Myers Briggs Type and Financial Risk Taking in College Students

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Introduction

If one reads the popular media, it seems that there is a time bomb ticking and ready to go off. Personal installment credit continues to rise, personal bankruptcies are increasing, and we are seemingly besieged with offers for credit cards, home equity lines of credit, and other "great deals". One issue of interest in this debate concerns whether or not this threat to the economy is real. Specifically, are there behaviors that have previously been socially repressed regarding financial risk taking that are now coming out due to a relaxation of social mores or the proliferation of cheap credit? Another related corollary is whether or not there are personality types that are more susceptible to taking risks, particularly financial risks.

To examine these issues, we surveyed college freshmen over a two-year period in an Introduction to Business/University Experience class. We asked them questions about credit use and bankruptcy as well as gave them a series of commonly used psychological tests that can be used to profile risk-taking behavior. If we look at this particular demographic group, they might be a good target group to test the hypothesis that mores are changing. They have grown up in a relatively affluent culture, with early access to technology, information, and credit. Many of them have had credit cards in their teenage years and have watched their parents use (and possibly abuse) them. Therefore, we viewed them as possibly indicating whether or not such social changes are taking place. We will now describe the methodology employed in the experiment.

Methodology

To test the behavioral issues we were interested in, we gave a series of surveys to two groups of college freshmen during the fall semesters of 2001 and 2002. These students were enrolled in a course at Stetson University in DeLand, Florida entitled "How to succeed in the Business School/University Experience". These were primarily entering freshmen (a few sophomores) and the purpose of the class is to both enlighten them about studying business as well as acclimate them to the Business School and University environments. We also constructed the course to possibly help in retaining students, and a big part of the course involves the use of the Myers-Briggs Type Indicator (MBTI) (see Belcher, DeMoss, McCann (1999,2000)). The students were chosen randomly in the sense that they were asked if they would volunteer to participate. The students were in sections of the course taught by three different instructors, so course content differed slightly. There were a total of 136 surveys turned in; 129 of them were complete in all areas. Each student was given six different instruments: a survey consisting of questions about credit use and bankruptcy; the MBTI; the Revised Generalized Expectancy of Success Scale (GESS-R), the General Unique Invulnerability Scale (GUI), a measure of delayed gratification, and a sensation seeking survey. We will briefly discuss each instrument.

Credit and Bankruptcy Survey

This survey consisted of 24 questions, designed based on factors identified in our previous research. The first ten questions tracked demographic data (age, sex, major, nationality, state) and questions about their actual credit card usage (do they use cards; how many; current balances, etc). Questions 11-23 gave them a series of attitudinal questions about bankruptcy and credit use ("I worry about the consequences of overspending with credit cards; "I am familiar with the term "filing for bankruptcy", etc). Question 24 asked them for their MBTI type, which we had recorded earlier in the semester. Copies of all of the instruments except the MBTI are available if requested. On the attitudinal questions, there were three responses: agree, neutral, and disagree. Agree was scored with a 2, neutral a 3, and disagree a 4. We also included a question dealing with 'religiosity". An earlier paper by Buckley and Brining (1999) found a relationship between catholic religious preference and feelings about bankruptcy. They viewed this as a proxy for a more conservative moral view about declaring bankruptcy. We concentrated on credit use

and bankruptcy under the assumption that these would represent extremes of financial-risk taking behavior. Very relaxed attitudes about credit use or bankruptcy might reflect a more risk-taking mentality about financial things.

The Revised Generalized Expectancy of Success Scale (GESS-R)

The Revised Generalized Expectancy of Success Scale is a survey designed to measure optimism, or a "belief that desirable outcomes are attainable" (see Hale, Fiedler and Cochran ((HFC) (1992) p. 517). From a psychologist's perspective, optimism is correlated with psychological aspects of well being, such as higher self-esteem and lower levels of depression. The questions in the GESS-R begin with "In the future I expect that I will" and the student responds to things like: "succeed at most things I try"; "reach my financial goals"; "be able to solve my own problems", etc. Each question is scored on a 1-5 basis, with 1= "highly probable" and 5 = "highly improbable". There are 25 questions on the survey. Higher scores are associated with higher levels of optimism, and the mean for college students is generally around 99.

