Are the Chinese Really More Risk Averse? A Cross-Cultural Comparison of the Risk-Return Relationship

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ABSTRACT

Bowman’s risk-return paradox (1980) suggests that the management’s attitude towards risks and returns changes according to the company’s situation. This paper intends to compare different cultural backgrounds in the context of the same political and economic environments, as well as the same market benchmarks, in order to examine whether Western and Chinese management teams demonstrate the same degree of risk aversions. It also aims to investigate the attitudes of Chinese-owned companies toward risk-related decision making. This study samples the financial reports of listed companies in Taiwan and the US from 1987 to 2002. This approach can overcome the shortcomings of Bowman’s (1980) empirical study, as its conclusion cannot validate whether the result is biased due to the sampling period. In order to compare the differences in the attitudes of Western and Chinese management teams toward risks, this approach eliminates variances in systems, business cycles, and markets by sampling the accounting data based on the same Generally Accepted Accounting Principles (GAAP). The empirical findings indicate that Chinese companies are more risk averse than Western companies to ensure earnings. However, Chinese companies are less sensitive than Western companies regarding risk-reward relationships. This is even more pronounced for well-performing Chinese companies based on market benchmarks. This study reflects the similarities and differences between Chinese and US companies in the cross-cultural base where the East meets the West. The findings suggest that Chinese companies may have target levels or reference points other than earnings evaluations.

Keywords: risk-return relationship, cross-cultural comparison, accounting information

INTRODUCTION

Bowman’s risk-return paradox (1980) indicates that the management’s attitude toward risks and returns changes along with companies’ situations; scholars have since been discussing the conditions required for the management to change their attitude. Although Fama and French (1992) argued that there is no obvious correlation between risks and returns in securities markets, the popular economics concept still holds that there should be a positive correlation between risks and returns: risky investments should offer high returns and vice versa.

Bowman’s risk-return paradox argues that when a company is well-positioned in the business environment, the management team generally acknowledges that high returns are accompanied by high risks. This is the risk-averse decision attitude. However, when a company is poorly positioned, the management often makes risky decisions because they can undertake higher risks even for lower returns. Thus, the management team shows the risk-preference attitude. In other words, the management’s decisions change in accordance with the position of their company. When in a better situation, the correlation between risks and returns is positive; otherwise, the correlation between risks and returns is negative.

By examining different cultural backgrounds within the same political and economic environments, this paper seeks to verify whether management teams in the US and Taiwan demonstrate the same level of risk aversion or risk preference. As current literature is mostly set in the market environments of Western countries, this paper deepens the understanding of the variances in management teams’ decision attitudes due to cultural differences. However, this study does not sample accounting data in China for two reasons. First, China is still a communist society and thereby different from the capitalistic economy of the US. This difference will cause interpretation biases in the empirical results. On the other hand, the market mechanism and accounting environment in Taiwan are similar to those of the US. Thus, a cross-country comparison of Taiwan and the US can focus on cultural differences rather than system variances. Second,
China opened its market mechanism late compared to Taiwan, which started its own in the 1950s. This is highly relevant to the information disclosure of decisions made by companies. Such information in Taiwan is more comprehensive than in China. Since Horowitz et al. (2000) indicated that the risk-reward relationship can only be established with tests on sub-periods, considering the information quality and sample periods of financial reports, this study uses accounting data from Taiwan (a pure Chinese economy) because it has more reliability than that of China.

Accounting data from listed companies in Taiwan and the US from 1987 to 2002 are sampled in this study. This sampling period is an extension of Bowman (1980). This study performs an empirical comparison of all of the industries in these two countries except the financial industry. Horowitz et al. (2000) found that the influence of size effects on the risk-return relationship has been gradually declining since the 1980s. Thus, this study assumes that the sampling period is relatively independent from size effects. Also, the first eight years (1987-1994) and the last eight years (1995-2002) were an economic boom and recession, respectively. The validation of these sub-periods can make the reliability of this study’s empirical results more robust.

