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Credit Card Practices: Knowledge, Attitude and Debt Management

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ABSTRACT

The trend of accumulation of large credit card debt, especially among young adults, has certainly become a nationwide concern in Malaysia. Consequently, many youngsters have been declared as bankrupt due to credit card indebtedness. Even though these youngsters were those with a lack of essential skills to handle credit cards, it seems that credit cards were easily accessible by them (college students in particular). Therefore, as previous studies have indicated, the ability of these youngsters to manage their finances efficiently is being questioned. The purpose of this study is to examine the factors contributing to postgraduate students' practices on credit card usage. The objectives of this study are: 1) to determine whether the understanding or knowledge of credit card usage can be used to minimise the impacts of credit card debt; 2) to examine whether the perceptions or attitudes on credit cards can affect its usage; and 3) to study the relationship between credit card debt management and credit card practices. Survey questionnaires were distributed and completed by a convenience sample of 100 postgraduate students at Universiti Putra Malaysia. After applying a chi-square test analysis, the results indicated three factors; knowledge of credit card usage, perceptions or attitudes of credit card usage, and credit card debt management have contributed as key determinants of the credit card practices and financial decisions among post-graduate students. The findings can assist the government in identifying suitable measures to reduce irresponsible credit card practices, especially amongst youngsters. It also offers practical information for administrators and counsellors to address the challenges faced by students of higher learning institutions.

Keywords: Credit card practices, financial decisions, debt management, youngsters, personal bankruptcy

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INTRODUCTION

In 2012 alone, out of 19,575 bankruptcy cases, 11,134 (or 57%) cases were declared by individuals aged between 25 and 44 (Malaysia Department of Insolvency, 2015). Moreover, back in 2009, out of the 3,548 people declaring bankruptcy by credit cards, 1,774 (or 50%) were those aged 30 and below (Malaysia Department of Insolvency, 2015; AKPK, 2010). In brief, there exists a trend in which younger individuals are declaring bankruptcy. This phenomenon of accumulation of credit card debt, especially among young adults, has certainly become a nationwide concern.

There is a growing concern that, although college students lack the financial knowledge and skills to handle credit cards wisely, they have easy access to them (Chen & Volpe, 1998; Henry, Weber, & Yarbrough, 2001; Palmer, Pinto, & Parente, 2001). Consequently, many young people have accumulated large amounts of debt, and have basically mortgaged their futures by the time they graduate (Susswein, 1995; Blair, 1997; Quinn, 2001).

Questions regarding students' abilities to efficiently manage their finances were raised by the prevalent usage of credit cards by college students. Several researchers have focused on the scope of credit card usage by students and concluded that the majority of college students use credit cards with some carrying substantial balances each month (Hayhoe, Leach, Turner, Bruin & Lawrence, 2000; Manning, 2000; Quinn, 2001; Joo, Grable & Bagwell, 2003).

Likewise, young people must be equipped with financial competencies before they are required to make decisions regarding money usage and management. Since it is the college and university administrators' responsibility "to create the necessary support systems to encourage the academic and personal success of their students" (Pinto, Parente, & Palmer, 2001, p. 172), it is essential for them to offer students with financial literacy training opportunities. Therefore, there is an urgent need to educate young people in financial literacy. However, financial education and counselling usually take place after individuals have become so deeply involved in debt that it is impossible for them to be able to meet their financial obligations. This is the reverse of what should be done.

This study aimed to examine the selected factors contributing to the post graduates students' financial decisions and practices on credit cards. For this purpose, the study adopted a revised theoretical framework of the Deacon and Firebaugh's (1988) model of family resource management.

The objectives of this study are: 1) to determine whether the understanding or knowledge of credit card usage can be used to minimise the impacts of credit card debt; 2) to examine whether the perceptions or attitudes on credit cards can affect their usage; and 3) to study the relationship between credit card debt management and credit card practices.

Therefore, the significance of this study is that the findings on students' credit card knowledge, attitudes, practices, and debt level can help the college or higher learning education's administrators and counsellors to determine the best approaches to tackle the problem that college students face regarding irresponsible credit card behaviour. This study also offers practical information to government agencies related to youth development. This information can potentially help them address the challenges faced by youngsters by developing and delivering educational programmes and effective counselling approaches to instil awareness on credit cards, and eventually financial discipline to avoid indebtedness issues.

The next section reviews the related literature and discusses the hypotheses development. Next, the research methodology is explained, and the results are analysed. Finally, limitations and contributions of the study are discussed in the conclusion.

LITERATURE REVIEW

Credit Cards

The utilisation of credit cards has become common among Malaysians, especially amongst traders. The first recorded usage of credit actually can be traced back to the ancient Babylon and Egypt, nearly 3000 years ago (Evans & Schmalensee 2005). Later on, during the 20th century, John Biggins of the Flatbush National Bank of Brooklyn in New York invented the first bank-issued credit card. Credit cards were first introduced in Malaysia in 1973, with the introduction of the Diners Club Card.

Recently, Awanis and Chi Chui (2014) presented a new concept and measure of susceptibility to the credit card misuse and indebtedness (SCCMI) on young credit card users (aged 18-25) from Malaysia, Singapore, and the UK, which applies confirmatory factor analysis and invariance tests to assess validity, reliability and parsimony of the proposed scale in these three countries. The results indicated that the SCCMI scale is valid, reliable and parsimonious across the multi-country context, as well as the prediction power of SCCMI on consumer tendency to become a revolving credit card debtor (Awanis & Chi Chui, 2014).

Knowledge of Credit Card Usage

Theoretically, knowledge plays an important role in the decision-making process. According to Liebermann and Flint-Goor (1996), one of the most important variables that influences the processing of information is the prior knowledge of an issue. This finding is consistent with that of Chen and Volpe (1998), who found that opinions and decisions tend to be influenced by one's level of financial knowledge.

In addition, evidence implies that financial behaviour and knowledge are possibly positively interrelated in a common household decision-making behaviour analysis (Hilgert, Hogarth, & Beverly, 2003). Moreover, Sabri, MacDonald, Hira, and Masud's (2010) study on financial literacy of college students in Malaysia is in line with the findings of Hilgert *et al*. (2003), which shows that discussing family finance with parents from an early age has an ample positive relationship with financial literacy.