In terms of this study, it is hypothesized that people who score higher on the GESS-R may be more prone to risk taking behavior, which would make them more likely to have a more relaxed attitude about credit use and bankruptcy. In the HFC study, the authors utilized sample groups to participate in an experiment. Participants were asked to participate in a "generation anagram" task. Within a five minute time limit, participants were asked to produce as many words as possible from the word "generation", after predicting the number they expected to produce. The actual number of words was then recorded. The same sample group was then asked if they would be willing to repeat the task again and bet their own money on the number they produced. By signing the participation list for this experiment, the researchers viewed this as a willingness to risk their own money on the outcome. In terms of the outcome of their experiment, the GESS-R score was higher for those who were willing to risk their own money. The difference was statistically significant. We will hypothesize the same behavior: Higher GESS-R will be associated with more willingness to assume risk.

Unique Invulnerability

Unique invulnerability is the belief that 'negative events and misfortunes will not happen to you" (Bodner, Cochran and Blum (2000) p.104). Feelings of unique invulnerability can generate a false sense of optimism that can lead to behavior that is risky or dangerous to one self. The Generalized Unique Invulnerability scale measures the belief that the respondent will have feelings of unique invulnerability. Respondents answer a series of questions like "What is the probability that you will be injured in an automobile accident" or "What is the probability that you will be making a six figure salary". Scores are assigned on a 1-5 basis, with 1 = "highly improbable" and 5 = "highly probable". Higher scores on the test indicate a lower level of perceived unique invulnerability on the part of the respondent.

Bodner, Cochran and Blum gave the test to two groups, one that would be characterized as risktakers (skydivers), and a control group of randomly selected college students. The hypothesis tested was that the risk-taking group would have a lower GUI score than the control group, indicating a higher level of perceived unique invulnerability. An independent-sample means test showed a statistically significant difference between the groups, with the skydivers having a lower mean GUI score than the student group. We will test a similar hypothesis, that lower GUI scores are associated with a more relaxed attitude about credit use and bankruptcy and a more risk-taking orientation.

Sensation Seeking

This test is a designed to measure a willingness to participate in activities that are more "risky" in some sense. There are 13 questions, each with two opposite responses. For example, one set of responses is "I sometimes like to do things that are a little frightening" versus "A sensible person avoids activities that are dangerous". Another example is "People who ride motorcycles must have some kind of unconscious need to hurt themselves" versus "I would like to drive or ride a motorcycle". The test is scored such that higher scores are associated with the risk-taking responses. We will once again use this as a proxy for a propensity to assume risk, with a more relaxed attitude toward credit cards and bankruptcy.

Delay of Gratification

This test is designed to measure attitudes about the outcomes of one's actions, whether they are realized in the present or in the future. Respondents answer questions like "I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes" or "I think it is important to take

warnings about negative outcomes seriously even if the negative outcome will not occur for many years". The survey has 12 questions and is scored on a 1-5 basis. If a question is "extremely characteristic" of the respondent, it is scored a 5. A 1 is equated with an "extremely uncharacteristic" response. A higher score on the instrument indicates a greater concern for the future consequences of an action versus today's gratification. Based on our hypotheses, a person more willing to use credit and worry less about bankruptcy would be more gratification-oriented; therefore they should have lower scores.

Myers-Briggs Type Indicator

The literature on the MBTI is voluminous; it is one of the most widely used personality indicators today. It is based on Jungian personality theory and scales preferences on the basis of four personality dichotomies: Extraversion-Introversion; Sensing-Intuition; Thinking-Feeling, and Judgment-Perception. Respondents complete a survey consisting of questions relating to circumstances. Each response deals with an expressed preference. The responses are categorized and scored; this leads to a four letter MBTI type based on the four separate personality dichotomies.

Extraversion-Introversion

This dichotomy deals with a person's preferred focus of attention. Extraverts prefer to focus on the outer world of people and their external environment. Introverts prefer a focus on their inner world. Extraverts tend to like to experience the world while introverts like to understand the world before experiencing it.

Sensing-Intuitive

This dichotomy deals with how an individual perceives or acquires information. Sensing types literally like to use their senses to acquire information about their surroundings. They tend to be realistic and practical and often are good at working with facts. Intuitive types use intuition, linking information with sensory input. Intuitive types value imagination and inspiration.

