We found the digit 8, associated with prosperity and good luck, to be overrepresented among the price endings used in Chinese advertising. We found the digit 4, associated with death, to be underrepresented among price endings. The incidence of endings in the digit 8 was almost four times more frequent than chance would predict, and the underrepresentation of endings in the digit 4 was demonstrated even though we used a stringent measure of underrepresentation. Furthermore, both results were consistent across different price-ending measures and across three diverse communities of Chinese society.

These findings indicate that superstition influences the marketplace in Chinese culture. In contrast to the superstition-driven pattern of Chinese price endings, price endings in the United States are characterized by a preference for the digit 9 that does not appear to take superstitious beliefs into account. It is notable that at least one U.S. price-ending study specifically examined the digit 13, which traditionally connotes bad luck in U.S. culture, and found no underrepresentation of these digits among U.S. price endings (Schindler and Kirby 1997).

Lee C. Simmons and Robert M. Schindler

This supports the idea that the respect accorded to superstitious beliefs, not just a lack of superstitious digit meanings in the United States, is a cultural difference. Ackerman and Tellis (2001) note that there are relatively few research reports on culture-related differences in consumer behavior, partially because cultural norms and values are not easily quantified. This price-ending study illustrates how it is possible to find simple and easily quantifiable measures that demonstrate cultural differences related to consumer behavior.

Implications and Further Research

In addition to bearing on cultural beliefs and values, these results also have practical implications. They suggest the value of using the digit 8 and avoiding the digit 4 when advertising to Chinese consumers. As Cho and colleagues (1999) note, there is considerable evidence that advertisements reflecting local cultural practices are more persuasive than are advertisements that ignore them. The present study's finding that there is less overrepresentation of endings in the digit 8 for more expensive products provides an additional element to this practical implication. However, our study gives no indication of whether the apparently less significant role of superstition in more expensive products is due to the greater perceived risk of these products or to the beliefs and values of the more affluent segments of the Chinese market. Additional research on issues such as these would provide valuable managerial guidance.

Further research might also focus on those aspects of Chinese price-ending use that do not appear related to superstitious digit meanings. For example, in the present study, we found that the digit 5 is overrepresented and the digit 1 is underrepresented among the price endings used in Chinese advertisements. These are both phenomena that are also present in U.S. price advertising (Schindler and Kirby 1997). Schindler and Kirby (1997) suggest that the overrepresentation of endings in the digit 5 stems from its position as the midpoint between multiples of ten in a decimal numbering system and that the underrepresentation of endings in the digit 1 may be due to a tendency for these endings to lead consumers to perceive that a bit extra has been added to the price. Whatever explanation is eventually documented, the finding of these phenomena in both of these otherwise different cultures suggests that the phenomena derive from basic human mental processes. In other words, despite the support in this study for designing price endings to fit cultural differences, there is also some evidence here for the presence of marketing universals (Dawar and Parker 1994).

Thus, the results of our study have implications for both differences and similarities between Chinese culture and other cultures as well as for offering managerial guidance on

price-related marketing communications in the increasingly important Chinese market. Furthermore, this study illustrates how the systematic observation of marketplace practices that have evolved in a culture can constitute a useful approach to gaining a better understanding of the mind and behavior of the consumer.

REFERENCES

Ackerman, David and Gerard Tellis (2001), "Can Culture Affect Prices? A Cross-Cultural Study of Shopping and Retail Prices," *Journal of Retailing*, 77 (1), 57–82.

Brenner, Gabrielle A. and Reuven Brenner (1982), "Memory and Markets, or Why Are You Paying $2.99 for a Widget?" *Journal of Business*, 55 (11), 147–58.

Cho, Bongjin, Up Kwon, James W. Gentry, Sunkyu Jun, and Fredric Kropp (1999), "Cultural Values Reflected in Theme and Execution: A Comparative Study of U.S. and Korean Television Commercials," *Journal of Advertising*, 28 (4), 59–73.

