

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Financial well-being is critical to the family as a consumer unit as this would contribute to the well-being of consumers or families and further on the well-being of the community. Increase of non-performing loans for consumption credit and with more individuals or families experiencing problems in managing their finances indicate that the way consumers or families manage their financial resources are questionable. Number of consumers or families in serious financial difficulty continues to increase. Higher debt loads, mortgage foreclosure rates, and bankruptcy filings are sources of evidence that proved the difficulties faced by families in managing their financial resources. With limited financial resources it is important for families to manage effectively their financial resources. How individuals deal with their financial means and resources is a study on the individual financial management behaviour. This scope of study however has not yet been in the main-stream of financial and economic behavioural studies according to Loix, Mentens, Goedee, and Jegers (2005).

Having performed better financial management, the possible outcomes are associated with improved objective financial status and subjective financial well-being. The good management practices as stated by Muske (1995) are the recommended practices defined in personal financial management textbooks with teachers and educators as the pathway by which the family can achieve financial success. The improved objective financial

status is displayed by increase in net-worth, increase in level of liquid savings, and decrease of debt/asset ratio. In terms of measuring subjective financial well-being of families, Hira (1987), Hira and Mugenda (2000), and Joo and Grable (2004) used level of satisfaction with their current financial situation.

Elements of individual financial management behaviour such as interest and skills in the related fields are regarded as competencies that underlie individuals' characteristics and are believed to be related to effective or successful performance (Boyatzis 1982; Spencer and Spencer, 1993). Hence, these demand components in financial management are important to the financial stability of families. The demands are the driving force for certain financial management practices to be implemented by families in the management process. With improved money management practices, this enables families to cope with financial difficulties and meet family needs as reported by Hira and Mueller (1987).

Individuals or families usually have their own beneficial financial management practices that meet their specific needs. Financial management practices that lead to their long-term financial health are recognized as tools for accomplishing financial success. As highlighted by Meier, Kirchler, and Hubert (1999), the tools namely the financial practices carried out by households can be distinguished among levels. The long-term financial decisions can be regarded as a strategic level; the budgeting and book-keeping obviously is the administrative level, and practices concerning the shopping and payments made by households are the practices at the operational level.

Family financial management model applied the family resource management model developed in 1988 by Deacon and Firebaugh (Fitzsimmons, Hira, Bauer, and Hafstrom, 1993). Similar to any management concept, both models comprised of planning, implementing, and evaluating phases by family members. The difference between both models is the resources involved in the management. Resource management deals with various types of resources not limited to financial resources specifically monetary terms as in family financial management.

The field of family resource management is developed based on microeconomic theory and a theory in sociological field namely systems theory by Buckley (1967) where both theories are applied to the managerial behaviour. Fitzsimmons and Leach (1994) confirmed that researchers applied the systems approach to understand the role of financial management practices in determining financial well-being. Thus, family financial management is to improve the family's financial well-being.

As stated by Key and Firebaugh (1989), the systems framework continues to be the major theoretical base for examination of resource development and allocation of the resources in households. The allocation of resources in the field of family financial management precisely their current flow of family income and stock of wealth is to meet the family's implicit or explicit goals (Godwin, 1990). Meeting their expectations of financial situation resulted in the families being satisfied with their financial situation. Perceived financial well-being is thus rated high under these circumstances.

Allocations of resources among all are for their expenditures such as for purchasing non-durable and durable goods namely electrical appliances, house, and land, paying for services such as for utilities and automobile servicing, risk protection, and credit repayment. The excess of income goes to their savings and investment. Savings as compared to investment are concerned with safety and liquidity of the money saved. Assets can be purchased using the savings and return from the investment. The ownership of various assets by households then results in household portfolios.

Household portfolios or household finance comprised of financial assets, real assets, and liabilities households held (Haliassos, 2006). Hence, other than financial assets such as liquid accounts, stocks, bonds, and shares in mutual funds, household portfolios also consist of real assets that include tangible assets such as gold, silver, diamond, art, and real estate (Jones, 2008). As contended by Haliassos (2006), household portfolios' study is a partner to corporate finance and asset pricing, and also a study across economics and finance fields. The analyses of savings and investment extend outside the boundaries of economics to incorporate finance concern on portfolio choice.

Financial institutions secured the money deposited in their products such as in savings accounts and current accounts. However investments in general are not secured and vary in their risk and return. Higher risks in investments are associated with higher returns. In order to gain higher returns, individuals must be willing to accept the higher risks faced that are the potential higher financial losses. By choosing risky assets in their investment,

individuals sacrifice the safety component or even the liquidity component, hence opportunity costs involved in the decision.

The risk from investment may to the extent of losing the principal of the investment that is losing all their money in the investment. Consequently, individuals may have to assess their tolerance towards the risk faced in their investment. The risk tolerance of an individual is a person's attitude towards accepting risk. They should identify their risk profile prior to their investment in risky asset so as to determine whether they are psychologically prepared for the negative circumstances. The risk profile gives the extent of tolerance towards risk that is whether they are risk-tolerant individuals or risk-averse individuals. Individuals facing the risks should also be financially prepared. Hence, financial management practices that are associated with preparation for financial needs should not be overlooked. Moreover for financial management practices those are likely to predict good financial well-being.

Depending on their risk tolerance, individuals would venture on certain types of investment or they may not participate at all in any investment. Thus, risk tolerance of the individuals determines their investment portfolio. Risk-tolerant individuals invest in risky assets and thus have aggressive portfolios. On the other end, risk-averse individuals have small portion of risky assets or no risky assets at all in their portfolios or may not invest at all. The large portion of their investment portfolio consisted of non-risky assets such as unit trusts and bonds. These risk-averse individuals have conservative portfolios.

Choice of portfolios may also vary depending on knowledge related to investment. Due to increase in knowledge regarding investment activities, individuals may be willing to invest in more risky assets, thus moving from a conservative portfolio to an aggressive portfolio. Research shows that investment knowledge can have a significant impact on the quality of individual's investment decisions. Other factors influencing portfolio choices are financial awareness, savings motive, credit constraints, and health risk apart from the socioeconomic background of investors.

The change in portfolio choice also has been the result of the supply-side of the market to encourage risky asset holding. The Privatisation Policy in Malaysia has helped individuals to gain opportunity to be stockholders. The employees of the relevant bodies obtain shares through their employers and thus having more risky assets in their financial asset holdings.

Even so, the set-up of trust funds such as the *Amanah Saham Nasional* and later the *Amanah Saham Bumiputera* managed by *Permodalan Nasional Berhad* has witnessed the remarkably increase of *Bumiputera* shares in trust funds in Malaysia. More *Bumiputeras* has at least involved in financial investment activities and hence changed their household portfolios from having mainly real assets to having shares in trust funds.

1.2 SIGNIFICANCE OF THE STUDY

This study resulted in recommendations of specific financial management practices that enabled the family to manage their financial matter effectively. Thus families' knowledge

on better financial management practices would increase. A sound financial situation is expected from the financial management practices recommended. Apart from that, it also gives suggestions to those involved in developing financial education programs namely financial educators to educate families in managing their finances. Knowing the background of those successful in managing their financial matters such as residential area will assist financial educators in developing financial education programs for specific group of families or individuals.

Handling financial matters effectively by the families will not only benefit the families themselves but also the community and the financial industry. A less problematic family will contribute to a good community. Financial institutions on the other hand will experience better loan recovery and are able to develop suitable financial products tailored to the needs of the public. By having information on the profile of successful and unsuccessful individual or family in managing their financial matters, this will help the financial institutions to decide on the eligibility of applicants for financial support.

Assessing risk tolerance of individuals has implication on financial planners, and financial service providers. Financial planners and financial service providers may be able to advise investors whether certain type of portfolios are suitable for the level of risk the investor tolerate. In view of that, appropriate composition of assets in the portfolio may be purchased by the investors accordingly to their risk tolerance.

Knowing the financial management practices performed by aggressive investors enabled financial educators, financial planners, and financial service providers to provide suitable advice to the investors to avoid negative significant effect on the financial well-being of the investors in cases of unfavourable market situation. Investors themselves would realise the lack of financial practices in their daily life that may lead towards financial instability in the worst case.

In terms of managing the investors' risk, insurance companies would have their role in advising investors to purchase suitable protection products to hedge themselves against any significant effect of financial losses. Certain new insurance policies may be developed tailored to the need of the investors.

1.3 PROBLEM STATEMENT

Despite an increase in mean household income of 5.6% per annum on the average that exceeded the real GDP growth (Ninth Malaysian Plan, 2006), available evidence suggests that more families are experiencing problems in managing their finances. Increases in non-performing loan, credit card debt, and bankruptcies among individuals in Malaysia reflected these problems.

Non-performing loan for the consumer product category for finance companies increased from RM14.5 million in the year 2002 to RM 16.7 million in March 2003 (Bank Negara Malaysia, 2003). Households that obtained loan from finance companies as compared to commercial banks were mainly those from the lower income group. With small amount of income, they should take great care in managing their money to sustain their living

with non-default repayments of loans. However, the abovementioned statistic seemed to indicate that this did not happen. In fact, it portrayed their inability to manage their resources well. They were seen as being unable to manage their resources and not as expected.

Objective evidence in financial problems faced by individuals is also displayed by the amount of non-performing loan of commercial banks for the household sector. The amount actually decreased from RM23,597 million in December 2006 to RM15,796 million in September 2008. Even with a gradual decrease of non-performing loan during that period of time, the statistic is still alarmingly high. In general, those obtained loans from commercial banks were high income individuals and amount of loans offered were larger than finance companies. This indicates that high income individuals are also having difficulty in their repayment. The decrease of non-performing loan may be due to the availability of personal loan even to those black-listed credit consumers. Further looking at credit card holders revealed that similar problems in repayment occurred among these individuals. Total of unpaid balance for credit card however increased from RM1,924 million to RM12,308 million from 1994 to April 2004 and to RM22,810 in year 2008 (Bank Negara Malaysia, 2009a).

As mentioned by Cavanagh (2003), the philosophy of 'buy now and pay later' has been a life style for families and this caused the consumers to experience difficulties or serious financial problems. According to the statistic of Bank Negara Malaysia (2009b), 13,852 individuals in Malaysia were declared bankrupt in the year 2008. This is an increase of

more than two times as compared to the statistic in 1998. The scenario indicates that there might be some kind of mismanagement of their financial resources. With constrained financial resources it is important for families to manage effectively their financial resources to enhance their financial well-being.

Studies have been conducted to examine individual's financial behaviours and identifying the processes involved in managing their financial resources to achieve financial success (Joo, 1998; Kim, 2000; Porter, 1990; Scannell, 1990). In general, the results found that financial management behaviours are associated with financial well-being. However mixed results are found from previous studies in terms of the specific financial management practices and other factors that do give impact on financial well-being and the extent of the impact.

At this stance, this study helps to identify the answers to the following research questions. Prior to determining the relationships of financial management practices with financial well-being, the study looks at the associations of time horizon (future time orientation) with risk preferences (financial risk tolerance), and risk preferences with financial management practices. How does time horizon of family financial managers' associates with their risk preferences and risk preferences on the other hand associate with financial management practices?

The study is also concerned with differences among the main ethnicities and residing areas. Are there any differences in financial management practices among the main

ethnicities in Malaysia and among families residing in urban and rural areas? The study also looks at the relationships of time horizon and risk preferences with financial well-being. How about their time horizon and risk preferences in relation to their financial well-being? Furthermore, what are the financial management practices that are likely to predict good financial well-being of families and who are those families? In addition to that, the study explores the moderating role of self-worth. Does self-worth moderates the relationships between financial management practices and financial well-being of families?

By determining the financial management practices that are likely to predict financial well-being, further inspection is made to identify financial practices that are probably being performed by those investing in risky assets. Investment is presumed to be a source of generating high income provided that it is done properly. With expectation of high earning, the risk associate to it is also high. Financial losses faced by investors in risky assets may lead to huge losses that would affect their objective financial well-being and consequently their subjective financial well-being, thus would jeopardise the financial well-being of family. These investors might be included in statistics of bankruptcies if certain indicators are not identified earlier to prevent financial losses due to the risky assets from affecting family financial well-being.

Even with thorough analysis and sufficient information gathered prior to investing in risky assets, financial disaster may happen to the investment. In accordance to that, aggressive investor must be well prepared financially and even psychologically. Certain

financial practices should be performed by them such as having regular savings and suitable risk management.

Furthermore, aggressive investor should also be a risk-tolerant individual. Knowing the level of risk that is acceptable by the investor would determine whether the investor would be psychologically stable under unfavourable investment circumstances. Thus the financial risk tolerance of the investor is important in preparing them psychologically. Several researchers assumed financial risk tolerance to be a fundamental issue underlying financial decisions (Grable and Lytton, 1999) especially in investment suitability, both corporate and personal settings (Garman and Forgue, 1997; Sharpe, Alexander, and Bailey, 1995).

In conjunction to the above, the study performed will also be able to answer the following research questions regarding investment decision. What are the financial management practices that are likely to predict investment in risky assets by families and who are those families? Are individuals in Malaysia behave accordingly to their financial risk tolerance that is those investing in risky assets have high financial risk tolerance? Are investors in risky assets practicing financial management practices that are likely to predict good financial well-being and thus helped them to overcome financial losses that they would encounter later? In other words, are those investing in risky assets prepared financially and psychologically to face the risks in their investment?

The study also explores the moderating role of self-worth between financial management practices and investment in risky assets. Does self-worth moderates the relationships between financial management practices and investment in risky assets by family?

1.4 RESEARCH OBJECTIVES

This study sets out to establish the following objectives regarding the family financial management and investment decision among families in Malaysia.

- i. Setting-up profile of successful families in managing their financial matters in terms of their socioeconomic characteristics, time horizon, risk preferences, and financial management practices.
- ii. Exploring moderating role of self-worth between financial management practices and financial well-being of families.
- iii. Ascertaining abilities of socioeconomic characteristics, time horizon, risk preference, and financial management practices in predicting investment decisions in risky assets by families.
- iv. Exploring moderating role of self-worth between financial management practices and investment decisions in risky assets by families.

Apart from determining the above major objectives, minor research objectives focused on are listed below.

- i. Identifying relationships between risk preferences and time horizon of families.

- ii. Determining associations of risk preferences with financial management practices dimensions namely investment, risk, financial planning, savings, credit, and cash-flow.
- iii. Determining differences in financial management practices of families across the main ethnicities and residential areas in Malaysia.
- iv. Identifying whether investors in risky assets performed financial management practices that are likely to predict good financial well-being.

1.5 PROPOSITIONS

Several propositions based on the objectives are outlined for the study, and rearranged to facilitate analyses and discussions as follows. Hypotheses developed are presented in the methodological part in Chapter 3.

- i. Risk preference is related to time horizon of families in Malaysia.
- ii. Risk preference is associated with dimensions of financial management practices of the families namely investment, risk, financial planning, savings, credit, and cash-flow.
- iii. There are differences in financial management practices across ethnicities and residential areas in Malaysia.
- iv. Socioeconomic characteristics affect financial well-being of families.
- v. Time horizon and risk preference of family financial manager affect financial well-being of families after controlling for socioeconomic characteristics.
- v. Financial management practices affect financial well-being of families after controlling for socioeconomic characteristics, time horizon, and risk preference.

- vi. Self-worth of family financial manager moderates the influence of financial management practices on financial well-being of families.
- vii. Socioeconomic characteristics predict investment decisions in risky assets by families.
- viii. Time horizon and risk preference of family financial manager predict investment decisions in risky assets by families after controlling for socioeconomic characteristics.
- ix. Financial management practices of families predict investment decisions in risky assets by families after controlling for socioeconomic characteristics, time horizon, and risk preference.
- x. Self-worth of family financial manager moderates the influence of financial management practices on investment decisions in risky assets by families.

1.6 SHORTCOMING OF THE MEASUREMENTS

The responses are based on the memory of the respondents regarding the financial management practices carried out. The respondents might not recall exactly what had been done or what actually happened in the past. Furthermore, the responses are obtained from one family financial manager from each family. Some of the families have both the husband and wife taking care of the financial management practices. Part of the financial management practices that are done by the spouse's of the respondents might not be responded as it should be.

Data to assess the financial situation of the families are self-reported by them. As financial matters especially on the assets and debts are regarded as sensitive aspects, honesty plays its role. The actual amount of assets or debts might not be revealed by them. Apart from honesty, they also might not know or remember the details of their assets and debts. Since the spouse's of the respondents also involved in financial matters as in some families, the details on current assets or debts might not be known to the responded family financial manager.

The measurement for perception on financial well-being is based on the perception of the individuals. Different individuals have different expectations on their financial status. Respondents with high income and lead a wealthy life would have higher expectations of their financial status as compared to those with low income.

1.7 CONTRIBUTION OF THE STUDY IN GENERAL

The study contributes to the body of knowledge of the family financial management and personal finance fields in general and investment decision in specific. There is an inclusion of a new concept tested in the financial management framework namely the time horizon and is measured using future time orientation of the respondent.

Self-worth has been previously used as an independent variable related to certain dependent variable. However it is tested in this study as a moderator variable between financial management practices and financial well-being of families, and also between financial management practices and investment in risky assets by families.

The measurement of financial planning component in financial management practices developed in the study fills the methodological gap. The concept of financial planning is previously measured by a single item scale. In this study it is measured using multi-items scale generated from personal finance references. Construct validity and reliability tests are applied to confirm the underlying dimensions of financial management practices resulting in 10 items for financial planning.

The measurement used for financial well-being of the families integrates both objective and subjective measurements. The objective measurements are the financial ratios of the family specifically the liquidity ratio, solvency ratio and consumer debt ratio. The subjective measurement adopts the Malaysian Personal Financial Well-being. Different objective measurements and subjective measurements are used in this study as compared to previous study by Baek and DeVaney (2004). Other studies used either objective measurements or subjective measurements only.

The study as a whole involves a comprehensive framework of family financial management based on the resource management model by Deacon and Firebaugh (1988). The associations among the input, throughput, and output components of the resource management model are determined. Financial attitude that is the financial risk tolerance is included in the framework together with future time orientation. In terms of fulfilling country gap, the study designed has not been done in Malaysia. The result will support the consistency of past research in a different culture, namely Malaysia.

On the second framework regarding investment decision by families, factors predicting investment decision in risky assets are ascertained. Personality factor namely time horizon measured by future time orientation, risk preferences measured by financial risk tolerance, and financial management practices components are determined their contributions to investment decision in risky assets. To the knowledge of the researcher, time horizon and financial management practices components have not been tested their ability in predicting investment decision in general and investment in risky assets in specific. The result of the study will contribute to the factors predicting investment decision in risky assets by individuals. This is expected to enhance the literature on investment decision or investment behaviour regarding individuals especially in Malaysia.

1.8 ORGANISATION OF THESIS

There are five chapters organised in this thesis. The introduction to the study is given in Chapter 1 where it discusses the background of the study, the problem statement of the study and the shortcoming of the measurements used in the study. The objectives of the study are outlined in this chapter together with the discussion on the significance and potential contribution of the study.

Chapter 2 reviews the research previously carried out in the area of financial management and personal finance. Both theoretical and empirical works are presented specifically the theories and measurements for the financial management practices and other

determinants of financial well-being or utility. The reviewed literature leads to the display of the research frameworks.

Chapter 3 provides the methodology for the study which covers research design, sampling method, data collection, and measurements of the constructs. The chapter starts with developing the hypotheses for the study and also includes the explanation of the pre-test and data analyses used.

Chapter 4 presents the findings from the study through descriptive and inferential analyses. The chapter reports among all the descriptive results of the profile of the respondents and the financial well-being of the family. Comparisons based on ethnicity and residential area are also displayed. The results of the validity and reliability tests for the constructs as well as the results of hypotheses testing are explained.

The final chapter 5 summarises the content of the thesis with implication of the study on the respective parties. Contributions provided by this study are discussed from the results obtained. Further research and extension of this study are suggested.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter reviews the theoretical and past research on the concepts and constructs used in this study. The findings from previous research are discussed and presented. Since the study focused on family as the sample, concepts gathered especially for the financial concepts are related to the human being. Hence, financial behaviour and psychological concepts are also involved. The reviews of literature helped to explain the frameworks of the study.

The reviews presented concepts and theories on family financial management, human ecology theory, utility theory, life-cycle theory and personal financial planning, and modern portfolio theory, followed by measurements on financial management practices, financial well-being, investment in risky assets, risk preference, time horizon, and self-worth. Empirical studies reviewed among all are on factors related to financial management practices, subjective and objective financial well-being, and investment in risky assets, risk preference, time horizon, self-worth, and studies on ethnicity and residential area.

2.2 CONCEPTS AND THEORIES

2.2.1 Family Financial Management

Financial management as defined by Godwin (1990) is the planning, implementing, and evaluating by family members that are involved in the allocation of their current flow of family income and their stock of wealth. The output of the financial management process is the achieved family's implicit or explicit goals.

Financial management pertaining to the individual is one of several concepts comprising the family resource management model (Deacon and Firebaugh, 1988; Fitzsimmons, Hira, Bauer, and Hafstrom, 1993). Noted by Deacon and Firebaugh (1988), a family is a system consisting of three major elements that are the input, throughput, and output. Inputs in general that consist of matter, energy, and information are classified as resources and demands in the family system. Other forms of input are interest and skill. Researchers commonly used socioeconomic characteristics as inputs such as age, household size, income, education, employment status, and marital status.

The family as a system used the resources to meet demands from the system or from the market. The process of changing the input is the throughput or transformation of the input to output. Thus, outputs are the resources and demand changes or the net used and demands. Interface of the system with the market is nevertheless important in family resource management.

In family financial management model, financial management practices are the elements of throughput that resulted in an output namely financial satisfaction or financial well-being.

Inputs in this model are for example, income and education that are the resources. These inputs are transformed by the throughputs that are the financial management practices into outputs namely the financial well-being. Thus, this model by Deacon and Firebaugh facilitates the understanding of the role of financial management practices in differentiating between financially well families and those who are not financially well (Fitzsimmons and Leach, 1994). Researchers have used the model to study objective financial well-being such as net-worth (Titus, Fanslow, and Hira, 1989) and savings (Davis and Schum, 1987).

Family or household financial management as mentioned by Antonides and Van Raaij (1998) is somewhat similar to the business financial management in terms of having budget and doing book-keeping. Furthermore, managing an individual's personal finances may require similar ways of forecasting, planning, and control as in business (Loix et al., 2005). Family financial management is also a concept embedded in human ecology theory and utility theory as stated by Bubolz and Sontag (1993).

2.2.2 Human Ecology Theory

Human ecology theory views humans as both biological organisms and social beings and their interaction with environment (Bubolz and Sontag, 1993). This relationship is

considered as a system theoretical framework, biological, social, and physical aspects of the individuals within the context of their environments. In this theory, the individual or family is considered to be an energy transformation system interdependent with its natural physical-biological, human-constructed, and social-cultural setting. The creation, use, and management of resources by the families for adaptation, human development, and sustainability of environments are emphasised.

2.2.3 Utility Theory

The concept of utility was introduced by Bentham in 1789 for predicting behaviour and also as an instrument for normative analysis used in studies such as interpersonal comparison. In standard economics and finance, utility theory is mainly used as a theoretical tool to explain and predict behaviour of consumers and households.

When individuals decided on how much not to consume in the present in order to be able to consume more in the future, this optimal investment decision maximises the expected satisfaction or the expected utility gained from the consumption over the planning horizon of the decision maker. It is the theory of choice where individuals choose to allocate scarce resources and distribute wealth among one another. Over time individuals choose to consume now or choose to save and later consume more. Thus, the choice is between current consumption and future consumption. Individuals have different tastes for the time preference of consumption and different degrees of risk aversion (Copeland, Weston, and Shastri, 2005).

Time preference of consumption of an individual depends on the individual's preferred time horizon (Bryant, 1990). Future oriented time horizons individuals are willing to sacrifice current consumption in view of increasing their future consumption. On the other hand, present oriented time horizons individuals prefer current consumption as opposed to future consumption. Present oriented time horizons are in line with perceptions of teenagers who demands for instant gratification (Herbig, Koehler, and Day, 1993).

As Black (1987) stated, utility does not express value or usefulness but instead it expressed desiredness and satisfaction that is a purely subjective concept. Hence, subjective questions could best be used to capture and measure the utility concept. Diener and Suh (1997) similarly justified that individuals themselves are the ones that could best judge their own situation, regarding well-being, and therefore the most suitable approach is the subjective questions. Two main assumptions are needed for a meaningful analysis of subjective questions. Firstly, regarding the ability of the individuals in evaluating their own situation and secondly, responses among individual could be mutually compared (Ferrer-i-Carbonell, 2002).

Aspects of utility had been discussed in various fields. Bentham explained about total utility whereas Walras spoke about maximum of utility (Sen, 1999). Marshall, Menger, and Walras as economists, they are receptive to the possibility of interpersonal comparison of utility or welfare. Welfare as stated by Ferrer-i-Carbonell (2002) refers to the narrower concept of financial satisfaction.

The utility obtained from consumption either now or later was influenced by the resources and needs arising along their life-cycle. Planning for future needs is deemed important to their financial well-being and overall well-being. Hence the interrelation between life-cycle theory and personal financial planning is worth discussing.

2.2.4 Life-Cycle Theory and Personal Financial Planning

The basic hypothesis of Modigliani's economic life-cycle theory (Modigliani and Brumberg, 1954) emphasises on utility that is a function of consumption which depends on current and future resources that is related to projected lifetime resources. Altfest (2004) highlighted the importance of the life-cycle hypothesis to economic thinking; however attracted less attention by most researchers in finance and personal financial planning (PFP).

As contended by Altfest (2004), financial planning for the individual namely the personal financial planning (PFP) originates from both economic and finance field that involved the contributions of Becker and Modigliani. Planning for financial future needs of the household or family in an efficient manner is the function of the personal financial planning that existed ever since people had choices for their resources. Thus, personal financial planning enabled the family to be financially prepared for their future.

The personal financial planning operates through capital needs analysis for the whole life-cycle of an individual, backed by the life-cycle theory (Altfest, 2004). Human capital

as an untradeable asset is the current asset with wages arising from it in the long run. Thus the future asset namely wages is an implicit asset generated from the current asset.

Personal financial planning, as stated by Altfest (2004) is a process that includes items regarding financial matters. Common areas are tax planning where taxes are minimised, cash-flow planning that include savings and spending policies, investments where resources are deployed efficiently for the future, risk management that incorporate insurance, and other practices to reduce risk faced. Apart from that, other important areas are retirement planning that involved life-cycle planning for the retirement period and estate planning which organise finances with concern for other family members especially after the demise of the asset holder. Similar areas are discussed by Kapoor, Dlabay, and Hughes (2004) as the components of financial goals in financial planning of individuals.

From an economic view of Becker, households are similar to business through households' production of commodities for internal consumption. As mentioned above, the life-cycle theory by Modigliani is the back-bone of PFP model practiced today. Thus, PFP is justified as a financial theory (Altfest, 2004). However, it should incorporate the modern financial theory's stress on risk and return. The portfolio theory seems to fit in the decision making of households related to owning diverse risk and return asset as viewed by Altfest.

2.2.5 Modern Portfolio Theory

Modern portfolio theory was developed by Harry Markowitz in 1952 and has since been an important and influential economic theory that deals with finance and investment (Jones, 2008). The theory suggests looking at the expected risk and return of more than one stock. Following that, investors will benefit from diversification that reduces riskiness of the portfolios. It further explains optimal diversification strategy under certain risk and return, and assumptions. A portfolio with the highest possible return under certain risk level can thus be selected or, for a certain expected return, lowest possible risk of portfolio can be selected.

Risk and return have to be considered simultaneously in investment as a trade-off exists between them. Riskier assets will generate higher returns and vice-versa; safer assets associate with lower returns. Choosing riskier assets puts the investor in a situation of foreseeing higher returns. However choices made by investors for their portfolios depend on their risk preferences or individual risk aversion characteristics.

Assumption made in this theory is that investors are risk-averse, avoiding risk as much as possible for the same return. An investor will choose a less risky portfolio having the same return as the other more risky portfolio. Accepting more risky portfolio must be compensated with higher expected return. Hence, rational investor prefers not to invest in more risky portfolio if a lower risk portfolio has better expected returns.

2.2.6 Financial Management Practices

The main focus in this study is the role of financial management practices on financial well-being of households and on investment decision. Financial management practices comprised of several dimensions. The dimensions frequently used are financial planning, cash-flow management, credit management, savings, investment, and risk management.

Financial planning concerning the individuals for example, is of great interest to the researchers since the last two decades. Financial planners professionals that are keen to be acknowledgeable especially regarding factors related to the need to financial planned by their clients are receptive to the financial planning study. Individual financial planning is part of the throughput in the financial management model that is the process of transforming the demand of individuals to the output.

Financial planning as defined by Sharland (2001) is the process whereby an individual moved towards meeting personal financial goals through the development and implementation of a comprehensive financial plan whilst O'Neill (2002) stated it as the process of meeting one's life goals through the proper management of one's finances. As emphasized by Blazevic and Lievens (2004), the personal financial planning is the implementation of a coordinated and integrated long-term financial plan. A financial plan that is customer-oriented with the ultimate goal of achieving financial success.

Comprehensive financial planning involved in general, the collection and analysis of information gathered on the individual's or family's total financial situation. This

includes the assessment of individuals or family's risk tolerance and identification of specific financial goals. A comprehensive plan is later designed, implemented and monitored to achieve the stated goal. The financial planning can be further classified into short-term, mid-term, and long-term financial planning. Review of the short-term financial planning by individuals is also necessary.