LITERATURE REVIEW AND RESEARCH HYPOTHESIS

Kahneman and Tversky (1979) proposed prospect theory, which deals with the reference level formulated by decision makers to assess risks. When returns are lower than the reference level, most decision makers tend to prefer risk. When returns are higher than the reference level, they tend to avoid risks. The rational actor model proves that corporate activities are similar to individual decisions (Allison, 1971); thus, scholars can examine whether companies demonstrate similar behavior when facing the risk-return relationship. The empirical finding of Bowman (1980) is one such example. Early empirical results approve (or disapprove) the correctness of Bowman’s risk-return paradox. Oviatt and Bauerschmidt (1991) and Baucus, Golec, and Cooper (1993) are the opposing scholars. However, an increasing number of empirical results and theoretical arguments identified by Deephouse and Wiseman (2000) support Bowman’s risk-return paradox with their empirical research on organizational behavior. Based on a literature review, Nickel and Rodriguez (2002) suggested that the level of risk preference on the part of management changes along with the environment. The same management may be risk averse under some circumstances and may show risk neutrality, or even a risk appetite, under other circumstances.

Bowman (1980) sampled the financial data of the 85 sectors in the US from 1968 to 1976. The data is from the relatively distant past, and the empirical findings can only prove the characteristics of the decisions made by US management teams. Further investigations must demonstrate whether management teams in other countries or environments follow the same patterns. Fiegenbaum & Thomas (1988) sourced a wide range of accounting data under different accounting systems, and their findings were consistent with Bowman’s (1980). Jegers (1991) and Sinha (1994) sampled non-US data by sourcing information from Brazil and Australia. Their empirical results also supported the explanations of Bowman (1980) regarding prospect theory (other empirical explanations of prospect theory are available in Nickel & Rodriguez, 2002). LaPorta (2000) indicated that corporate financial decisions are subject to the influence of external environments (e.g. laws and regulations, legal compliances, and cultures). It is necessary to conduct a cross-cultural comparison in order to reconfirm the empirical conclusion above.

Some scholars argue that the accuracy of accounting data or databases may influence the correctness of Bowman’s risk-return paradox. Davis (1996) found that if survivorship bias is overlooked, explanatory variables based on accounting information will be over-estimated in the empirical results and explanatory power. Some literature sources come from Compustat Database and therefore have a survivorship bias problem for data before 1978. Chou, Chou, and Ko (2009) sampled data to correct the bias problem from Compustat Database, and their findings still support Bowman’s (1980).

Fiegenbaum and Thomas (1988) and Fiegenbaum (1990) suggested the following hypotheses for the validation of the management’s attitude toward the risk-return relationship.

H1: There is a negative correlation between risks and returns (of earnings) for the companies below target levels or reference points.
H2: There is a positive correlation between risks and returns (of earnings) for the companies above target levels or reference points.

The above hypotheses highlight the key issues addressed by prospect theory. How are the benchmarks determined in the market? Do they vary in different cultural backgrounds? Prospect theory argues that the management is risk averse when the company is performing well, but shows a risk preference when the company is performing poorly. In accordance with Fiegenbaum and Thomas (1988), Fiegenbaum (1990), Jegers (1991), and Sinha (1994), this study adopts the mediums of the annual return on equity (ROE) numbers as market benchmarks because mediums are not subject to the impacts of extreme values. This approach attempts to avoid the influence of local market particularities.

Based on the annual market benchmarks, this study divides the samples of both countries into two groups: well-performing companies (above the benchmarks) and poorly-performing companies (below the benchmarks). By following the model design and analytical method proposed by Chou, Chou, and Ko (2009), this study performs a regression analysis on the two sample groups with the following model:

\[ Risk_i = a_i + b_i \times Return_i + \varepsilon_i \]

where

- \( Risk_i \) is the risks of the \( i \)-th company during the sampling period, represented by the standard deviations of the annual ROE of that company across different years of the sampling period;
- \( Return_i \) is the returns of the \( i \)-th company during the sampling period, represented by the mean of the annual ROE of that company across different years of the sampling period;
- \( b_i \) is the slope of the risk and return of the \( i \)-th company during the sampling period.

If \( b_i \) is positive, it means that there is a positive correlation between risks and returns. If \( b_i \) is negative, it means that there is a negative correlation between risks and returns.

Using different cultural backgrounds in the same political and economic environments, this paper refers to Bowman’s risk-return paradox to verify whether management teams in the US and Taiwan exhibit the same level of risk aversion (or risk preference). In addition to comparing the \( b_i \) values of different groups, this paper also compares the risk-return coefficients in the model in order to understand the difference in the correlation between risks and returns for the management view in these two countries.