Furthermore, prior studies indicate that knowledge may be a major factor in the development of credit attitudes (Zhu & Meeks, 1994; Chien & DeVaney, 2001; Hilgert *et al.*, 2003). Generally, knowledge is often substituted using one's education level. However, not many studies on determining whether actual financial knowledge is related to monitored credit behaviours among the student population. Jones (2005), and Borden, Lee and Serido (2008) did not find any significant relation between knowledge and usage of credit cards. Nevertheless, the exploratory nature and small sample size (n = 216) states that this question can be pursued further.

There are significant differences between those who are cautious with their credit card spending and those who are not. Students who are more likely to carry a revolving balance are the minorities, students on financial aid, and upper-level students who receive their cards after beginning college (Munro & Hirt, 1998). Lyons (2004) discovered that those who are more likely to have difficulties making credit card payments are female students and students who attained their cards after beginning college.

People's financial decisions and opinions can be influenced by their level of financial knowledge; individuals with higher level of financial knowledge are the ones who will be more likely to make good financial decisions in a hypothetical situation (Chen & Volpe, 1998). Furthermore, students who scored higher on a financial fitness test were more likely to report paying their balance in full each month, and were also less likely to own a credit card compared to students who had lower scores on the test (Cude, Lawrence, Lyons, Metzger, LeJeune *et al*., 2006). The results are consistent with Hussin, Kassim and Jamal's (2013) recent study, which revealed that there are significant differences in credit card usage among credit card holders of different personal backgrounds.

There is strong evidence from two groups of financial knowledge studies that college students do not possess a high degree of financial knowledge, despite the consequences of how financial knowledge is operationalized, be it the introductory personal finance course, or specific financial knowledge (Joo *et al*., 2003; Braunsberger, Lucas, & Roach, 2004; Avard, Manton, English, & Walker, 2005; Jones, 2005).

Amin (2012) found that factors such as "financial recommendation", "knowledge on Islamic credit cards", "age (young)", "marital status", "religion", and "education level" significantly affect Islamic credit card usage intention. However, Jusoh and Lin's (2012) study showed no significant relationship between personal financial knowledge and credit card practice.

Prior studies indicated that evidence regarding the relationship between financial knowledge and financial behaviour has been mixed. Results differ depending on how financial knowledge has been measured, what behaviours have been studied, and what populations have been analysed (Mandell, 2004; Peng, Bartholomae, Fox, & Cravener, 2007). Yet, not all researchers agree that there is a significant relationship between financial knowledge and behaviour. Therefore, it is hypothesised that:

H_1: *There is a significant relationship between credit card knowledge and credit card practices of the postgraduate students.*

Perception/ Attitude of Credit Card Usage

Prior studies demonstrated that perceived differences in payment attributes are important determinants of consumer payment behaviour (Jonker, 2005; Schuh & Stavins, 2008). The potential influence of consumer attitude towards credit on credit attainment and usage is one momentous issue that a number of studies have tackled (Durkin, 2000; Chien & DeVaney, 2001; Baum & O'Malley, 2003; Joo *et al*., 2003). To conclude, some broad trends can be distinguished, even if the method by which attitudes are measured, considerably differs from one study to another.

It is debatable on whether attitudes serve as an effective predictor of behaviour. An indication of the involvement of a more complicated series of interactions has surfaced subsequent to research from the social psychology area, which suggests that behaviour and attitudes do not always concur (Ajzen, 1996). In addition, various research has suggested that attitudes revolutionise over time, which implies that the difficulty of assessing attitudes as the outcomes may only be strongly associated to the timing of the data collection (Godwin, 1997).

Generally, the literature provides evidence that individuals who are more liable to carry an outstanding balance are those with more positive attitudes toward credit (Canner & Cyrnak, 1986; Godwin, 1997; Chien & DeVaney, 2001; Kim & DeVaney, 2001). However, Canner and Cyrnak (1986) suggest that individuals that are more likely to utilise credit cards as a source of revolving credit rather than as a cash substitute are those with more positive attitudes toward borrowing. Another study demonstrates that the ability and willingness to borrow will influence the amount of debt held by a household (Godwin, 1997). Chien and DeVaney (2001), and Kim and DeVaney (2001), revealed that scores on a particular attitude index are found to be positively correlated to outstanding credit card balance in a study using the Survey of Consumer Finances (SCF, 2014).

However, there are other studies that do not universally support this line of thought. Other studies using SCF also suggest that, compared with individuals who use credit as a cash substitute, those who use credit cards as a borrowing medium also have the tendency to hold unfavourable views of credit (Durkin, 2000). Over a thirty-year period, Durkin (2000) analysed the responses and alter revealed that there was greater polarisation in the attitudes toward credit among consumers in 2000 compared with those in 1970.

Durkin (2000) discovered that less positive views toward credit cards are distinguished among those who "have three or more credit cards, have more than $1500 in revolving debt, have transferred a balance between cards, hardly ever pay their balance in full, and hardly ever pay the minimum payment in full" (Robb, 2007).

The potential origins of consumer attitudes are among the more interesting results from Durkin's (2000) analysis, in which negative attitudes may influence individuals' perceptions of consumers' experiences than their own personal experiences. There is a widely held belief that, during the last half of the twentieth century, attitudes toward debt have changed radically. Amin's (2012) study concludes that "attitude on Islamic credit card" appears to have no effect on the Islamic credit card usage intention.

In general, attitudes are appealing to the credit card behaviour analysis among consumers by means of the modern consumer generally accepting credit as a major constituent of their daily economic life (Lea, Webley, & Walker, 1995; Davies & Lea, 1995) using the Yamauchi and Templer's (1982) Money Attitude Scale (MAS) to measure the role of attitudes in consumer credit behaviour.

Moreover, many studies have linked attitudes toward credit with credit card behaviour. Xiao, Noring and Anderson (1995) and Joo *et al*. (2003) found that there is a significant relationship between a positive attitude toward credit cards and card ownership, and usage.

Hayhoe, Leach, and Turner (1999) found a distinguished difference between students who have credit cards and those who do not have credit cards when comparing their scores in relation to money attitudes of obsession, retention and affective credit attitudes. Therefore, it is hypothesised that:

H_2: *There is a significant relationship between credit card perceptions or attitudes of credit card usage and credit card practices of the postgraduate students.*

Credit Card Debt Management

Credit card spending and borrowing are particularly vulnerable to self-control problems due to the nature of the credit card. When using a credit card, payment is separated from the act of purchasing and can considerably occur later than the purchase or consumption. In other words, such chronological separation may psychologically encourage credit card spending, and consequently, credit card debt (Bar-Gill, 2004).