Cash-flow management as the other dimension of financial management practices is the management of the inflow and outflow of money namely income and expenditure. It involves the planning of the income received and developing a spending plan. Individuals worked to earn income from various sources and then use the money as planned or budgeted. The related documents arose from this activity are to be kept by individuals for future reference, for example, intended for income tax deduction or to compare spent amount with budgeted amount.

For credit management, it is the planning of credit used and to execute the plan by taking credit according to what they planned. Credit as defined by Kapoor et al. (2004) is an arrangement to receive cash, goods, or services now and pay for them later. The uses of credit satisfy individuals needs today and individuals pay for this satisfaction in the future. However the use of credit may incur such costs that may lead to high reduction of income earned or saved. Hence, good management of credit is vital for alleviating overall financial well-being.

Savings and investment are meant to increase income and among the strategy of financial management. One thing differentiating both of them is liquidity. High liquidity is the characteristic of savings whereas investment depending on the type of investment may range from low liquidity to very illiquid.

The risk faced by individuals should be managed properly in order to lessen financial losses. Risk management is an organised strategy for protecting assets and people. This activity helps to reduce financial losses caused by destructive events. However, the activity is not mere short-term process instead involves a long-range planning process.

2.2.7 Financial Well-being

Financial well-being as one of the indicators in the overall well-being falls under the broad concept of well-being. Well-being is referred to as the satisfaction or the utility on the overall aspects of life (Diener and Suh, 1997; Mongin and d'Aspremont, 1998). Thus financial well-being as a domain in well-being also focused on the satisfaction of individuals about their financial affairs. This definition limits it to the subjective aspect only.

In contrast, many studies on financial well-being used various scales including subjective and objective measurements. Objective indicators such as level of income, net worth, and financial ratios are used in evaluating financial well-being of individuals, however subjective measurement of financial well-being are frequently used to measure

individual's well-being (Baek and DeVaney, 2004; Fox and Chancey, 1998; Garman, Camp, Kim, Bagwell, Baffi, and Redican, 1999; Joo, 1998; Kim, 2000).

Past research indicates the importance of including subjective appraisals on any overall assessment of financial well-being. Joo (1998) stated that referring to past research, financial wellness depends not only on the family's objective financial status but also on the subjective aspect of financial status. Accordingly, Hayhoe and Wilhelm (1998) suggested that objective and subjective measures provided a comprehensive assessment of financial wellness.

The concept of financial well-being has been stated differently by various researchers. However, a similar meaning of the concept can be observed from those definitions. Mainly it includes two aspects of financial well-being that were the objective and subjective aspects of it or the tangible and non-tangible aspects. Earlier on, the concept of financial well-being as theorised by Williams (1993) considered one's financial situation that includes material and non-material aspects, thus including both objective and subjective constructs.

As Joo (1998) stated, financial well-being was conceptualized as a level of financial health. It includes satisfaction with material and non-material aspects of one's financial situation, perception of financial stability including adequacy of financial resources, and the objective amount of financial resources that each individual possesses. Along the line, the concept of financial well-being as described by Goldsmith (2000) was the extent to

which individuals or families have economic adequacy or security. It encompasses the desire for protection against economic risks they face in their daily life such as illness, loss of employment, and poverty. These definitions of financial well-being cover both objective and subjective aspects.

The relationship of objective financial well-being and subjective financial well-being has been observed in earlier studies by Davis and Schumm (1987) and Mugenda, Hira, and Fanslow (1990). In later studies, this relationship has been identified in Joo and Grable (2004). Personal finance solvency was studied in relation to financial satisfaction and it exhibited a positive relationship between them (Davis and Schumm, 1987). They found that those who were more solvent with better financial ratios were positively related to financial satisfaction.

Similarly, Hira and Mugenda (2000) in their study on financial satisfaction of USA residents found that a person's solvency was positively related to the construct. Joo and Grable (2004) found the same trend for financial solvency and financial satisfaction. Mugenda et al. (1990) in assessing the causal relationship among money management practices and satisfaction with financial status concluded that net-worth that was an objective measure of financial well-being was among the main determinants of managers' satisfaction with financial status.

In terms of the components of financial well-being, it comprised of twelve key components. According to O'Neill (2002), it consists of the achievement of financial

goals, net-worth, cash-flow analysis, spending plan, financial ratios, credit card analysis, income tax analysis, insurance analysis, retirement analysis, investment performance analysis, asset allocation analysis and rebalancing, and estate planning analysis.

2.2.8 Investment Decision and Life-Cycle Theory

Households that participate in stocks changed their portfolios throughout their lives. Investors' change between conservative and risky investments is dependent on their stage in life following the life-cycle approach applied by Malkiel's (1999). Due to increase of family's responsibility, incurred homeownership expenses, and income constraint, investors will be less capable to assume financial risks. Thus, investors' financial ability to incur risk is reduced in old age and shifted to safe assets.

Along the line, Weagley and Gannon (1991) suggested seven stages of investment. Investors move from safer investments in the earlier stages to higher-risk investments due to income increase in the middle stages. They move back to safer investments during near retirement for the final stages.

2.2.9 Investment in Risky Asset

As stated by Elton, Gruber, and Brown (2006), a portfolio of assets is likely to consist of real assets namely transportation, and house, and financial assets such as stocks and bonds. Other researchers such as Bertaut and Starr-McCluer (2002), and Wachter and Yogo (2009) explained it as the share of net worth invested in risky assets including

corporate, foreign, and mortgage-backed bonds; business equity; and investment real estate. Thus, portfolio of assets consists of financial and non-financial assets.

Most studies in investments focused on financial assets, hence the sub-portfolio of assets, as they study the financial markets only. The studies ignore the non-financial assets component in a portfolio that has been of great interest recently as Campbell (2006) discussed the field of household finance or household portfolio in the study of investment behaviour.

Different classes of security markets should be participate by each individual as suggested by the Modern Portfolio Theory; however, many investors ignore major asset classes. Empirical evidence in past studies showed that households do not hold risky financial assets, deviating from predictions made by the theory (Campbell, 2006; Guiso, Haliassos, and Jappelli, 2003). Thus, household portfolios are unlikely to consist of stocks and most probably households hold undiversified portfolios.

Limited participation in stock markets were observed in most countries as majority of households holds no stocks even indirectly through mutual funds or retirement funds as reported by Guiso et al. (2003). With the exception of US and Sweden households in 2001, households did not hold any stocks in any form, indirectly, mutual funds, retirement or even managed account. However for the US households, the percentage holding stocks reduced to 48 percent in 2004 from 52 percent in 2001.

The deviation from predictions creates stockholding puzzle as it violates the standard expected utility maximization (Haliassos and Bertaut, 1995; Mankiw and Zeldes, 1991). Thus, non-participation in risky assets is inconsistent with standard expected utility maximization. Everyone should participate in the investment as there is an equity premium or an expected return premium from the investment (Haliassos and Bertaut, 1995). Non-participation in risky assets reflects irrational investor as they ignore the expected return premium.

Past studies revealed reasons for non-participation. Among all are the fixed entry or participation costs, either actual or perceived by individuals and discouraged small potential investors. Even relatively small fixed costs would be a barrier to participation as found in empirical estimates (Jorgenson, 2002; Paiella, 2001) and computed costs (Haliassos and Michaelides, 2003). They justified that in light of the fixed entry cost, risk aversion and low resources seemed to be relevant for non-participation. Short-sales constraints for stocks caused to decrease the intention to hedge labour income risk through short-sales, hence the households were more likely not to participate.

For the wealthy households, among the reasons for non-participation highlighted are limited social interactions and associated opportunities to exchange stockholding experiences, or lower willingness to trust others as revealed by Hong, Kubik, and Stein, (2004) and Guiso, Sapienza, and Zingales (2005). This can justify non-stockholding by some wealthy individuals or households apart from the possibility of investing in their own private businesses instead of stocks (Heaton and Lucas, 2000).

Non-participation can also be justified by loss-aversion of households. Loss aversion of prospect theory describes decisions between alternatives that involve risk, real-life choices, rather than optimal decisions. Prospect theory was developed by Kahneman and Tversky (1979) as an alternative to expected utility theory developed by Von Neumann and Morgenstern (1944). From the reference point set by individuals, they perceived lower return as losses and larger return as gains. For loss-averse investors, they are concerned with changes in wealth or consumption relative to a reference point that is different in each choice made (Benartzi and Thaler, 2001). The utility they experienced might be reference based. Losses in stocks occurred in a short duration of time tend to be avoided by these loss-averse investors. In contrast, the less risky assets such as bonds that are perceived to incur less losses are more favourable to them (Hirshleifer, 2001).

Along the line, Polkovnichenko (2005) later asserted that non-participation in equity markets arose due to first-order risk aversion in rank-dependent preferences. Sufficiently risk-averse individuals with various levels of wealth accumulation tend to totally ignore risky asset investments. Their behaviour they exhibited violates from prediction made by expected utility theory.

An alternative explanation made by Davis, Kubler, and Willen (2006) on non-participation is the assumptions by investors that borrowing rates are almost equal to the expected return on equity. Hence, the net expected return from the equity less the cost of borrowing is assumed to be zero, and may be negative with the fixed entry costs. In view of this, the likelihood of households to participate in stocks is very low. Other form of

cost may affect non-participation such as tax consideration by investors. Tax laws have been shown to affect asset allocation by investors (Bergstresser and Poterba, 2004).

Familiarity bias was introduced in several studies. Familiarity as mentioned in the field of Behavioural Finance, was the feeling of individuals on geographic, professional, or linguistic proximity towards a likely risky investment (Cao, Hirshleifer, and Zhang, 2006). Consequently, familiarity bias refers to individuals' propensity towards investments that are proximate with respect to location, occupation, or language.

In explaining households' risky asset investment, Huberman (2001) used familiarity bias in investment to justify the behaviour. A lengthy discussion on the interrelation between investment in familiarity and decision making is available in Huberman (2001). Individuals' psychological factor may affect their investment behavior in certain situation. Individuals' behaviour might be different than suggested by portfolio theory due to individuals' presumed familiarity or confidence. This increases investment and that familiarity bias exists in portfolio diversification.

The explanation provides support that investors do not optimise objective risk-return tradeoffs. On the other hand; they are more probably to invest in a familiar company, usually known to the public. Hence, Huberman (2001) suggested that investment in the familiar contributed to the traditional portfolio theory. The result from Frieder and Subrahmanyam's (2005) study was in agreement with familiarity bias where individual investors highly invested in stocks of companies recognised to them. Formal models of portfolio selection integrating familiarity bias had been developed by Massa and

Simonov (2004); Cao et al. (2006); and Ahn, Cao, and Chen (2006). However, the discussions on those models are not intended here.

2.2.10 Risk Preference

Individuals react differently to risk with some are more inclined to reject it while others tend to accept it. Thus, risk preference differs among individuals. Their preferences toward risk are assessed through their tolerances toward risk. Financial risk tolerance measures a person's willingness to accept the risk of an unfavourable result for the chance of achieving a favourable result (Grable, 2000). Individuals thus prefer to accept the risk of an unfavourable result as they foresee the probability of gaining favourable result.

Even with different attitudes towards risk, optimisation of the standard Markowitz could exist by maintaining the groups average risk tolerance of a single efficient portfolio. This could be done by pooling groups of investors having different risk attitudes as argued by Schirripa and Tecotzky (2000).

Financial risk tolerance gained attention among researchers in financial management field since last decade and realised the importance of the concept to financial service providers and consumers. It impacts almost every part of economic and social life of an individual. Understanding and predicting individual's financial risk tolerance will help to explain the behaviour of consumers in relation to earnings, expenditures, and savings (Grable and

Joo, 1999). Planning and preparation regarding financial matters are also related to the perception of risk.

In decision-making, Droms (1987) suggested that financial risk tolerance may have influence on investment decision. It may determine the appropriate composition of assets in a portfolio which is optimal in terms of risk and return relative to the needs of the individual. Individuals who are more inclined towards having a high portion of risky assets in their portfolio are hence more financially risk tolerance individuals. Individuals tolerant to financial risk are willing to take high risk.

Roszkowski (1996) explained financial risk tolerance as ones attitude toward risk-taking choices when individual faced with a risky financial situation. On the other hand, Grable (2000) stated financial risk tolerance as the maximum amount of uncertainty one's willing to accept in a financial decision-making. As with its relation with risk aversion, risk tolerance had an inverse relationship with risk aversion as proposed by several researchers (Barsky, Juster, Kimball, and Shapiro, 1997; Gron and Winston 2001; Walls and Dyer, 1996).

2.2.11 Time Horizon

Time horizon of an individual is often measured by future time orientation **or** future time perspective in psychological studies. The concept of time horizon is similar to that of time perspective (D'Alessio, Guarino, De Pascalis, and Zimbardo, 2003). The concept

was introduced by Frank as early as 1939 that is defined as the time past which includes individual's behaviour and the extension of their behaviour of the past and future life.

As mentioned by Kluckhohn and Strodtbeck (1961), one's time orientation is largely dependent on their culture. Complex socialization process may shape their inclination towards a past or future orientation. Future orientation as contended by Trommsdorff, Lamm, and Schmidt (1979) is not a global concept and can be modified by change in the external environments of the individuals, such as being employed. Future time orientation refers to individuals' psychological attribute regarding their perception of the future and the flow of time (Das, 1993).

Seginer (2003) explained future orientation as the image individuals have regarding their future, as consciously represented and self-reported. Future orientation provides the grounds for setting goals, planning, exploring options and making commitments, and consequently guides the persons's developmental course (Bandura, 2001; Seginer, 2003). Hence, individual's orientation towards the future will be reflected by their goal-setting and planning activities, mainly the long-term duration of planning.

As stated by Jacobs-Lawson and Hershey (2005), future time perspective is a psychological variable that extends into the financial planning literature and was the extent to which individuals focus on the future, rather than the present or past. Furthermore, in the economic literature, one's level of patience, time preference, or planning horizon were used instead of future time perspective or future time orientation.

Some individuals are more future oriented in that they put more attention to what may happen in a relatively distant future. Conversely, others who are more present-time oriented, are preoccupied with the immediate future. This future time perspective is thus regarded as a psychological trait specifically the personality trait as it reflects the individual's psychological ability and focus in perceiving the flow of time (Das and Teng, 1997).

2.2.12 Self-worth

Self-worth is defined as an evaluation one makes of the self-concept descriptions and the degree to which one is satisfied (Hira and Mugenda, 1999). Their study assumes that self-worth is a system of thoughts and feelings about the self, and believed to be a driving force in peoples' beliefs, and behaviour. Self-worth and self-esteem was contended by Hira and Mugenda (1999) as similar concepts. Later, Humphrey (2004) defined self-esteem as an evaluation of personal worth that is based on the difference between individual's ideal-self and individual's self-concept.

2.3 MEASUREMENTS

2.3.1 Financial Management Practices

Financial management practices comprised of several dimensions. Previous studies portrayed the dimensions in different ways such as financial planning, cash-flow management, credit management, savings, investment, and risk management. Individual items of the practices have been used in some studies. Financial management practice

was sometimes taken as one construct in some studies where an index was developed for it.

Several financial planning studies have used the financial planning concept as a single item. Marlowe, Godwin, and Maddux (1995) reported on welfare recipients' planning on financial matters, Johnson (2001) surveyed on whether families have a financial plan whereas Godwin and Koonce (1992) determined the attitudes of individuals toward financial planning.

A recent study on orientation toward finances by Loix et al. (2005) on individuals resulted in a two dimensions construct using exploratory factor analysis namely the financial information and personal financial planning. The personal financial planning dimension focused on planning-related behavioural competencies that consists of three items regarding the planning of expenses, keeping track of personal expenses and likes to plan things.

Specific financial goals such as education financial planning received attention of researchers namely deBroucker and Lavalley (1998), Anisef, Sweet, and Ng (2004), and Yilmazer (2008). Planning on savings has been studied by Kennickell, McCluer, and Sunden (1997) and investment planning by O'Neill, Bristow, and Brennan (1999). Financial emergencies planning study were the interest of researchers such as Chang, Hanna, and Fan (1997) and Huston and Chang (1997) while retirement planning study

were carried out by MacEwen, Barling, Kelloway, and Higginbottom (1995), Hatcher (1997), O'Neill et al. (1999), Gutter (2000), and recently by James and Sharpe (2008).

Local studies on personal financial planning using individual as the unit of analysis are scarce. Mohamad Fazli and Jariah (2003) in a study on university students in Malaysia incorporated several activities of planning such as having financial goals, planning the usage of money, implementing their financial plans and made regular savings. Their study on ethnicity differences among the Malay, Chinese, and Indian students took into account an item on planning before making financial decisions. Setting financial goals and planning to increase income among families were surveyed by Husniyah, Syuhaily, M. Fazli, M. Amim, and Ahmad Hariza (2005a).

Few local studies focused on specific financial goals such as on education planning and retirement planning. A descriptive study on retirement preparation of workers in public sector by Nurizan, Aizan, and Norisma (2004) revealed that the respondents had financial goals such as savings for retirement, child education, pilgrimage to Mecca and for small business capital.

Other dimensions of financial management practices are in areas such as the cash-flow management, credit management, savings and investment, and risk management. Financial practices have been studied especially on taxation (Andreoni, Erard, and Fernstein, 1998), savings (Warneryd, 1999) and investment behaviour (Lowis and Mackenzie, 2000). In the following study, the researchers focused on cash-flow

management. Davis and Weber (1990) inspected practices of 672 households such as budgeting, preparing some form of income/expense or cash-flow statement, comparing the income/expense statement to the budget, preparing a personal balance sheet or estimate of household net worth.

Scannell (1990) in a study on dairy farm farmers, used activities on financial management practices such as making a spending plan, keeping written records of spending, storing records and estimating net-worth. The practices are mainly in the cash-flow dimension with one on the financial situation of the farmers. However, Mugenda et al. (1990) in assessing the causal relationship among money management practices and satisfaction with financial status instead looked at savings and credit specifically on the monthly debt payments and net worth.

Earlier on in the 1980's, Godwin and Carroll (1986) did a study on financial management behaviour of husbands and wives by including practices on financial planning, cash-flow and savings such as having discussion of financial goals, a fixed financial centre, and savings a specific amount of monthly income. In another study, a total of 76 couple were interviewed regarding their financial management practices that were planning for surplus funds, preparing a budget either a written or unwritten budget, using special accounts, savings regularly and sorting credit card transactions (Granbois, Rosen, and Acito, 1986). Actual financial management practices of the money manager such as budgeting, record-keeping, credit usage, savings, and risk management were studied by

Titus et al. (1989). These studies involved broader dimensions of financial management practices.

Four variables were included in the financial management practices concept examined by Sumarwan and Hira (1992) that were the managerial behaviour index, monthly debt payment, monthly savings, and number of insurance types. Six variables that described financial management behaviour were used to construct the managerial behaviour index. Those variables were save regularly for goals, record where money is spent, keep bills and receipts, discuss finances without getting upset, make plans on how to use time, and do things when they need to be done. The financial management practices studied above fall under the credit, savings, risk, and cash-flow dimensions.

Godwin (1994) identified indicators of randomly-selected newlywed couples willingness to manage cash-flow using cash-flow management practices such as budgeting and financial record-keeping, and also goal-setting. Participants of WFIP (Women's Financial Information Program) were asked about their change in specific financial practices related to cash-flow management, credit use and savings that were the spending plan, a bill paying system, limiting credit card use and savings regularly (DeVaney, 1996).

Parotta and Johnson (1998) designed a measurement for financial management consisting of six dimensions as constructed by Porter and Garman (1993) that included cash management, credit management, capital accumulation, risk management, retirement/estate planning, and general management. The 35 items for the scale resulted

from pre-existing scales and indices, (Fitzsimmons et al., 1993; Godwin and Carroll, 1986; Porter and Garman, 1993; Titus et al., 1989) and after item analysis was performed on the 38 items originally selected.

As for Gorham, DeVaney, and Bechman (1998), they studied recommended financial management practices like goal-setting, record-keeping, spending plans, funds for emergencies, regular savings, wise use of credit, insurance, retirement plans and investments. Joo and Grable (1999) in analysing the determinants of financial satisfaction used several dimensions of financial practices exhibited by individuals such as financial planning, cash management, budgeting, credit management and general money management. Hayhoe, Leach, Turner, Bruin, and Lawrence (2000) did their study on financial practices of college students comprised of written budget and keeping bills and receipts that were the cash-flow activities, savings regularly and making minimum payments. O'Neill et al. (2000) reported practices on savings and action to reduce credit card debt.

In a study on the household financial management, Hilgert and Hogarth (2003) explored four financial management activities that were the cash-flow management, credit management, savings, and investment. Xiao, Sorhaindo, and Garman (2004) reported on objective and subjective financial behaviours such as having developed a plan for my financial future, having followed a budget or spending plan, reduced some of my personal debts, having started or increased savings, having participated in flexible

spending program and contributed to my employer's retirement plan. The study covers aspects like financial planning, cash-flow, credit, savings and retirement.

Hogarth, Beverly, and Hilgert (2003) used data from Survey of Consumers consisting of financial behaviour regarding the cash-flow, savings, investment, and also planning and setting goals for financial future. Hogarth and Anguelov (2004) employed several dimensions of financial management practices: account ownership (savings and checking account), spending and savings behaviours (spending less than income, usual saver), retirement savings (expect retirement income, have retirement savings) and credit behaviours (no late payments, good credit report, no bankruptcy).

Financial management practices were taken as an index in a study by Fitzsimmons et al. (1993) who developed Frequency of Financial Management Scale (FFMS) to measure the financial management practices used. Items included were 'make plans on how to use your money', 'write down where money is spent', 'evaluate spending on a regular basis', and 'use a written budget'. A 5-point Likert format ranging from "never" to "most of the time" was used as the responses. It covers aspects on planning of money and cash-flow. Kim, Garman, and Sorhaindo (2003) with responses from clients of debt management plan similarly used an index of financial behaviour.

A qualitative study was done on Finnish financially better-off and those in financial difficulties households by Peura-Kapanen (2005). The interviews revealed that they understood financial management as a short-term activity consisting of paying their bills

on time and maintain a balance between their expenditure and available income, checking the balance of their bank account on a monthly basis. Budgeting and monitoring of expenditure was not typical of their financial management, however they did engaged in mental accounting. Financial planning was perceived to be meant for purchasing major or expensive items or was practiced by households with low or irregular income.

Other measurements used in previous studies are displayed below.

Items on cash-flow, credit, and savings aspects were considered in Hayhoe et al.'s (2000) study as listed below.

- i. Have a written budget
- ii. Have a written list when shopping
- iii. Feeling sorry after making a purchase
- iv. Keeping bills and receipts
- v. Plan for spending
- vi. Saving regularly
- vii. Paying interest
- viii. Making minimum payments
- ix. Feeling of doing a good job managing my finances
- x. Writing checks with insufficient funds in bank

Items of financial management practices used by Hilgert and Hogarth (2003) were classified into several dimensions such as cash, credit, savings, and investment. The choices of responses were true, false, and uncertain and the items are listed as follows.

Cash-flow management:

- i. Have checking account
- ii. Pay all bills on time
- iii. Have financial recordkeeping system or track expenses
- iv. Reconcile checkbook every month
- v. Use a spending plan or budget

Credit management:

- i. Have credit card
- ii. Pay credit card balances in full each month
- iii. Review credit reports
- iv. Compare offers before applying for a credit card

Saving:

- i. Have savings account
- ii. Have emergency fund
- iii. Save or invest money out of each paycheck
- iv. Save for long-term goals such as education, car, or home
- v. Have certificates of deposit

Investment:

- i. Have money spread over different types of investments
- ii. Have any retirement plans/account

- iii. Have any investment account
- iv. Have mutual funds
- v. Have 401(k) plan or company pension plan
- vi. Have IRA/Keogh
- vii. Calculated net worth in past two years
- viii. Participate in employer's 401(k) retirement plan
- ix. Have public stock
- x. Put money into other retirement plans such as an IRA
- xi. Have bonds

Other financial experiences:

- i. Own home
- ii. Bought a house
- iii. Do own taxes each year
- iv. Often or always plan and set goals for financial future
- v. Refinanced mortgage or loan for home improvements
- vi. Read about money management

2.3.2 Financial Well-being

a) Subjective Financial Well-being

The subjective measure of financial well-being had been used in previous studies. Perception of family financial managers about their satisfaction with preparation for financial emergencies (Sumarwan and Hira, 1992), satisfaction with savings level, debt

level, current financial situation, ability to meet long-term goals, preparedness to meet emergencies and financial management skills (Hira and Mugenda, 2000), financial satisfaction (Hogarth and Anguelov, 2004; Joo and Grable, 2004; Kim et al., 2003; Xiao et al., 2004), financial distress and perceived financial well-being (Garman, Sorhaindo, Kim, Xiao, Bailey, and Prawitz, 2004; Prawitz, Garman, Sorhaindo, O'Neill, Kim, and Drentea, 2006) were among those regularly used. Perception on financial health, debt problem, and financial problem (Kim, et al., 2003; Mannion, 1992; Norvilitis, Szablicki, and Wilson, 2003; Poppe, 1995; Powe, 2000; Wilcox, 2001) were also used to reflect financial well-being of individuals and families.

As stated by Zimmerman (1995), financial satisfaction involved a state of being healthy, happy and free from financial worry. Sumarwan and Hira (1992) specifically focused on one aspect of financial satisfaction concerning the preparation for financial emergencies. Later, financial satisfaction was used by Hira and Mugenda (2000) involving five aspects of satisfaction that were satisfaction with savings level, debt level, current financial situation, ability to meet long-term goals, and preparedness to meet emergencies.

Satisfaction with financial well-being of dairy farm families involved seven items on different aspects of financial satisfaction were determined by Scannell (1990). Satisfaction with present standard of living, emergency savings, past investment and savings, financial situation presently, in five years, last year and next year were the aspects included. Looking at the effect of financial well-being and planning on overall well-being during retirement, satisfaction with finances was used by MacEwen et al.

(1995). Analysing their data using path analysis, Joo and Grable (2004) also focused on levels of financial satisfaction.

Apart from having satisfaction on financial matters as the measurement, financial well-being was studied by Garman et al. (2004) and Prawitz et al. (2006) who extended the measurement to include questions on attitude, behaviour, control, and confidence about financial aspects. The InCharge Financial Distress/Financial Well-being (IFDFW) scale later known as Personal Financial Wellness scale (PFW) were extensively validated and researched for more than two decades. Financial distress/financial well-being was assessed using an 8-item instrument measuring perceptions about individuals' personal financial situation (Prawitz et al., 2006).

For local research, Malaysian Personal Financial Well-being (MPFW) scale consisting of 12 items was used to measure the perceived financial well-being of families in Malaysia (Jariah, 2007). The study focusing on financial well-being of the university administrators adopted the MPFW scale that was developed by Garman and Jariah in 2006. The MPFW scale was based on the 8-item PFW scale by Prawitz et al. (2006) however with more items included.

Other forms of subjective measure of financial well-being were mentioned by Powe (2000), Wilcox (2001), and Kim et al. (2003). Perception on financial health was used to determine financial well-being and was studied together with financial stressor events and health of a credit counselling clients who responded to data collections at two points

of time (Kim et al., 2003). Powe (2000) and Wilcox (2001) stated that financial well-being or wellness could be deduced from the absence of financial problems or from the absence of major problems such as bankruptcy, lack of emergency reserves, or uninsured losses, or by comparisons of one's personal financial situation with other people or national economic statistics. Hence, financial problems or the absence of financial problems reflected the financial well-being of an individual or family.

Financial problems were referred to as a mismatch between financial resources and demands (Kerkman, Lee, and Lown, 2000). Such specifics as debt, inability to meet obligations, or buy essential goods and services (Deacon and Firebaugh, 1988) were included in financial problems. The worst extent of financial problem was bankruptcy.

Earlier studies determined the risk of indebtedness (Dessart and Kuylen, 1986) and debt problems (Mannion, 1992; Poppe, 1995) as ways to identify the financial well-being of individuals and households. Hence, any analyses that reflect the financial status of the individuals or families might be used in studies determining their financial well-being.

b) Objective Financial Well-being

Individuals' and families' financial well-being had been measured using objective measurements such as the use of income, net-worth, level of debt, amount of saving, capital accumulation, emergency fund level, and several financial ratios namely debt to income ratio, solvency ratio, consumer debt ratio, liquidity ratio (Baek and DeVaney, 2004; Chang, Hanna, and Fan, 1997; Fitzsimmons and Leach, 1994; Godwin, 1994;

Greninger et al., 1996; Hogarth and Anguelov, 2004; Hong and Kao, 1997; Hong and Swanson, 1995; Moon et al., 2002; Norvilitis et al., 2003; Scannell, 1990; Winger and Frasca, 2006).

Net-worth is the difference between total assets value and total liabilities of individuals or households (Kapoor et al., 2007). Total assets value is the market price or current value of all the assets owned such as house, car, jewellerys, and savings. Total liabilities value is the amount of debt or balance of loan including unpaid bills. A positive net-worth is obtained by a surplus of assets value owned over the liabilities. On the other hand, a negative net-worth resulted from liabilities that exceed the assets value. Financially well households have high positive net-worth, vice-versa negative net-worth households faced financial difficulties. Even low positive net-worth households have financial constraints. Hence, a positive net-worth resembles a stable financial situation as compared to negative net-worth.