**EMPIRICAL PROCESS**

This study sources the accounting data of the US companies from Compustat and the accounting data of the Taiwanese companies from the Taiwan Economic Journal Database (TEJ). As TEJ is a database collated by a regional and authoritative company in Taiwan, it can reflect the uniqueness of management decisions in Taiwan. The samples are the ROE numbers disclosed in the financial reports of the listed companies in the US and Taiwan from 1987 to 2002. Financial institutions are excluded from the sampling pool in order to ensure comparability of accounting information and biases due to industrial peculiarities.

Horowitz et al. (2000) suggested that the risk-return relationship can only be established with tests on sub-periods. In order to ensure the reliability of the empirical results, this study divides the samples into two sub-periods: 1987 to 1994 (economic growth) and 1995 to 2002 (economic recession). The number of observations of individual companies is screened during the sampling period to ensure that only companies with at least half of the entire observations in the sample period are included. This is to ensure that the means and standard deviations of individual companies during the sampling period are representative.

Table 1 summarizes the final number of samples of the listed companies in Taiwan and the US from 1987 to 2002 based on the above sample screening principles. However, as the number of listed companies, industry scales, and ROE observations in Taiwan are all significantly smaller than their counterparts in the US, the application of the regression analysis developed by Chou, Chou, and Ko (2009) at the industrial level will make the empirical findings from Taiwan
not representative.\textsuperscript{1} Given the smaller sampling pool in Taiwan compared to the US, this study applies a regression analysis to the overall market level for both countries in order to establish an universal understanding of the varying attitudes of management teams in different cultural backgrounds toward the risk-return relationship.

Table 1: Construction of the samples in Taiwan and the US from 1987 to 2002

<table>
<thead>
<tr>
<th>Countries</th>
<th>Period</th>
<th>Below the market benchmarks</th>
<th>Above the market benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>firms</td>
<td>observations</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1987-1994</td>
<td>87</td>
<td>594</td>
</tr>
<tr>
<td></td>
<td>1995-2002</td>
<td>311</td>
<td>2,173</td>
</tr>
<tr>
<td></td>
<td>1987-2002</td>
<td>144</td>
<td>1,796</td>
</tr>
<tr>
<td></td>
<td>1995-2002</td>
<td>5,293</td>
<td>32,813</td>
</tr>
<tr>
<td></td>
<td>1987-2002</td>
<td>4,024</td>
<td>46,404</td>
</tr>
</tbody>
</table>

RESULTS AND DISCUSSION

Table 2 below shows the empirical results of the cross-cultural risk-return relationship in the Taiwanese companies and the US companies. These results are discussed by four ways: the regression of “well-performing” and “poorly-performing” groups, the comparison of Taiwanese and US companies in the same performing group or in the risk-return correlation, and the comparison of coefficients of the two performing groups in Taiwan and the US.

Table 2: the cross-cultural risk-return relationship in the Taiwanese companies and the US companies

<table>
<thead>
<tr>
<th>Countries</th>
<th>Period</th>
<th>Below the market benchmarks</th>
<th>Above the market benchmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>a</td>
<td>b</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1987-1994</td>
<td>5.75</td>
<td>-0.58*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.11)</td>
<td>(6*10^{-24})</td>
</tr>
<tr>
<td></td>
<td>1995-2002</td>
<td>(3.76*)</td>
<td>-1.42*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(8.49*10^{-12})</td>
<td>(3.4*10^{-10})</td>
</tr>
<tr>
<td></td>
<td>1987-2002</td>
<td>(1.15*10^{-8})</td>
<td>(9.93*10^{-8})</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>1987-1994</td>
<td>-0.12*</td>
<td>-2.16*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(5.82*10^{-6})</td>
<td>(0)</td>
</tr>
<tr>
<td></td>
<td>1995-2002</td>
<td>-1.79*</td>
<td>-2*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(2.34*10^{-8})</td>
<td>(0)</td>
</tr>
<tr>
<td></td>
<td>1987-2002</td>
<td>-0.14*</td>
<td>-2.85*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6.37*10^{-11})</td>
<td>(0)</td>
</tr>
</tbody>
</table>

\* indicates significance at the 1 percent level, respectively. P-value is in parentheses.

Regression of “Well-performing” and “Poorly-performing” Groups during Different Sub-periods

Both the Taiwanese and the US companies show a significantly negative slope (\(b_i < 0\)) representing the risk-return relationship for poor-performing companies (below the market benchmark). In contrast, there is a significantly positive slope (\(b_i > 0\)) representing the risk-return relationship for well-performing companies (above the market benchmark). These results are largely consistent with the argument that management teams in both countries change their attitudes toward the risk-return relationship according to their situations in the marketplace and that such changes move in the same direction. Therefore, H1 and H2 are accepted in the cross-cultural comparison.