Meier and Sprenger (2007) show that self-control problems that are directly measured are strongly related with credit card debt. Ausubel (1991) explains that self-control problems in credit card management play a major role in generating profits in the credit card industry. This indicates that self-control problems can clarify the success of teaser rates in the credit card markets (Shui & Ausubel, 2004).

Ming-Yen Teoh, Chong, and Mid Yong (2013) found that age, income, marital status, banks' policies (benefits given and payment policies) and attitudes toward money (willingness to pay and awareness of the total debt owed) have a significant correlation with credit card holders' spending behaviour among Malaysians.

Students are more inclined to go into personal debts due to the rise in tuition fees and the decrement in educational subsidising by the government (Bilski, 1991). As a result, students leave college with more debts than degrees. A recent study indicates that the average undergraduate student loan debt is $18,900 (Baum & O'Malley, 2003).

Credit card usage contributes the most to student debts. Mae's (2002) study demonstrated that more than 80% of college students do own and use credit cards, in which each student owns an average of 4.25 credit cards. In terms of credit card balance, undergraduate students maintain an average account balance of $2,327 in debt (Mae, 2000). Furthermore, to shed some light on the intensity of student credit card debts, the median credit card debt for undergraduate students is $1,600 (Baum & O'Malley, 2003). Even though, in general, credit card debts are still under control, it does not deny the fact that a considerable number of cases are indeed very serious. This raises an alarming concern to the financial habits of undergraduate students.

Since they are responsible for their own financial needs, college students find themselves trapped in a web of never ending debt. In considering credit card debt alone, two-fifths of the students maintain a balance that carries over from month-to-month on their credit cards (Jamba-Joyner, Howard-Hamilton, & Mamarchev, 2000). Thus, many students are identified as "revolving account holders" (i.e., those who do not pay their credit card bill in full each month), and this occurrence is actually evidence that students are unable to pay their debts constantly.

Being in such a condition of debt may adversely affect the students. Students with four to five credit cards are less likely to go to their friends or families in an event of a financial emergency (Hayhoe *et al*., 1999). These findings show that students are more willing to be in debt as they do not seek help from their friends or families, but turn to the profit seeking and interest raising credit companies.

A lack in financial management and strategy contributes considerably to the problem. Sixty-two percent of students were found not to have a specified monthly budget to govern their expenditures (Students in Free Enterprise, 2002). The notion that "if you fail to plan, you plan to fail" would be suitable to be imposed in this situation, as these students will face an inevitable financial 'death'.

When these students graduate, they face the financial burden of not only paying their educational loans, but also settling their formidable credit debts. Calculating the average income of fresh graduates, not more than eight percent should be used to repay debts. Any higher than the percentage used would result in a situation where the debts are unmanageable. Thus, it is estimated that 40% of students are not able to manage their debts (King & Bannon, 2002). These debts may burden the students not only in the immediate future, but will also be costly in the long run.

Furthermore, these students will have trouble in seeking for jobs, as their financial background is tainted with bad records of these debts (Consumer Federation of America, 1999). This highlights that bad management of credit debts will hinder the personal and professional developments of these graduates. Therefore, it is hypothesised that:

H_3: There is a significant relationship between credit card management and credit card practices of the postgraduate students.

Overall, it is difficult to illustrate strong conclusions regarding the relationship among financial knowledge, perceptions or attitudes, as well as credit card debt management and behaviour due to the inconsistencies from the available literature. By directly comparing a theoretical measure of the factors to an observable financial behaviour, the present analysis utilised components of the previous measures that were built on prior research.

THEORETICAL FRAMEWORK

This study is based on the revised Deacon and Firebaugh's (1988) framework model that has been strongly influenced by both Punjavat (1992) and Tucker (2000). It differs from Deacon and Firebaugh's model in terms of its simplicity. The major components, which are input and output, remain the same as throughput is merged with input. This is because both the independent variables and mediating variables will eventually influence the dependent variables. This model is further simplified to accommodate the simplicity of this study (Fig.1) and has been adjusted and modified based on the literature review.

According to the theorists, management is a basic tool for achieving "meaningful, effective living of individuals and families" (Deacon & Firebaugh, 1988, p. 3) that helps organise the events of life and influences the resulting outcome. Individuals need to anticipate change and apply management processes in order to navigate their daily lives because living involves responding to continuous change. These management processes will differ accordingly depending on the individuals' backgrounds.

Deacon and Firebaugh (1988) identified three components which are input, throughput and output. Input is defined as "matter, energy, and/or information entering a system in various forms to affect the throughput (transformation) processes resulting in output" (Deacon & Firebaugh, 1988, pp. 8-9), which consists of demands and resources that may originate from either inside or outside of the structure.

Tucker (2000) observed the relationships between the input (independent) variables, the throughput (mediating) variables, and the output (dependent) variables over the processes involved in baby boomers' financial preparation for retirement. Input variables consisted of baby boomers' demographic characteristics such as age, gender, ethnic background, marital status, household income, and educational achievement.

Tucker (2000) identified throughput variables such as anticipated age of retirement, confidence in social security and retirement savings calculation as personal and managerial responses that were estimated to arbitrate the effects of input on the output. These throughput variables "provide the functioning mechanism through which families and individuals can plan for retirement income" (Tucker, 2000, p. 17). Although the mediating variable acts as a dependent variable for the independent input variable, it also acts as an independent variable toward the dependent output variable (Tucker, 2000). In the revised model by Tucker, baby boomers' current amount of retirement savings, expected sources of retirement income and post-retirement employment plans made up for the output variables.

Using the revised model of Deacon and Firebaugh's (1988) conceptual framework, Punjavat (1992) based a study of international graduate students and credit cards. In Punjavat's (1992) study, input consists of four independent variables which are socio-demographic characteristics, credit card knowledge, credit card experiences or debt management, and credit card attitudes or perceptions. Socio-demographic characteristics may be categorised as input because they are known to be resources upon which students illustrate when making decisions about credit card practices (Punjavat, 1992). Internal (human) resources include knowledge regarding credit cards and experiences or management with credit cards. A higher level of credit card knowledge should result in more efficient credit card usage whereas positive or negative credit card management should make some impacts on the practices. Punjavat (1992) considered attitudes or perceptions toward credit cards to be a demand input that should influence the planning and implementation of the usage of credit card.