Dawar, Niraj and Philip Parker (1994), "Marketing Universals: Consumers' Use of Brand Name, Price, Physical Appearance, and Retailer Reputation As Signals of Product Quality," *Journal of Marketing*, 58 (2), 81–95.

The Economist (1993), "Play Your Cards Right," (September 25), 76.

Emmons, Charles F. (1992), "Hong Kong's *Feng Shui*: Popular Magic in a Modern Urban Setting," *Journal of Popular Culture*, 26 (1), 39–49.

Erevelles, Sunil, Abhik Roy, and Leslie S.C. Yip (2001), "The Universality of the Signal Theory for Products and Services," *Journal of Business Research*, 52 (2), 175–87.

Gargan, Edward A. (1997), "Hong Kong Journal: 3 Things Matter— Location, Location, and Feng Shui," *The New York Times*, (January 27), A4.

Kluckhohn, Florence R. and Fred L. Strodtbeck (1961), *Variations in Value Orientations*. Evanston, IL: Row, Peterson and Company.

Kotabe, Masaaki and Kristiaan Helsen (1998), *Global Marketing Management*. New York: John Wiley & Sons.

Kreul, Lee M. (1982), "Magic Numbers: Psychological Aspects of Menu Pricing," *Cornell Hotel and Restaurant Administration Quarterly*, 23 (August), 70–75.

Leung, Kwok (1996), "The Role of Beliefs in Chinese Culture," in *Chinese Psychology*, Michael H. Bond, ed. Oxford: Oxford University Press, 247–62.

Lip, Evelyn (1992), *Chinese Numbers: Significance, Symbolism, and Traditions*. Singapore: Times Books International.

Phillips, David P., George C. Liu, Kennon Kwok, Jason R. Jarvinen, Wei Zhang, and Ian S. Abramson (2001), "The *Hound of the Baskervilles* Effect: Natural Experiment on the Influence of Psychological Stress on Timing of Death," *British Medical Journal*, 323 (December 22–29), 1443–46.

Rudolph, Harold J. (1954), "Pricing for Today's Market," *Printer's Ink*, 247 (May 28), 22–24.

Schindler, Robert M. and Patrick N. Kirby (1997), "Patterns of Rightmost Digits Used in Advertised Prices: Implications for Nine-Ending Effects," *Journal of Consumer Research*, 24 (2), 192–201.

Schmitt, Bernd and Yigang Pan (1994), "Managing Corporate and Brand Identities in the Asia-Pacific Region," *California Management Review*, 36 (4), 32–48.

Simmons, Lee C. and James M. Munch (1996), "Is Relationship Marketing Culturally Bound: A Look at Guanxi in China," in *Advances in Consumer Research*, Vol. 23, Kim P. Corfman and John G. Lynch, eds. Provo, UT: Association for Consumer Research, 92–96.

Sun, Frank C. (2001), Personal communication with Vice President, Marketing and Strategic Planning, Dayang Group Company Limited, (December 2).

Twedt, Dik W. (1965), "Does the '9 Fixation' in Retail Pricing Really Promote Sales?" *Journal of Marketing*, 29 (October), 54–55.

Wright, John W., ed. (1999), *New York Times 2000 Almanac.* New York: Penguin Putnam.

Xin Min Wan Bao (1988), "Businesses Started and People Get Married on August 8, 1988," (August 25), 9.

Yan, Rick (1994), "To Reach China's Consumers, Adapt to *Guo Qing*," *Harvard Business Review*, 72 (September–October), 66–74.

Yau, Oliver H.M. (1988), "Chinese Cultural Values: Their Dimensions and Marketing Implications," *European Journal of Marketing*, 22 (5), 44–57.

THE AUTHORS

Lee C. Simmons is Assistant Professor of Marketing, Nanyang School of Business, Nanyang Technological Institute, Singapore.

Robert M. Schindler is Associate Professor of Marketing, School of Business, Rutgers University, Camden.

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