International Review of Management and Marketing

ISSN: 2146-4405

available at http: www.econjournals.com

International Review of Management and Marketing, 2020, 10(5), 1-4.

Cultural Influences on Risk Tolerance: Evidence for Students in Indonesia

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Received: 06 June 2020 **Accepted:** 24 August 2020 **DOI:** https://doi.org/10.32479/irmm.10224

ABSTRACT

This paper examined the impact of culture on risk tolerance for students in Indonesia. By using surveys that had been completed by 309 college students, this research used logistic regression as the main method. This research found that there is no evidence that Western Indonesia would score as more risk-tolerant on standard risk assessment questionnaire and would choose portfolio allocations that are riskier than Central and Eastern Indonesia. Parents' higher education has given a significant result to the risk tolerance match. The theoretical and practical implications of this research are discussed. Our findings suggest that differences in risk tolerance are at least partially a product of a culture which is a tribe in each region, but such differences may not always be reflected in actual investment decisions.

Keywords: Risk Tolerance, Cultural Influences, Tribe
JEL Classifications: I0, Z0

1. INTRODUCTION

Culture matters. Pyles et al. (2016) published their paper related to the impact of culture on risk tolerance. They consider culture as a country. They found that Chinese students perceived themselves as more risk-tolerant than American students. Our paper tried to explore the culture from different perspectives, which is a tribe. Indonesia as a vast archipelago has cultural diversity ranging from Western Indonesia to Eastern Indonesia. Indonesia has many tribes. Central Bureau of Statistics Republic of Indonesia (2010) estimated that there are more than 300 tribes. Tribes can influence risk tolerance levels for each investor because the tribe is part of the culture. The Tribe can give values and beliefs that unchanged from generation to generation (Guiso et al., 2006). Risk tolerance is a proxy for leading to differences in emotional responses to loss. Risk tolerance is subjective for each investor. College students as potential investors tend to be influenced by their tribes as a culture. They tend to be influenced by the tribe from their hometown.

We concern to divide Indonesia's culture into 2 parts: First, Western Indonesia and Second, Central and Eastern Indonesia. Due to data limitations, we did not partly separate Central and Eastern Indonesia partially. The large ten tribes in Indonesia, namely Jawa, Sunda, Batak, Minangkabau, Bugis, Aceh, Jambi, Makassar, Melayu, and one other tribe. Those tribes are divided into two big regions. First, Western Indonesia consists of Jawa, Sunda, Batak, Minangkabau, Aceh, Jambi, Palembang, and Melayu. Second, Central and Eastern Indonesia consists of Bugis, Makassar, Toraja, and others. The data set is unique because it reflects the characteristics of tribes in Indonesia.

There are three reasons why tribes need to be considered as a culture that influenced risk tolerance. First, people are affected by their culture and experiences. The culture related to communities and in Indonesia, which is tribe, and those tribes give different perceptions. Second, culture provides a way of thinking each future investor becoming either risk-averse or risk-taker. Third, as we know which tribe or region that have a significant result on risk

tolerance, we focus to give financial literacy for the needed region. Financial literacy makes students who are our future investors have the ability to make informed financial choices specifically investing. It also affects financial behavior including risk tolerance.

In reality, what Markowitz (1952) stated cannot be applied because all investors could not hold the same efficient portfolio. Lack of knowledge cannot lead to adequately implement their risk of tolerance into appropriate portfolios. Each investor can also use their emotions during decision making. Those decision making can be influenced by culture. Culture is one component of one's attitude towards all aspects of life, including financial decision making which is related to financial knowledge. In finance, trade-off between risk and return is very important to be investigated. The tendency to choose the portfolio is determined by the characteristic of the investor. There are at least 3 types of investors, namely risk-averse investor, risk-seeking investor, and risk-neutral investor. The study is to examine the impact of culture on risk tolerance in Indonesia. This research asked the student to select mock portfolio asset allocation (using questionnaires). By knowing the result of cultural influences on risk tolerance for a different regions of students, we would analyze the level of financial risk of the future investors, which is now as students in Indonesia. This research contributes to the literature review of cultural influence on risk tolerance especially the sample of different students in different tribes for Indonesia. This research provides evidence that differences in culture cannot be ignored when attempting to understand why investor risk tolerance differs within countries. We focus primarily on the potential differences between ten big tribes in Indonesia that divided into two regions, namely Western Indonesia and Central and Eastern Indonesia. Cultural influences on risk tolerance are one research that is very rare in Indonesia. We surveyed students in Indonesia in May 2019. To the best of our knowledge, our research also compares the results of the assessment with the subjective opinion of respondents and compares the result between Western Indonesia and Central and Eastern Indonesia. This paper found that differences in risk tolerance are at least partially a product of a culture which is a tribe in each region, but such differences may not always translate into actual investment decisions. Such knowledge may be useful to foreign entrepreneurs doing business in Indonesia in an era of increasing economic globalization. The government can also focus on the region that has tribes that aware of investing and have risk tolerance and give financial literacy for the selected region.