According to Punjavat (1992), throughput consists of credit card practices that involve both planning and implementation of credit card usage. Credit card practices are accountable for converting input to output (credit card satisfaction) and may be described as a mediating variable whereas output is the dependent variable.

Unlike Tucker's (2000) study, Punjavat's model includes a fourth component which is feedback. A high level of satisfaction would re-enter the system as a positive feedback whereas a low level of satisfaction would re-enter the system as a negative feedback. Even though there is negative feedback, it would help to promote the necessary changes to be made into constructing a better system.

The external or internal demands and resources that enter the system are represented by the independent variable, college students' socio-demographic characteristics. These are the inputs that consent to the transformation processes to fabricate output. In this study, the socio-demographic characteristics that influence postgraduate students' credit card knowledge and credit card attitudes (throughput) were selected from the body of literature, which consisted of age, gender, ethnicity, marital status, grade point average, employment, income level, and socioeconomic background. The mediating variables (postgraduate students' credit card knowledge, credit card attitudes, and credit card debt management) are managerial processes that affect output (credit card practices).

In this study, credit card practices involve the acquisition, possession and usage of credit cards. The term encompasses the reasons for using credit cards, the number of cards owned, and repayment practices. According to Moore (2004), "input represents factual and existing variables, throughput depicts the change process that affects output, and output displays the final results of the framework from which the only change that can be realised is an alteration of the input component".

The independent variable, such as socio-demographic characteristics, represents the input component. Postgraduate students' credit card knowledge and credit card attitudes represent the throughput component. The throughput component consists of mediating variables because they indirectly explain the relationship between the independent variable and the dependent variable. Postgraduate students' credit card practices represent the output component as the dependent variable.

Therefore, the revised Deacon and Firebaugh's (1988) framework model would be the most suitable for the purpose of this study, subsequent to the indications of their thorough review on family resource management theory and its individual personal/managerial system. The possible sources for the revised model of Deacon and Firebaugh's framework that were investigated are in two studies by Punjavat (1992) and Tucker (2000).

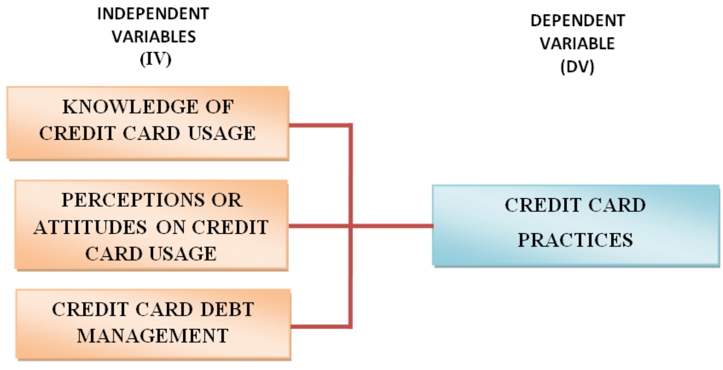

Fig.1: The Research Model

RESEARCH METHOD

Specifically, the study examined the interrelationships between postgraduate students' credit card knowledge, credit card perceptions or attitudes and credit card debt management (independent variables), and postgraduate students' credit card practices (dependent variable).

The study applies the single cross-sectional design, which involves the collection of information from any given sample of population elements only once. Only one sample of respondents was drawn from the target population and information was obtained from this particular one sample.

The researcher approached postgraduate students of various academic backgrounds in order to ensure that there is no discrimination that may alter the final results. The researcher had also ensured that the postgraduate students who were pursuing a range of different courses during the course of the research answered the questionnaire. This is to ensure that the data collected are as accurately as possible.

Furthermore, the researcher did a pilot test by distributing questionnaires to 30 respondents and receiving feedback regarding the difficulty in comprehending some of the questions. Therefore, the questionnaire was then tailored to be easily understood by the respondents, and the previous 30 samples were disregarded. After that, over a four-week period, beginning on 23 August 2010, the researcher distributed questionnaires to 100 postgraduate students at Universiti Putra Malaysia. The survey was completed by a convenience sample of 100 postgraduate students from the Graduate School of Management and the School of Graduate Studies in Universiti Putra Malaysia.

The structured questionnaire was used in gathering data, which was adopted from Moore (2004) and Punjavat (1992). Moore (2004) examined the effects on financial knowledge and attitude of credit card practices, while Punjavat (1992) investigated the credit card debt management aspects. The survey questionnaire is divided into five sections. Section A represents the demographic profile, and consists of multiple choice questions about demographic information of the respondents. Meanwhile, in Sections B, C, D and E, the researcher constructed questions about various levels of perception by using a Likert Scale. Each part represents discussion on knowledge of credit card usage, perceptions or attitudes on credit card usage, and credit card debt management, respectively.

The Statistical Package for Social Science Version 16.0 software application was used by the researcher in order to analyse the data after the fieldwork process was done. The analyses included frequency distribution, descriptive statistics and a chi-Square test.

RESULTS AND DISCUSSION

Data were collected from 100 UPM post graduate students. The demographic profile of the respondents is shown in Table 1.

TABLE 1
Respondents' Profile

Age	**Frequency**	**%**
23-25 years	58	58
26-30 years	35	35
31 years and above	7	7
Gender		
Male	41	41
Female	59	59
Ethnicity		
Malay	48	48
Chinese	40	40
Indian	7	7
Others	5	5
Monthly Income		
Less than RM1,000	54	54
RM1,001-RM3,000	21	21
RM3,001-RM5000	19	19
RM5,001 and above	6	6
Having Finance/Business Related Programme		
WITH Financial Background	57	57
WITHOUT Financial Background	43	43
Occupation		
Student	57	57
Public Sector Employee	20	20
Private Sector Employee	23	23

Female respondents (59%) are slightly more in number than male respondents (41%). The gap between female respondents and male respondents is 18%, which might be attributable to the trend of an increased number of females pursuing postgraduate studies. The majority (58%) of the respondents are from 23 to 25 years age groups. Thirty five percent of the respondents are from the age group of 26 to 30 years, and only 7% of the respondents are more than 31 years old. From the statistics, 48% of the respondents are Malay, 40% are Chinese, 7% are Indians, and the rest are from other ethnicity groups. Most of them (78%) are still single.