On the importance of financial ratios, Winger and Frasca (2006) stated that the present financial strength and changes in financial situation over time could be measured by financial ratios. Insolvency and adequacy of emergency funds of households had been assessed using financial ratios in several studies (Chang et al., 1997; Ding and DeVaney, 2000). Winger and Frasca (2006) suggested that multiple financial ratios were needed to have a comprehensive measure of financial wellness. At least three aspects of financial management should be considered in selecting appropriate financial ratios for this

purpose that were maintaining adequate liquidity, avoiding excessive debt, and making progress toward savings goals (Garman and Forgue, 2000; Winger and Frasca, 2006).

In earlier studies, personal financial solvency was used by Davis and Schumm (1987). Later on, debt-to-asset ratio was adopted by Scannell (1990) to measure the financial status of dairy farm families. Hong and Swanson (1995) used household income, emergency fund adequacy, and debt-to-income ratio as indicators for financial status while Chen and Finke (1996) applied net-worth in the logit analysis. A more recent study by Hogarth and Anguelov (2004) also used net-worth to measure financial well-being.

Financial ratios such as insolvency ratio, savings ratio, and debt-to-income ratio were studied by Fitzsimmons and Leach (1994), and Greninger et al. (1996). Using a Delphi study, Greninger et al. (1996) proposed savings ratio, insolvency ratio, and several other ratios as the financial stability profiles. Hong and Kao (1997) determined the emergency fund level by two ratios: quick emergency fund divided by three months' after-tax income, and comprehensive emergency fund divided by three months' after-tax income.

Insolvency ratio is the liabilities to assets ratio that should be less than one to be able to pay-off debts. A ratio more than one makes an individual financially insolvent that is more financially instable. For the savings ratio, a minimum state of the ratio would be 10 percent, meanwhile a debt-to-income ratio of less than 15 percent is considered reasonable by the experts and the danger point is when the ratio exceeds 20 percent (Greninger et al., 1996).

Moon et al. (2002) and, Baek and DeVaney (2004) focused on financial ratios related to household liquidity, solvency, and wealth accumulation. Norvilitis et al. (2003) applied debt ratios in determining its relationship with self-control. A single ratio might not represent the financial status as different aspects of financial situation of the family were assessed by each financial ratio (Baek and DeVaney, 2004; Lyons and Yilmazer, 2004). Thus a set of financial ratios had been proposed by several studies. One such proposition was by DeVaney (1994) who identified three useful predictors of financial stability from statistical analyses. Those financial ratios were the liquidity ratio, solvency ratio and consumer debt ratio. DeVaney (1994) looked at the likelihood of an individual to be financially insolvent at two points of time.

2.3.3 Investment in Risky Asset

The extent of individuals' participation in risky assets can be determined directly from their ownership of risky assets. In a study by Coleman (2003) comparing attitude toward risk and investment decision, the participation in risky assets was determined by the amount held in risky assets as a percentage of net worth. In the investigation on the association between ethnicity and risky assets holdings, Gutter and Fontes (2006) used the percentage of risky assets amount of total financial assets. They included businesses assets in the total financial assets and risky assets were defined as equities, equity funds, and business assets.

Participation in risky assets could be assessed subjectively through responses given by individuals regarding their investments. Individuals would be asked to response as true, false or uncertain for the following item: Have public stock (Hilgert and Hogarth, 2003).

2.3.4 Risk Preference

Risk preferences have been determined in research using financial risk tolerance or risk averse scales. Objective measurements are widely used in the economic studies based on the investment of financial assets with various levels of riskiness. Subjective measurements have since been introduced due to drawbacks in the objective measurements and discussed below.

Past research using objective assessment as contended by Hallahan, Faff, and McKenzie (2004) was based on economic theory. An individual's relative risk perception was quantitatively inferred from the amount of actual risky assets held in their portfolio in relation to total portfolio wealth. The main reason for the drawbacks was that most low income or low net-worth individuals do not own risky assets. Secondly, it was often impossible to obtain data on individuals' total wealth allocation. This was due to the investors' unawareness of the exact amount of risky assets they possessed.

Furthermore, they stressed that there was lack of consensus amongst researchers regarding the constitution of risky assets and total wealth. As supported by Riley and Chow (1992), studies had found individuals' risk aversion decreased, remained constant or increased with increasing wealth depending on the definition of wealth. The fourth

reason given was that individuals possessing the same amount of risky assets would not necessary have the same perception and attitude towards risk tolerance.

The most widely accepted method as suggested by Grable and Lytton (1999) was to assess individual's financial risk perception using a psychometric based assessment instrument. Used extensively in the area of psychology, psychometrics dealt with the design and analysis of measurements of human characteristics. The instrument measured subjective risk tolerance attitudes through multidimensional financial scenarios and situations. Further supporting the importance of using a psychometrically measure and highlighted the lack of reliability of risk tolerance measures was Roszkowski, Davey, and Grable (2005).

Other methods used for measuring financial risk tolerance as discussed by Hallahan et al. (2004) were assessing actual behaviour (Schooley and Worden, 1996), responses to hypothetical investment choices (Hey, 1999), and subjective questions (Hanna, Gutter, and Fan, 1998).

Several subjective measurements regularly used in past research are displayed below.

In analysing the determinants of financial satisfaction using financial behaviours, number of financial dependents, income, and risk tolerance, Joo and Grable (1999) assessed the concept using four Likert-scale questions. The questions asked are as follows.

- i. In terms of investing, safety is more important than returns.

- ii. I am more comfortable putting my money in a bank account than in the stock market.
- iii. When I think of the word “risk” the term “loss’ comes to mind immediately.
- iv. Making money in stocks and bonds is based on luck.

Alternatively, Cordell (2001) presented a four-component framework called RiskPACK to evaluate investors’ risk tolerance. The four components of risk tolerance were propensity, attitude, capacity, and knowledge (PACK). Investors’ propensity to incur risk refers to their financial decisions such as in short-selling the stock or speculating in options.

The ratio of high-risk to low-risk investments in an investor’s portfolio was suggested as a measure of propensity. An investor’s propensity for risk can also be measured by the percentage of financial assets held in equity securities. Investor determined their attitude toward risk by responding to the following statements that reflects the amount of financial risk they were willing to take when savings or making investments:

- i. Take substantial financial risks expecting to earn substantial returns.
- ii. Take above-average financial risks expecting to earn above-average returns.
- iii. Take average financial risks expecting to earn average returns.
- iv. Not willing to take any financial risks.

Another Likert-scale measurement for financial risk tolerance was introduced by Jacobs-Lawson (2003). The instrument obtained information on individuals’ attitudes toward

risk, specifically with regards to financial investing for retirement. The reliability was high with a coefficient alpha level of 0.83. The statements are as follows.

- i. I am willing to risk financial losses.
- ii. I prefer investments that have higher returns even though they are riskier.
- iii. The overall growth potential of a retirement investment is more important than the level of risk of the investment.
- iv. I am very willing to make risky investments to ensure financial stability in retirement.
- v. As a rule, I would never choose the safest investment when planning for retirement.

2.3.5 Time Horizon

Time horizon of an individual is often measured by future time orientation or future time perspective in psychological studies.

To measure time orientation, a Likert-type 23-item scale was developed. Kluckhohn and Strodtbeck's measure of time orientation was used as a basis for some of the items (Ko and Gentry, 1991). Consists of three components namely past time orientation 8 items, future time orientation 9 items, and ethnicity's scale of 6 items. Sample items for the future time orientation are listed below.

- i. I usually use a calendar to schedule events well ahead of time.
- ii. Things which you do now will affect how you are treated later.
- iii. I like to read about how others see the future.

- iv. I like science fiction.
- v. When talking with friends, our interest tends to anchor around what we are going to do.
- vi. If we work hard and plan right, things in our country will improve for those people who really try.
- vii. If a new young member has more potential to contribute to an organisation, he or she should be paid more than other members in the organisation.

Time Perspective developed by Zimbardo and Boyd in 1999 was used in a study assessing the interrelationships between elements of student engagement and association with Time Perspective (Horstmanshof and Zimitat, 2007). It examined future time perspectives of students together with orientation towards past-negative, past-positive, present-fatalistic, and present-hedonistic. It has been used in various field of research and applications, such as academic achievement, risk-taking, drug use, subjective well-being, quality of life, illness, social relations, burnout, health preventive behaviors, post traumatic stress disorders (PTSD), clinical settings, and health communications.

Sample questions are listed below.

- i. I believe that getting together with one's friends to party is one of life's important pleasures.
- ii. Familiar childhood sights, sounds, smells often bring back a flood of wonderful memories.
- iii. Fate determines much in my life.

- iv. I often think of what I should have done differently in my life.
- v. My decisions are mostly influenced by people and things around me.
- vi. I believe that a person's day should be planned ahead each morning.
- vii. It gives me pleasure to think about my past.

Future time perspective items as measured by Hershey and Mowen (2000) are listed below. The items measured the extent of individuals enjoyed thinking about and planning for the future.

- i. I follow the advice to save for a rainy day.
- ii. I enjoy thinking about how I will live years from now in the future.
- iii. The distant future is too uncertain to plan for.
- iv. The future seems very vague and uncertain to me.
- v. I pretty much live on a day-to-day basis.
- vi. I enjoy living for the moment and not knowing what tomorrow will bring.

2.3.6 Self-worth

Self-worth is seldom used in financial management studies. Hira and Mugenda's (1999) used a four-item scale to measure self-worth of the financial manager of the US households. The scale looked into the perception of the respondents on themselves in general. The items used are as follows.

- i. I take a positive attitude toward myself.
- ii. I am a person of worth.
- iii. I am able to do things as well as other people.

- iv. As a whole, I am satisfied with myself.

In the field of educational psychology, Chan (1997) used a multidimensional assessment of self-concept domains in addition to global self-concept. This study assessed global self-worth and specific self-evaluations on eight domains of competence using the Self-Perception Profile for Adolescents (SPPA). The eight domains are Scholastic Competence, Social Acceptance, Athletic Competence, Physical Appearance, Job Competence, Romantic Appeal, Behavioural Conduct, and Close Friendship.

As suggested by Moneta, Schneider, and Csikszentmihalyi (2001), there are two components of self-concept namely global self-esteem and locus of control. Global self-esteem is assessed by abridged version of Rosenberg's (1979) Self-Esteem Scale having seven items. Locus of control is assessed by abridged version of Rotter's (1966) Locus of Control Scale with 6 items. Items are rated ranging from 1 (strongly disagree) to 4 (strongly agree).

A local study on self-worth of credit card consumers by Husniyah, Mohd. Fazli, and Ahmad Hariza (2005b) used an integrated version of scale based on Robinson, Shaver, and Wrightsman (1991) and Hira and Mugenda (1999). The factor analysis on the items resulted in only one factor meaning that the scale is able to measure one concept namely self-worth, with a high reliability of 0.821. Below are the five items used in the above study.

- i. I am useful to others.

- ii. I take a positive attitude toward myself.
- iii. I have the same ability as other people.
- iv. I am satisfied with my achievements.
- v. I have an attitude of 'I can' in all aspects.

2.4 EMPIRICAL STUDIES

2.4.1 Financial Management Practices

a) Socioeconomic Characteristics Related To Financial Management Practices

Numerous studies had been carried out to determine the socioeconomic characteristics that gave effect on financial management practices. Those studies mainly focused on specific financial management practices rather than on general financial practice or financial behaviour (Ariffin, Wook, Ismadi, Mohd Saladin, dan Nor Ghani, 2002; Davis and Carr, 1992; Gorham et al., 1998; Hayhoe et al., 2000; Hogarth et al., 2003; Husniyah et al., 2005a; Joo and Grable, 2004; Sumarwan and Hira, 1992; Xiao et al., 2004). Differences in financial management practices among various socioeconomic characteristics had been the aim of some studies on individual financial behaviour (Godwin and Koonce, 1992; Kim et al., 2003; O'Neill, Bristow, and Brennan, 1999).

A study on age of households by Davis and Carr (1992) revealed that households in the earlier years, especially in the expanding stage of the life-cycle which was defined as married with oldest child under 13 of age were more likely to have a budget, particularly a written budget. As for households in the retirement age, they were least likely to have a written budget but most likely to report that they had a plan for a period of several

months. However, the older households responded that their spending plan was mainly a mental plan and not a written budget as the younger households.

The above result was similar to the conclusions made by Beutler and Mason (1987) and Granbois, Rosen, and Acito (1986) in earlier studies on families. The former found that young families were more often to make a formal budget. Using Chi-square test, the result exhibited that family life-cycle stage was significantly related to the reported use of a written and unwritten budget (Granbois et al., 1986). Those in earlier stage of the family life-cycle made greater use of the budgeting. The result was also similar to the finding by Hayhoe et al. (2000) on college students. Using ordinary least square method, they determined that older college students were more likely to have a written budget.

Studies on age in relation to other financial practices apart from budgeting were carried out by various researchers such as Titus and Fanslow (1989), Sumarwan and Hira (1992), DeVaney et al. (1996), Gorham et al. (1998), Ariffin et al. (2002), Kim et al. (2003), and Xiao et al. (2004).

Regarding the written financial plans, Titus and Fanslow (1989) found those were practiced more likely by younger managers than older ones. About 19 percent of the money managers had written financial plans for them to review. However, on a more specific spending plan, DeVaney (1996) who used women as their samples exhibited that older women were related with use of a spending plan.

In their study, DeVaney (1996) also found that women being older were associated with setting up and using a system for bill paying, limiting credit card use, and savings regularly. Other than that, age was related to the probability of starting or adding to an emergency fund, and significantly associated with probability of change in credit card use.

On savings regularly, DeVaney et al. (1996) revealed that age was a significant positive predictor of the probability of saving regularly. Similar result was found for a local study on household microdata in Malacca by Ariffin et al. (2002) where they concluded that age was positively related to consumer savings.

As for credit repayment, Husniyah et al. (2005b) in their study on Malaysian credit consumers concluded that there was a significant difference between those who repay their credit card bill in full and those who did not repay in full based on age. Older individuals tend to pay in full their credit card bills as compared to the younger individuals. This may be due to the lower income earned along with more financial commitments.

Using path analysis, Sumarwan and Hira (1992) found significant and positive influences by input variables that were age other than monthly income, on the managerial behaviour index. About six percent of the variability in the managerial behaviour index was explained by both inputs. Managerial practices were used more by older money managers than did younger money managers.

The respondents in their study were from the rural counties and contacted through mail survey. Six variables that described financial management behaviour were used to construct the managerial behaviour index. Those variables were save regularly for goals, record where money is spent, keep bills and receipts, discuss finances without getting upset, make plans on how to use time, and do things when they need to be done. The other variables studied were monthly debt payment, monthly savings and number of insurance types. Age significantly but negatively affected monthly debt payment with twenty nine percent of the variance in the monthly debt payment predicted by two variables that were age and income.

Two groups of researchers observed the relationships between age and adoption of financial practices. Gorham et al. (1998) used participants of the Women's Financial Information Program (WFIP) as their samples and concluding from the result of multiple regression, age significantly predicted number of financial practices adopted. In their study, a pre-assessment was administered during the first session. On the other hand, data for the post-assessment were collected by a mailed instrument 3 to 6 months after the last session. Only those who responded to both assessments were included as the samples.

As for Kim et al. (2003), they also concluded that age was significant in explaining financial behaviour. Adoption of positive financial behaviours by credit counselling participants increased with age. Older clients of the credit counselling agency were more likely to have better financial behaviours after 18 months using path analysis. Similar

result was found by Xiao et al. (2004) for age in predicting number of positive financial behaviours.

Socioeconomic characteristic such as income in relation to financial practices was being studied by several researchers (Ariffin et al., 2002; Baek and DeVaney, 2004; Godwin and Koonce, 1992; Gorham et al., 1998; Husniyah et al., 2005a; Joo and Grable, 2004; Mullis and Schnittgrund, 1982; Parotta and Johnson, 1998; Sumarwan and Hira, 1992; Xiao et al., 2004).

Earlier study on income and financial practices led to the conclusion that budgeting was an important financial management practices (Mullis and Schnittgrund, 1982). They found that majority of the low income urban families used the budget, even though it might be only a mental budgeting and families that did budgeting were more satisfied with their spending than non-budgeters.

As found later by Godwin and Koonce (1992), low and middle income newlyweds' couples monitored their income and spending and also balanced their budget more frequently than high income couples. The low income couples were found to project their budget more frequently than high and middle income couples. In addition, low income couples portrayed more positive attitudes about planning for success and looking forward, and planning for present management as compared to middle or high income couples. Since a lower proportion of the low income wives were employed, they may have had more time available for managing cash-flow. Thus research on newlyweds'

financial management practices found differences in budgeting activities, attitudes toward financial planning, cash-flow management based on income.

In the relationship between income and debt payment, Sumarwan and Hira (1992) revealed that income significantly but negatively affected monthly debt payment. As compared to those from lower-income households, those from households with higher income used a smaller proportion of their monthly income to pay instalment debt. They also found that managerial practices were used more by those from household with higher monthly income rather than those from lower-income households.

Parotta and Johnson (1998) found that higher income apart from positive attitudes about finances, but not the amount of financial knowledge, predicted use of recommended financial management practices. As for Gorham et al. (1998), multiple regression result showed that income did not predict significantly number of financial practices adopted. Other variables that gave similar results were marital status, education level, and employment status.

Joo and Grable (2004) also found that income apart from education and risk tolerance had a positive relationship with financial behaviours. Those earning higher household income tended to exhibit better behaviours than other income groups. Along the line, Huston and Chang (1997), Xiao et al. (2004), and a local study on savings behaviour by Ariffin et al. (2002) posed similar results. Huston and Chang (1997) contended that the increase in income increased the chances of having emergency funds but not in large amount. Xiao

et al. (2004) stated that family income was positively related to the number of positive behaviours.

The local study by Ariffin et al. (2002) that used household micro-data in the state of Malacca revealed that consumer savings were also related positively with disposable income, other than age and ethnicity group. However, for financial behaviour in terms of financial planning among Malaysian respondents, household income was negatively related to the extent of financial planning. Higher income households were less involved in financial planning as compared to lower income households (Husniyah et al., 2005a).

Education, marital status, ethnicity, and gender were among other socio-economic characteristics being determined their relationships with financial practices. Sumarwan and Hira (1992) concluded that married and employed with higher household income held more insurance types as compared to the unemployed, single money manager with lower income. On general financial practice, DeVaney et al. (1996) found marital status as positively and significantly related to adoption of financial behaviour. For non-married respondents, they were less likely to adopt the behaviour.

Education was also portrayed as having a positive relationship with financial behaviours (Joo and Grable, 2004). Those who had an education beyond high school but less than a college degree had better financial behaviour than other educational groups. Similarly, Beutler and Mason (1987) earlier on, found that both variables namely marital status and education were significantly related to budgeting. Those married and well-educated were

more often to make a formal budget. A similar result was obtained for other financial practices namely savings and investing which Baek and DeVaney (2004) found that a higher educational level of consumers leads to increased savings and investing.

However, in the 1980s, Granbois et al. (1986) who interviewed 76 couples, found no association between education of husband and wife, or number of years married and the composite score of the five financial management practices that were preparing a budget, saving regularly, planning for surplus funds, using special accounts, sorting credit card transactions, reported use of a written and unwritten budget. Similarly, Gorham et al. (1998) revealed that marital status and education level did not predict significantly number of financial practices adopted.

In contrast, on reducing credit card debt, single respondents with no dependents were more likely to report that reducing credit card debt was not a problem compared to those attaining high school diploma, or less education and those having advance degrees (O'Neill et al., 2000). The study was done on participants and non-participants of MONEY 2000TM that was a Cooperative Extension System program. This program encouraged participants to set personal savings or debt reduction goal and take action to achieve it at least by the end of the year 2000. Looking on level of savings of local residence, Ariffin et al. (2002) in contrast found that level of education and residential areas were negatively associated with level of savings. Female graduates living in urban areas were significantly and positively related to full repayment of credit card bills (Husniyah and Zuroni, 2004).

Using ordinary least square regressions for each of the financial practices choices, Hayhoe et al. (2000) found marital status as a significant predictor for financial practices. However, the direction of the relationship was different from the one obtained by O'Neill et al. (2000). This study found that married and female students were more likely to have a written budget. Marital status and gender were significant predictors for keeping bill and receipt with married and female students were more likely to keep bills and receipts.

Similarly, these socio-economic characteristics were also significant predictors for other financial practices such as have a written list when shopping, plan their spending, and save regularly. Concerning good credit practice in view of the repayment of education loan, those who were not married and those married but with fewer dependents were significant predictors of good credit practice (Husniyah, Mohd. Fazli, Mohd. Amim, Bukryman, and Ahmad Hariza, 2006).

Hogarth et al. (2003) using multinomial ordered logistic regression however found slightly different results for the ability of marital status and gender in predicting cash-flow and savings managements. Single male and single female relative to married were negatively correlated with cash-flow management. Single male relative to married was also negatively correlated with savings management.

Other socioeconomic characteristics that were also studied but not extensively among all were employment status, home ownership, household size or number of financial dependents, and number of credit cards possessed.

As for monthly savings, household size significantly and negatively affected it. With larger household size, monthly savings were lesser. However, monthly savings was significantly and positively influenced by employment status (Sumarwan and Hira, 1992). Money managers who had higher savings ratio were those who were employed. Another financial management practices examined was the number of insurance types that was significantly and positively affected by employment status. Employed family money managers held more insurance types as compared to the unemployed.

Similar result was obtained from a local study on financial planning of families (Husniyah et al., 2005a). Significant difference between those with low financial planning and high financial planning existed for household size. Those with low level of financial planning had larger mean household size in contrast to those having high level of financial planning.

An earlier study on financial management behaviour of husbands and wives by Godwin and Carroll (1986) collected data in April 1982 from a randomly selected sample of husbands and wives via self-administered questionnaires. A total of 73 sampled couples completed both husbands' and wives' questionnaires. The results revealed factors affecting financial management behaviour of husbands and wives. Number of years married, and occupational status of wives were significantly and positively related to wives' reports of behaviour. Employment status was however not significantly associated to wives' reports of behaviour. For husbands, number of years married of husbands was also significantly and positively related to husbands' reports of behaviour. In contrast,

Gorham et al. (1998) who identified association of socioeconomic characteristic such as employment status found that it did not predict significantly number of financial practices adopted.

Individuals with fewer cards with maximum balance and larger number of credit cards were more likely to have a written list when shopping (Hayhoe et al., 2000). Significant predictor for feeling sorry for having made a purchase was residence that was those living on campus was more likely to feel sorry for having made a purchase. Regarding planning their spending, significant predictors was also residence however those living off campus were more likely to plan their spending. Other significant predictor was number of credit cards with a balance in relation to save regularly and pays interest. Individual with fewer credit cards with a balance was more likely to save regularly and was more likely to pay interest.

A study on clients with a credit counselling agency who responded to both data collections that were done in June 2000 and 18 months after they enrolled in the debt management plan portrayed significant factors in explaining financial behaviour (Kim et al., 2003). Employment and race were significant in explaining financial behaviour where employed people practiced more positive financial behaviours than others. Non-white practiced more positive financial behaviours than white people.

Based on data from Survey of Consumers that was conducted by phone, Hogarth et al. (2003) focused on associations of financial behaviour such as cash-flow, savings, and

investment with socioeconomic characteristics that were race or ethnicity, household size, and home ownership. Data used in the analysis contained information from 1,004 respondents. Applying multinomial ordered logistic regression to the data, they revealed that Black relative to White, household size, and probability of you or your spouse losing jobs in the next five years were negatively correlated with cash-flow management. With regard to savings management, household size was negatively correlated with savings management. Joo and Grable (2004) obtained similar result on the relationship of the number of financial dependents with financial behaviours. Their result showed that number of financial dependents had a negative relationship with financial behaviours.

Xiao et al. (2004) studied on the relationships of socioeconomic characteristics namely year of residence, employment status, debt load percentage, and credit card balance together with objective and subjective measures of financial behaviours. The samples of the study was from a group of financially distressed consumers who telephoned a large national non-profit credit counselling organisation, InCharge Debt Solutions, seeking assistance with their outstanding credit. The result from the regression analysis showed that employment status that was having a part time job versus being unemployed, was positively associated with the number of positive financial behaviours.

Local studies on savings behaviour's by Ariffin et al. (2002) using household microdata in the state of Malacca revealed that consumer savings was related positively with ethnicity group. The Malay ethnicity had mean savings significantly higher than the other

ethnicities. In contrast, household size and stratum were found to be negatively associated with level of savings. Household's mean savings was significantly higher for the rural areas as compared to the household's in urban areas.

Referring to another local study by Husniyah et al. (2005b) on the repayment practice of credit card bills, those working in public sector tend to make full repayment of the bills as compared to the private sector. Those working in private sector reported that they were more likely to save instead of using the money to settle their bills as compared to public sector workers. This may be due to job insecurity in the private sector.

b) Factors Related To Financial Management Practices

Vast studies had identified factors having impact on financial management practices either independently or as a composite index. Among the factors intensively studied was knowledge on the specific financial practices or on the financial practices in general. Other factors mentioned in previous studies were future time orientation and financial risk tolerance. Some factors were seldom researched in relation to financial management practices such as self-worth, participation in education workshop and self-directed learning to name some.

Research demonstrated that knowledge on related practices had significant impact on the financial practices concerned. Majority of the research resulted in a positive impact of knowledge on the related financial practices. Knowledge was showed to be positively related to cash-flow management (Hogarth et al., 2003; Hogarth and Hilgert, 2003),

retirement planning activities (Ekerdt, Hackney, Kosloski, and DeViney, 2001), savings practices (Grable and Lytton, 1997; Hershey and Mowen, 2000; Hogarth et al., 2003; Yuh and DeVaney, 1996), and credit practice (Mohd. Fazli, Husniyah, Ahmad Hariza, Mohd Amim, and Syuhaily, 2004). Those with high scores on literacy tests were more likely to follow recommended financial practices (Hogarth and Hilgert, 2002; Kotlikoff and Bernheim, 2001).

Along the line, Hogarth and Hilgert (2003) found that in comparison to those who had less financial knowledge, those with more financial knowledge were also more likely to engage in suggested financial behaviours. Those having higher financial knowledge scores were those that were classified as high on the cash-flow management index. The same trend with financial knowledge was observed for the overall financial management index and for each of the subsections that were credit, savings, investment, mortgage and others. Hogarth et al. (2003) also concluded that financial knowledge was positively correlated with cash-flow management, other than being positively correlated with savings management. In contrast, using a composite index for financial practices, Parotta and Johnson (1998) however reported that the amount of financial knowledge did not predict the use of recommended financial management practices.

Looking at more specific knowledge such as investment knowledge, Grable and Lytton (1997) found that investment knowledge was positively related to savings behaviours. This reflected that investment knowledge and savings knowledge, and investment and savings behaviours were interrelated. Investment knowledge could have a significant

impact on the quality of one's investment decisions. Walsh and Hershey (1993) for instance, reported that expert financial planners and older individuals were more accurate at determining the amount to be invested than novices and younger individuals. Hershey and Walsh (2000/2001) similarly found that expert financial planners made better investment decisions than novices. However trained novices who were more knowledgeable in investment task, made far better decisions than novices.

Financial knowledge impact on good financial management behaviour was also revealed by Perry and Morris (2005) and Grable, Park, and Joo (2009). Perry and Morris (2005) found that consumers' willingness to save, budget, and control spending were shaped by financial knowledge. Another study observed that the most statistically significant factor influencing financial management behaviour was individual's level of financial knowledge (Grable et al., 2009). Those possessing high financial knowledge displayed more responsible financial management behaviour.

Apart from examining financial knowledge, Hogarth et al. (2003) worked on the associations between financial behaviour (cash-flow, savings and investment) with financial learning experiences, financial stability, and motivation. Financial learning experiences included personal experience and/or friends and family. The motivation aspect asked on the frequency to plan and set goals for financial future. Financial learning experience and motivation were reported to be positively correlated with cash-flow management and with savings management.

In relation to cash-flow management practices, earlier study by Granbois et al. (1986) found that locus of control was significantly associated with preparing budget. Wives in families that did budgeting were more external than those in families that did not do budgeting. They also found that husbands' in families employing special accounts were significantly more internal than were husbands in families that did not employ special accounts. These findings reflected that budgeting activity was more influenced by the environment where they lived and people surrounding them. In contrast, having special accounts was reflected as not much influenced by others. Hence, locus control did have an impact on financial behaviour, however whether it is the effect of internal or external, this depends on the specific financial behaviour.

Consistently, Perry and Morris (2005) also concluded that locus of control was important to mould financial management behaviour. However, they made a general conclusion of the impact on financial behavior. Those exhibiting internal locus of control were more likely to be financially responsible. Hence, they were suggesting that those who have control on themselves were likely to perform good financial behaviour.

Earlier study looked at another factor that was motive for work (Granbois et al., 1986). However, the construct was not significantly related with any of the practices namely preparing budget, savings regularly, planning for surplus funds, using special accounts, sorting credit card transactions and reported use of a written and unwritten budget. Further analysis using multiple regressions resulted in no association between the

independent variables and the composite scale scores of the five financial management practices.

Focusing on cash-flow other than on credit use and savings dimensions, DeVaney et al. (1996) revealed that using program workbook was associated with use of a spending plan, a bill paying system, limiting credit card use, and savings regularly. The practices in this study were analysed as individual items. Respondents were those participated in WFIP (Women's Financial Information Program) and given a pre-assessment and post-assessment to look at the probability of change in specific financial practices.