In sum, this paper is structured as follows. Literature review and hypotheses development are described in section 2. Data and methodology are presented in section 3. Section 4 examines the empirical result. Section 5 discusses and concludes the research and gives possible future work.

2. LITERATURE REVIEW

2.1. Indonesia Culture

Indonesia is one of the biggest archipelago countries, consisting of over 17.500 islands. This condition has developed a distinct culture, specifically tribe. There are over 300 tribes that are spread across Indonesia. The largest tribe is Java that mostly occupies the island of Java. Others tribe are Sunda, Batak, Minangkabau, Aceh, Jambi, Palembang, Melayu, Bugis, Makassar, Toraja. We divided those tribe into 2 regions, namely Western Indonesia and Central and Eastern Indonesia. Western Indonesia consists of Jawa, Sunda, Batak, Minangkabau, Aceh, Jambi, Palembang, and Melayu. While, Central and Eastern Indonesia consist of Bugis, Makassar, Toraja, and others. Others tribe is tribes that have long stay in that region but not originally from that region.

2.2. Hypotheses Development

Indonesia is not a country that promotes individualistic decision making, so it is not more willing to take risk than other individualistic countries. It tends to become risk-averse cause of hierarchical and bureaucratic societies (Douglas and Wildarsky, 1982). Doyle (1999) stated that most Asian economies are more likely to practice caution and constraint, with an associated aversion to risk. It means Indonesia would be, on average, more risk-averse. Western Indonesia consists of a tribe that already mix with western countries. There are many reasons, for example, half of the students are influenced by western culture, Jakarta as a capital city is in the Western area where people from around the world in and out frequently. Based on those facts and combining the previous arguments regarding risk and culture specifically tribe, we hypothesize that:

H_1: Western Indonesia perceive themselves as more risk tolerance than Central and Eastern Indonesia

H_2: Western Indonesia score as more risk tolerance on the standard risk assessment questionnaire

H_3: Western Indonesia select portfolio allocations that are riskier than Central and Eastern Indonesia.

3. DATA AND METHODOLOGY

By using the survey, there are three parts in the questionnaire. In Part A of the survey, this research asked students in Indonesia, a variety of control questions, including their tribe, gender, and chosen major. In addition, students also provided the education level and annual income of their parents. In Part B of the survey, this research asked the students to provide their opinions on the likelihood that they managed their own money in the future. Part C (following Grable, 1997) of the survey consisted of an extended 13-question risk tolerance assessment to provide a more robust measure of risk tolerance. A secondary objective of this research is to compare the results of the assessment with the subjective opinions of the respondents and compare the accuracy rates between the subsamples which is a different tribe of students in Indonesia. We also using logistic regression, here is the following equation:

$$\text{Dep} = \propto + \beta 1\ \text{Western} + \beta 2\ \text{Female} + \beta 3\ \text{Parent lowed} + \beta 4\ \text{Parent low high} + \beta 5\ \text{High income} + \beta 6\ \text{Low income} + \beta 7\ \text{Manage no} + \beta 8\ \text{Knowledge high}$$

4. EMPIRICAL RESULT

Our sample was college students in Indonesia. Data collection was completed in May 2019. Ten big tribes included in this research,

namely Jawa, Sunda, Batak, Minangkabau, Bugis, Aceh, Jambi, Makassar, Melayu, one other tribe. The total sample from all tribes is 309. Those tribes are divided into two big regions, namely Western Indonesia (n = 246) and Central and Eastern Indonesia (n = 63). Table 1 presents the summary statistics for the entire sample.