Thinking-Feeling

Thinking types predict the logical choices of actions. They tend to weigh facts, look at cause and effect, and come to objective conclusions based on analysis. Feeling types like to consider people and their feelings when they make decisions, not just objective facts. Feeling types tend to like dealing with people and are often sympathetic and appreciative.

Judgment-Perception

Judging types like a planned, orderly existence. They tend to be decision makers that like closure and then to move on. Perceiving types tend to like a more flexible, spontaneous world. They are geared more to understanding, gathering information, and keeping their options open.

Myers-Briggs typology considers that people have elements of all characteristics; it is just that some are dominant and others secondary. The combination of certain type characteristics from different dichotomies is also important. We will briefly consider some work that has been done using Myers-Briggs typology in the area of financial risk-taking behavior.

MBTI and Financial Risks

Bringhurst (1994) used the MBTI to examine the typology of successful currency option traders. Options are very speculative assets that are generally traded in open trading "pits" where there is a lot of noise and activity. Traders generate income based on the successful "betting" against price movements. Bringhurst found that the types most closely associated with successful traders were ENTP and INTP, followed by ESTP and ISTP. Thinking types were not surprising, as thinkers use evidence to arrive at logical consequences. Perceiving types look to understand their environment and trust their experience, which successful traders must do. As Bringhurst stated, "A successful trader must keep his or her options open (literally), then decide almost by gut feel at the critical moment" (p. 31).

Linder (2000) examines the approaches to managing money implied by a number of different MBTI types. His analysis found some similarities with Bringhurst. Extraverted Sensing types (ESTP, ESFP) are "today oriented". To them, planning and saving are less important than the current moment. They may be more likely to purchase regardless of price as well as their ability to afford something.

Extraverted Intuitive types (ENTP, ENFP) are more future oriented and are natural savers. They like to have enough money to pursue a number of different options, but may not be able to decide on one. This may lead them to spend money on a variety of things at once.

Introverted Thinking types (ISTP, INTP) are analytical comparison shoppers who look for intrinsic value. Price is not the most important feature, as long as they feel that intrinsic value is there. All of the above are possible types that might be inclined to use credit for purchases under the proper set of circumstances, although the ES types are the most "inclined" by type to consider the present as opposed to the future in terms of spending.

Weigel considered a number of studies relating MBTI type to financial risk-taking behavior in agriculture, particularly the willingness of farmers to incur debt. Agricultural businesses are somewhat different than other business forms because they represent an entire lifestyle. In one study quoted, in a sample of 243 male and female Nebraska farmers, 65% of the sample was SJ types, while only 6% were NT's. The study found that both groups might arrive at the same conclusions, but the NT types would take a riskier approach to finding the same outcome. This agrees with the earlier evidence we examined.

Results

Data from 136 surveys was collected and analyzed. There were 129 complete survey responses. We computed means and standard deviations for each financial survey question as well as total scores for the GESS-R, GUI, sensation seeking scale (SENSEEK), and delay of gratification scale (DELAYGRAT). We also computed demographic summaries of the students surveyed. The population was divided into four main groups based on our earlier assumptions. The Myers-Briggs types were divided into an EN group and an ES group based on Linder's time preference argument and the sample was also divided by gender. We performed a number of tests. First, there are a number of independent sample means tests to see if there are differing responses across the sample groups. These were performed for both instrument scores as well as selected questions from each survey. We also performed a number of correlation tests with both individual questions as well as instrument scores.

Demographic Results

A summary of demographics is presented in Table 2. The vast majority of the students were college freshmen (92%) with an average age of 18.43 years. They were predominately from the US (90%) and from the state of Florida (68%). Out of the sample, 64% indicated that they use credit cards, with an average balance of only \$57. The vast majority of the students (or their parents) in the sample paid their bills off every month, rarely carrying their balances forward. Average number of cards held was only 1.4. These are indicative of the basic population of the university: most of our students are from Florida and this is a freshman level class.