For the post-assessment, the results showed that those who continued to complete workbook exercises after WFIP were more likely to have a bill paying system. Regarding savings, those completed workbook during WFIP was negatively related to the use of reserve for emergencies. This revealed that those who completed the workbook were less likely to use an emergency fund. However, the completion of workbook exercises since their involvement in WFIP predicted the probability of savings regularly.

With regard to savings practices, Hayhoe et al. (2000) examined the impact of the use of credit and financial stress on purchasing and financial management behaviours. They reported that those having fewer credit cards with a balance and were experiencing less financial stress, were more likely to save regularly. Thus using regression analysis, they concluded that number of credit cards with a balance and financial stress as the most significant predictors for savings regularly.

On the credit practices dimension, the completion of workbook exercise for credit use resulted in a positive and significant association with the probability of change in credit card use (DeVaney, 1996). Mohd. Fazli et al. (2004) on the other hand, reported that respondents' knowledge on instalment credit and their attitude towards instalment were positively and significantly related to instalment credit practice. Being knowledgeable and having positive attitude in the concerned practice led to good credit practice. By exploring the credit practice of Malaysian credit consumers, Mohd. Fazli et al. (2004) hence concluded that the result on instalment credit knowledge was in line with previous studies' results on financial knowledge.

Studying on retirement investment, Yuh and DeVaney (1996) demonstrated that the defined contribution plans of risk tolerant individuals tend to be larger than those of individuals who were risk averse. They suggested risk tolerant individuals would be more likely to remain financially independent after leaving the workforce. Similarly, Grable and Joo (1997) reported that risk tolerance was a significant predictor of retirement investment and also savings strategies.

Cavanagh and Sharpe (2002) studied the impact of another factor namely consumer debt levels on discretionary retirement savings. Results of a two-stage analysis indicated that instalment debt deterred participation in discretionary retirement savings. Savings accumulations were significantly lower for those who carried credit card balance forward and those who had instalment debt.

Jacobs-Lawson and Hershey (2005) later explored the extent of individuals' knowledge on retirement planning, future-time perspective, and financial risk tolerance in influencing retirement savings practices. The study on young working adults revealed that future time perspective and financial risk tolerance were associated with more aggressive savings profiles. As reported by Lusardi (1999), pre-retirees with a short planning horizon or present time perspective had lower average net worth and expected to receive less in the from personal savings in retirement. Thus, future time orientation was positively associated with retirement savings.

Similar result was obtained by Hershey and Mowen (2000) who revealed that among individuals aged more than 35 years old, future time perspective was positively associated with self-reported financial preparedness for retirement. Closely related to future time perspective, one's level of patience that was the willingness to postpone spending to save was associated with retirement savings tendencies (Bernheim, Skinner, and Weinberg, 1997; Burtless, 1999). Thus, the above findings proved that one's future orientation and financial risk tolerance were likely to have significant impact on retirement savings behaviours.

Financial risk tolerance also influenced other dimensions of financial practices such as cash management, credit management, budgeting, financial planning, and general money management as contended by Joo and Grable (1999). Persons with higher level of financial risk tolerance tended to report better financial behaviours (Joo and Grable, 2004).

Attitudinal study on financial matters by Parotta and Johnson's (1998) revealed positive attitudes about finances predicted the use of recommended financial management practices. The result was similar to those obtained by Mohd. Fazli et al. (2004) in earlier discussion who reported a positive and significant relationship between respondents' attitude towards instalment and instalment credit practices.

Not many studies examined the impact of self-worth on financial practices. The few were by Hira and Mugenda (1999), and Grable and Joo (2001). They proved that self-worth had significant relationship with financial behaviour other than from being significant with financial belief and financial satisfaction.

Concentrating on factors that were marital satisfaction and perceived quality of financial management, Kerkmann et al. (2000) who studied recently married university students revealed that financial management were significantly correlated with marital satisfaction. Furthermore, actual financial management practices were also associated with perceived quality of financial management.

Factors such as self-directed learning and career satisfaction were found to be researched by Loibl and Hira (2003) who reported positive correlation between self-directed learning (newsletter, publications, internet) and career satisfaction with good financial management practices. Other finding from their study was that the relationship between participation in the workshop and good financial management practices was mediated by self-directed financial learning. The hierarchical multiple regression result revealed that

self-directed learning accounted for a significant amount of unique variance associated with good financial management above and beyond the variance contributed by the control variables and participation in the workshop.

Using data from the 2001 Survey of Consumer Finances, Hogarth and Anguelov (2004) focused on use of e-banking technologies by exploring the effect of having a bank account on financial management behaviours. Ordered probit analysis revealed that net-worth was positively and significantly associated with being a 'good' or 'better' financial manager, followed by income and risk tolerance. Households having a bank account were 15 percent more likely to be a good or better financial manager than those that did not. Meanwhile, households that used computer banking, direct deposit and phone banking had an eight percent likelihood of being in the 'better' manager group.

Other factors being studied in relation to financial management practices was credit counselling (Kim et al., 2003). Focusing on those attending a credit counselling workshop, using regression analysis they found that credit counselling was significant in explaining financial behaviour. Holding other factors constant, credit counselling had a significant and positive impact on the financial behaviours of active clients involved in debt management plan.

Financial behaviours were also studied in relation to financial stress level (Joo and Grable, 2004; Xiao et al., 2004), financial stressors and financial risk tolerance (Joo and Grable, 1999 and 2004). Negative relationship existed between financial behaviours and

financial stress where those involving in better financial behaviours reported lower level of financial stress (Joo and Grable, 2004). Financial stressors were also negatively related to financial behaviours. Individuals with lower level of financial stressors reported better financial behaviours. Xiao et al. (2004) reported that financial stress was negatively associated with number of positive financial behaviours, and self-evaluation of financial behaviours. Lower level of stress were positively associated with two specific financial behaviours that were 'having started or increased savings' and 'having followed a budget or spending plan'. As found by Joo and Grable (2004), those who had a higher level of financial risk tolerance tended to report better financial behaviours. Financial risk tolerance also influenced other dimensions of financial practices such as cash management, credit management, budgeting, financial planning and general money management as contended by Joo and Grable (1999).

Apart from financial stress, Xiao et al. (2004) studied on the relationships of perceived retirement security, perceived health, perceived family relationship, debt load percentage, and credit card debt balance with objective and subjective financial behaviours. Regression analyses controlling for socioeconomic characteristics resulted in retirement security, family relationship, and self-evaluation of financial behaviours were positively associated with the number of positive financial behaviours. Whereas, credit card debt balances, retirement security, health, family relationship, and number of positive financial behaviours were found to be positively associated with the self-evaluation of financial behaviours.

Cultural conceptual perspective was also studied by Perry and Morris (2005) in terms of their moderating effect on financial management behaviour. They suggested that how individuals behave financially might be influenced by culturally contextual issues.

2.4.2 Financial Well-being

a) Subjective Financial Well-being

Socioeconomic Characteristics Related To Subjective Financial Well-being

Socio-economic characteristics of the individuals and households were found to affect the financial well-being of those individuals and households. Such socio-economic characteristics were age, income, family size, marital status, education, length of employment, and home ownership (Baek and DeVaney, 2004; Husniyah, et al., 2005a; Joo and Grable, 2004; Mohamad Fazli, Jariah, Karen, and Laily, 2008a; Prawitz et al., 2006; Sumarwan and Hira, 1992; Titus et al., 1989; Xiao et al., 2004).

As found by Titus et al. (1989), older money managers were found to be more satisfied with their financial status than were younger managers. Similar result on age was found by Xiao et al. (2004) who studied on the relationships of socioeconomic characteristics, year of residence, perceived retirement security, perceived health, perceived family relationship, debt load percentage, and credit card balance together with financial behaviours (objective and subjective measures), financial stress, and financial satisfaction. They concluded that age was positively associated with financial satisfaction. Joo and Grable (2004) found the same trend for age where older consumers were more satisfied with their financial situation. Similar result was found for a local

study on Malaysian employees by Mohamad Fazli et al. (2008a). Age was also positively predicting financial well-being that was measured by financial wellness.

On the effect of income, apart from being affected by managerial behaviour index, monthly savings, and the number of insurance types, satisfaction with preparation for financial emergencies was affected by income (Sumarwan and Hira, 1992). Higher household income households were more likely to be satisfied with preparation for financial emergencies. Earlier on, money managers with higher income were found to be more likely than those with lower income to be satisfied with their financial status (Titus et al., 1989). Similar result was obtained by a study done by Baek and DeVaney (2004), Husniyah et al. (2005a), and Mohamad Fazli et al. (2008a). They revealed that household income and also family size were positively and significantly related to satisfaction on financial matters. The financially well households were more likely to have higher income.

Observing the socioeconomic relationships with financial well-being by measuring financial well-being of individuals through financial problems exhibited similar trends. Since financial problem was inversely related to financial well-being, those having better financial well-being would be experiencing less financial problems. In conjunction to that, Kerkman, Lee, and Lown (2000) found that financial problems were inversely correlated with income for samples of married students. Lower income students faced more financial problems than higher income students.

The effect of education on financial well-being varied in the results of previous research. Contradicting results were found from studies by Joo and Grable (2004) and Hira (1987). Joo and Grable (2004) who determined the association of socio-economic characteristics, financial knowledge, financial solvency, financial behaviour, and financial stress levels with financial satisfaction revealed that education was positively affecting financial satisfaction among baby-boomers, similar with Baek and DeVaney's (2004) findings. The financially well households were more likely to have a higher level of education. Thus highly educated individuals were more satisfied financially. However in an earlier study by Hira (1987) about satisfaction with financial status, education was found to be not significantly related to that variable.

Baek and DeVaney (2004) revealed that married households other than being highly educated, earning high income, and own a house were probably financially well. Married households tend to be financially well. These married households might have dual-income generated from themselves and their spouse.

Other socio-economic characteristics found to be significant in predicting financial well-being were gender, ethnicity, and employment length (Mohamad Fazli et al., 2008a). All these variables were found to be negatively affecting financial well-being. Being a male, being a Malay or Chinese, and longer duration of employment were more likely to predict lower financial well-being. These may be explained by the increase in their financial commitments throughout their life-cycle.

Factors Related to Subjective Financial Well-being

Studies on socioeconomic characteristics and financial management practices in relation to financial satisfaction and other subjective measures of financial well-being were discussed in sections 2.5.1b and 2.6.4a respectively. The relationships between objective measures of financial well-being and subjective measures of financial well-being were explained in section 2.5 above. Discussions on other factors related to subjective financial well-being were presented below.

Financial satisfaction was often studied with financial knowledge; however the relationship may not always be positive. Mugenda et al. (1990) determined that those who were knowledgeable tend to evaluate events and situations differently than others. Those knowledgeable would be less financially satisfied compared to those who were less knowledgeable. They tend to increase their level of living through financial means as they realised their financial situation were weak and thus were less satisfied compared to those who were less knowledgeable. Similarly, Joo and Grable (2004) found positive association between financial knowledge and financial satisfaction.

Results on comparison in money beliefs between financial satisfaction and perception of financial progress suggested that money beliefs contribute more to the prediction of one's financial satisfaction than to one's perception of financial progress (Wilhelm, Varcoe, and Fridrich, 1993). This led to a conclusion that money beliefs variable was a stronger predictor for financial satisfaction as compared to perception of change in financial situation.

Financial stress on its relationship with financial satisfaction was found to be negatively related with financial satisfaction (Bailey, Woodiel, Turner, and Young, 1998). They also revealed that all of the factors making up the personal stress scale that were positively correlated with financial stress were significantly related to perceptions of low personal financial security. Thus, those experiencing high financial stress would be most probably less satisfied financially. Having a similar trend, high levels of financial stress negatively affected perceived financial well-being (Weisman, 2002).

The results of the above study also exhibited that stressor events associated with high levels of credit card debt and poor financial behaviours could increase financial stress (Weisman, 2002). Thus, stressor events would be indirectly affecting perceived financial well-being. Concurrently, Joo (1998) stated that other than demographic characteristics and financial behaviours, financial stressors had an indirect effect on financial satisfaction.

Along the line, Kim et al. (2003) contended that other than financial behaviours being significant variable in explaining financial well-being, financial stressor events variable was found to be significantly predicting financial well-being. Those experiencing more financial stressor events had lower levels of financial well-being than others who do experienced less financial stressor events.

Analysing their data using path analysis, Joo and Grable (2004) determined that other than education and their financial knowledge, factors such as financial risk tolerance and

financial stress level had direct effects on financial satisfaction. Financial risk tolerance and financial stress level exhibited negative direct effects on financial satisfaction whereby, more financially risk tolerance and higher levels of financial stress led to lower levels of financial satisfaction. The negative relationship of financial stress level and financial satisfaction was expected as persons with higher level of financial stress would be less satisfied with whatever they had (Joo and Grable, 2004).

They argued that person's with higher levels of financial risk tolerance might have increased their financial expectations. Thus, these highly risk tolerant persons would find that their current level of living were inadequate when compared to their standard of living. This led to a lower level of financial satisfaction among them. Consistently, Baek and DeVaney (2004) concluded that attitude towards credit and risk, apart from education, employment status, home ownership, and shopping for credit were significantly related to financial well-being among baby-boomers.

Studies on self-worth by Grable and Joo (2001), and Hira and Mugenda (1999) found that self-worth had significant relationship with financial satisfaction. Higher self-worth money managers tend to be more satisfied with their financial situation as compared to lower self-worth money manager.

The research by Norvilitis et al. (2003) suggested that more internal locus of control of college students were related to a perceived financial well-being. They concluded that self-control individuals were financially better than those easily influenced by others.

Apart from socioeconomic characteristics and financial behaviours, Xiao et al. (2004) also studied on the relationships of perceived retirement security, perceived health, perceived family relationship, debt load percentage, and credit card balance with financial satisfaction. The results suggested that perceived retirement security and perceived family relationship were positively associated with financial satisfaction. Those perceiving better retirement security and better family relationship were more likely to be satisfied financially as compared to those perceiving worse retirement security and family relationship. In contrast, credit card debt balance was negatively related with financial satisfaction. Individuals having more credit card balance were most likely to be less satisfied with their financial matters than those with lower credit card balance.

Other factors examined in relation to subjective financial well-being were participation in debt management program and health. The findings from O'Neill, Prawitz, Sorhaindo, Kim, and Garman (2006) displayed that participation in a debt management program contributed to lower financial distress or better financial well-being. Health was negatively related to financial well-being (Bagwell and Kim, 2003; Garman et al., 2007; Lyons and Yilmazer, 2004)

Limiting to satisfaction with preparation for financial emergencies, monthly savings and the number of insurance types apart from the household income and managerial behaviour index, affected satisfaction with preparation for financial emergencies as found by Sumarwan and Hira (1992).

Studying on Malaysian employees' financial wellness, Mohamad Fazli et al. (2008a) observed employee's productivity and financial literacy as significant predictors of financial wellness using multiple regressions. They also concluded that financial literacy was among the most influential predictor of employees' financial wellness.

In determining factors related to financial problems, Mannion (1992) who investigated money advice services in Great Britain reported that the reasons for debt problems were unemployment and over-commitment, other than background and financial practices such as low income and budgeting difficulties. A study on debt counselling in Norway resulted in households with debt problems had lost control over their income and expenses (Poppe, 1995). Other finding was that debtors had experienced some dramatic life event, such as unemployment, sickness or divorce, which distracted them from an established managing routine.

College students were studied on the relationship between their academic competence contingency and contingencies of self-worth with financial problem (Crocker and Luhtanen, 2003) and were found to be significantly related, after controlling for relevant personality variables. They concluded that contingencies of self-worth uniquely contributed to financial difficulties faced by junior college student.

Focusing on examining the relationships of own expected financial satisfaction in retirement and parents' satisfaction with finances, with overall change in well-being of parents, significant relationships were found (MacEwen et al., 1995). However, their own

expectation for financial satisfaction in retirement was not associated with the participants' perceptions of their parents' overall change in well-being after retirement. Thus, financial well-being seems to have little direct effect on overall well-being during retirement.

b) Objective Financial Well-being

Socioeconomic Characteristics Related to Objective Financial Well-being

Objective financial well-being measured by financial ratios in relation to socio-economic characteristics was being researched by relatively few researchers as compared to subjective measurement of financial well-being. Those involved in these types of studies among all were Scannel (1990), Sumarwan and Hira (1992), Hong and Swanson (1995), Chen and Finke (1996), Moon et al. (2002), Baek and DeVaney (2004), and Hong and Kao (2004).

Age, financial dependent, income, employment, and education were significant socio-economic factors in predicting objective financial well-being such as financial ratios, net-worth, household income, and emergency fund adequacy.

Debt-to asset ratio for farmers was found to be negatively related to age (Scannel, 1990). Older farmers were most probably having lower debt-to asset ratio as compared to younger farmers. This result led to the conclusion that older farmers were financially well than younger farmers. Age was again a significant factor in predicting objective financial well-being in a study done by Sumarwan and Hira (1992) regarding the debt to income

ratio. They revealed that as compared to the younger money managers and lower-income households, older money managers and households with higher income had small debt to income ratio. The study used money managers of the households as the respondents. Hong and Swanson (1995) obtained similar result regarding age of older women in their study. The financial status of older women was positively related to their age.

Having financial dependents specifically the presence of a child below 18 was found to be positively related to debt-to asset ratio for farmers (Scannel, 1990). Presence of a child below 18 would lead to higher debt-to-asset ratio, hence experiencing less financially well.

Debt-to asset ratio for farmers was also found to be positively related to the education of the spouse. With spouse attaining higher education levels, this would lead to higher debt-to-asset ratio, hence they would more likely be less financially well. Chen and Finke (1996) revealed that using logit analysis, well educated young households who might expect increasing incomes were more likely to have a negative net-worth than low-educated old households. Education was suggested to be negatively associated with financial well-being as found by Scannel.

Moon et al. (2002) also examined the effect of education on financial well-being. Their result agreed with previous findings. Looking at households in South Korea, they examined ratios such as debt safety, debt service, solvency, liquidity, savings, and capital

accumulation. Four out of six logistic regressions showed that being a graduate had a negative influence on meeting the guideline, reflecting less financially well.

In contrast, Hong and Kao (2004) found that education was positively related to financial well-being. This study examined the emergency fund adequacy of a sample of Asian Americans, and education was found to be positively associated with the emergency fund levels of Asian Americans. Similarly, Baek and DeVaney (2004) revealed that households headed by high educated individuals were more likely to meet liquidity ratio guideline as compared with households headed by low educated individuals. Hence, contradicting results were observed for the effect of education on objective financial well-being.

Income was a significant factor in predicting objective financial well-being in a study done by Sumarwan and Hira (1992) regarding the debt to income ratio. They revealed that as compared to the younger money managers and lower-income households, older money managers and households with higher income had small debt to income ratio. The study used money managers of the households as the respondents. Thus, income was concluded to be positively related to financial well-being of households.

On similar account, Hong and Kao (2004) found that earned income was positively associated with the emergency fund levels of Asian Americans, meaning that high income households were more likely to experience financial stability. Further supporting the above results was a study by Baek and DeVaney (2004) who observed that

households in the highest income category were three times more likely to meet the debt-to assets guideline than those in the lowest income category. Thus, those earning high income were more likely to be financially stable as compared to low-earning households. Employment and multi-earners were positively associated with objective financial well-being. Employment was found to be significantly contributing to the financial status of older women (Hong and Swanson, 1995). Multiple earners construct was positively associated with the emergency fund levels of Asian Americans (Hong and Kao, 2004). As expected, households with more resources were more likely to meet the investment guideline (Baek and DeVaney, 2004). The employed individuals were more likely to meet the investment guideline than the unemployed individuals.

Homeownership effects on objective financial well-being were found in several studies. Hong and Swanson (1995) study used household income, emergency fund adequacy, and debt-to-income ratio as indicators. Several characteristics including homeownership were found to be significantly predicting financial status of older women. Along the line, Hong and Kao (2004) later examined emergency fund adequacy of a sample of Asian Americans. They found homeownership as positive predictor for emergency fund adequacy.

The influence of race on financial well-being was among all being researched by Hong and Swanson (1995) and Hong and Kao (2004). The financial well-being in Hong and Swanson (1995) study's was indicated by household income, emergency fund adequacy, and debt-to-income ratio. Several socioeconomic characteristics including race was found

to influence the financial well-being of older women (Hong and Kao, 2004). This study examined the emergency fund adequacy as an indicator for financial well-being. The emergency fund level was measured by financial ratios and the result showed that Asian Americans were more likely to be prepared for financial emergencies than non-Hispanic whites, African Americans, and Hispanics. This suggested that race did have an impact on financial well-being.

Age, financial dependent, homeownership, income, employment, and education were significant socio-economic factors in predicting objective financial well-being. However, contradicting effects of education was found across studies. Other variables were positively influencing objective financial well-being.

Factors Related To Objective Financial Well-being

Studies on factors related to objective financial well-being were mainly focused on its relationships with subjective financial well-being. Other factors studied were time orientation and self-control. Factors on financial management practices in relation to objective financial well-being are discussed in other section.

As discussed in section 2.5, several objective financial well-being variables were observed their relationships with subjective financial well-being variables. Among all in the earlier studies were personal finance solvency in relation to financial satisfaction and net-worth with satisfaction with financial status. Those who were more solvent with better financial ratios were positively related to financial satisfaction (Joo and Grable

(2004); Mugenda and Hira, 1990). Mugenda et al. (1990) concluded that net-worth was among the main determinants of managers' satisfaction with financial status.

Time orientation was studied by Lusardi (1999) in relation to net-worth. The result revealed that pre-retirees with a short planning horizon or more current oriented had a lower average net worth as compared to those who were more future oriented.

Norvilitis et al. (2003) studied on both subjective and objective financial well-being in relation to self-control. They suggested that perceived financial well-being was related to a more internal locus of control; however found no direct relationship between objective financial well-being namely debt ratios and self-control.

Financial risk tolerance was another factor that was observed by Baek and DeVaney (2004). Liquidity ratio guideline was more likely to be met by risk takers than average risk takers. Individuals that were more tolerant towards risk were more probably have higher liquid assets as compared to those who were averagely tolerant towards risk. Similar results were observed for the investment ratio guideline. Those meeting the guideline were above-average risk takers as compared to average risk-takers. The likelihood of no risk-takers to meet the guideline was less than those willing to take some financial risk. Hence, high risk-takers or financial risk tolerance individuals had higher investment ratio than low risk-takers or risk-averse individuals.

c) Socioeconomic Characteristics Related To Integrated Financial Well-being

Studies on integrated financial wellbeing were scarce. Most studies analysed subjective and objective financial well-being separately. Only one study combining both types of measurements to represent financial well-being was found.

Baek and DeVaney (2004) in differentiating between financially stable and financially instable households used t-test with integrated measurement of financial well-being. Financial well-being was measured using perceived financial well-being and financial ratios. The two groups of households were different in their socioeconomic characteristics apart from financial attitudes and financial management. The financially stable households were more likely to be married and had higher level of education, income, and possessed homeownership.

2.4.3 Financial Management Practices and Financial Well-being

a) Financial Management Practices and Subjective Financial Well-being

Financial management practices were being studied in relation with several measurements of subjective financial well-being such as with financial satisfaction, financial distress, perceived financial well-being, and financial problem (DeVaney et al., 1996; Garman et al, 2004; Husniyah et al., 2005a; Joo and Grable, 1999 and 2004; Kim et al., 2003; Loibl and Hira, 2003; Mohamad Fazli et al., 2008a; Mohamad Fazli, MacDonald, Jariah, Laily, Hira, and Mohd. Amim, 2008b; Mugenda and Hira, 1990; Prawitz et al., 2006; Xiao et al., 2004).

Using financial satisfaction to represent financial well-being, Mugenda and Hira (1990) in their study on financial satisfaction of USA residents found that a person's solvency and financial behaviours were positively related to financial satisfaction. Other than that, they also found that financial satisfaction and career satisfaction were positively correlated with good financial management practices. Sumarwan and Hira (1992) also found positive relationship between financial behaviours and preparation for financial emergencies. Similarly, Kim et al. (2003) who did their study on clients with a credit counselling agency found that using regression analysis, financial behaviour to be positively and significantly associated with financial well-being.

Focusing on a group of employees in lower-level, white collar positions in a national insurance company, Loibl and Hira (2003) observed that financial management practices were positively correlated with financial satisfaction. Samples of employees were randomly selected in eight different geographic regions of the US in 1999 six month after the employees attended an educational session conducted by a national accounting firm using mail survey. Having a similar result from the analysis using hierarchical multiple regression, Xiao et al. (2004) in a later study, revealed that good financial management practices accounted for a significant amount of unique variance associated with financial satisfaction above and beyond the variance contributed by the control variables and participation in the workshop.

The same conclusion was made by Joo and Grable (1999 and 2004) with financial behaviours having a positive direct effect on financial satisfaction whereby the practice of

better financial behaviours led to higher levels of financial satisfaction. Their results led to individual's financial behaviour as the single most influential determinant of financial satisfaction. Thus financial behaviour had the largest positive impact on financial satisfaction compared to other variables such as the socio-economic characteristics. Financial practices of individuals studied by them consisted of cash management, credit management, budgeting, financial planning, and general money management.

Along the line, Kim et al. (2003) in a study involving active and inactive clients of debt management plan found similar results. The data that were collected from clients of a large credit counselling organisation on two occasions, once in June 2000 and again in January 2002 revealed financial behaviours was a significant variable in explaining financial well-being. Those practicing more positive financial behaviours activities had higher levels of financial well-being than others. They also concluded that positive changes in financial behaviours were associated with reduction in financial distress as found later by Prawitz et al. (2006). Hence, they concluded that positive changes in financial behaviours were positively related to financial well-being as financial distress was an opposite measure of financial well-being.

Consistent with above studies, a local study using financial wellness to represent financial well-being observed a positive significant relationship of financial behaviour with financial well-being. Financial behaviour was among the most influential predictor for financial well-being apart from income, and financial literacy (Mohamad Fazli et al., 2008a).

Another local study using financial problem as a proxy for financial well-being found similar results. The results from multivariate analysis displayed that spending patterns, and savings, apart from financial literacy were significant predictors of college student financial problems. A positive influence was observed for spending patterns while savings and financial literacy had negative influence on financial problems (Mohamad Fazli et al., 2008b). Hence, financial behaviour consistently displayed similar associations across measurements of financial well-being and across nations.

As for specific financial practices such as financial planning, Hira and Nagashima (1988) did a study on Japanese families' financial management practices and satisfaction. They found that behaviours of having retirement plans apart from less frequent arguing about money were positively related to spouses' satisfaction with their financial situation.

Observing both participants and their parents in the study, MacEwen et al. (1995) found consistent results. Their expectations for financial well-being were specifically influenced by participants' own financial planning for retirement. However, it did not affect their expected overall well-being after retirement. Parents' financial planning also showed similar result with it affecting their satisfaction with finances.

Xiao et al. (2004) stated that having developed a plan for my financial future was among the three financial behaviours that increased financial satisfaction. The other financial behaviours were 'started or increased my savings' and 'reduced some of my personal debts'. In contrast, a local study focusing on credit consumers concluded that financial

planning was negatively correlated with satisfaction towards financial matters (Husniyah et al., 2005b). This may be explained by the reduced instant gratification resulted from future consumption.

Financial practices in the area of cash-flow management were determined their effects on financial well-being. A significant difference was found between budgeters and non-budgeters. Families developing a spending plan were more satisfied with their spending than those who do not (Mullis and Schnittgrund, 1982). Budgeting therefore was concluded as an important financial management practice. The result from the study also showed that majority of the low income urban families used the budget, even though it might be only a mental budgeting.

‘Record where money is spent’ and ‘keep bills’ were among activities in the cash-flow management that positively affecting satisfaction with preparation for financial emergencies (Sumarwan and Hira, 1992). Similar results were obtained by Godwin (1994) who identified indicators of willingness to manage cash-flow management- budgeting, financial record-keeping, goal-setting and analysis satisfaction with family's financial situation. The results indicated that record-keeping did predict greater satisfaction with the family's financial situation and spending plan was positively related to their financial status as a result of WFIP.

In contrast, a study on women participating in Women’s Financial Information Program found that financial feeling index was negatively associated with developing or revising a

spending plan (DeVaney et al., 1996). Those feeling less satisfied about finances had developed or revised a spending plan. On the cash-flow aspect, Xiao et al. (2004) similarly observed a negative association with financial satisfaction. Individuals having participated in flexible spending program were most likely not satisfied with their financial situation.

In the area of credit, Mugenda et al. (1990) assessed the causal relationship among money management practices and satisfaction with financial status. Monthly debt payments practice was among the main determinants of managers' satisfaction with financial status, other than net worth, savings, and absence of financial difficulties. A study on women participating in Women's Financial Information Program found that having feelings of satisfaction about finances was associated with limiting credit card use (DeVaney et al., 1996).

Similarly, Joo (1998) found that full monthly payment of credit card bills was positively associated with financial satisfaction. Xiao et al. (2004) later revealed that reducing some of the personal debts were among the three financial behaviours that increased financial satisfaction. The other factors were having developed a plan for their financial future and started or increased their savings.