Table 1 presents summary statistics for the entire sample, as well as subsamples for Western Indonesia and Central and Eastern Indonesia. Dominant respondents from Western Indonesia come from Sophomore (37%) while from Central and Eastern Indonesia comes Junior (29%). Female respondents are 62.78% of total respondents where Central and Eastern Indonesia is 73%. Our summary statistic stated that there are significant differences between Western Indonesia and Central and Eastern Indonesia in terms of manage Yes and Manage no (manage their own money later in life). We find almost no differences in the rest variables.

Table 2 bivariate analysis. The table above presents the bivariate analysis of the sample, segmented by Western Indonesia and Central and Eastern Indonesia (with P-value associated differences tests). Panel A presents results from the student's response when asked to gauge their risk preference. Aggressive, Moderate Aggressive, Moderate Conservative, and Conservative risk preference, respectively. Panel B presents a student's chosen portfolio, which consists of a bank account, stocks, bonds, mutual fund, and commodity. Panel C presents statistics related to the risk tolerance assessment design by Grable (1997). The interesting result comes from the student's chosen portfolio which is stocks. Number respondent from Western Indonesia (15.4%) is lower than the number respondent from Central and Eastern Indonesia (18.8%). As we know that from those options, stocks are the riskiest. So, we can reject Hypothesis 3, Western Indonesia selects portfolio allocations that are riskier than Central and Eastern Indonesia.

Table 3 presents risk assessment and belief, segmented by the respondents' chosen level of risk tolerance (Panel A) and their opinion on knowledge and desire to manage their own funds (Panel B). For each of the four chosen risk tolerance levels,

Table 1: Summary statistics

Criteria number	Total	Western Indonesia	Central and Eastern Indonesia	P-value
N	309	246	63	-
Freshman	76	0.24	0.27	-
Sophomore	108	0.37	0.27	-
Junior	79	0.25	0.29	-
Senior	37	0.11	0.14	-
Graduate	9	0.03	0.03	-
Female	194	0.60	0.73	-
Dad coll plus	0.68	0.66	0.75	0.23
Dad grad	0.25	0.24	0.29	0.41
Mom coll plus	0.60	0.60	0.60	0.96
Mom grad	0.10	0.10	0.10	0.90
Parent low Ed	0.23	0.24	0.16	0.15
Parent high Ed	0.28	0.27	0.30	0.57
High income	0.32	0.33	0.32	0.95
Low income	0.68	0.67	0.68	0.95
Manage yes	0.92	0.90	0.97	0.02767**
Manage no	0.08	0.10	0.03	0.02767**
Knowledge high	0.27	0.28	0.22	0.39

**Significance at the 5% level

Table 2: Bivariate analysis

Var	Total	Western Indonesia	Central and Eastern Indonesia	P-value
Panel A: Student's belief				
Agg	0.058	0.053	0.079	-
Mod Agg	0.327	0.333	0.302	-
Mod cons	0.479	0.476	0.492	-
Cons	0.136	0.138	0.127	-
Higher tol belief	0.385	0.386	0.381	0.960
Panel B: Student's chosen portfolio				
Bank account	0.535	0.538	0.524	0.860
Stocks	0.161	0.154	0.188	0.0732*
Bonds	0.072	0.069	0.082	0.404
Mutual fund	0.105	0.107	0.094	0.271
Commodity	0.164	0.167	0.149	0.204
Panel C: Assessment results				
Risk tol score	24.890	25.024	24.365	0.217
Low tol	0.026	0.024	0.032	0.753
BA tol	0.230	0.203	0.333	0.073
A tol	0.602	0.618	0.540	0.312
AA tol	0.133	0.138	0.111	0.637
High tol	0.010	0.012	0.000	0.08*
Risk tol match	0.745	0.762	0.677	0.1361
Risk tol score	24.890	25.024	24.365	-