Means Analysis: Selected Questions

We were interested in a number of attitudes that students indicated about risk taking as it applies to credit use and their perceptions of bankruptcy. We were concerned that students might have "bought in" to the credit culture and might be less aware of the costs of using credit cards and thus more tempted to use (or abuse) them. We also wanted to see if they thought, as some legislators do, that bankruptcy had become "too easy" and that credit card providers were too aggressive in the way that they solicited new accounts. A relatively lax attitude toward bankruptcy or a belief that it represents an "out" could also lead to a more risky set of financial behaviors.

The means and standard deviations of all questions were computed. An "agree" response was scored a 2, a "neutral" response a 3, and a "disagree" response a 4. We examined the responses to a subset of all of the survey questions. These were:

Question 17: "Credit cards are an expensive way to finance purchases" Mean: 3.12 Standard deviation: .757 Question 18: "Credit card providers are excessive in their solicitation of new customers" Mean: 2.32 Standard deviation: .545 Question 21: "It is easy to file for bankruptcy today" Mean: 2.88

Standard deviation .725

Question 22: "Filing for bankruptcy has no serious financial consequences for someone who files" Mean: 3.61

Standard deviation .563

Based on these questions, it appears that the entire sample of students lean more toward agreeing that providers are excessive in terms of solicitation and believing that bankruptcy has serious financial consequences. As far as the other two questions, they really leaned toward a neutral response. This could come from a culture that has grown up with using credit and reading about bankruptcy, or it could be a general lack of knowledge.

Means Analysis By Groups

In this section we performed a series of independent sample means tests. In each test, the standing null hypothesis is equality of mean response to each question. A significant response, therefore, would indicate enough evidence to reject the null hypothesis in favor of the alternative, which is a difference in mean response to each question.

Group 1: MBTI Type

In this section we subdivided the sample into EN personality types and ES personality types. According to Linder the ES types are "today" oriented and the EN types are "future" oriented. We are postulating that a future oriented person is more likely to take risks because they are less concerned about the current consequences of their actions. This corresponds to the results that Linder and others found in the previous section. We tested the following questions, taken from each of the surveys. Sample size for the ES group was 38 and the sample size for the EN group was 54.

Question 11 (V12) "I worry about the consequences of overspending with a credit card." ES mean: 2.61 Std. dev. .79 EN mean: 2.56 Std. dev .769 T value: .302 P value: .763 Question 14 (V15) "Easy Access to credit cards causes extensive use of credit" Std dev. .793 ES mean: 2.58 EN mean: 2.67 Std. dev. .801 T value: -.519 P value: .605 Question 21(V22) "Filing for bankruptcy has no serious consequences for someone who files." ES mean: 3.68 Std. Dev .525 EN mean: 3.61 Std. Dev. .564 T value: .63 P value: .53 Question 22 (V23) "I consider myself to be a moral person." ES mean: 2.03 Std. Dev. .525 EN mean: 2.11 Std. Dev. .372 T value: -1.318 P value: .191 Question 23 (V24) "Religious activities such as regular worship and personal devotional activities are a significant part of my life." ES mean: 2.76 Std. Dev. .883 EN mean: 2.91 Std. Dev. .734 T value: -.853 P value: .396 For each of these questions, the responses were 2 for "Agree", 3 for "Neutral" and 4 for "Disagree". None of the tests were significant at the .05 level. Question 42 came from the GESS-R. It states, "In the future I expect that I will reach my financial goals." ES mean: 4.18 Std. Dev. .73 EN mean: 4.19 Std. Dev. .754 T value: -.006 P value: .995

This is scored with a 1 being "highly improbable" and a 5 being "highly probable". Once again, this result is statistically insignificant at the .05 level. Questions 67 and 68 came from the delayed gratification instrument. The scale for these is 1 being "extremely uncharacteristic" and 5 being "extremely characteristic", with a 3 being "uncertain" Ouestion 67: "I consider how things might be in the future, and try to influence those things with my day to dav behavior" ES mean: 3.97 Std. Dev. .822 EN mean: 4.09 Std. Dev. .838 T value: -.683 P value: .496 Question 68: "Often I engage in particular behavior in order to achieve outcomes that may not result for many years." ES mean: 3.45 Std. Dev. 1.083 EN mean: 3.55 Std. Dev. .889 T value: -.482 P value: .631 Once again, neither test was statistically significant at the .05 level. The final three questions came from the Generalized Unique Invulnerability survey. Each question assigns a probability of the event taking place. A 1 is "highly improbable" and a 5 is "highly probable". Question 84: "Making a six figure salary." ES mean: 2.13 Std. Dev. 1.018 EN mean: 1.81 Std. Dev. .761 T value: 1.718 P value: .089 Question 97: "Marrying someone wealthy." ES mean: 2.87 Std. Dev. .906 EN mean: 2.57 Std. Dev. .821 T value: 1.66 P value: .10 Question 102: "Being financially secure when you retire." Std. Dev. ES mean: 1.71 .956 EN mean: 1.60 Std. Dev. .817 T value: .572 P value: .568 None of these are significant at the .05 level.