\textsuperscript{1} According to TEJ’s classification, there are 16 industries for the listed companies in Taiwan. The number of companies in the automobile manufacturing industry and the paper manufacturing industry was less than eight between 1987 and 2002. This means that there will be only four poor performers and four good performers. This number is too small to represent the variances in performances and will hurt the representativeness of the empirical results.
Comparison of Taiwanese and US Companies in the Same Performing Group

The absolute values of the coefficients of the risk-return relationship for the US companies are greater than those of Taiwanese companies \( (|\beta_{US}| > |\beta_{Taiwan}|) \), indicating that the trade-off between risks and returns for Taiwanese companies is narrower than in the US. Compared to the US companies, Taiwanese companies are more risk averse.

Comparison of Taiwanese and US Companies in the Risk-Return Correlation

Both in the whole sampling period and in the sub-periods, the US companies show a higher correlation than their Taiwanese counterparts with higher \( R^2 \). For the well-performing group (above the mean of the market benchmark), the US companies report an average of 0.96 coefficients for the risk-return relationship, whereas the Taiwanese companies show an average of 0.55 coefficients. For the poorly-performing group (below the mean of the market benchmark), the US companies show an average of 0.99 coefficients (almost entirely positively correlated) for the risk-return relationship, while the Taiwanese companies show an average of 0.90 coefficients. Although the correlation for the poor performers in Taiwan is not as high as their US counterparts during the same period, the movement is in the same direction. As a result, Taiwanese companies are less sensitive to the risk-return relationship in the management decision-making process. They may thereby be regarded as more risk neutral.

Comparison of Correlation Coefficients of the Two Performing Groups in Taiwan and the US

The two performing groups in the US report similar correlation coefficients in their attitude toward the risk-return relationship. However, the correlation coefficients of poor performers in Taiwan have over 35% higher coefficients than their well-performing counterparts. This demonstrates different responses of the management teams to the risk-return relationship in different cultural backgrounds.

CONCLUSIONS

Cross-country comparisons should pay attention to limitations such as differences in cultures, legal systems, and market environments. Hence, there are conflicting results in cross-cultural comparisons of companies in the East and the West. Through a questionnaire survey on investments in the context of personal finance, Weber and Hsee (1998) found that people of different cultural backgrounds have different degrees of risk preference. Hsee and Weber (1999) also conducted a questionnaire survey on subjects in China and the US by inferring that Chinese are less risk averse in personal finance, but more risk averse in non-personal finance than Americans, because the communist system can provide financial assistance in a timely manner. Fan and Xiao (2006) performed an empirical study on risk tolerance for people in the US and China, and confirmed the results of Weber and Hsee (1998). However, Brumagim and Xianhua (2005) conducted a questionnaire survey on Chinese companies regarding the management’s attitude toward risks and found that Chinese management teams show a risk preference. Ye (2008) further explained the over-confidence and investment decisions of the management teams in China.

According to the empirical findings of this study, Taiwanese companies, which survive in a pure Chinese capitalistic economy, are more conservative in risk decisions than US companies. This result is similar to that of Weber and Hsee (1998). Since this empirical study is based on a sample of Chinese companies operating in a market mechanism that is the same as in the West, this approach can purely reflect the cultural variances in the East and the West. This cross-country comparison finds that Chinese companies are more conservative toward risks than US companies under their respective market situations. Yet, the results refer to those companies that are evaluated only based on earnings. If there are other target levels or reference points for Chinese companies (e.g. political relationships), empirical findings regarding attitude toward risks based on a single performance metric (i.e. earnings) is not as obvious as with the profitability-driven US companies.

Another contribution of this paper is its comparison with existing academic discussions. After eliminating system variances and market differences, this paper validates the levels of risk preference of management teams with accounting data. As the accounting data in Taiwan and the US are subject to the regulations of the same accounting

\(^2\) For Taiwanese companies from 1987 to 2002: the \( R^2 \) comparison of poor performers and good performers is equal to 0.96/0.71, which is larger than 1.35.
standards (GAAP), this approach should be more reliable. The only restriction is that the scales and scopes of the Taiwanese market and US market are very different. Thus, it is not easy to compare the difference in the management’s attitude towards risks and returns through the industry classification of the two countries. It is advisable for future studies to incorporate this factor into cross-cultural comparisons.

REFERENCES