Regarding savings effect on financial satisfaction, Mugenda et al. (1990) concluded that savings was among the main determinants of managers' satisfaction with financial status. As for Sumarwan and Hira (1992) who determined the effect of financial management

practices that were managerial behaviour index, monthly debt payment, monthly savings, and number of insurance types on satisfaction with preparation for financial emergencies, found that monthly savings exerted positive influence on financial satisfaction. Later DeVaney et al. (1996) who studied women participating in Women's Financial Information Program concluded that savings regularly increased feelings of satisfaction about finances. Concurrently, started or increased my savings increased financial satisfaction however; contributing to employer's retirement plan was negatively associated with financial satisfaction (Xiao et al., 2004).

Observing the relationships between financial management practices and financial problem, poor financial management was one of several factors that seemed to increase the risk of becoming indebted in earlier study by Dessart and Kuylen (1986). They studied problematic debt situations in the Netherlands and found, using an index method, that factors related to credit such as overdrawn current account and high repayment rate, together with personal factors and poor financial management, resulted in a higher risk of indebtedness. Mannion (1992) investigated money advice services in Great Britain and reported that the reasons for debt problems were unemployment, over-commitment, low income, and budgeting difficulties.

Poppe (1995) studied debt counselling in Norway where the results of the study showed that households with debt problems had lost control over income and expenses. Debtors also had experienced some dramatic life event, such as unemployment, sickness or divorce, which distracted them from an established managing routine. A study by

Kerkmann et al. (2000) however found no correlation between financial management and financial problems. The result was not as expected and was explained as due to the very low income of the samples comprising of recently married students.

Financial well-being can be deduced from the state of being debtors or non-debtors. Nyhus and Webley (2001) found differences between debt groups for money management items. Using Chi-square test, they revealed that debt groups tend to use more of the second list of money control techniques, tend not to go shopping, and more often put money aside for special purposes in envelopes and jam jars. Further analysis on the 1994 and 1996 data using logistic regression model for predicting debtors versus non-debtors showed that use of money management techniques and prefer to spend immediately were significantly differentiating debtors and non-debtors. Those using money management techniques were more likely to be non-debtors as compared to being debtors. For the spending, those who prefer to spend immediately were more likely to be debtors as compared to non-debtors.

They employed multinomial logistic regression to determine the tendency of three debt groups namely never-debtors, at least one a mild debtor, and at least once a debtor (Nyhus and Webley, 2001). Two financial practices namely using more techniques of money management and finding it more difficult to control spending were more likely to predict an individual as being never debtors. Analysing with chi-square test for the above looked into the comparison between two groups that were never debtors versus mild debtors and debtors. Money management and control of spending were more likely to

predict never debtors as compared to the other group comprising of mild debtors and debtors.

They further compared extreme debtors and mild-debtors, and the practice found to be significantly differentiating the groups was control of spending but not money management. Control of spending was more likely done by mild-debtors as compared to extreme debtors. However, both practices regarding use of money management technique and finding it difficult to control spending were more likely to predict never-debtors versus at least once a mild debtor or worse.

b) Financial Management Practices and Objective Financial Well-being

Scarce research were carried out on the relationship between financial management practices and objective evaluation of financial well-being as mentioned by Baek and DeVaney (2004), and even up to this date.

Family financial well-being was examined by Scannel (1990) using financial ratio namely debt to asset ratio. Financial management practices of separating farm and home expenses were found to be significantly related to the debt to asset ratio. Families with lower ratios were significantly more likely to separate farm and home expenses for transportation, insurance and repairs, than were families with a higher ratio. However, there were no significant relationships between debt to asset ratio and the likelihood of separating farm and home utility bills or expenses for taxes and property insurance.

Effect of cash-flow management had been studied by Godwin (1994) on the net worth of newly married couples. Apart from having income, number of sources of income, and feelings of control positively related to net-worth, cash-flow management also followed the same trend in affecting net worth. Earlier on, Titus et al. (1989) also observed the effects on net-worth by financial planning as well as age, income, and household size. Financial planning was positively related to net worth as well as age and income.

Households with high liquidity ratio are assumed to be financially well as compared to those with low liquidity ratio. Baek and DeVaney (2004) found that those paying off outstanding credit card balances, saved for future expenses, saved regularly, and spending less than their income were more likely to meet the ratio guideline than those who did not. These findings suggested that households involved in those practices were more likely to have good financial well-being.

Another ratio examined by them was debt to asset ratio revealed the same results. This ratio reflected financial well-being such that individuals with debt to asset ratio of less than one were financially well as compared to those having a ratio of more than one. Financial management practices such as shopping for credit, credit card payment practices, saving for future expenses, and spending behavior were examined in relation to this ratio. Paying off credit card balance, saved for future expenses, and spending less than their income were also found to be predicting good financial well-being.

2.4.4 Other Studies on Financial Management Practices

Mediating effects of financial management practices were studied by Sumarwan and Hira (1992) where they found that income's indirect effect on the satisfaction with preparation for financial emergencies was mediated by the financial management practices that included managerial behaviour index, monthly debt payment, monthly savings and number of insurance types. Whereas for age, its indirect effect were mediated by only three variables that were the managerial behaviour index, monthly debt payment, and number of insurance types. Monthly savings and number of insurance types mediated the effects of employment status and marital status. The indirect effect of household size on the satisfaction was only mediated by monthly savings.

Focusing on the financial management practices as a whole, Xiao et al. (2004) obtained mediating effect of financial management practices. From the analysis using hierarchical multiple regression, they revealed that good financial management practices partially mediated the relationship between self-directed learning and financial satisfaction.

Studies on the moderating effect of personality variables between financial management practices and financial well-being were unavailable at this point of time. Past studies on moderating effect done in the financial management field were also scarce.

One study carried out by Parotta and Johnson's (1998) determined the moderating effects of financial knowledge between financial attitudes and financial practices. Financial knowledge was found as not moderating the relationships between attitudes and practices.

They also revealed that amount of financial knowledge did not predict use of recommended financial management practices; however higher income and positive attitudes about finances did predicted use of recommended financial management practices.

2.4.5 Investment in Risky Asset

Past studies on investment in risky assets mainly determined the socioeconomic and psychology factors. On the psychology factor, studies were concentrated on attitude towards risk namely financial risk tolerance. Studies found on the associations of financial management practices with investment in risky assets involved financial management practices in the area of savings.

a) Socioeconomic Characteristics and Investment in Risky Assets

Socio-economic characteristics of the individuals and households were found to affect the decision to invest in risky assets. Those socio-economic characteristics that influenced participation in risky assets among all were age, education, ethnicity, gender, income, income risk, and homeownership (Banks and Tanner, 2002; Bertaut, 1998; Bertaut and Starr-McCluer, 2002; Campbell, 2006; Cardak and Wilkins, 2008; Cocco, Gomes, and Maenhout, 2005; Feng and Seasholes, 2007; Guiso and Jappelli, 2005; Guiso, Haliassos, and Jappelli, 1996 and 2001; Gutter and Fontes, 2006; Iwaisako, 2003; Schubert, 2006).

There should be age effect on portfolio choice as suggested by life-cycle theory (Bodie, Merton, and Samuelson, 1992). This age effect existed under which time horizon for

older investors were shorter than younger investors, the investment opportunities varies according to time, and older investors possessed less human wealth than younger investors. Human wealth was the non-tradable human capital that would generate labour income. This was agreed by Cocco et al. (2005) who stated that at younger age, households possessed less financial wealth but large human capital. Optimal portfolio allocation required households to initially allocate high portion of financial wealth to stocks, as stocks had high return and being correlated lowly with labour income. Hence, they contended that portfolio share in risky assets for older investors was predicted to decrease with age under factors namely expected utility, constant relative risk aversion (CRRA), and income risk faced by them. An inverse relationship was expected between age and participation in risky assets. This kind of relationship was as implied from the life-cycle model. Under the factors mentioned above, households rely on labour income for their consumption, thus avoiding from investing in risky assets.

Consistent results with prediction based on the theory were observed in Bodie et al. (1992), Bodie and Crane (1997), and Strong and Taylor (2001) studies on young people who were found to be more risk tolerance than elder people in the same task context. As they aged, they reconstituted their portfolios with a higher percentage of fixed income securities than common stocks. This strategy was justified based on the performance of equity shares that was better in a longer horizon (Bodie et al., 1992; Strong and Taylor, 2001). Since older individuals had limited time for the high return of stocks, switching their investment types was a better strategy. On the other hand, young investors had ample time to compensate for their investment losses.

A weak negative effect was also found for household age on their participation in public equity markets for the United States in 2001 (Campbell, 2006) as predicted above. Increase in age results in less participation in public equity markets and was as predicted. This was explained by the increased participation by younger households earlier on in the 1990s. The model also controls for wealth and income as these would be higher as age increase. Studies on earlier SCF data by Bertaut and Starr-McCluer (2002) exposed stronger age effect on equity participation. Similar results were revealed for Japan households (Iwaisako, 2003), Italian households (Guiso and Jappelli, 2002), and for UK households (Banks and Tanner, 2002).

However, contradicting results were found in other studies. Heaton and Lucas (2000) instead found a positive association between age and percentage of equities in portfolios. Furthermore, Poterba (2001), Poterba and Samwick (2001), and Feng and Seasholes (2007) revealed a non-significant association between investor's age and the percentage of equities in investors' portfolios.

Cardak and Wilkins (2008) further supported the contradictory results above. The risky asset holdings for Australian households as found by them was influenced positively by age. This result on the effect of age on participation in risky assets somehow diverted from prediction. Older investors would more likely to invest in risky assets, maybe due to their experience in investment. The increased of age reflected the increased knowledge and experience (King and Leape, 1987).

As for education, using the US Survey of Consumer Finances 1983, Haliassos and Bertaut (1995) and Bertaut (1998) found that education increased the probability of stock ownership. Along the line, Fratantoni (1998) using US Survey of Consumer Finances, 1989, reported a positive effect of education of households on risky asset ratio. Schooley and Worden (1999) report that low educated American investors were more likely to hold less risky portfolios namely fixed-income securities. Further supporting these results was a study by Bertaut and Starr-McCluer (2002) working on the US Survey of Consumer Finances 1983 to 1998 data. They also revealed a positive influence on probability of risky assets ownership by education of households.

Studies across nations showed similar findings. Guiso et al. (1996 and 2001) used the Italy Bank of Italy Survey of Household Income and Wealth (1989) and revealed that education positively affected risky asset ratio of Italian investor. Netherlands households portrayed similar influence of education on risky asset ratio. Hochguertel (2003) determined the influence of education on ratio of safe assets to financial assets who found a negative effect. This implied that the effect of Netherlands households' education on risky assets ratio was also positive, meaning that highly educated households were more likely to invest in risky assets.

Consistently, working on the US Survey of Consumer Finances 1989 data, Yamishita (2003) reported that increase in education would increase the ratio of stocks to financial assets. Highly educated households would most likely participate in risky assets and less likely to participate in safe assets, hence having high portion of risky assets for their

portfolios. A study by Rosen and Wu (2004) also suggested that highly educated households who belong to ethnic or education groups were likely to face lower entry costs and thus to be more likely to participate in stock markets. Along the line, Christiansen, Joensen, and Rangvid (2006) found that highly educated investors invested more in stocks and bonds. A positive correlation between the risky asset ratio and educational attainment was also observed in Cardak and Wilkins' (2008) study on the risky asset holdings by Australian households.

The effect of ethnicity on risky asset holdings was studied by Gutter and Fontes (2006). Ownership of risky assets that was stated as stocks and businesses was determined as a percentage of total financial assets in its relationship with ethnicity. Black households were found to be less likely to hold risky assets with more children, unemployed, more risk averse, and needed more liquidity. When other factors were controlled, no difference was found between Black and White households in the ratio of risky assets to net worth.

In terms of the likelihood to hold stocks and transaction accounts, Black households were less probably than White households to hold them (Chiteji and Stafford, 1999; Gutter and Fontes, 2006). The tendency to own transaction accounts and stocks among Black families was influenced by the holdings of these assets by their parents (Chiteji and Stafford, 1999). The result using the 2004 Survey of Consumer Finances data revealed that Whites were two times more likely to own risky assets as compared to Blacks (Gutter and Fontes, 2006).

Gender's effect on risky assets participation showed that women make conservative investment and retirement account decisions (Sunden and Surette, 1998). The likelihood of women to invest in risky assets was low and tends to have fixed-income assets as compared to stocks. Women portrayed different behaviour as compared to men in their perception about uncertainty in gains. They were seen as more pessimists about gains as compared to men (Schubert, 2006). However, contradicting result was revealed by Feng and Seasholes (2007) showing that Chinese men and women invests similarly.

Apart from socioeconomic characteristics discussed above, the decision to invest in risky stock market was negatively influenced by background risk. This type of risk was formalised by Pratt and Zeckhauser (1987) earlier on in light of the investment in risky asset. Background risks among all were income risk, health risk, and committed expenditure risk. Health risk and committed expenditure risk will be discussed in the next section.

By facing risks from income risk, individuals tend to avoid other risks if possible. This in turn increased their savings to make them prepared for the potential risk faced. Thus high income risk would result in low participation in risky financial assets. High labour income on the other hand led to high tendency to invest in risky assets. As labour income was implicitly holding of safe assets, this positively influenced investment in risky financial assets (Cocco et al., 2005). Bodie et al. (1992) and Farhi and Panageas (2005) contended that if labour supply of households could be increased, this would increase households' willingness to take financial risks. This is in agreement with Ding and

DeVaney (2000) who suggested that high-income households were less probably to hold assets in low return and risk liquid assets; and also with Storesleten, Telmer, and Yaron (2004) who stated that labour income led to increased investments in stock market.

Labour income risk was found to decrease the probability of stock ownership (Haliassos and Bertaut, 1995). A weakly negative effect of labour income risk was observed by Bertaut (1998). With the US Survey of Consumer Finances data, Fratantoni (1998 and 2001) found labour income risk reducing risky asset ratio. The risk also negatively affected risky asset ratio of Italian investor (Guisso et al., 2003).

Along the line, Hochguertel (2003) in determining the effect on ratio of safe assets to financial assets by labour income uncertainty found a positive effect. Translated the result into the effect on ratio of risky asset, labour income risk was negatively affecting risky asset ratio for the data from Netherlands Center Savings Survey, 1993 to 1998. Consistently, the labour income uncertainty of Australian households was negatively affecting household allocations to risky financial assets (Cardak and Wilkins, 2008). The Household, Income and Labour Dynamics in Australia (HILDA) Survey were used in studying the portfolio allocation decisions of Australian households.

Being self-employed, believed to be parallel to labour income risk was negatively affecting risky asset share for US households (Bertaut and Starr-McCluer, 2002). Similar trend was revealed by them when retired households were used to determine the

likelihood to have risky asset share. Retired households had lower income as compared to working households, thus retiree facing higher labour income risk than those working.

Proprietary business income risk was shown to be similar in trend as labour income risk. Low stockholding was observed due to background risks from proprietary business income (Heaton and Lucas, 2000) for a model of portfolio allocation to US data apart from facing background risk from labour income.

The effect of homeownership on risky asset holdings had been studied separately from real estate assets. Different results of homeownership effect were obtained in those studies. One study found a negative effect of homeownership on risky asset holdings. Limited wealth arising from housing investment resulted in low investment in stocks especially for younger and poorer investors (Cocco, 2005). Expenditures on mortgage of homes tend to decrease risky asset holdings. However, access to home equity loans, other collateralised loans and borrowing ability for homeowners might encourage financial risk taking and lead to investing in risky assets. A positive association of homeownership with risky asset holdings by Australian households was found which Cardak and Wilkins (2008) argued it was due to access to cheap mortgage-backed credit.

Parallel to the result of homeownership effect by Cocco (2005), acquiring real estate assets in general and business assets decreased the likelihood to own stock as found by previous studies. Both Heaton and Lucas (2000) and Yamishita (2003) using US data found negative effect of real estate assets on ratio of stocks to safe, financial and total

assets, and on ratio of stocks to financial assets respectively. A similar trend existed for business assets. The probability of stock ownership was lowered by acquiring more business assets as found by Shum and Faig (2006) for the US Survey of Consumer Finances, 1992 to 2001 data. Thus business assets had negative effect on risky asset holdings.

However, wealth that consists of all types of assets was proved to be inversely affecting equity ownership of US households. The effect of wealth in risky asset holdings was important for the middle class, but wealthier households had the largest portfolio share (Campbell, 2006). The results observed showed that wealthy US households preferred to take greater risk in their portfolios. This was partly the result of greater participation in risky asset classes and also partly the result of higher portfolio shares for those who participated. Carroll (2002) concluded that similar results were obtained in several European countries.

b) Factors Related to Investment in Risky Assets

In addition to socioeconomic characteristics affecting investment in risky assets, other factors were found to be influencing this investment decision. Among the factors identified from past studies were investment knowledge, financial awareness, savings motive, credit constraints, health risk, and risk preferences (Baker and Nofsinger, 2002; Bertaut and Starr-McCluer, 2002; Cardak and Wilkins, 2008; Corter and Chen, 2005; Graham et al., 2004; Guiso et al., 2002; Haurin and Morrow-Jones, 2006; Shum and Faig, 2006).

Investment knowledge, financial awareness and investor competence were being observed their effects on risky asset holdings in several studies. Individuals might invest too conservatively due to low financial expertise or financial experience. The quality of investment decisions had been influenced by investment knowledge as reported by Walsh and Hershey (1993). Experts in financial planning determined accurately the amount to invest in a retirement account of hypothetical investors. Later they (Hershey and Walsh, 2000/2001) concluded that experts in financial planning make better decisions than non-expert in their investment decisions.

Households that were financially alert (Guiso et al., 2001; Rosen and Wu, 2004) were likely to face lower entry costs therefore they had high likelihood of participating in stock markets. Financial awareness effects were also being mentioned in Guiso, Haliassos, and Jappelli (2002) that were in line with (Bertaut, 1998) and (Bertaut and Starr-McCluer, 2002). Baker and Nofsinger (2002) insisted on the influence of social interaction on investment decisions in addition to investment knowledge gained from the social interaction. Individuals had high probability to invest in international investments when their peer group frequently discussing the matter.

Investor competence was based on individual perception of his or her own abilities to invest in the financial markets. It was a self-perceived skill and knowledge and did not reflect the true level of skill or knowledge that the investor had (Graham et al. 2004). The competence effect developed in an individual was identified by Heath and Tversky (1991) who stated that the ambiguity aversion was affected by subjective competence level of participants. With people feeling skillful or knowledgeable in certain area, they

prefer to bet on their own judgment even with a certain probability distribution outcome for the chance event.

Lack of knowledge of various classes of investment products would result in non-participation. Only one third of Italian households have simultaneous knowledge of stocks, mutual funds, and managed accounts. Thus, Guiso and Jappelli (2005) suggested that this scenario will lead to widespread ignorance of certain assets hence resulted in non-participation. Haurin and Morrow-Jones (2006) concluded that differences in knowledge of markets might contribute to lower homeownership rates of Black households, so this reflected the possibility of similar factors to influence fewer tendencies to risky asset ownership.

Other evidence on the relationship between knowledge and investment behavior was displayed by Lusardi and Mitchell (2006) who found that those who were unable to answer simple questions about investing correctly, had lower likelihood to plan for retirement or investing for their retirement. In conjunction to that, investors who trade frequently and more internationally diversified were those who had high understanding regarding investment products and its transactions (Graham, Harvey, and Huang, 2005). Further supporting this notion of knowledge effect on investment decision was the study by Benjamin, Brown, and Shapiro (2006). Those possessing low cognitive ability had low likelihood to participate in financial markets during their subsequent adult life. Experienced respondents in investment held higher-risk portfolios than less experienced investors in a study by Corter and Chen (2005).

Consistently, a positive influence was observed by Campbell (2006) with higher portion of risky assets existed in the portfolios of highly educated investors. For the Australian households, different levels of financial literacy resulted in different portion of risky asset in the portfolios with a positive order in Cardak and Wilkins's (2008) study. Hence, households not investing in stocks tend to be financially illiterate. Furthermore, they found negative correlations between immigrant status and poor English skills with risky asset ratio. Unfamiliarity with the local financial system and low literacy in English reduced their ability to acquire such knowledge and hence invest less.

Financial awareness would guard investors from investment mistakes. Similar with results from Campbell (2006) study, less knowledgeable and inexperienced Australian investors were more likely to commit investment mistakes (Cardak and Wilkins, 2008). They also suggested that promotion of financial awareness might serve as an effective tool to increase risky financial asset holdings. Earlier, Campbell (2006) contended that investment mistakes had been observed in terms of non-participation and under-diversification and were regularly committed by lowly educated and low resources households.

Saving motives affected equity share of portfolios differently. Savings intended for purchasing or building a house and for businesses had negative effects on equity shares of households. It is believed that savings would reduce available money to invest, moreover

to invest in risky assets. An inverse association is expected for savings and investment especially in stock market.

As predicted, a low ratio of stocks to safe, financial and total assets was displayed by increasing tendency to save in pension funds (Heaton and Lucas, 2000). The results were obtained for US households using two sets of data namely the 1979 to 1989 US Panel of Individual Tax Returns and the 1989 to 1995 Survey of Consumer Finances. This result was similar with findings by Shum and Faig (2006) using data from the US Survey of Consumer Finances, 1992 to 2001. They also found that savings for purchasing house in the future had lowered the equity share of portfolio for US households. The same trend was observed for another savings motive that was for businesses in the same study.

In contrast, however Shum and Faig (2006) found different result for savings intended for retirement. The retirement savings had positive effect on equity share of portfolio. The portion invested in equity that was the risky assets increased with this saving motive. This might be due to the savings for retirement was made in the form of high return investment.

Evidence found by Cardak and Wilkins (2008) that self-funded retirees were more likely to hold risky assets supported the above findings. Self-funded retirees would most likely choose to invest in high return securities to enable them accumulate large savings for retirement in a short time. This reason holds as their findings revealed that there was a decrease in risky asset ratio with increasing in the length of the household's investment planning horizon. Hence, due to time constraint, these investors were more willing to

invest in risky asset for the high return. This tendency resulted in them holding more risky assets.

Credit constraints faced by households limit their financial ability to purchase stock market assets. Hence, an inverse or negative relationship existed between credit constraints and risky assets investment. US households studied by Bertaut (1998) offered expected result with credit constraints negatively affecting risky asset ratio. Similar result was observed from Fratantoni's (1998) study for US households. Consistently, Italian households facing credit constraints were found to be less likely to increase risky asset ratio (Guiso et al., 2003). Cardak and Wilkins (2008) also found that the risky asset ratio for Australian households decreased with more credit constraint faced.

However, Italian households who did not perceive binding borrowing constraints and who were more risk tolerance, had high tendency to purchase more stocks and were able to overcome the entry costs (Guiso et al., 2001; Rosen and Wu, 2004). The findings portrayed that only those with high financial risk tolerance together with not perceiving binding borrowing constraints would be engaged in portfolios with higher portion of risky assets.

Another background risk studied was the committed expenditure risk of the households that gave a negative effect on risky asset ratio for US data (Fratantoni, 1998). The existence of the risk reduced the holding of risky assets. The risk incurred by expenditures related to homeownership resulted in households to hold less risky assets

and more in safer assets. There was a fifteen percent decrease in the risky share by doubling the median homeowner's mortgage payment/income ratio.

In contrast, later US data studied found that US households making higher ratio of mortgage payments to income were more likely to have higher ratio of stocks to financial assets as found by Yamishita (2003). Therefore, a positive effect instead was found between both ratios. Even though the monthly commitments for mortgage payments were higher for certain households, they had the tendency to hold risky assets.

Heaton and Lucas (2000) revealed that mortgage balance was positively affecting ratio of stocks to safe, financial and total assets. They used the 1989 to 1995 US Panel of Individual Tax Returns and the 1979 to 1989 Survey of Consumer Finances. The high mortgage balances might be due from refinancing the homes where households took advantage on equity loans. Ability to pay-off debts increased the ratio of stocks to financial assets (Yamishita, 2003). Hence, a positive effect of ability to pay-off debts also was observed for the US households due to the increased financial capability or high liquidity.

Background risk such as health risk is important to investment decision of households in risky assets. Consistent results were observed from previous studies across nations and sources of data. Fear of financial constraint due to poor health should lead households to save for their health needs and thus they were not willing to invest in risky stock market.

Hence, health risk is expected to have a negative effect on risky investment. On the other hand, health is predicted to have a positive relationship with risky investment.

This was the case for the US households where Fratantoni (1998) with the 1989 US Survey of Consumer Finances data, found that risky asset ratio was positively affected by health. As expected, health risk was negatively influencing risky asset ratio for Italian households (Guiso et al., 2003). A negative effect by poor health was also found for the likelihood to own various classes of asset for the US households (Rosen and Wu, 2004) using the 1992 to 1998 US Health and Retirement Study data. Risky asset holdings by Australian households were discouraged by poor health (Cardak and Wilkins, 2008), thus displaying a negative effect of health risk and a positive effect of health on risky investments.

Consistently, a later study on Australian households displayed a negative effect of health risk on risky asset investments. Results from Fan and Zhao (2009) suggested that health shocks shift investment from risky assets toward other financial assets with the total financial assets remained unchanged. The role of individual characteristics in the health-assets and health-portfolio correlations were explored using various econometrics models. Conservative portfolios consisting of higher portion of safe assets was found to be motivated by health shocks even after individual fixed-effects were controlled for.

Absolute risk aversion and relative risk aversion were the measurements of risk tolerance in economic theory (Arrow, 1971; Pratt, 1964). Hence, risk aversion had an inverse relationship with risk tolerance. On the financial risk tolerance effect, Guiso et al. (2001),

and Rosen and Wu (2004) found that households who were more tolerance towards risk or less risk averse were more likely to purchase more risky assets. The results concluded that high tolerance on financial risk by the households engaged them in portfolios with higher portion of risky assets.

Using student in an experimental study, Bailey and Kinerson (2005) suggested that an individual's risk tolerance was a very strong predictor of choice behavior in an investment situation. The choices of investment provided to them were either a risky investment such as stock fund or a less risky investment such as certificate of deposit. Similar result was obtained by Corter and Chen (2005) using Risk Tolerance Questionnaire (RTQ). They found that RTQ scores were positively correlated with the riskiness of respondents' actual investment portfolios. Therefore, investors with high risk-tolerance score were likely to have higher-risk portfolios.

Along the line, Jacobs-Lawson and Hershey (2005) mentioned that investment literature showed that risk-tolerant individuals preferred to invest in high risk options such as equities, whereas those who were risk averse preferred investing in low risk options such as bonds and certificates of deposit. Gutter and Fontes' (2006) study on Black households also revealed that being less risk tolerance resulted in them to be less likely owning risky assets. Consistently, Cardak and Wilkins (2008) also found that the risky asset ratio decreased accordingly to the degree of risk aversion. In other words, the degree of risk tolerance was positively associated with risky asset ratio.

2.4.6 Risk Preference

Studies on financial risk tolerance focused mainly on socioeconomic characteristics as predictors for financial risk tolerance and on individuals' general financial investment decisions (Barsky, Juster, Kimball, and Shapiro, 1997; Bruce and Johnson 1994; Cordell 2001; Gron and Winston 2001; Hariharan, Chapman, and Domian, 2000; Jacobs-Lawson and Hershey, 2005; Jianakoplos and Barnesek 1998; Roszkowski 1996; Walls and Dyer, 1996) while few studies examined its influence on retirement savings behaviour or financial behaviours in general and financial well-being (Grable, 2000; Hariharan et al., 2000; Joo and Grable, 1999 and 2004).

As discussed in the section on investment in risky assets, financial risk tolerance decreases with age as predicted by life-cycle theory, even though it might be a non-linear relationship (Bajtelsmit and VanDerhai, 1997; Yao, Gutter, and Hanna, 2005). Younger investors were seen as having ample time to recover from financial losses and thus invested more in risky assets. As predicted by the life-cycle theory, Yao et al. (2005) using logistic regressions on several datasets of the Survey of Consumer Finances revealed that on the average, increase of age resulted in decrease of the likelihood to take some, high or substantial risk. Hence, younger individuals tend to be more risk taker than older ones.

Research across time however, revealed a positive association or unable to establish any influence of age on risk tolerance (Gollier and Zeckhauser, 2002; Grable 2000; Grable and Joo, 1997; Grable and Lytton, 1998; Hanna et al., 1998; Hariharan et al., 2000;

Summers, Duxbury, Hudson, and Keasey, 2006; Wang and Hanna, 1997). Later research by Summers et al. (2006) revealed the support for previous research on increasing of risk tolerance with age. Consistently, recent study showed that older investors were more risk tolerant than younger investors (Al-Ajmi, 2008).

Income was one of the socioeconomic characteristics that consistently showed significant relation to financial risk tolerance among the studies. In their attempt to analyse the effects of income and demographic variables on risk tolerance, Sung and Hanna (1996) applied an ordered probit model of a 3-level of dependent variable. This resulted in income as well as education being positively associated with risk tolerance. Similar result was obtained by Grable and Joo (1999). Yao et al. (2005) found characteristics such as income, and being self-employed had positive effects on the willingness to take financial risk. Recently, Al-Ajmi (2008) concluded that higher-income earners had significantly higher risk tolerance as compared to households with lower income.