Group 2: Gender

In this section we examined the same questions as in the MBTI section except we split the sample by gender. There were no preconceived hypotheses here, as we were simply looking for gender differences. The sample was fairly evenly split here, with 60 women and 69 men.

Question 11: "I worry about the consequences of overspending with a credit card."

Females: mean 2.38Std. Dev. .691 Males: 2.64Std. Dev. .804 mean T value: -1.912 P value .058 Ouestion 14: "Easy Access to credit cards causes extensive use of credit." Females: mean 2.50Std. Dev. .676 Males: mean 2.74Std. Dev. .869 T value: -1.725 P value: .087 Question 21: "filing for bankruptcy has no serious consequences for someone who files." Question 22: "I consider myself to be a moral person." Females: mean 2.03Std. Dev. .181 2.10Std. Dev. Males: .349 mean T value: -1.360

P value: .176 Ouestion 23: "Religious Activities such as regular worship and personal devotional activities are a significant part of my life." Females: mean 2.67Std. Dev. .795 3.00Std. Dev. Males: mean .804 T value: -2.36* P value: .02* Question 42: "In the future I expect that I will reach my financial goals." Females: 4.15Std. Dev. .685 mean .785 Males: 4.17Std. Dev. mean T value: -.183 P value: .855 Question 67: I consider how things might be in the future, and try to influence those things with my day to day behavior." Females: mean 4.17Std. Dev. .642 Males: mean 3.93Std. Dev. .903 T value: 1.713 P value: .089 Question 68: "Often I engage in particular behavior in order to achieve outcomes that may not result for many years." Females: 3.55Std. Dev.946 mean Males: mean 3.47Std. Dev. .954 T value: .472 P value: .638 Question 84: "Making a six figure salary." 2.17Std. Dev. Females: .847 mean 1.90Std. Dev. Males: mean .979 T value: 1.655 P value: .10 Question 97: "Marrying Someone Wealthy." Females: 2.62Std. Dev. mean .846 Males: 2.78Std. Dev. mean .861 T value: -1.076 P value: .284 Question 102: "Being financially secure when you retire." 1.68Std. Dev. Females: mean .792 Males: 1.65Std. Dev. .910 mean T value: .239 P value: .811

In this set of tests, there was only one significant gender difference that was recorded, and that was for Question 23. Males responded as having a significantly higher mean score on the question regarding worship and personal devotional activities. The female mean was 2.67 and the males 3.00. A "2" on this scale was "agree" and a 3 "neutral" response. The rest of the questions showed no significant gender differences.

Means Analysis: Aggregate Scores

In this set of tests, we were interested in whether or not there were aggregate differences in mean scores across the MBTI and gender groupings.

 MBTI Types

 GESS-R

 EN mean 104.5926
 Std. Dev. 7.78125

 ES mean 102.7368
 Std. Dev. 8.897349

 T value: 1.057
 P value: .293

 DELAYGRAT
 DELAYGRAT

EN mea	in 42.8	491 Std.	Dev.	5.85201	
ES	mean	42.7895	Std. Dev	. 5.70)518
T value:	.048				
P value:	.962				
UNIQUI	EIN				
EN	mean	51.9623	Std. Dev	11.5757	7
ES	mean	52.3684	Std. Dev	11.0292	5
T value:	168				
P value:	.867				
SENSE	ΞK				
EN	mean	7.2963	Std.	Dev.	2.31182
ES	mean	5.9211	Std.	Dev 2.25	5870
T value:	2.836*				
P value:	.006*				

In terms of these results, only the sensation seeking scale showed a significant difference between groups. The EN group had a significantly higher mean score. This corresponds to a higher indicated level of risk taking behavior on the part of the EN group. This reinforces the earlier results in that the EN groups were more future oriented and we postulated that they would be willing to assume more risks.