Moreover, the majority (57%) of the respondents have taken (or are currently taking) a finance/business-related programme. The other 43% are mostly postgraduate students from the School of Graduate Studies, and are taking non-finance or non–business related programmes such as Master's of Pathology, Master's of Veterinary Medicine, Master's of Plantation Management, and Master's of Corporate Communication (Refer Table 1).

Most (57%) of the respondents are full-time students, 23% are private sector employees, and 20% are public sector employees. More than half (54%) of the respondents earn less than RM1,000 monthly. This could be due to their status as full-time students, where their monthly income is basically their allowance money. However, only 6% of the respondents earn more than RM5,000 per month. The results for the respondents' credit card practices are presented in Table 2.

TABLE 2
Respondents' credit card practices

Respondents' Credit Card Practices	Frequency	%
Number of Credit Card(s) Owned		
1	53	53%
2 or 3	32	32%
4 and above	15	15%
First Time Acquiring a Credit Card		
Before College	16	16%
First or Second Year of College	41	41%
Third or Subsequent Years of College	37	37%
Graduate School	6	6%
Average Payment Method	49	49%
Credit Card		
Debit Card	6	6%
Cash	45	45%
Ways Handling Credit Card Balances	15	15%
Pay them in full		
Pay more than the minimum	33	33%
Pay the minimum	38	38%
Behind on payments	14	14%
Reasons for Credit Card Usage	37	37%
To get cash advances		
For convenience/ safety	32	32%
To cover emergency needs	13	13%
For the incentives	13	13%
To keep up with friends	5	5%

Table 2 shows that 49% of the respondents rely on credit cards as an average payment method in most of their transactions, while 45% use cash. Only six respondents use debit cards. Even though only 49% of the respondents use credit cards as an average payment method, 53% of them have at least one credit card. In fact, 32% of the respondents hold two or three credit cards, while 15% of them own more than three credit cards. Most of the respondents (41%) acquired their first credit card during their first or second year of postgraduate studies.

Furthermore, the respondents' credit card balances payment was categorised into four groups, which are: Pay them in full, Pay more than the minimum, Pay the minimum, and Behind on payments. The result demonstrated a majority (38%) of the respondents pay their credit card balances by paying only the minimum. Only 15% of the respondents actually pay their credit card balances in full, whereas 14% of the respondents are behind on their credit card payments. Even though most of the respondents pay the minimum of their credit card balances, they are still at risk of getting into debt as those who are behind on their credit card payments.

Moreover, the respondents' reasons for credit card usage have been diversified into five groups, which are: to get cash advances, for convenience/safety, to cover emergency needs, for incentives and to keep up with friends. The results showed that 37% of the respondents use their credit card to get cash advances, 32% use it for convenience or safety, 13% use it to cover emergency needs such as unanticipated car repairs and 13% use it for incentives such as credit card membership discounts offered at certain outlets and bonus points for redemptions. Surprisingly, 5% of the respondents do use their credit card to keep up with their friends.

Reliability Analysis

Table 3 shows the results of the reliability of the independent variables using Cronbach's Alpha.

TABLE 3
Reliability analysis for knowledge, attitude of credit card usage and credit card debt Management

Independent Variables	Cronbach's Alpha	N of Items
Knowledge on Credit Card usage	**0.793**	6
Attitude on Credit Card Usage	**0.757**	5
Credit Card Debt Management	0.796	5

The Cronbach's Alpha for six (6) items in knowledge of credit card usage (independent variables) measure is 0.793, whereas the Cronbach's Alpha for five (5) items in perceptions or attitude on credit card usage (independent variables) measure is 0.757, and the Cronbach's Alpha for five (5) items in credit card debt management (independent variables) measure is 0.796. The alpha coefficient shows that these independent variables are good (Hair, Babin, Money & Samouel, 2003) and acceptable.

Descriptive Analysis

Data screening was conducted in this study to check the normality of the data collected. For data to be normal, the value of the mean must be greater than the standard deviation, while the value of skewness must be between -2 to +2, and the value of kurtosis must be between -3 to +3.

Table 4 indicates that the value of the mean for all variables is greater than the standard deviation. The results also show that the skewness values for the four variables fall within the range of -2 to +2, while the kurtosis of the four variables falls within the range of -3 to +3. A negative skew indicates that the tail on the left of the probability density function is longer than the one on the right, and the bulk of values including the median lie to the right of the mean. Meanwhile, a positive skew indicates that the tail on the right is longer than on the left, and the bulk of values lie to the left of the mean. Kurtosis is the measure of "peakness" of the probability distribution. Therefore, it is very appropriate to mention that the data collected are normal.

TABLE 4
Descriptive statistics for all variables

Variables	**Mean**	**Std Dev**	**Skewness**	**Kurtosis**
Credit Card Practices	2.28	.58741	-.147	-.519
Knowledge of Credit Card Usage	3.35	.55732	.263	-.345
Perception/Attitude on Credit Card Usage	3.37	.64597	-.532	.839
Credit Card Debt Management	3.11	.64971	.116	-.046

Hypotheses Testing

Chi-square tests were applied to determine the statistical significance of the relationship between credit card practices (dependent variables) with three independent variables, namely, knowledge of credit card usage, perception or attitude of credit card usage and credit card debt management. The significance level of α=0.05 was chosen, with a 95% confidence interval. The results of the chi-square test on hypotheses 1, 2, and 3 are summarised in Table 5.

Knowledge of Credit Card Usage

H_1: *There is a significant relationship between understanding or knowledge of credit card usage and credit card practices of postgraduate students.*

Based on Table 5, the hypothesis testing for knowledge of credit card usage shows six degrees of freedom (df). The value for an upper tail of 0.05 is 56.479, which indicates that the probability of exceeding a chi-square value of 56.479 is 0.05. On the other hand, at a 0.05 level of significance with 6 df, the critical value of the chi-square statistic is 12.592. Refer to the chi square distribution table in Appendix 1.