For the education effect, Sung and Hanna (1996) observed the effects of demographic variables on risk tolerance using 1989 SCF data. This resulted in education apart from income being positively associated with risk tolerance. Similar conclusion on education was made by Grable and Joo (1999). Later Joo and Grable (2004) developed a study that looked into the relationships between socioeconomic characteristics, financial behaviours, financial risk tolerance, and financial satisfaction of workers. The primary data that resulted in a positive association between financial risk tolerance and financial behaviours also exhibited that education along with number of financial dependents,

home ownership, and financial knowledge affected financial risk tolerance. Consistently, Yao et al., (2005) also found education, that was presumed to be related to familiarity with financial markets, had positive associations with some and high financial risk tolerance.

Along the line, recent study by Al-Ajmi (2008) proved that financial risk tolerance and education were significantly associated. Highly educated investors were revealed to be more tolerance of risk. It was further suggested that since education was highly correlated with income, the impact from investment losses for highly educated investors would not be as serious as compared to less educated people, their standard of living would not much be affected.

Regarding gender effects, Bajtelsmit, Bernasek, and Jianakoplos (1999), and Grable (2000) found that females were more likely to be risk averse as compared to males. However, Grable and Joo (1999) and Hanna et al. (1998) observed that gender was not significantly predicting financial risk tolerance. In a study on purchases of life insurances, Halek and Eisenhauer (2001) found support on the view that females were more risk averse.

Some studies observed the combining effects of gender and marital status on financial risk tolerance. Using the same datasets as in Yao et al. (2005), Yao and Hanna (2005) found significant results for both variables. Cumulative logistic results indicated that married males were significantly more likely to have substantial risk tolerance than

married females. For the tendency to take some financial risk, unmarried males preceded married males, followed by unmarried females, and then by married.

Ethnicity differences in financial risk tolerance were observed by Grable and Joo (1999). Later studies supported this findings especially studies by Coleman (2003), Yao et al. (2005), and Gutter and Fontes (2006). Studying on financial risk tolerance and asset accumulation of three ethnicity groups among US households, Coleman (2003) compared risk attitude and the amount held in risky assets of Black, White, and Hispanic households. Whites respondents were significantly more risk tolerant than Hispanic. Yao et al. (2005) combined six sets of SCF data to differentiate Black, Hispanics, and Whites based on their levels of financial risk tolerance. The results showed that Blacks and Hispanics were less willing to take some risk but more willing to take substantial risk.

A family having dependents required more financial commitment and thus past studies had found that those households were more financially risk tolerance (Joo and Grable, 2004; Sung and Hanna, 1996). The result was found in a study by Joo and Grable (2004) that looked into the relationships between socioeconomic characteristics, financial behaviours, financial risk tolerance, and financial satisfaction of workers.

Homeownership had been found to affect financial risk tolerance in a study by Sung and Hanna (1996), Joo and Grable (2004), and Yao et al. (2005). Non-financial asset level studied by Yao et al. (2005) also had positive effect on the likelihood to take financial risk. For other studies, wealth in general had been used such as in Schooley and Worden

(1996), Grable and Lytton (1999), and Bernheim et al. (2001). Wealth was found to be positively related to risk tolerance and it was justified that wealthy investors were able to cushion the financial losses with their wealth.

Regarding studies on the effect of financial risk tolerance on general financial behaviour, Joo and Grable (2004) found that individuals with higher level of financial risk tolerance tended to report better financial behaviours. Hogarth and Anguelov (2004) observed dimensions of financial management practices such as account ownership, spending and savings behaviours, retirement savings, and credit behaviours in relation to risk tolerance. A positive and significant association was found for risk tolerance with being a 'good' or 'better' financial manager, after net-worth and income. Similar result was observed in another study on its relationship with savings behaviour. The findings revealed that financial risk tolerance of young working adults had positive association with savings profiles (Jacobs-Lawson and Hershey, 2005).

The retirement fund for risk tolerant individuals was more likely larger than risk averse individuals, suggesting them to be financially stable during retirement as compared to risk averse individuals (Yuh and DeVaney, 1996). Consistently, Grable and Joo (1997) contended that risk tolerance was significant in predicting retirement investment and savings. Further supporting the positive relationship between financial risk tolerance and financial well-being was a study by Hogarth and Anguelov (2004). They employed several dimensions of financial management practices and risk tolerance in their study with net-worth. Using ordered probit analysis, they concluded that net-worth was

positively and significantly associated with risk tolerance, being the third after financial manager and income.

Using path analysis, Joo and Grable (1999 and 2004) determined that financial risk tolerance had direct effects on financial satisfaction, apart from education, financial knowledge, financial solvency, and financial behaviours. However, financial risk tolerance was found to be negatively affecting financial satisfaction. Justifying this result, they argued that financial expectations of individuals might have been increased for those with higher levels of financial risk tolerance.

Financial knowledge was found to be positively associated with financial risk tolerance (Haliassos and Bertaut, 1995). Similarly, Sung and Hanna (1996) suggested that acquiring more knowledge of risk and risky situations increased their ability to handle greater financial risks. Joo and Grable (2004) who developed a study that looked into the relationships between socioeconomic characteristics, financial knowledge, financial behaviours, financial risk tolerance, and financial satisfaction of workers also found parallel result. The primary data that resulted in a positive association between financial risk tolerance and financial behaviours also exhibited that financial knowledge affected financial risk tolerance.

Time horizon was studied in a simulation study by Hanna and Chen (1997). They explored the relationships between risk tolerance, planning horizon, and wealth. They suggested that planning horizons of investors had an impact on the association between

risk tolerance and portfolio decision. With longer planning horizons, even investors having very low risk tolerance were more likely to engage in risky portfolios.

Risk-tolerance individuals preferred to invest in high risk retirement investments as compared to those who were risk averse. Thus, they would more likely to be financially stable during retirement (Hariharan et al., 2000). Hanna and Chen (1997) who explored the relationships between risk tolerance, planning horizon, and wealth concluded that investors with very low subjective risk tolerance levels were more likely to hold risky portfolios provided that they have long planning horizons.

In portfolio allocation decisions of Australian households, Cardak and Wilkins (2008) observed that risk preferences was important in household allocations to risky financial assets. Regarding studies on general financial behaviour, Joo and Grable (2004) found that persons with higher level of financial risk tolerance tended to report better financial behaviours.

From the above studies, financial risk tolerance was found to be positively determining involvement in aggressive portfolios, financial well-being, and reported better financial behaviours. However, with longer planning horizon, low financial risk tolerance individual may be inclined to participate in aggressive portfolio.

Risk tolerance was also studied with other variable such as the market price (Clarke and Statman, 1998; Grable, Lytton, and O'Neill, 2004). Risk tolerance attitudes followed in

the same manner with the market sentiment as reported by Clarke and Statman (1998) using data from the 1987 market collapse. However, a stable or higher risk attitudes were supposed to be observed of the drop in stock prices as would have been expected under a purely rational model of economics (Harlow and Brown, 1990).

A contrast view with the rational model, MacKillop (2003) stated that investors tend to be more risk tolerant during markets rising and more risk averse during markets falling. Similar with MacKillop findings, Clarke and Statman (1998) found that risk tolerance attitudes increased with the increase in stock prices. Supporting these findings was the result from Grable et al.'s (2004) study. The survey on the internet users revealed that the NASDAQ, Dow and Jones Industrial Average, and Standard and Poor 500 Indexes market prices had positive relationships with financial risk tolerance.

A local study observed risk orientation as one of the dimensions in psychographic variable (Ezlika and Md. Nor, 2004). A similar concept with risk tolerance, risk oriented individuals were risk takers in nature and love to take chances. The study determined the differences in demographic, lifestyle characteristics and activity participated for the active and passive investors. The grouping of the investors was based on their trading frequency.

2.4.7 Time Horizon

Time horizon of an individual was often measured by future time orientation in psychological studies. Later studies in financial management looked into the relationships of time horizon with several factors.

A qualitative study by Denton et al. (2004) on older generations aged above 45 years old classified non-planners as those who have planning occurred generally in the form of responses to events rather than of pro-active responses to predictions about the future. They were more likely to have a present-time perspective and a fatalistic outlook on life. This minority group in the study was less concerned for their future. The majority of the respondents reported engaging in reflexive planning for later life. This concept of planning were developed by Denton et al. (1998) that consisted of the personal collections or unique configurations of financial and non-financial resources individuals have for achieving independence and financial security in later life.

The objective evidence of planning among the study participants was found in self-insurance preparation such as long-term investments, savings, pensions, and having no debt (Denton et al. 2004). Planning for later life was most prevalent among those who took a future-time perspective. Examining the socioeconomic characteristics of non-planners revealed that they were predominantly widowed or divorced or separated women with low household income. Thus, having a future-time perspective and being able to prepare financially for later were constrained by income and marital status.

A significant impact on savings behaviour for retirement was found by Lusardi (1999). The study on pre-retirees revealed that those with a short planning horizon were more likely to have low net-worth and received less from personal savings in retirement. Similarly, one's level of patience that refers to the willingness to postpone spending to save was observed to predict the likelihood to save for retirement (Bernheim et al., 1997; Burtless, 1999). Thus, a positive association existed between future time orientation and retirement savings.

On the same account, Hershey and Mowen (2000) investigated factors related to perceived financial preparedness. The respondents' perceptions were measured based on the understandings of the amount of money needed to meet adequately the retirement expenses and the computations of the expenses. Apart from financial planning knowledge and retirement relevance in perceived financial preparedness, the role of future time perspective was investigated. The findings showed that respondents with high levels of perceived financial preparedness not only had more financial planning knowledge and high levels of retirement involvement but also a future-time perspective individual.

Consistent result was obtained by Jacobs-Lawson and Hershey (2005) who explored the extent to which individuals' future-time perspective influence retirement savings practices. The study on young working adults revealed that future time perspective was associated with more aggressive savings profiles.

Time horizon does have an important role in holding certain portfolios. In exploring the relationships between risk tolerance, planning horizon, and wealth, Hanna and Chen (1997) did a simulation study. They concluded that investors with long planning horizons such as 20 years or more should have aggressive portfolios even for those having very low subjective risk tolerance levels. Their findings provided useful guidelines for personal financial planning.

Consistently, similar findings were found in an earlier study by Zhong and Xiao (1995). They concluded that having a shorter financial planning horizon of several months was related to lower amount of bonds and stocks owned as compared to those with longer time horizon of several years or more.

In education field of studies, Horstmanshof and Zimitat (2007) examined future time perspectives of students together with orientation towards past-negative, past-positive, present-fatalistic, and present-hedonistic. Future orientation emerged as an important factor mediating students' academic engagement in these students in their early years of study. Interventions focusing on the development of time perspective in students would encourage and support academic engagement.

2.4.8 Self-worth

Few studies in the financial management field focused on self-worth. However, studies on self-worth were mainly done in the area of psychology.

In the early studies, Onkvisit and Shaw (1987) and Prince (1993) contended that concept on oneself or self-perception had an impact on both financial and non-financial preferences and behaviours. Decision making of consumers could be explained and justified using this self-concept.

Studies on self-worth in family financial management were done by Hira and Mugenda (1999) and Grable and Joo (2001). Hira and Mugenda (1999) found that self-worth had significant relationships with financial belief, financial behaviour, and financial satisfaction. High self-worth individuals practiced good financial behaviour and were satisfied with their financial situation. These individuals also exhibited high financial satisfaction.

Grable and Joo (2001) examined the results from Hira and Mugenda's study in 1999 on the relationship between self-worth or self-esteem (both terms were mentioned) and financial beliefs, behaviours, and satisfaction. The study used 406 samples of faculty and staff from two Midwestern universities. They both found that those exhibiting better financial behaviours tended to have higher self-esteem. Thus a positive relationship existed between financial behaviours and self-esteem or self-worth.

Similar trend was observed in psychological studies. A positive relationship was displayed between self-worth and behaviour, with high self-worth associated with good behaviour and vice-versa. Low self-worth adolescents were more likely to experience psychological distress and thus involved themselves in delinquent activity or

aggressiveness (Baumeister, Bushman, and Campbell, 2000).). There was low likelihood of high self-worth adolescents to involve in delinquent activity therefore they would likely to exhibit good behaviour.

Positive feelings of self-worth had been associated with healthy adolescent development in terms of both emotional and behavioural adaptation (Harter, 1998). Good behaviour was also displayed in their development for high self-worth individual. Relationships between peer harassment, psychological adjustment, and academic functioning in early adolescents were assessed by Juvonen, Nishina, and Graham (2000). Self-worth was among the components in the psychological adjustment. The results suggested a strong association between feelings of high self-worth and healthy social functioning or academic functioning.

Factors related to self-worth were being studied resulted in adolescents' perceptions of peer acceptance and stress as significant factors. Among perceptions of various types of social support, Robinson (1995) found that self-worth was most strongly associated with adolescents' perceptions of peer acceptance. The adolescents' sense of self-worth was found to be influenced by stress that accompanies the changes of early adolescence, especially peer and school anxiety (Fenzel, 2000).

In relation to financial well-being, Crocker and Luhtanen (2003) examined the effects of contingencies of self-worth on financial problems of college students in a longitudinal study. They concluded that contingencies of self-worth uniquely contributed to financial

difficulties experienced by college juniors beyond level of self-esteem and other personality variables. Low contingencies of self-worth developed before college years resulted in financial problems during their study.

Local studies by Husniyah et al. (2005a) on 347 Malaysian credit card holders revealed that the subjects had high self-worth; however no significant difference for self-worth was found between those who pay-off their credit card bills in full or otherwise.

2.4.9 Studies on Ethnicity and Residential Area

Studies on differences in ethnicities and residential areas are performed in various aspects of financial management. The findings are discussed below.

In examining the adequacy of emergency, Hong and Kao (1997) used two ratios. One ratio was determined by quick emergency fund divided by three months' after-tax income, and the other ratio was obtained from dividing comprehensive emergency fund with three months' after-tax income. There were differences found in preparation for financial emergencies between Asian American and non-Hispanic whites, African Americans, and Hispanics but not statistically significant.

A study on financial behaviours in relation to ethnicity was conducted by Hogarth et al. (2003) through phone calls in November and December 2001. Financial behaviours consisted of cash-flow, savings, and investments of ethnicity were analysed using multinomial ordered logistic regression. Black individuals, relative to White individuals

were negatively correlated with cash-flow management. The result showed that Black individuals involved less in cash-flow management as compared to White individuals. Hence, the ethnicities could be differentiated by their cash-flow activities.

Differences in other aspects of financial management such as incomes, savings rates, and inheritances of White and Black families were observed using the 1984, 1989, and 1994 Panel Study of Income Dynamics data. In a longitudinal study, Gittleman and Wolff (2004) revealed that White families had higher incomes and savings rates. White families were more likely than Black families to receive inheritances and with larger amounts.

Considering the difference in locus of control among ethnicities that were for African Americans and Hispanics/Latinos as compared to White or Asian externals, Perry and Morris (2005) argued that this had an effect on their financial management behaviour. Those exhibiting external locus of control had higher likelihood to engage in good financial management behaviour. African Americans and Hispanics/Latinos were those ethnicities displaying external locus of control, thus were more likely to involve in good financial management behaviour.

Descriptive results from studies on preparation for retirement suggested differences among ethnicities; however contradicting results were observed using different set of data for US. The likelihood of adequacy for families using the 1995 SCF data found no differences in retirement wealth adequacy by racial or ethnic background (Yuh, Montalto, and Hanna, 1998). In contrast, data from the Health and Retirement Study (HRS) which

collected data on families headed by near retirement individuals showed White families were three times as likely as Black families in the HRS to own retirement accounts (Choudhury, 2001).

On the risk-taking tendency, research published by Hsee and Weber (1999) was considered. The Chinese and Americans were found to be different in terms of risk tolerance with the Chinese being more tolerant to risk. Furthermore they were different in terms of risk-taking financial management behaviour with the Chinese tends to take investment risks. They explained these findings were due to specific difference in culture between Mainland China and the United States.

Similar results were observed by Grable and Joo (1999), and Coleman (2003). Grable and Joo (1999) concluded that the financial risk tolerance of Non-Caucasian/Whites were lesser than Caucasians/Whites. Coleman (2003) compared attitude toward risk for Black, White, and Hispanic families in the 1998 Survey of Consumer Finances (SCF). Hispanic individuals were significantly more risk averse than Whites. Regarding Black individuals, the risk varied depending on the level of net worth.

Consistently, Yao et al. (2005) who combined five sets of SCF data from 1983 to 2001 compared the levels of financial risk tolerance (from taking no risk to substantial risk) held by Blacks, Hispanics, and Whites. Blacks and Hispanics were less willing to take some risk but more willing to take substantial risk as compared to Whites. They suggested that this effect might be due to culture variation among minority groups.

In determining the influence of ethnicity on investment in risky assets, the findings from Chiteji and Stafford (1999) showed that Black families were less likely than White families to hold risky financial assets. This was due to whether their parents acquired financial assets. Preference over consumptive-oriented investments such as real-estate by Black might also justify this finding (Stevenson and Plath, 2002). Gutter and Fontes (2006) further supported the justification, stating that the homeownership of Black exceeded White. Liquidity constraint limited the ability of Black households to invest in riskier and potentially higher-return assets.

However, with all other factors controlled, there was no significant difference between Black and White families in the proportion of risky assets to net worth (Coleman, 2003). Along the line, Gutter and Fontes (2006) who investigated the relationship between race and ownership of risky assets found consistent results with the above. The descriptive results displayed that Whites were twice as likely as Blacks in the 2004 SCF to own risky assets defined as stock and business assets. The difference existed for Black households who had more children, unemployed, more risk averse, and needed more liquidity. However when other factors were controlled, no significant difference was found between Whites and Blacks.

Regarding financial behaviour, Kim et al. (2003) examined the effect of race on financial well-being of individuals that were clients with a credit counselling agency. The clients observed were those who responded to mailed questionnaires. Race was significant in explaining financial behaviour with Non-White practiced more positive financial

behaviours than White people after controlling for credit counselling effect in the regression model.

Few local studies assessed the differences among ethnicities. Those available studies focused on specific financial goals such as on savings and financial planning of households and students. Using household micro-data in the state of Malacca, Ariffin et al. (2002) studied the effect of ethnicity and residential areas on financial behaviours. They revealed that apart from background such as age and disposable income, ethnicity had an impact on consumer savings. Malay ethnicity had mean savings significantly higher than other main ethnicities namely Chinese and Indian.

Difference in financial planning was observed among ethnicities in a study on Malaysian university students. Mohamad Fazli and Jariah (2003) found that majority of the respondents had financial goals, planning the usage of money, and implementing their financial plans, apart from regular savings. Comparing the main ethnicities in Malaysia namely Malay, Chinese, and Indian, their study showed that Chinese students always planned before making financial decisions as compared to other ethnicities. Another study on Malaysian employees found ethnicity as significant predictor of financial wellness. Other than being a male, Malay ethnicity and Chinese ethnicity showed significant associations with financial wellness. In this study, financial behaviours were found to be the most influential predictors of financial wellness (Mohamad Fazli et al., 2008a).

Studies on differences based on residential areas were explored by Ariffin et al. (2002) where they found that apart from household size and level of education, residential areas were found to be negatively associated with level of savings. Household's mean savings were significantly higher for the rural areas as compared to the household's in urban areas.

Having Malaysian university students as the respondents, Jariah, Husniyah, Laily, and Britt (2004) explored the difference in financial problems based on place of origin. Their findings showed that more students from rural areas reported facing financial problems as compared to those came from urban areas. Hence, the students originating from rural areas were less financially stable than those from urban areas.

2.5 RESEARCH FRAMEWORKS

The earlier sections in this chapter had reviewed literatures regarding the constructs used in the study. The reviews lead to the development of the research frameworks displayed in Figure 2.1 and Figure 2.2.

As stated by Kahnemann et al. (1997), objectives socio-economic and demographic variables only explained between eight to twenty percent of an individual subjective well-being. This had led to a shift from studying external factors to studying internal factors of individuals. One such internal factor was comparing interpersonal attributes. Internal factors of individual were introduced in models to explain the variance in subjective well-being and thus in models of financial well-being. Behavioural factor such as financial risk

tolerance was being studied by an increasing number of researchers in studies concerning human behaviour regarding financial matter especially in investment.

Personality factor such as time horizon of individuals was being discussed vastly in psychological fields (such as Ko and Gentry, 1991). Later this factor attracted the interest of researchers in field of financial management (such as Denton et al., 2004; Hershey and Mowen, 2000; Lusardi, 1999). Time horizon was frequently measured as future time orientation by psychological researchers.

In this study designed, behavioural and personality factors are included apart from the socioeconomic characteristics. Risk preference measured by financial risk tolerance was included as it was in previous studies. Time horizon is measured as future time orientation and self-worth variable is also included. Future time research mainly used the development-in-context approach, more to a longitudinal study. Only few studies examined it in the context of micro-systems like the family or peer-group that could be cross-sectional (Seginer, 2003). In this study, time horizon is examined in the family context.

Based on the resource management model by Deacon and Firebaugh (1988) and previous studies in the financial management field for example by Kim et al. (2003), financial behaviour is the throughput of a management system to result in an output of financial well-being. Financial behaviour is presumed to be positively related to financial well-being.

In the framework, self-worth is to be tested as moderators between the relationships of financial management practices and financial well-being. Self-worth would be a potential moderator of financial management practices in predicting financial well-being. Such that family financial manager who demonstrate low self-worth would be more likely to use financial management practices to result in good financial well-being. Family financial managers with low levels of self-worth under high levels of financial management practices would experience higher financial well-being.

Moderating variables are introduced to take into consideration that the relationship between antecedent and consequent variables are presumed to depend on a third variable. A moderator introduced between relationships between variables must possess certain criteria. It must be significantly related to the focal variables. Self-worth was found to be significantly related to financial behaviour in past studies and also to financial satisfaction specifically the financial well-being. Thus, self-worth is introduced as a moderator between the relationships of financial management practices dimensions and financial well-being.

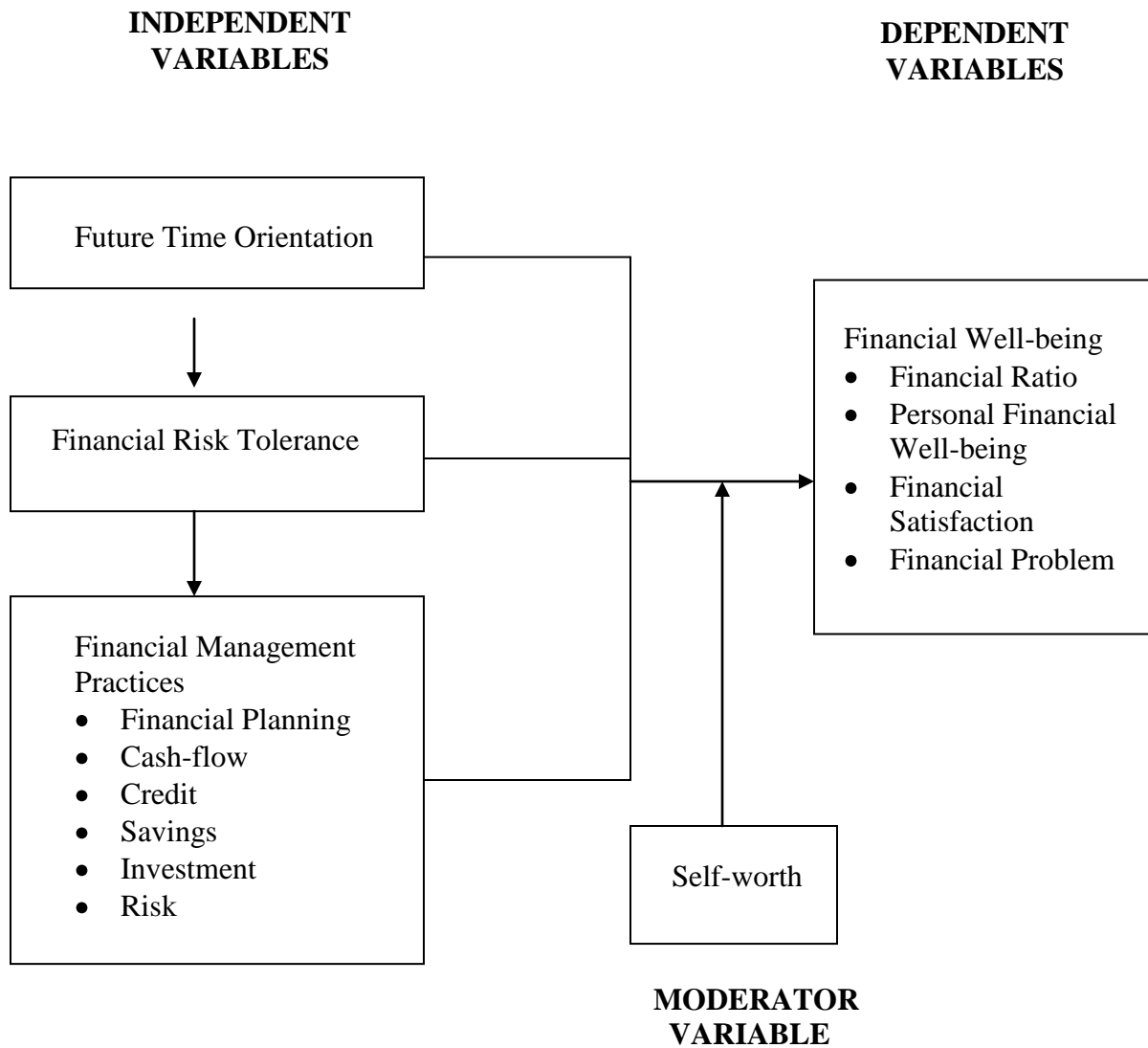


Figure 2.1
Research Framework For Financial Well-being

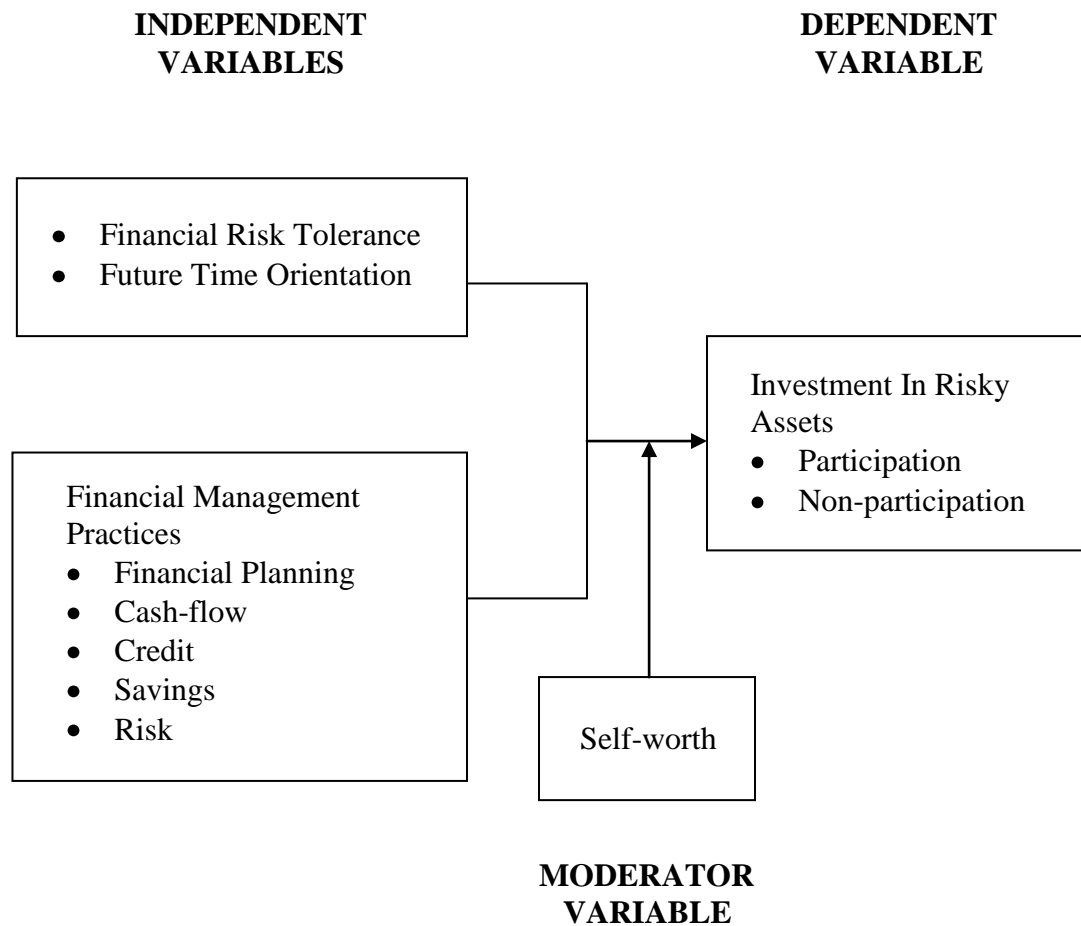


Figure 2.2
Research Framework For Investment In Risky Assets

CHAPTER 3

METHODOLOGY

3.1 INTRODUCTION

Earlier chapters introduced the background for the study and the underlying concepts and theories. Apart from that, discussions on previous research either conceptually or empirically are also presented. This chapter outlines the hypotheses developed and the explanation on the research design of the study.

3.2 HYPOTHESES

Referring to the propositions listed in Chapter 1, several hypotheses tested in the study are as follows.

Hypothesis 1: Relationship between Future Time Orientation and Financial Risk Tolerance

Time horizon of family financial managers is measured by future time orientation and risk preference is measured by financial risk tolerance. There are no studies found on the relationship between the two constructs. However, those who are more risk tolerant towards financial matter are presumed to be more future time oriented. Alternatively, those who are more risk averse will be less future time oriented. Future time orientation is hypothesised to be significantly related with financial risk tolerance.