Gender				
GESS-R				
Females:	Mean	102.05	Std. Dev.	8.94129
Males:	Mean	103.3768	Std. Dev.	7.70237
T value:90)5			
P value: .36	7			
DELAYGR	AT			
Females:	mean	44.55	Std. Dev.	4.46237
Males:	mean	41.8088 Std	. Dev. 6.1	1399
T value: 2.8	64*			
P value: .00	5*			
UNIQUEIN				
Females:	mean	51.10	Std. Dev.	11.20487
Males:	mean	52.75	Std. Dev.	10.03631
T value:87	79			
P value: .38	1			
SENSEEK				
Females:	mean	5.85 Std	. Dev. 2.2	7607
Males:	mean:	6.7246	Std. Dev.	2.47864
T value: -2.0)76*			
P value: .04	*			

In this set of results, there were two indicators that showed statistically significant mean scores. These were the delay of gratification index and the sensation-seeking index. In the delaygrat index, females had a significantly higher mean score. This corresponds to a greater degree of future orientation as opposed to immediate gratification. For the senseek index, the males showed a higher mean score on this index. This corresponds to a higher level of sensation seeking behavioral responses. Given that the sample represents largely 18 year olds, this result should not seem surprising.

Correlation Analysis

We also performed a series of Pearson correlation coefficients to test for correlation between scores on the psychological indicators and the financial question responses. We were primarily interested in whether students would indicate a willingness to take financial risks in terms of using credit and whether they had a more relaxed view of using bankruptcy. We were also interested in whether an indication of "religious" behavior would imply more conservatism in terms of their approach to personal finances. Some selected questions are examined below.

Question 11 (V12): "I worry about the consequences of overspending with a credit card".

If students were more inclined to take credit card risks, they would worry less about the consequences. 64% of the respondents agreed with this statement while only 16% disagreed with it. The results of the question displayed significant negative correlation with DELAYGRAT. This is interesting, since a higher score would indicate a greater orientation toward future consequences of current actions.

Question 14 (V15): "Easy access to credit causes excessive use of credit."

This question is really a "responsibility avoidance" question. If the students feel that they should not be accountable for overspending, they would probably agree with this statement. Roughly 57% of respondents agreed with the statement, while 19% disagreed. This displayed significant positive correlation with two other questions: "It is unwise to use credit cards" and "Religious activities such as regular worship and personal devotional activities are a significant part of my life". These make sense as people who feel that credit cards are unwise probably feel that they have negative side effects. As far as the second question, one would think that people who display strong religious convictions would have a great sense of personal responsibility.

Question 19 (V20): "I would consider filing for bankruptcy if I was in serious financial difficulty". This was interesting. This displayed significant positive correlation with question 16 (V17) "Credit cards are an expensive way to finance purchases".

Question 24: "Religious activities such as regular worship and personal devotional activities are a significant part of my life". This had a 42% agree response and a 26% disagree response. It was negatively correlated with DELAYGRAT. A higher score on DELAYGRAT is indicative of a future orientation, which should correlate with a lower score (agree) on this question.

Instrument Correlations

There were some interesting patterns in the instruments themselves. The GESS-R was positively correlated with DELAYGRAT and negatively correlated with the GUI. DELAYGRAT was also negatively correlated with SENSEEK. These make sense. A person with a high GESS would be more optimistic and have a future orientation as well as lower perceived unique invulnerability. A lower delay of gratification score would be indicative of a present orientation, which could correspond with sensation seeking behavior.

Conclusions

We found some interesting responses in the survey. We were really interested in whether exposure to a "credit culture" had filtered down into people in this age demographic. If this were the case, we expected to see significant indicators of risk taking behavior. We also expected to see differences reflected by MBTI type and gender. This was not the case at all. As we examined their responses to a variety of questions related to financial variables, the results were very consistent regardless of type or gender. Basically, this appeared to be a very homogeneous population that did not display a lot of variability. Overall, the "credit culture" does not seem to have penetrated downward to the students in the sample. Overall, they seemed to have responsible attitudes about credit use and bankruptcy that were in line with their psychological indicators.

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