TABLE 5
Chi-Square tests on hypothesis 1 (knowledge of credit card usage), hypothesis2 (perception/attitude of credit card usage), and hypothesis 3 (credit card debt management)

	Hypothesis 1 (Knowledge of credit card usage)			**Hypothesis 2 (Perception/Attitude of credit card usage)**			**Hypothesis 3 (credit card debt management)**		
	Value	df	Asymp. Sig. (2-sided)	Value	df	Asymp. Sig. (2-sided)	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	**56.479**$_{(a)}$	6	**.000**	**69.788**$_{(a)}$	8	**.000**	**48.175**$_{(a)}$	6	**.000**
Likelihood Ratio	34.925	6	.000	54.719	8	.000	39.326	6	.000
Linear-by-Linear Association	27.734	1	.000	42.594	1	.000	30.351	1	.000
N of Valid Cases	100			100			100		

The calculated chi-square statistic had a value of 56.749, which is more than the critical value of 12.592. Therefore, the null hypothesis is rejected, indicating that the association is statistically significant at the 0.05 level. Furthermore, the asymptotic value in this hypothesis is 0.000, which is lower than the alpha value of 0.05. The result shows that there is a strong relationship between knowledge of credit card usage and credit card practices. Thus, credit card practices do depend on the knowledge of credit card usage. Moreover, good credit card practices are not related to sufficient knowledge about credit card usage such as interest rates on debt payments.

Perception or Attitude of Credit Card Usage

H_2: *There is a significant relationship between perceptions or attitudes of credit card usage and credit card practices of postgraduate students*

Table 5 demonstrates the hypothesis test for the perception or attitude on credit card practices. With eight degrees of freedom (df), the value for an upper tail of 0.05 is 69.788, which indicates that the probability of exceeding a chi-square value of 69.788 is 0.05. In other words, at the 0.05 level of significance with 8 df, the critical value of the chi-square statistic is 15.507[i]. Since the chi-square statistic holds a value of 69.788, which is more than the critical value of 15.507; this indicates that the association is statistically significant at the 0.05 level. Furthermore, the asymptotic value in this hypothesis is 0.000, which is lower than the alpha value of 0.05. Thus, hypothesis 2 testing is accepted.

The result also shows a strong relationship between perception or attitude on credit card usage and credit card practices. Therefore, credit card practices do depend on the perception or attitude of credit card usage. Moreover, students will acquire good credit card practices if they have negative perceptions on credit card usage such as perceiving a credit card as a tool that will ultimately land them into greater financial trouble.

Credit Card Debt Management

H_3: There is a significant relationship between credit card debt management and credit card practices of postgraduate students

Based on Table 5, the hypothesis test for credit card debt management indicates that for six degrees of freedom (df), the value for an upper tail of 0.05 is 48.175. This indicates that the probability of exceeding a chi-square value of 48.175 is 0.05. In other words, at a 0.05 level of significance with 6 df, the critical value of the chi-square statistic is 12.592[i]. Since the chi-square statistic has a value of 48.175, which is more than the critical value of 12.59, the association is statistically significant at the 0.05 level. Furthermore, the asymptotic value in this hypothesis is 0.000, which is lower than the alpha value of 0.05.

The result shows a strong relationship between credit card debt management and credit card practices. In other words, credit card practices do depend on credit card debt management. Moreover, postgraduate students will have good credit card practices if they manage their credit card debts well such as seeking new ways to reduce credit card debts and participating in workshops that deal with personal financial management and responsibilities.

CONCLUSION AND RECOMMENDATIONS

This study revealed a significant relationship between credit card knowledge and credit card practices of the postgraduate students. This finding is supported by Liebermann and Flint-Goor (1996) who claimed that one of the most important variables that influences the processing of information is the prior knowledge of an issue. In addition, Chen and Volpe's (1998) supported this finding by explaining that opinions and decisions tend to be influenced by one's level of financial knowledge. Moreover, according to Cude *et al*. (2006), students who scored higher on a financial fitness test were more likely to report paying their balance in full each month and these students were also less likely to own a credit card as compared with students who had lower scores on the test.

Moreover, this study also demonstrates a significant relationship between credit card perception or attitude and credit card practices of the postgraduate students. It has been found that perceptions, in this case the perceived differences in payment attributes, are important determinants of consumer payment behaviour (Hirschman, 1982; Jonker 2005; Schuh & Stavins 2008). The potential influence of consumers' attitude towards credit on credit attainment and use is one momentous issue that a number of studies have tackled (Baum & O'Malley, 2003; Joo *et al*., 2003).

Furthermore, this study shows that there is a significant relationship between credit card debt management and credit card practices of the postgraduate students. Prior study showed that self-control problems that are directly measured are strongly related with credit card debt (Meier & Sprenger, 2007). In addition, Ausubel (1991) explains that self-control problems in credit card management do play a major role in generating profits in the credit card industry. Therefore, this indicates that self-control problems can explicate the success of teaser rates in the credit card markets (Shui & Ausubel, 2004).

From this research, it was found that the three factors (knowledge of credit card usage, perceptions or attitudes of credit card usage and credit card debt management) play significantly important roles in determining the credit card practices and financial decisions. Although this sample cannot be generalised for the whole population in Malaysia, it is a crucial step in understanding the depth and seriousness of the issues of bad credit card behaviours, which will eventually lead to bankruptcy.

This study demonstrates that there seems to be a worrying trend as some students are behind on their credit card balance payments. Unless something is done to mitigate or, at least, reduce the seriousness of the situation, more youths will likely be to succumb to such financial traps in the future.

Therefore, information should be made available and accessible to the public regarding the implications of unsettled debts as not all youngsters are aware of this particular aspect of credit card use since it is not easily available. Not many are aware that even applying for a telephone line is impossible when one is declared a bankrupt, according to National Consumer Complaints Centre chief executive officer Muhammad Sha'ani Abdullah (The Star, 2009).

Furthermore, project director of Muslim Consumer Association of Malaysia (PPIM), Noor Nirwandy Mat Noordin, is very concerned that the present module of credit card approval seems to be very effortless and easy. Youths who are not earning much income or do not even have jobs are even offered credit cards by banks. Consequently, the government must also regard this issue more seriously as more and more youths are getting entangled in the web of debts from credit card usage (Chang, 2009).

In general, youths must also take action in controlling their impulsive spending on their own. With e-shopping becoming more popular such as the likes of e-Bay, Amazon and iTunes Store, these eventually make credit card usage become increasingly and indiscriminatingly widespread. Therefore, youths should consider the good credit card practices as a good habit as it can establish their financial future, whether intentionally or unintentionally.