The hypothesis tested is to determine that future time orientation of family manager is not significantly related with financial risk tolerance of the family financial manager. If the null hypothesis is rejected, then there is a significant relationship between the two concepts as theorised.

H₀₁:

Future time orientation is not significantly related with financial risk tolerance of the family financial manager.

Hypotheses 2: Relationships between Financial Risk Tolerance and Financial Management Practices

A study on the relationship of financial risk tolerance of young working adults with savings behaviour found that it had positive association with savings profiles (Jacobs-Lawson and Hershey, 2005). Thus, risk preference of family financial managers was found to be related with one aspect of financial management practices that was savings.

Studies on other aspects of financial management practices in relation with financial risk tolerance are unavailable. However, following the study on savings, financial risk tolerance is hypothesised to be significantly related with each of the components in financial management practices that are financial planning, cash-flow, credit, savings, investment practices and risk practices. The hypotheses to be tested are the null hypotheses for each of the financial management practices. The rejection of the null

hypotheses then leads to conclusions of significant relationships between the two concepts.

H₀2a:

Financial risk tolerance is not significantly related with financial planning of a family financial manager.

H₀2b:

Financial risk tolerance is not significantly related with cash-flow practice of a family financial manager.

H₀2c:

Financial risk tolerance is not significantly related with credit practice of a family financial manager.

H₀2d:

Financial risk tolerance is not significantly related with savings practice of a family financial manager.

H₀2e:

Financial risk tolerance is not significantly related with investment practice of a family financial manager.

H₀2f:

Financial risk tolerance is not significantly related with risk practice of a family financial manager.

Hypotheses 3: Differences in Financial Management Practices among Ethnicities

Referring to a study on financial planning of university students in Malaysia, Fazli and Jariah (2003) found that Chinese students always planned before making financial decisions as compared to other ethnicities. Another local study of savings behaviour conducted by Ariffin et al. (2002) using household micro-data in the state of Malacca revealed that consumer savings were related positively with ethnicity group. The Malay ethnicity had mean savings significantly higher than other ethnicities.

There are differences among the ethnicities regarding the financial planning and savings behaviour. Differences in other aspects of financial management practices are not available. However it is hypothesised that there are significant differences in financial management practices among the main ethnicities in Malaysia.

The financial management practices variables used is decomposed into several aspects or components that are financial planning, cash-flow management, credit management, investment, savings and risk management for these hypotheses. Based on the studies, the following hypotheses are made. The related hypotheses to be tested are the null hypotheses of no differences among ethnicities for each of the financial management

practices. The rejection of the null hypotheses then leads to conclusions of significant differences among the ethnicities.

H₀3a:

There are no significant differences in financial planning practice among the main ethnicities in Malaysia.

H₀3b:

There are no significant differences in cash-flow practice among the main ethnicities in Malaysia.

H₀3c:

There are no significant differences in credit practice among the main ethnicities in Malaysia.

H₀3d:

There are no significant differences in savings practice among the main ethnicities in Malaysia.

H₀3e:

There are no significant differences in investment practice among the main ethnicities in Malaysia.

H₀3f:

There are no significant differences in risk practice among the main ethnicities in Malaysia.

Hypotheses 4: Differences in Financial Management Practices across Residential Areas

The study of savings behaviour by Ariffin et al. (2002) using household micro-data in the state of Malacca found residential area to be negatively associated with level of savings. Household's mean savings was significantly higher for the rural areas as compared to the household's in urban areas. There was a difference across residential areas regarding the savings behaviour.

Even though studies regarding other components of financial management practices on residential areas are unavailable, it is hypothesised that there are significant differences in financial management practices components across residential areas. The following null hypotheses are made for each of the components of financial management practices. Rejection of the null hypotheses below would bring to conclusions of significant differences across residential areas.

H₀4a:

There is no significant difference in financial planning practices across residential areas in Malaysia.

H₀4b:

There is no significant difference in cash-flow practices across residential areas in Malaysia.

H₀4c:

There is no significant difference in credit practices across residential areas in Malaysia.

H₀4d:

There is no significant difference in savings activities across residential areas in Malaysia.

H₀4e:

There is no significant difference in investment practices across residential areas in Malaysia.

H₀4f:

There is no significant difference in risk practices across residential areas in Malaysia.

Hypotheses 5: Socioeconomic Characteristics as Predictors for Financial Well-being

Socioeconomic characteristics such as income and age are related with the financial well-being of families as found in previous research. Income and age were associated positively with satisfaction on financial status (Joo and Grable, 2004; Titus et al., 1989). Sumarwan and Hira (1992) also reported that satisfaction on preparation for financial

emergencies was affected by income. However, education was not significantly related with financial satisfaction (Hira, 1987).

Hypotheses are formulated to determine whether socioeconomic characteristics are able to predict financial well-being. It is hypothesised that socioeconomic characteristics are significantly predicting financial well-being. The null hypotheses are presented below. The rejections of null hypotheses lead to socioeconomic characteristics as significant predictors for financial well-being of family.

H₀5a:

Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting financial well-being of family.

H₀5b:

Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting financial well-being of family.

H₀5c:

Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting financial well-being of family.

H₀5d:

Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting financial well-being of family.

H₀5e:

Controlling for influence from other socioeconomic characteristics in the model, respondent's working experience is not significantly predicting the financial well-being of family.

H₀5f:

Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting financial well-being of family.

H₀5g:

Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting financial well-being of family.

H₀5h:

Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting financial well-being of family.

Hypotheses 6: Future Time Orientation and Financial Risk Tolerance as Predictors for Financial Well-being

Hershey and Mowen (2000) found that future time perspective was positively associated with self-reported financial preparedness for retirement among individuals age 35 to 88 years. Earlier, Lusardi (1999) reported that pre-retirees with a short planning horizon had lower average net worth and were expected to receive less income from their personal savings in retirement.

Joo and Grable (2004) in their study among workers found that apart from socioeconomic characteristics and financial behaviours, financial risk tolerance were significantly predicting financial satisfaction of workers. However the association between financial risk tolerance and financial well-being was negative.

Thus, behavioural variables such as future time orientation and financial risk tolerance of family financial manager are hypothesised to significantly predicting financial well-being of family. Hypotheses are formulated to determine future time orientation and financial risk tolerance of family financial manager as predictors for financial well-being of family. The null hypotheses are presented below. Rejections of the following null hypotheses lead to future time orientation and financial risk tolerance of family financial manager as significant predictors for financial well-being of family.

H₀6a:

Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation of family financial manager is not significantly predicting financial well-being of family.

H₀6b:

Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance of family financial manager is not significantly predicting financial well-being of family.

Hypotheses 7: Financial Management Practices as Predictors for Financial Well-being

Studies on financial management practices had focused on different dimensions of the practices. Financial planning dimension was studied by MacEwen et al. (1995). They found that participants' own financial planning for retirement had a specific effect on their expectations for financial well-being and similarly parents' financial planning affected their satisfaction with finances. Later Xiao et al. (2004) stated that having developed a plan for my financial future was among the three financial behaviours that increased financial satisfaction. The other financial behaviours were related to savings and credit dimensions that were 'started or increased my savings' and 'reduced some of my personal debts'.

For the cash-flow dimension, Godwin (1994) found record-keeping as one practice that did predict greater satisfaction with the family's financial situation. A study on women by DeVaney et al. (1996) resulted in women having feelings of satisfaction about finances was associated with use of a spending plan, a bill paying system, limiting credit card use, and saving regularly. Three dimensions of financial management practices had been studied here namely cash-flow, credit, and saving.

Research using financial management practices in general was carried out by Sumarwan and Hira (1992) who reported that financial management practices had an effect on satisfaction with preparation for financial emergencies. A study on recently married individuals found that the uses of recommended financial practices were related with increase satisfaction with financial status (Parrotta and Johnson, 1998).

Based on the previous research stated above, it is hypothesised that financial management practices are significantly predicting financial well-being of family. The following null hypotheses are made for each of the dimensions of financial management practices. Rejection of the null hypotheses below would confirm financial management practices as significant predictors for financial well-being of family.

H₀7a:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting financial well-being of family.

H₀7b:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting financial well-being of family.

H₀7c:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting financial well-being of family.

H₀7d:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting financial well-being of family.

H₀7e:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, investment practice is not significantly predicting financial well-being of family.

H_{07f}:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting financial well-being of family.

Hypotheses 8: Self-worth as Moderating Variable between Financial Management Practices and Financial Well-being

Self-worth in previous financial management research was used as the independent variable (Grable and Joo, 2001; Hira and Mugenda, 1999). However, in this study, the variable was tested as the moderator between dimensions of financial management practices and financial well-being.

A moderator introduced between relationships of variables must be significantly related with the mentioned variables. Since self-worth was significantly related with financial behaviour and also with financial satisfaction or financial well-being (Grable and Joo, 2001; Hira and Mugenda, 1999), self-worth can be introduced as a moderator between financial management practices dimensions and financial well-being.

Self-worth of family financial manager would moderate the influence of financial management practices on financial well-being. If the relationship for the interaction of self-worth and financial practice is positive, family financial manager with high self-worth would be more likely to strengthen the relationship between the financial management practice and financial well-being, thus experiencing better financial well-

being. Low self-worth financial manager highly involved in financial management practices would experience poorer financial well-being.

If the relationship for the interaction of self-worth and financial practice is negative, family financial manager with high self-worth would be more likely to reduce the strength of relationship between the financial management practice and financial well-being, thus experiencing poorer financial well-being. Low self-worth financial manager highly involved in financial management practices would experience better financial well-being.

Following are the null hypotheses developed for self-worth as the moderator variable. Self-worth does not moderate the relationships between dimensions of financial management practices and financial well-being of families.

H₀8a:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate financial planning as the predictor of financial well-being of families.

H₀8b:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the

model, self-worth does not moderate cash-flow as the predictor of financial well-being of families.

H₀8c:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate credit practice as the predictor of financial well-being of families.

H₀8d:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate savings as the predictor of financial well-being of families.

H₀8e:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate investment as the predictor of financial well-being of families.

H_{08f}:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate risk practice as the predictor of financial well-being of families.

Hypothesis 9: Socioeconomic Characteristics as Predictors for Investment in Risky Assets

Studies by Guiso et al. (2001), and Rosen and Wu (2004) suggested households that were highly educated, financially alert and healthy were more likely to participate in stock markets as they were likely to face lower entry costs. Gutter and Fontes (2006) who investigated the relationship between race and ownership of risky assets found that Black families were less likely to own risky assets for those having more children, were unemployed, had less tolerance for risk and needed more liquidity. Based on previous research, it is hypothesised that socioeconomic characteristics are significantly predicting investment in risky assets by family.

The following null hypotheses are made for socioeconomic characteristics. Rejection of the null hypotheses below would confirm that the abovementioned variables are significant predictors for investment in risky assets by family.

H₀9a:

Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting investment in risky assets by family.

H₀9b:

Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting investment in risky assets by family.

H₀9c:

Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting investment in risky assets by family.

H₀9d:

Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting investment in risky assets by family.

H₀9e:

Controlling for influence from other socioeconomic characteristics in the model, respondent's work experience is not significantly predicting investment in risky assets by family.

H₀9f:

Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting investment in risky assets by family.

H₀9g:

Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting investment in risky assets by family.

H₀9h:

Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting investment in risky assets by family.

Hypothesis 10: Future Time Orientation and Financial Risk Tolerance as Predictors for Investment in Risky Assets

There were studies found on the effect of future time orientation on investment in risky assets. Zhong and Xiao (1995) concluded that future time orientation was positively related to investment in stocks. Another study by Hanna and Chen (1997) explored the relationships between risk tolerance, planning horizon (future time orientation), and wealth. Their conclusion was that investors with very low subjective risk tolerance levels were more likely to engage in aggressive portfolios if they have longer planning horizons. If they have shorter planning horizons, the investors with very low risk tolerance were more likely not to engage in aggressive portfolios. Planning horizon indirectly affects investment in aggressive portfolios.

Risk-tolerance individuals preferred to invest in high risk retirement investments as compared to those who were risk averse. Thus, they would more likely to remain financially stable when retire (Hariharan et al., 2000).

On financial risk tolerance, Guiso et al. (2001), and Rosen and Wu (2004) found that households who expressed greater willingness to bear risk (less risk averse) and those who did not perceive binding borrowing constraints tend to plan sizeable stock holdings. Gutter and Fontes (2006) found that Black families were less likely to own risky assets if they had less tolerance for risk.

Referring to the results of previous research as mentioned above, it is hypothesised that future time orientation and financial risk tolerance of family financial manager are significantly predicting investment in risky assets by family.

The following null hypotheses are made for future time orientation and financial risk tolerance of family financial manager. Rejection of the null hypotheses below would lead to a conclusion of the abovementioned variables as significant predictors for investment in risky assets by family.

H_{010a}:

Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation is not significantly predicting investment in risky assets by family.

H₀10b:

Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance is not significantly predicting investment in risky assets by family.

Hypothesis 11: Financial Management Practices as Predictors for Investment in Risky Assets

There was no study found regarding financial management practices as predictors for investment in risky assets. However, it is hypothesised that financial management practices are significantly predicting investment in risky assets by family.

The following null hypotheses are made for each of the components in financial management practices excluding investment practice. Rejection of the null hypotheses below would confirm that the abovementioned variables are significant predictors for investment in risky assets by family.

H₀11a:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting investment in risky assets by family.

H₀11b:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting investment in risky assets by family.

H₀11c:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting investment in risky assets by family.

H₀11d:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting investment in risky assets by family.

H₀11e:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting investment in risky assets by family.

Hypotheses 12: Self-worth as Moderating Variable between Financial Management Practices and Investment in Risky Assets

Past research focused only on self-worth in relation to financial behaviours and financial well-being of family. There was no study found on self-worth as a predictor for investment in risky assets. However this study would look at not only the potential predictor of self-worth for investment in risky assets but also looking at the potential moderating effect of self-worth between financial management practices and investment in risky assets.

Self-worth of family financial manager would moderate the influence of financial management practices on investment in risky assets. If the relationship for the interaction of self-worth and financial practice with investment in risky assets is positive, family financial manager with high self-worth would be more likely to strengthen the relationship between the financial management practice and investment in risky assets, thus more likely to invest in risky assets. Low self-worth financial manager highly involved in financial management practices would more probably not invest in risky assets.

If the relationship for the interaction of self-worth and financial practice with investment in risky assets is negative, family financial manager with high self-worth would be more likely to reduce the strength of relationship between the financial management practice and investment in risky assets, thus less likely to invest in risky assets. Low self-worth

financial manager highly involved in financial management practices would more probably invest in risky assets.

Following are the null hypotheses developed for self-worth as the moderator variable. Self-worth does not moderate the relationships between components of financial management practices and investment in risky assets by family.

H₀12a:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate financial planning as the predictor of investment in risky assets by family.

H₀12b:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate cash-flow as the predictor of investment in risky assets by family.

H₀12c:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the

model, self-worth does not moderate credit practice as the predictor of investment in risky assets by family.

H₀12d:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate savings as the predictor of investment in risky assets by family.

H₀12e:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate risk practice as the predictor of investment in risky assets by family.

3.3 RESEARCH DESIGN

Quantitative study was adopted for this research. The purpose of the quantitative study was classified as hypothesis testing (Cavana, Delahaye, and Sekaran, 2001). This study explained the nature of relationships among variables and established differences among ethnicities and residential areas. The type of investigation involved in this study were clarification and correlational among variables. The study involved minimal interference of the researcher as the phenomena was studied as they normally occurred in the families.

This cross-sectional study relied on a structured questionnaire to obtain data where questionnaire forms were distributed to the respondents and self-administered by them.

3.4 SAMPLING

The sampling method used in the quantitative study was quota sampling implemented throughout Peninsular Malaysia for the three main ethnicities and residential areas. East Malaysia was excluded as it did not represent the ethnicities of interest in the population. A ratio of 60 to 30 to 10 was used for the main ethnicities that were Malay, Chinese, and Indian respectively (Population and Housing Census of Malaysia, 2000). The residing areas of the respondents were in a ratio of 60 to 40 for the urban and rural areas (Economic Planning Unit, 2006). According to Cooper and Schindler (2003), quota sampling is a non-probability sampling and a type of purposive sampling that is used to improve representativeness. Hence, the sample in this study had the same distribution on the ethnicity and residential areas characteristics and was likely to be representative of the population.

The unit of analysis was the family financial manager who responded to the questionnaire. A total of 800 family financial managers from each family were selected from four states in Peninsular Malaysia that comprised of Perak, Selangor, Negeri Sembilan and Pahang. Family financial managers were identified as those who were involved in the financial management of the family that was either the wife or the husband or both. Other requirements needed to be a respondent were being married with at least a child. For the sampling in each state, one urban and one rural areas were

selected resulting in having eight residential areas namely Taiping and Gopeng in Perak, Bangi and Sepang in Selangor, Seremban and Kuala Pilah in Negeri Sembilan, and Kuantan and Bentong in Pahang respectively (Appendix B). Urban families were identified from their residential areas that were managed by municipal and city councils. Rural families were determined by their residential areas that were managed by the district council (Population and Housing Census of Malaysia, 2001).

The sample size was determined using a published table by Yamane (1967). The table present sample sizes necessary for given combinations of precision, confidence level and variability. The sample sizes presume that the attributes being measured in the study were distributed normally or almost normal. For a population of more than 100,000, with a precision level or sampling error of 5 percent, the confidence level was 95 percent and the degree of variability was 50 percent, the sample size would be 400. The degree of variability used indicated the maximum variability in a population that represented more heterogeneous population.

Other than considering the above criteria in determining sample size, it should also depend on the data analysis. As the data later would be analysed using advanced statistical analysis specifically the binary and multinomial logistic regression, a sample size up to 500 was needed (Israel, 1992). Furthermore, since comparative analysis of subgroups such as differences among ethnicities and residential areas were carried out, adjustment in the sample size should be made. A minimum sample of 100 was needed for each major group in the sample was suggested by Sudman (1976). The researcher further

suggested a sample of 20 to 50 elements for each minor subgroup was necessary for a comparative analysis. A larger sample was also needed when skewed distributions were anticipated from the study as this could result in serious departures from normality. Considering the factors discussed above, a sample of 800 families were chosen. This sample size was more than the 400 samples as determined from a table developed by Yamane (1967) and also more than 500 as suggested by Israel (1992).

The quota sampling practiced on the ethnicities of the respondents resulted in a sample mix of 480 Malays, 240 Chinese and 80 Indians (Appendix B). The break-down of the number of respondents for the urban and rural areas for each ethnicity were 288 to 192, 144 to 96 and 48 to 32 respectively. Variations on some socioeconomic characteristics were taken into consideration in the sampling. A mix of different levels of educational background, household income, and age of family financial manager were applied to the samples.

3.5 DATA COLLECTION

The data collection for this quantitative study was based on the distribution of the questionnaire to the respondents. This produced the primary data of the variables studied. The time for collecting the data was from February 2007 until May 2007. Special care was taken during data collection to ensure complete filled-in questionnaires were obtained and also to ensure a high return rate of the questionnaire.

For each of the area selected, public and private sector offices were identified from the telephone directory. Government departments and private companies identified were sent letters requesting for permission to collect data at their premises (Appendix C). Permissions sought through letters handed personally to the officer in charge were followed by phone calls. Departments and companies in each state were targeted a total of 120 respondents for the urban and 80 for the rural, with a break-down of 60 to 30 to 10 representing the major ethnicities in Malaysia. Questionnaire forms were sent to officers in charge that distributed the form to the respondents and were self-administered by them.

Respondents were being informed the purpose of the study and that their responses were kept confidential. A small token was presented as an appreciation for their participation. Secondary data that can be used to support the study were gathered from past research, seminars, government's documentation and books.

3.6 INSTRUMENTATION

Instrumentation used to obtain information from the family was the questionnaire form. A questionnaire type instrument was recommended by MacCrimmon and Wehrung (1986) instead of other types of measures or experiments. Reasons given were that the respondent would not be influenced by the decision analyst during the assessment process and the method also allowed high participation in assessments that would eliminate response biases.

The questionnaire for the quantitative study were developed based on questions or scales either adopted or adapted from previous research (Appendix D). Mainly the measurements selected for developing the questionnaire for the quantitative study had high reliability in the previous studies. Apart from socioeconomic background of the household and financial problems faced by them, the survey composed of questions on financial attitude specifically on financial risk tolerance, future time orientation, self-worth, financial management practices, and financial well-being. The state of financial well-being was determined by financial satisfaction, financial problem, Malaysian Personal Financial Well-being, and financial ratios.

3.6.1 Measurement of Risk Preference

Risk preference was measured with financial risk tolerance construct. Financial risk tolerance measurement adopted measurement by Jacobs-Lawson (2003) with six items.

The items measuring financial risk tolerance are as follows.

- i. In terms of investing, safety is more important than returns.
- ii. I am more comfortable putting my money in a bank account than in the stock market.
- iii. When I think of the word “risk” the term “loss” comes to mind immediately.
- iv. Making money in stocks and bonds is based on luck.
- v. I lack the knowledge to be a successful investor.
- vi. Investing is too difficult to understand.

The scores for all the items were reverse-coded before summing it. Thus, higher sum of score represents more financial risk tolerance and conversely the lower sum of score represents less financial risk tolerance.

3.6.2 Measurement of Time Horizon

The time horizon concept was operationalised as the future time orientation. Future time orientation of respondents was measured using the Future Time Perspective Scale developed by Hershey and Mowen (2000). The construct that consisted of six items was a general measure of the personality dimension. It measures the extent to which individuals enjoy and thinking about and planning for the future.

The items adopted are as follows.

- i. I follow the advice to save for a rainy day.
- ii. I enjoy thinking about how I will live years from now in the future.
- iii. The distant future is too uncertain to plan for. (*)
- iv. The future seems very vague and uncertain to me. (*)
- iv. I pretty much live on a day-to-day basis. (*)
- vi. I enjoy living for the moment and not knowing what tomorrow will bring. (*)

In order to measure the time horizon concept, four of the items indicated by asterisk in the future time orientation construct were reverse-coded before summated it to obtain a total score. The higher sum of score represents more future time oriented type of person

or the longer time horizon. On the other hand, the lower sum of score represents less future time oriented or shorter time horizon.

3.6.3 Measurement of Self-worth

Hira and Mugenda's (1999) scale was used for measuring self-worth of the financial manager. The four-item scale looked into the perception of the respondents on themselves in general.

The items used are as follows.

- i. I take a positive attitude toward myself.
- ii. I am a person of worth.
- iii. I am able to do things as well as other people.
- iv. As a whole, I am satisfied with myself.

The scores for the four items of self-worth were summated to measure the self-worth construct. The higher sum of score represents higher self-worth individual and vice-versa.

3.6.4 Measurement of Financial Management Practices

Financial management practices were measured using items from several authors and researchers. Several components of financial practices were included that were financial planning, cash-flow management, credit management, investment and savings, and risk management. The general item regarding financial planning was adapted from Ameriks et

al. (2003). The specific financial planning items were gathered from the six steps of the financial planning process and its components of financial goals described by Kapoor et al. (2004). Item on retirement planning used by MacEwen et al. (1995) was added to the list of 10 items.

The financial planning items used in this study are as follows.

- i. Planned for finances needed for my child/children education
- ii. Planned for finances needed to buy vehicle/s
- iii. Planned before taking any kind of credit/loan
- iv. Planned to have adequate insurance for big items and family members
- v. Planned before involving in any investment activity
- vi. Planned to minimise tax
- vii. Do estate (property) planning
- viii. Planned for finances needed during retirement
- ix. Planned for savings in emergency fund
- x. Revised the financial plan

The items of cash-flow management were adapted from Hilgert and Hogarth (2003), O'Neill (2002) and Xiao et al. (2004). The items selected for this study are as follows.

- i. Pay all bills on time
- ii. Have a complete financial record-keeping system
- iii. Track expenses
- iv. Control expenses using separate accounts for different items

- v. Make written budget for all items
- vi. Followed accordingly a written spending plan or budget
- vii. Make mental budget for all items
- viii. Followed accordingly a mental spending plan or budget
- ix. Compare actual expenditures to planned expenditures
- x. Revising a spending plan
- xi. Evaluate and control of accounts

Credit management used modified items from Godwin and Carroll (1986), Hogarth and Anguelov (2004) and Porter and Garman (2003) that resulted in three items. The items are listed below.

- i. Have a list of all the debts owed
- ii. Keep track of debt payment
- iii. Repayment of credit/loan made on time

Investment and savings measurement of eight items were adapted from Hilgert and Hogarth (2003), Hogarth, and Anguelov (2004), and Porter and Garman (2003). The items selected are as follows.

- i. Save for short-term goals out of each salary such as buying electrical appliances, furniture and vehicle
- ii. Save for emergency fund
- iii. Save for long-term goals out of each salary such as child education, home
- iv. Save for retirement

- v. Have money spread over different types of investments
- vi. Invested some money in trust funds
- vii. Invested some money in stocks
- viii. Invested some money in bonds

The four items of risk management component was adapted from Porter and Garman (2003). The measurement of all the above variables used a 7-point Likert scale ranging from “Never” to “Very Often”. Items selected for this study are listed below.

- i. Vehicle/s is/are adequately insured
- ii. Have homeowner's/renter's insurance policy
- iii. Family members have life insurance
- iv. Family members have health insurance

The items in each of the financial management practices constructs were summated separately in order to measure the components of the financial management practices individually. The lower sum of score for each of the components represents less involvement in the practices as compared to the higher sum of score.

3.6.5 Measurement of Financial Well-being

Earlier research indicated the importance of including subjective evaluation on any overall assessment of financial well-being. Mammen, Helmick, and Metzen (1981) contended that the positive or negative appraisal of one's financial well-being contributed to one's overall assessment of life satisfaction. Further more, the evaluations, perceptions,

or appraisals of situations in general had been associated with decision making (Janis and Mann, 1977; Paolucci, Hall, and Axinn, 1977). Studies in financial management field indicated that several of the studies that explored the impact of social psychological variables in predicting one's evaluation of financial well-being found that the social psychological variables were the strongest predictors (Davis and Helmick, 1985; Winter, Morris, and Rubie, 1988).

As concluded from later research, although the level of income and net worth were used as objective indicators of individual's or family's financial situation, subjective measures of perceived financial well-being were frequently used to measure individual's well-being (Bagwell, 2000; Fox and Chancey, 1998; Garman et al., 1999; Joo, 1998; Kim, 2000). On the same line, Hayhoe and Wilhelm (1995) suggested that objective and subjective measures provided a comprehensive assessment of financial well-being. This study used both objective and subjective measurement of financial well-being. Hence, financial well-being depends not only on the family's objective financial status but also on the subjective component of financial status. It was thus measured using subjective evaluation on the financial situation apart from the objective measurement of financial ratios.

The financial well-being variable in this study was measured using several scales namely financial satisfaction, financial problem, Malaysian Personal Financial Well-being, financial ratios, and integration of financial ratios with Malaysia Personal Financial Well-being. As financial satisfaction and financial problem variables had been used in previous

research, they were used to validate the Malaysian Personal Financial Well-being Scale. The financial well-being of families in determining the factors predicting financial well-being was measured by the integrated financial ratios and Malaysian Personal Financial Well-being Scale.

The subjective measurement that used measures of financial satisfaction by Hira and Mugenda (2000) comprised of six items. Respondents were asked of their satisfaction on savings level, debt level, current financial situation, ability to meet long-term goals, preparedness to meet emergencies and their financial management skills. Responses were rated from “Very Dissatisfied” to “Very Satisfied” on a 7-point scale. The score for each item in the financial satisfaction construct were summated to measure the financial satisfaction of the family. Lower sum of score represents less satisfaction and higher sum of score represents more satisfaction.

Items for the measure are as below. The question asked was: ‘Are you satisfied with your family’s ...’

- i. savings level?
- ii. debt level?
- iii. current financial situation?
- iv. ability to meet long-term goals?
- v. preparedness to meet emergencies?
- vi. financial management skills?

The financial problem scale (Fitzsimmons et al., 1993) asked questions on the financial problems that their family ever faced. Items used to measure financial problem are listed below.

- i. Cannot afford to buy adequate insurance
- ii. Do not have enough money for doctor, dentist, or medicine
- iii. Cannot afford to buy new shoes or clothes
- iv. Cannot afford to pay for utilities
- v. Unable to repay installment debts
- vi. Received "overdue notices" from creditors
- vii. Pay late some due bills
- viii. Pay late some installment debts

Responses were rated from “Never” to “Very Often” on a 7-point scale. The score for each item in the financial problem construct were summated to measure the financial problem of the family. Lower sum of score indicates less financial problems faced and higher sum of score indicates more financial problems faced by families.

Another subjective measurement of financial well-being adopted was the Malaysian Personal Financial Well-being Scale (MPFW). This scale was developed by Garman and Jariah in 2006 (Jariah, 2007) based on Garman’s Personal Financial Well-being Scale (PFWB) (2005). The local MPFW Scale consisted of 12 items whereas PFWB Scale had 8 items that was applied to the USA residents. The questions were on attitude, behaviour, control, and confidence. Both measurements were on a 10-point scale. Lower score of the

scale indicates poorer financial well-being and higher score of the scale indicates better financial well-being.

Items measuring the financial well-being of family as in the MPFW scale are listed below.