Table 3: Risk assessment and belief

Chosen rating	Risk tol score		Risk tol match	
	Western Indonesia	Central and Eastern Indonesia	Western Indonesia	Central and Eastern Indonesia
Panel A: Risk Tolerance Belief				
Agg	25.92	26.2	0.307	0
Mod Agg	25.95	24.36	0.827	0.631
Mod cons	24.85	24.54	0.863	0.806
Cons	23.02	22.5	0.424	0.625
Panel B: Knowledge and desire to manage				
Knowledge high	25.2	22.92	0.746	0.4285
Knowledge low	24.95	24.77	0.768	0.734
Manage yes	25.05	24.29	0.7633	0.6557
Manage no	24.7	26.5	0.75	0.99

Table 4: Score for risk tolerance level

Score	Risk tolerance level
0–18	Low tolerance for risk (Low tol)
19–22	Below-average tolerance for risk (BA tol)
23–28	Average/moderate tolerance for risk (A tol)
29–32	Above average tolerance for risk (AA tol)
33–47	High tolerance for risk (High tol)

Table 5: Tolerance match

Students felt they were (Panel A)	And scored as (Panel C)
Aggressive (Agg)	High or above average tolerance (High Tol or AA Tol)
Moderately aggressive (Mod Agg)	Above average or average tolerance (AA Tol or A Tol)
Moderately conservative (Mod Cons)	Average or below average tolerance (A tol or BA Tol)
Conservative (Cons)	Below average or low tolerance (BA Tol or Low Tol)

Table 6: Logistic regression with higher tol belief, higher tol, and risk tol match as independent variables

Criteria number	Higher tol belief		Higher tol		Risk tol match	
	Coef	P-value	Coef	P-value	Coef	P-value
Western Indonesia	0.192073	0.522	0.355241	0.424	0.507434	0.108
Female	0.70008	0.007	−0.00538	0.987	0.056967	0.837
Parent low ed	−0.02554	0.934	0.553754	0.16	−0.04458	0.891
Parent low high	−0.12492	0.668	0.139135	0.73	0.793612	0.023**
High income	−0.19081	0.481	0.033026	0.929	−0.14299	0.63
Manage no	−1.72975	0.006***	−0.33137	0.606	0.159752	0.746
Constanta	−0.86735	0.015**	−2.2232	0	0.482415	0.195

Panel A compares the respondent 's score on the risk tolerance questionnaire (Risk Tol Score). In addition, Risk Tol Match is a dummy variable equal to 1 if the students' chosen tolerance rating is consistent with their score on the tolerance questionnaire, zero otherwise. In Panel A, we find that the average scores by category are generally consistent with the student perceptions, meaning that the more aggressive the more score on risk Tol Score. There is nearly identical score rating between Western Indonesia and Central and Eastern Indonesia that label themselves Moderate Conservative. The Risk Tol Match result gives us interesting results. The ability to match tolerance quite fluctuated and the result is zero for Central and Eastern Indonesia in Aggressive way. In Panel B, our findings support that for Western Indonesia, the more they have the knowledge, the more ability to manage their money, but it is not happening in Central and Eastern Indonesia. We can reject hypothesis 2 that said Western Indonesia score as more risk-tolerant on the standard risk assessment questionnaire.

Tables 4 and 5 explained the criteria for score of risk tolerance level and tolerance match. Table 6 presents the result of logistic regression with the higher tol belief, higher tol and risk tol match.

Our working hypotheses (H_1) is "Western Indonesia perceive themselves as more risk-tolerant than Central and Eastern Indonesia," So we expect positive coefficient from the coefficient.

5. CONCLUSION

This paper examined the impact of culture on risk tolerance. We assess it by dividing it into two regions, namely Western Indonesia and Central and Eastern Indonesia. In this research, we found that Western Indonesia perceived themselves as more risk-tolerant than Central and Eastern Indonesia. There is no evidence that Western Indonesia scored as more risk-tolerant on standard assessment questionnaire and Western Indonesia selected portfolio allocations that are riskier than Central and Eastern Indonesia. The higher education of the parents gives a significance result for the Risk Tolerance Match.

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