REFERENCES

Ajzen, I. (1996). The social psychology of decision making. In E. T. Higgins & A. W. Kruglanski (Eds.), *Social Psychology: Handbook of Basic Principles* (pp. 297-328). New York: Guilford.

AKPK. (2010). *Agensi Kredit Pengurusan Kaunseling*. Retrieved from http://www.akpk.org.my/happenings/news/press-release/id/27/swipe-what-you-can-afford-to-spend

Amin, H. (2012). Patronage factors of Malaysian local customers toward Islamic credit cards. *Management Research Review 35*(6), 512-530.

Ausubel, L. M. (1991). The failure of competition in the credit card market. *The American Economic Review*, *81*(1), 50-81.

Avard, S., Manton, E., English, D., & Walker, J. (2005). The financial knowledge of college freshmen. *College Student Journal*, *39*(2), 321.

Awanis, S., & Chi Cui, C. (2014). Consumer susceptibility to credit card misuse and indebtedness. *Asia Pacific Journal of Marketing and Logistics, 26*(3), 408-429.

Baum, S., & O'Malley, M. (2003). College on credit: How borrowers perceive their education debt. *Journal of Student Financial Aid*, *33*(3), 7-19.

Bar-Gill, O. (2004). Seduction by Plastic. *Northwestern University Law Review*, *98*(4), 1373-1375.

Bilski, A. (1991). The continuing indebtedness of our students... how deep can they get in debt. *Credit World*, *79*(5), 24-28.

Blair, A. D. (1997). A high wire act: Balancing student loan and credit card debt. *Credit World*, *86*, 15-17.

Borden, L. M., Lee, S. A., Serido, J., & Collins, D. (2008). Changing college students' financial knowledge, attitudes, and behavior through seminar participation. *Journal of Family and Economic Issues*, *29*(1), 23-40.

Braunsberger, K., Lucas, L. A., & Roach, D. (2004). The effectiveness of credit-card regulation for vulnerable consumers. *Journal of Services Marketing*, *18*(5), 358-370.

Canner, G. B., & Cyrnak, A. W. (1986). Determinants of consumer credit card usage patterns. *Journal of Retail Banking*, *8*(1), 9-18.

Chang. (2009). *Credit card debt and you: Many unaware of effects of bankruptcy*. Retrieved from http://www.lawyerment.com.my/boards/article-Malaysia_Business_Consumer_Bankruptcy_Law-570.htm

Chen, H., & Volpe, R. P. (1998). An analysis of personal financial literacy among college students. *Financial services review*, *7*(2), 107-128.

Chien, Y. W., & Devaney, S. A. (2001). The effects of credit attitude and socioeconomic factors on credit card and installment debt. *Journal of Consumer Affairs*, *35*(1), 162-179.

CFA. (1999, June 8). *Credit card debt imposes huge costs on many college students*. Consumer Federations of America, 1424 Sixteenth Street, N.W. Suite 604, Washington, D.C. 20036.

Cude, B., Lawrence, F., Lyons, A., Metzger, K., LeJeune, E., Marks, L., & Machtmes, K. (2006). College students and financial literacy: What they know and what we need to learn. *Proceedings of the Eastern Family Economics and Resource Management Association*, 102-109.

Davies, E., & Lea, S. E. (1995). Student attitudes to student debt. *Journal of Economic Psychology*, *16*(4), 663-679.

Deacon, R. E., & Firebaugh, F. M. (1988). *Family resource management: Principle and applications (*2nd Ed.). Needham Heights, MA: Allyn and Bacom.

Durkin, T. A. (2000). Credit cards: Use and consumer attitudes, 1970-2000. *Fed. Res. Bull.*, *86*, 623.

Evans, D. S., & Schmalensee, R. (2005). *Paying with plastic: The digital revolution in buying and borrowing*. Cambridge, Masachusetts: MIT Press.

Godwin, D. D. (1997). Dynamics of Households' Income, Debt and Attitudes toward Credit, 1983–1989. *Journal of Consumer Affairs*, *31*(2), 303-325.

Hair, J. F., Babin, B., Money, A. H., & Samouel, P. (2003). *Essentials of Business Research Methods.* New York: Wiley Publications.

Hayhoe, C. R., Leach, L., & Turner, P. R. (1999). Discriminating the number of credit cards held by college students using credit and money attitudes. *Journal of Economic Psychology*, *20*(6), 643-656.

Hayhoe, C. R., Leach, L. J., Turner, P. R., Bruin, M. J., & Lawrence, F. C. (2000). Differences in spending habits and credit use of college students. *Journal of Consumer Affairs*, *34*(1), 113-133.

Henry, R. A., Weber, J. G., & Yarbrough, D. (2001). Money management practices of college students. *College Student Journal*, *35*(2), 244-249.

Hilgert, M. A., Hogarth, J. M., & Beverly, S. G. (2003). Household financial management: The connection between knowledge and behavior. *Fed. Res. Bull.*, *89*, 309.

Hirschman, E. C. (1982). Consumer payment systems: the relationship of attribute structure to preference and usage. *Journal of Business*, *55*(4), 531-545.

Hussin, S. R., Kassim, S., & Jamal, N. (2013). Credit card holders in Malaysia: customer characteristics and credit card usage. *International Journal of Economics and Management*, *7*(1), 108-122.

Jamba-Joyner, L. A., Howard-Hamilton, M., & Mamarchev, H. (2000). College Students and Credit Cards: Cause for Concern? *Concern*, *30*(3), 2.

Jones, J. E. (2005). College Students' Knowledge and Use of Credit. *Financial Counseling and Planning*, *16*(2).

Jonker, N. (2005). *Payment instruments as perceived by consumers-a public survey*. De Nederlandsche Bank.

Joo, S. H., Grable, J. E., & Bagwell, D. C. (2003). Credit card attitudes and behaviors of college students. *College Student Journal*, *37*(3), 405-419.

Jusoh, Z. M., & Lin, L. Y. (2012). Personal financial knowledge and attitude towards credit card practices among working adults in Malaysia. *International Journal of Business and Social Science, 3*(7), 176-185.

Kim, H., & DeVaney, S. A. (2001). The determinants of outstanding balances among credit card revolvers. *Financial Counseling and Planning*, *12*(1), 67-77.

King, T., & Bannon, E. (2002). The burden of borrowing: A report on the rising rates of student loan debt. *State PIRGs Higher Education Project*.

Lea, S. E., Webley, P., & Walker, C. M. (1995). Psychological factors in consumer debt: Money management, economic socialization, and credit use. *Journal of Economic Psychology*, *16*(4), 681-701.

Liebermann, Y., & Flint-Goor, A. (1996). Message strategy by product-class type: A matching model. *International Journal of Research in Marketing*, *13*(3), 237-249.

Lyons, A. C. (2004). A Profile of Financially At-Risk College Students. *Journal of Consumer Affairs, 38*(1), 56-80.

Mae, N. (2002). Undergraduate students and credit cards. *Braintree, MA*.

Mae, N. (2000). *Credit card usage analysis*. Retrieved August 30, 2010, from http://www.nelliemae.com/library/ccstudy_2001.pdf

MDI. (2015). *Malaysia Department of Insolvency*. Retrived from http://www.insolvensi.gov.my/gallery/

MDI. (2009). Malaysia Department of Insolvency. Retrieved from http://www.insolvensi.gov.my/gallery/press-statement/the-malay-mail/91-the-malay-mail-15-06-09-credit-card-debt-trap

Mandell, L. (2004). *Financial literacy: Are we improving*? Washington, D.C.: Jumpstart coalition for Personal Financial Literacy.

Manning, R. D. (2000). Credit card nation. *The Consequences of America's Addiction to Credit, New York.*

Meier, S., & Sprenger, C. (2007). *Impatience and credit behavior: evidence from a field experiment* (No. 07-3). Working paper series// Federal Reserve Bank of Boston.

Ming-Yen Teoh, W., Chong, S. C., & Mid Yong, S. (2013). Exploring the factors influencing credit card spending behavior among Malaysians. *International Journal of Bank Marketing*, *31*(6), 481-500.

Moore, R. (2004). *Credit Card Knowledge, Attitudes, and Practices of College Students*. (Doctoral dissertation), Texas Tech University.

Munro, J., & Hirt, J. B. (1998). Credit Cards and College Students: Who Pays, Who Benefits? *Journal of College Student Development*, *39*(1), 51-57.

Palmer, T. S., Pinto, M. B., & Parente, D. H. (2001). College students' credit card debt and the role of parental involvement: implications for public policy. *Journal of Public Policy & Marketing*, *20*(1), 105-113.

Peng, T. C. M., Bartholomae, S., Fox, J. J., & Cravener, G. (2007). The impact of personal finance education delivered in high school and college courses. *Journal of Family and Economic Issues*, *28*(2), 265-284.

Pinto, M. B., Parente, D. H., & Palmer, T. S. (2001). Credit Card Solicitation Policies in Higher Education: Does" Protecting" Our Students Make a Difference? *Journal of College Student Development*, *42*(2), 169-72.

Punjavat, T. (1992). Credit cards: understanding international graduate student consumers. (Unpublished doctoral dissertation), Oregon State University, Corvallis.

Quinn, L. R. (2001). Campus plastic. *Mortgage Banking*, *62*(2), 26.

Robb, C. A. (2007). *College students and Credit Card Use: The Effect of personal financial knowledge Debt behavior*. (Doctoral dissertation), University of Missouri--Columbia.

Sabri, M. F., MacDonald, M., Hira, T. K., & Masud, J. (2010). Childhood consumer experience and the financial literacy of college students in Malaysia. *Family and Consumer Sciences Research Journal*, *38*(4), 455-467.

Schuh, S., & Stavins, J. (2008). *To Check or Not to Check: Why Are (Some) Consumers (Finally) Writing Fewer Checks?* Mimeo.

Shui, H., & Ausubel, L. M. (2004, May). Time Inconsistency in the Credit Card Market. In *14th Annual Utah Winter Finance Conference*.

Students in Free Enterprise. (2002). *SIFE Fiscal Fitness Survey*.

SCF. (2014). *Survey of Consumer Finances*. Retrieved from http://www.federalreserve.gov/pubs/bulletin/2014/pdf/scf14.pdf

Susswein, R. (1995). College students and credit cards: A privilege earned. *Credit World*, *83*(5), 21-23.

The Star Online. (2009, 16 October). Call for credit cards liability limit to be reduced or waived. *The Star*. Retrieved from http://www.nccc.org.my/v2/index.php/nccc-di-pentas-media/2009/1325-call-for-credit-cards-liability-limit-to-be-reduced-or-waived?format=pdf

Tucker, J. A. (2000). *An examination of the babay boom generation's financial preparations for retirement*. (Doctoral dissertation), Lousiana State University, Baton Rouge.

Xiao, J. J., Noring, F. E., & Anderson, J. G. (1995). College students' attitudes towards credit cards. *Journal of Consumer Studies & Home Economics*, *19*(2), 155-174.

Yamauchi, K. T., & Templer, D. J. (1982). The development of a money attitude scale. *Journal of Personality Assessment*, *46*(5), 522-528.

Zhu, L. Y., & Meeks, C. B. (1994). Effects of low income families' ability and willingness to use consumer credit on subsequent outstanding credit balances. *Journal of Consumer Affairs*, *28*(2), 403-422.

APPENDIX I

CHI-SQUARE DISTRIBUTION TABLE*

TABLE IV

Chi-Square (χ^2) Distribution

Degrees of Freedom	Area to the Right of Critical Value							
	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01
1	—	0.001	0.004	0.016	2.706	3.841	5.024	6.635
2	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210
3	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345
4	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277
5	0.554	0.831	1.145	1.610	9.236	11.071	12.833	15.086
6	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812
7	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475
8	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090
9	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666
10	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209
11	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725
12	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217
13	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688
14	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141
15	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578
16	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000
17	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409
18	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805
19	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191
20	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566
21	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932
22	9.542	10.982	12.338	14.042	30.813	33.924	36.781	40.289
23	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638
24	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980
25	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314
26	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642
27	12.879	14.573	16.151	18.114	36.741	40.113	43.194	46.963
28	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278
29	14.257	16.047	17.708	19.768	39.087	42.557	45.722	49.588
30	14.954	16.791	18.493	20.599	40.256	43.773	46.979	50.892

*Source: http://faculty.elgin.edu/dkernler/statistics/ch09/chi-square-table.pdf