- i. On the steps below, mark with a circle how satisfied you are with your present financial situation. Those who are dissatisfied will be toward the lower steps. Those who are satisfied will be toward the higher steps.
- ii. How worried or concerned are you about your personal finances today?
- iii. How well off are you financially?
- iv. Which of the following best describes your current financial situation?
- v. How do you feel about your current financial situation?
- vi. How sure are you that you will have enough money to provide for a comfortable old age?
- vii. How often does your last pay run out before the next payday?
- viii. How often do you have trouble paying monthly bills (electricity, telephone, instalment, credit card)?
- ix. How confident are you that you have control over your personal finances?
- x. How confident are you that you know how to manage personal finances?
- xi. How easy would it be for you to get money to pay for a financial emergency that costs RM1,000?
- xii. How worried or concerned are you about your personal finances in general?

The scoring of this measurement used the same formulation as used in the scoring of Personal Financial Well-being by Garman, Sorhaindo, Prawitz, Osteen, Kim, O'Neill, Drentea, Haynes, and Weis-man (2005). The score for each of the twelve items was summated and the total was divided by twelve that was the number of items. Lower average score indicates poorer average financial well-being and higher average score indicates better average financial well-being.

The objective measurement of financial well-being was being tapped by financial ratios. Three financial guidelines appeared to be the most useful predictors of insolvency statistically proven by past research that were liquidity, solvency and consumer debt ratios (DeVaney, 1994). Liquidity ratio is the ratio of liquid assets to monthly disposable income. Liquid assets is operationalised as the total amount of cash and cash equivalents, checking accounts, savings accounts, money market accounts, money market mutual funds, and certificate of deposits with maturities of less than 6 months. Monthly expenses construct was used as a proxy for monthly disposable income. It consists of the total amount of average fixed and variable living expenses including debt or credit repayment, taxes, and monthly allocations being set aside for irregular expenses such as auto insurance, vacations, gifts, and others (Greninger et al., 1996). With a liquidity ratio of more than three, the individual would be in a good financial situation.

Solvency ratio is the ratio of assets to liabilities (DeVaney, 1994). Assets are the sum of the financial assets and fixed assets. The financial assets include the total amount of cash, checking accounts, money market funds, savings, face value of stocks, bonds, mutual

funds, trust funds, certificates of deposit, cash value of life insurance, and contribution to the Employee Provident Fund or any employer's fund for a similar purpose. Fixed assets are the net value of home, vehicles, properties, and business assets (DeVaney, 1994). Liabilities comprise of mortgage debt and non-mortgage debt. Mortgage debts are the loan balance of properties such as home, land or building. The non-mortgage debts are all debt or credit obligations such as loan balance of vehicle, credit card debt, consumer loan balance, non-regular payment such as charges, and outstanding bills. The value of assets should be more than the liabilities in order to be in a good financial situation, thus having a solvency ratio of more than one.

Consumer debt ratio is the ratio of gross annual debt payment to disposable income (DeVaney, 1994). Gross annual debt payment is operationalised as 12 months of payments on loans or credit having regular payments plus payment on credit card debt. The disposable income for this ratio uses the annual expenses of the family. For these ratios, information on household's liquid assets, monthly expenses, total assets, total liabilities, and gross annual debt payment of the family were asked in the questionnaire. To be in a good financial situation, the consumer debt ratio should be less than 0.15 or 15 percent.

In the analysis to determine predictors of financial well-being, the dependent variable was the integrated form of financial well-being as used by Baek and DeVaney (2004). In their study, the financially stable group was defined as households who met at least one of the three objective measures namely liquidity ratio, debt-to-assets ratio, and

investment assets ratio and they agreed that they had been lucky in their financial affairs. In this study, the financially stable group was determined from their ability to fulfill any one of the three financial ratios mentioned above (DeVaney, 1994) and those who scored 5 and above for the Malaysian Personal Financial Well-being Scale.

3.7 VARIABLES

Among the variables involved in this study were future time orientation as the independent variable and financial risk tolerance as the dependent variable in the first analysis. Future time orientation was used in previous studies as the independent variable in relation with task engagement and persistence (Lens, Simons and Dewitte, 2001) and in relation with performance in the present in earlier studies (Gjesme, 1981; Raynor 1970). In this study, future time orientation was used to determine its relationship with financial risk tolerance. Financial risk tolerance was later determined its relationships with financial management practices components. Financial management practices comprised of financial planning, cash-flow, credit, savings, investment, and risk managements components.

The following analysis performed in predicting the likelihood of being financially stable used socioeconomic characteristics, future time orientation, financial risk tolerance, and financial management practices as the independent variables. The dependent variable was financial well-being that was measured using integration of subjective measurement of financial well-being namely the Malaysian Personal Financial Well-being Scale and also the objective measurement of financial ratios. Self-worth was introduced as the

moderating variable in the framework between financial management practices and financial well-being.

In the analysis to determine the likelihood of investing in risky assets, socioeconomic characteristics, future time orientation, financial risk tolerance, and financial management practices excluding investment practices were used as independent variables in the binary logistic regression and the dependent variable was the investment in risky assets. Self-worth was introduced as the moderating variable in the framework between financial management practices and investment in risky assets.

3.8 PRE-TEST

A pre-test was conducted among 25 family financial managers in Klang Valley selected through convenience sampling to identify any misunderstanding of the questionnaire developed. This earlier stage of the study was carried out in January 2007 after the final development of the questionnaire. The pre-test was also used to establish validity and reliability of the measurements.

3.9 DATA ANALYSIS

The data gathered using the questionnaire forms went through the process of coding, cleaning and determination of normality using Statistical Program for Social Sciences software. The cleaned data were analysed descriptively to obtain the socio-demographic background of the family and to describe the characteristic of the variables involved that were the values of mean, maximum, minimum and standard deviation. Prior to the

inferential analysis, all distributions were checked for evidence of normality, abnormal skewness and irregular kurtosis. Exploratory data analysis (EDA) were performed for the total scores or the average score of Likert scale measurements namely future time orientation, financial risk tolerance, Malaysian Personal Financial Well-being, financial satisfaction, and financial problem (Appendix F).

Inferential analyses were carried out to obtain relationships and differences between variables that enabled the hypotheses to be tested. Factor analysis and reliability test were applied to the Likert scale measurements prior to the testing of the hypotheses. Correlation analyses were performed between Malaysian Personal Financial Well-being Scale and financial satisfaction, and also with financial problem in the validation process.

Differences between ethnicities and residential areas in terms of financial well-being, and financial management practices were determined by statistical tools such as the Chi-square test, analysis of variance, post-hoc test, and independent sample t-test. Pearson correlation was used to examine relationships among future time orientation, financial risk tolerance and financial management practices.

Factors related with the likelihood of a family to be financially well or otherwise were determined using hierarchical binary logistic regression statistics. Selected socioeconomic variables were introduced in the first step of the model to control possible influence, followed by financial management practices dimensions in the second step of the regression analysis.

Moderating role of the self-worth variable was analysed using hierarchical binary logistic regression to test for two-way interaction effects between the moderator and independent variables. Hierarchical regression analysis was the method recommended by Cohen and Cohen (1983) and was used by others (Landsbergis, Schnall, Warren, Pickering, and Schwartz, 1994; Zedeck, 1971). In testing interaction effects, Cohen and Cohen (1983) suggested multiplicative terms to be created for the standardised independent variables. The independent variables or predictor variables were standardised before conducting the analysis to reduce the problems associated with multicollinearity that occur when examining interactions between variables (Aiken and West, 1991; Wainer, 2000). Later the standardized self-worth was multiplied with each of the standardised dimensions of financial management practices.

Selected socioeconomic variables were introduced in the first step of the model to control possible influence, followed by financial management practices dimensions in the second step and later the self-worth variable in the third step. The fourth step were included the two-way interaction variables between standardised self-worth and standardised dimensions of financial management practices or the multiplicative terms for the standardised independent variables.

Regarding the investment decision in risky asset, factors related with the likelihood of a family to participate in risky asset or otherwise were also identified using binary logistic regression statistics. Selected socioeconomic variables were introduced in the first step of the model to control possible influence, followed by future time orientation and financial

risk tolerance in the second step of the regression analysis. Financial management practices dimensions excluding investment practices were included in the third step to determine the likelihood of those practices in predicting a family to participate in risky asset or otherwise. In the fourth step, the two-way interaction variables between standardised self-worth and standardised dimensions of financial management practices or the multiplicative terms for the standardised independent variables were included.

Table 3.1
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀₁	Future time orientation is not significantly related with financial risk tolerance of the family financial manager.	Future time orientation	Financial risk tolerance	Pearson correlation
H _{02a}	Financial risk tolerance is not significantly related with financial planning of a family financial manager.	Financial risk tolerance	Financial planning	Pearson correlation
H _{02b}	Financial risk tolerance is not significantly related with cash-flow practice of a family financial manager.	Financial risk tolerance	Cash-flow practice	
H _{02c}	Financial risk tolerance is not significantly related with credit practice of a family financial manager.	Financial risk tolerance	Credit practice	
H _{02d}	Financial risk tolerance is not significantly related with savings practice of a family financial manager.	Financial risk tolerance	Savings practice	
H _{02e}	Financial risk tolerance is not significantly related with investment practice of a family financial manager	Financial risk tolerance	Investment practice	
H _{02f}	Financial risk tolerance is not significantly related with risk practice of a family financial manager	Financial risk tolerance	Risk practice	

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 3a	There are no significant differences in financial planning practice among the main ethnicities in Malaysia.	Ethnicities (Malay, Chinese, Indian)	Financial planning	Analysis of variance
H ₀ 3b	There are no significant differences in cash-flow practice among the main ethnicities in Malaysia.		Cash-flow practice	
H ₀ 3c	There are no significant differences in credit practice among the main ethnicities in Malaysia.		Credit practice	
H ₀ 3d	There are no significant differences in savings practice among the main ethnicities in Malaysia.		Savings practice	
H ₀ 3e	There are no significant differences in investment practice among the main ethnicities in Malaysia.		Investment practice	
H ₀ 3f	There are no significant differences in risk practice among the main ethnicities in Malaysia.		Risk practice	

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 4a	There is no significant difference in financial planning activities across residential areas in Malaysia.	Residential areas	Financial planning	Independent sample t-test
H ₀ 4b	There is no significant difference in cash-flow practices across residential areas in Malaysia.	(urban, rural)	Cash-flow practice	
H ₀ 4c	There is no significant difference in credit practices across residential areas in Malaysia.		Credit practice	
H ₀ 4d	There is no significant difference in savings activities across residential areas in Malaysia.		Savings practice	
H ₀ 4e	There is no significant difference in investment practices across residential areas in Malaysia.		Investment practice	
H ₀ 4f	There is no significant difference in risk practices across residential areas in Malaysia.		Risk practice	

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 5a	Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting financial well-being of family.	Urban family	Financial well-being	Hierarchical binary
H ₀ 5b	Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting financial well-being of family.	Malay family		logistic regression
H ₀ 5c	Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting financial well-being of family.	Chinese family		
H ₀ 5d	Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting financial well-being of family.	Respondent's education		
H ₀ 5e	Controlling for influence from other socioeconomic characteristics in the model, respondent's working experience is not significantly predicting financial well-being of family.	Respondent's work experience		
H ₀ 5f	Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting financial well-being of family.	Household income		
H ₀ 5g	Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting financial well-being of family.	Home ownership		
H ₀ 5h	Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting financial well-being of family.	Household size		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 6a	Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation of family financial manager is not significantly predicting financial well-being of family.	Future time orientation	Financial well-being	Hierarchical binary logistic regression
H ₀ 6b	Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance of family financial manager is not significantly predicting financial well-being of family.	Financial risk tolerance		
H ₀ 7a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting financial well-being of family.	Financial planning	Financial well-being	Hierarchical binary logistic regression
H ₀ 7b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting financial well-being of family.	Cash-flow practice		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 7c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting financial well-being of family.	Credit practice	Financial well-being	Hierarchical binary logistic regression
H ₀ 7d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting financial well-being of family.	Savings practice		
H ₀ 7e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, investment practice is not significantly predicting financial well-being of family.	Investment practice		
H ₀ 7f	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting financial well-being of family.	Risk practice		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 8a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between financial planning and financial well-being of families.	Financial planning	Financial well-being	Hierarchical binary logistic regression
H ₀ 8b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between cash-flow and financial well-being of families.	Cash-flow practice		
H ₀ 8c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between credit practice and financial well-being of families.	Credit practice		
H ₀ 8d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between savings and financial well-being of families.	Savings practice		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 8e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between investment and financial well-being of families.	Investment practice	Financial well-being	Hierarchical binary logistic regression
H ₀ 8f	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between risk practice and financial well-being of families.	Risk practice		
H ₀ 9a	Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting investment in risky assets by family.	Urban family	Investment in risky assets	Hierarchical binary logistic regression
H ₀ 9b	Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting investment in risky assets by family.	Malay family		
H ₀ 9c	Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting investment in risky assets by family.	Chinese family		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 9d	Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting investment in risky assets by family.	Respondent's education	Investment in risky assets	Hierarchical binary logistic regression
H ₀ 9e	Controlling for influence from other socioeconomic characteristics in the model, respondent's work experience is not significantly predicting investment in risky assets by family.	Respondent's work experience		
H ₀ 9f	Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting investment in risky assets by family.	Household income		
H ₀ 9g	Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting investment in risky assets by family.	Home ownership		
H ₀ 9h	Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting investment in risky assets by family.	Household size		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 10a	Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation is not significantly predicting investment in risky assets by family.	Future time orientation	Investment in risky assets	Hierarchical binary logistic regression
H ₀ 10b	Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance is not significantly predicting investment in risky assets by family.	Financial risk tolerance		
H ₀ 11a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting investment in risky assets by family.	Financial planning	Investment in risky assets	Hierarchical binary logistic regression
H ₀ 11b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting investment in risky assets by family.	Cash-flow practice		

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H _{011c}	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting investment in risky assets by family.	Credit practice	Investment in risky assets	Hierarchical binary logistic regression
H _{011d}	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting investment in risky assets by family.	Savings practice		
H _{011e}	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting investment in risky assets by family.	Risk practice		
H _{012a}	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between financial planning and investment in risky assets by family.	Financial planning	Investment in risky assets	Hierarchical binary logistic

Table 3.1 Continued
Summary of Hypotheses, Variables and Associated Analysis

	Null Hypothesis	Independent Variable	Dependent Variable	Analysis
H ₀ 12b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between cash-flow and investment in risky assets by family.	Cash-flow practice	Investment in risky assets	Hierarchical binary logistic regression
H ₀ 12c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between credit practice and investment in risky assets by family.	Credit practice		
H ₀ 12d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between savings and investment in risky assets by family.	Savings practice		
H ₀ 12e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between risk practice and investment in risky assets by family.	Risk practice		

CHAPTER 4

RESEARCH FINDINGS

4.1 INTRODUCTION

This chapter discusses the results and discussions of the analyses of data gathered using questionnaire form. The data were initially screened and cleaned before any further analyses were carried out. Validity and reliability tests were conducted on the study constructs and presented in detail. The results from descriptive and inferential analyses are discussed. Comparative analysis among the ethnicities and residential areas of the respondents were made. Hierarchical binary logistic regression results to answer the objectives on associations of variables and the moderating effects of self-worth on the relationships between financial management practices and financial well-being are reported. Results on determining predictors of investment decision in risky assets are also discussed. Hence, the hypotheses developed for this study are tested and presented.

4.2 SAMPLING RESULTS

4.2.1 Data Collection

The number of samples targeted for this study was 800 throughout Peninsular Malaysia. In order to gather the intended sample size, the number of questionnaire distributed was about double that was 1500. Since quota sampling was adopted for the study, the calculated number of samples for each sub-group based on the ratio of ethnicity and residential area must be achieved. The collection of filled questionnaires was carried out accordingly to the ratios. The collection of the returned questionnaires ended for each

residential area when enough usable questionnaires for each ethnicity were gathered. Thus, the number of questionnaire collected was as stated prior to the collection process.

4.3 DESCRIPTIVE ANALYSIS

The data that had undergone the process of screening and cleaning were conducted descriptive analyses to describe the data. Results of the analyses are presented in the following sections.

4.3.1 Profile of the Respondents

The socio-demographic profile of the respondents is presented in Table 4.1. Other than representing the quota for ethnicities in Malaysia as the study was based on quota sampling, the sample was fairly distributed among various levels of age, education, household size, and household income. Length of working experience and length of marriage of respondents were also fairly spread as these were almost related with age of the respondents.

Almost half of the respondents aged between 30 to 40 years old and had been working and married for more than 10 years. Almost three quarter of the respondents was at the middle age. In terms of monthly household income, almost half of the respondents were earning more than the average household income of the Malaysian population of RM 3,249 (Economic Planning Unit, 2006). The average household income for the sample was RM5,705 that was more than the average income of the population.

All the families in the samples had household income above the poverty line of RM 687 for the urban area and RM698 for the rural area (Economic Planning Unit, 2006). Slightly more than half of the respondents were male and possessed education at the secondary level. The average household size of the sample was 5.0 and was almost representative of the population. About half of the sample was above the average household size of 4.5 (Economic Planning Unit, 2006). About three quarter of the family in the sample owned at least a house.

Table 4.1
Profile of the Respondents

Socio-demographic Characteristics		Frequency (N = 800)	Percentage (%)
Age (years old)	Less than 30	148	18.5
	30 to less than 40	343	42.9
	40 to less than 50	242	30.3
	More and equal to 50	67	8.4
Gender	Male	465	58.1
	Female	335	41.9
Educational Level	Primary	29	3.6
	Certificate	434	54.3
	Diploma	144	18.0
	Degree/Professional	193	24.2
Working Experience (years)	0 to 5	142	17.8
	6 to 10	280	35.0
	11 to 15	149	18.6
	16 to 20	118	14.8
	More than 20	111	13.9
Length of marriage (years)	0 to 5	261	32.6
	6 to 10	236	29.5
	11 to 15	136	17.0
	More than 15	167	29.0
Household Size	Less than 5 persons	396	49.5
	More and equal to 5 persons	404	50.5
Household Income	Less than RM2,000	95	11.9
	RM2,000 to less than RM4,000	316	39.5
	RM4,000 to less than RM6,000	159	19.9
	RM6,000 to less than RM8,000	91	11.4
	More and equal to RM8,000	139	17.4
Homeownership of Family	Yes	571	71.4

4.3.2 Financial Planning Process

The mean for each of the process that the family went through in their financial planning are presented in Table 4.2. The sequence of the processes as suggested by Kapoor et al. (2004) is laid out as in the table. For the overall steps in financial planning, family scored almost four and slightly above four that were at the average score for each item. They were in general, moderately involved in the financial planning processes.

Table 4.2
Financial Planning Process of the Family

	Mean
Spent a great deal of time developing a financial plan	3.97
Determined my family financial well-being	4.58
Developed financial goals for my family	4.75
Identified alternative courses of action to achieve the financial goals	4.67
Evaluated the alternative courses of action identified for each of the financial goals	4.55
Created a specific financial plan for my family	4.76
Implemented the financial plan accordingly	4.71
Reevaluated the financial plan	4.66

Among the steps involved in financial planning, on the average, they focused more on developing financial goals and created a specific financial plan for their family however they spent less time developing it. They were also observed as less determining their family financial well-being as compared to developing the financial goals. Even though they were seen as moderately identifying alternative courses of action to achieve the financial goals, they were slightly less in evaluating the alternative courses of action identified.

4.3.3 Information on Payment and Savings of the Family

Frequencies related to methods of bill payment, credit repayments and savings were asked in the survey as listed in Table 4.3. Based on the mean score, the methods related to bill and credit payments, and savings were less seldom used by the family. Those methods were ‘Pay bills through on-line banking’, ‘Debt repayment made through monthly wage deduction’, ‘Debt repayment made through bank "standing instruction", and ‘Savings made through bank "standing instruction"’.

Table 4.3
Information on Payment and Savings of the Family

	Mean	Standard Deviation
Pay bills through on-line banking	3.71	1.810
Debt repayment made through monthly wage deduction	3.87	1.792
Debt repayment made through bank "standing instruction"	3.44	1.801
Savings made through bank "standing instruction"	2.99	1.684
Repayment of credit/loan is less than 40% of the monthly household income	3.92	1.487
Savings are always more than 3 months household income	4.17	1.555

Other information's sought were about their savings and debt repayment rates. In terms of savings rate, the family scored slightly more than average of four (mean = 4.17) regarding their ability to keep their savings to be more than three months of the household income. A ratio value of three for savings to household income ratio was suggested by DeVaney (1994) as the minimum value for a good financial well-being. This means that a family should have savings at least three times their household income

to be financially stable. The further up the ratio value from this border, the higher liquidity the family has. This enabled the family to be prepared for financial emergencies. Hence, the result revealed that the family on the average was moderately prepared for financial emergencies.

As for repayment of credit or loan, they scored almost average when asked whether their repayment was less than 40 percent of the household income. The repayment of credit or loan should be less than 40 percent of the household income was suggested by Greninger et al. (1996) for a family to be considered as financially sound. The repayment of credit or loan among others consisted of consumer loans such as personal loan and credit card. Mortgage loans such as home loan and other properties were also included. As a whole, the family was averagely not burdened by debt or credit repayment.

4.3.4 Financial Well-being of the Family

Financial well-being of the family was measured by several scales that were the Malaysian Personal Financial Well-being, financial satisfaction, financial problem, and financial ratios.

Malaysian Personal Financial Well-being

The mean scores for financial utility as measured by Malaysian Personal Financial Well-being are presented in Table 4.4. The average score calculated for each of the item in this scale ranged from one to ten with higher score reflecting better financial well-being. The results showed that the families on the average, scored slightly above six for most of the

items, and hence were perceived by themselves on the average as moderate in all the aspects asked.

Table 4.4
Malaysian Personal Financial Well-being of the Family

Item	Mean	Standard Deviation
On the steps below, mark with a circle how satisfied you are with your present financial well-being. Those who are dissatisfied will be toward the lower steps. Those who are satisfied will be toward the higher steps.	6.16	1.859
How worried or concerned are you about your personal finances today?	5.47	1.930
How well off are you financially?	6.29	1.569
Which of the following best describes your current financial well-being?	6.34	1.541
How do you feel about your current financial well-being?	6.29	1.577
How sure are you that you will have enough money to provide for a comfortable old age?	6.12	1.776
How often does your last pay run out before the next payday?	6.52	1.785
How often do you have trouble paying monthly bills (electricity, telephone, installment, credit card)?	6.96	1.853
How confident are you that you have control over your personal finances?	6.25	1.763
How confident are you that you know how to manage personal finances?	6.24	1.737
How easy would it be for you to get money to pay for a financial emergency that costs RM1,000?	5.96	1.857
How worried or concerned are you about your personal finances in general?	5.86	1.893
Overall mean	6.21	

Item having the highest mean score was on their ability to pay monthly utility bills. This means that the families were not having much trouble in paying their monthly bills (electricity, telephone, installment, credit card) compared to other activities. For the lowest mean score, the item was on their concern about their personal finances on that specific day. This means that the families were most worried and concerned about their daily personal finances compared to other activities.

The overall mean for Malaysian Personal Financial Well-being was calculated as 6.21 that was at the moderate level. Compared to the national norms established for the general population of United States adults in 2004 that was 5.7 (Prawitz et al., 2006), the financial well-being mean score for Malaysian adults in this study was however slightly higher. This may be due to the sample of this study obtaining more than average household income of the population where there were almost one third of the sample distributed among the upper-middle and higher income family (refer Table 4.1) and about 17 percent having household income of more than RM8,000 a month. According to the Malaysian Household Expenditure Survey in 2004/2005, an urban family with average family of four spent RM2,503 per month on various expenses while a similar-size family living in rural area spent RM1,290 per month that was almost half of an urban family (Department of Statistics, 2007). Referring to this, the families in this study on the average are spending only half of their income on necessities to live, thus they are having quite a large sum of excess of their income to provide them for better food, clothing, transportation or housing and other recreational activities.

Financial Satisfaction

The result on the other utility measure is presented in Table 4.5. The measurement adopted the financial satisfaction scale by Hira and Mugenda (1999). The score for each item ranged from one to seven with higher score indicating more satisfied with financial aspects.

Table 4.5
Financial Satisfaction of the Family

Item	Mean	Standard Deviation
Satisfied with savings level	4.17	1.483
Satisfied with debt level	4.32	1.500
Satisfied with current financial well-being	4.54	1.495
Satisfied with ability to meet long-term goals	4.38	1.530
Satisfied with preparedness to meet emergencies	4.53	1.447
Satisfied with financial management skills	4.36	1.540
Overall mean	4.40	

The family financial managers' satisfactions on various financial matters were slightly more than the average score of four for each of the items. They were more satisfied with financial aspects such as with their current financial well-being and with their preparedness to meet financial emergencies as compared to their ability to meet long-term goals, financial management skills, debt level and savings level. In general, based on their mean score of 4.40, they were moderately satisfied with various aspects of their financial management.

Financial Problem

The financial problems of the family were measured using the adapted items from the Frequency of Financial Problems Scale (FFPS) (Fitzsimmons et al., 1993). The results of the financial problems faced by families are presented in Table 4.6. The score for each item ranged from one to seven with higher score indicating higher financial problems and thus reflecting lower financial well-being of the families.

Table 4.6
Financial Problem of the Family

Items	Mean	Standard Deviation
Cannot afford to buy adequate insurance	3.16	1.562
Do not have enough money for doctor, dentist, or medicine	2.63	1.426
Cannot afford to buy new shoes or clothes	2.54	1.455
Cannot afford to pay for utilities	2.52	1.388
Unable to repay installment debts	2.58	1.396
Received "overdue notices" from creditors	2.51	1.440
Pay late some due bills	2.74	1.472
Pay late some installment debts	2.67	1.480
Overall mean	2.67	

The families experienced below average for all the items asked regarding financial problems thus facing low financial problems that were substantiated by the overall mean score of 2.67. The families, however, were slightly less affordable to buy adequate insurance compared to affordability to pay for essential items such as for medical treatment, new shoes or clothes, or paying for utilities. Ability to repay installment debts and paying bills were also slightly more than their affordability to buy adequate insurance.

Financial Ratio

Table 4.7 presents the financial ratio fulfilled by the families. Almost half of the families at the time of the study had liquidity ratio of more than three that reflected the stability of their financial well-being. These families were having liquid assets more than three times their disposable income. This enabled them to face financial emergency comfortably.

Solvency ratio on the other hand measured the ability of the families to pay off their debts. A ratio of more than one shows that the value of all their assets consisting of financial assets and fixed assets are larger than the amount they owe, thus enabling the family to settle off all of their debts if they wish to. About 65 percent of the families had solvency ratios of more than one at the time of the study. Hence, more than half of the families were in good financial well-being based on this financial ratio. They were able to clear off their debts by selling off their assets.

For the consumer debt ratio, it indicates a family's burden on debt repayment. The ratio should be less than fifteen percent for the family to be in good financial well-being. The debt repayment should be less than fifteen percent that is just a small portion of their disposable income. This means that a family should be having at least eighty five percent of their disposable income for other expenses excluding the debt repayment. Only eight percent of the families had comfortable consumer debt ratios. This reflected that most of the families were burdened with large amount of regular debt repayments. They were paying for their debts in large portions out of their disposable income. This situation would lead to insufficient money for other expenses or savings.

Table 4.7
Financial Ratio Fulfilled by the Family

Financial Ratio	Requirement to be Financially Stable	Frequency (N = 800)	Percentage (%)
Liquidity Ratio	More than 3	351	43.9
Solvency Ratio	More than 1	523	65.4
Consumer Debt Ratio	Less than 15%	61	7.6

The total financial ratios fulfilling the requirements by the families are displayed in Table 4.8. More than three quarter of the families (77.5%) achieved the border line of at least one ratio from the three ratios that were the liquidity ratio, solvency ratio and consumer debt ratio. Mainly the families met only one ratio (41.1%) and only a small percentage of the families fulfilled the requirements for all the three ratios (3.0%). About a third of the families fulfilled any two ratios (44.5%) and almost a quarter of the families (22.5%) did not meet the requirements for any of the three financial ratios. Based on the objective measurement of financial well-being, the financial well-being of the families in this study was considered on the average as fairly stable.

Table 4.8
Total Financial Ratios Fulfilled by the Family

Financial Ratios Fulfilled	Frequency (N = 800)	Percentage (%)
None of the ratios	180	22.5
Only one ratio	329	41.1
Any two ratios	267	33.4
All three ratios	24	3.0

Integrating Malaysian Personal Financial Well-being Scale and Financial Ratios

The financial well-being of the families could be determined by using both the result of the subjective measurement and the objective measurement, specifically the Malaysian Personal Financial Well-being and financial ratios. Table 4.9 shows the distribution of the Malaysian Personal Financial Well-being score and the number of financial ratio fulfilled by the families.

Table 4.9
Malaysian Personal Financial Well-being Score and Financial Ratio Fulfilled

Malaysian Personal Financial Well-being Score	Financial Ratio Fulfilled					
	At least one ratio		At least two ratios		All three ratios	
	n	%	n	%	n	%
5 to 10 (average to highest)	507	63.4	253	31.6	18	2.3
7 to 10 (good to highest)	212	26.5	109	13.6	8	1.0

Looking at the most stringent condition for financial well-being, there was only one percent of the families achieving a financial well-being score of at least seven and fulfilling all the three financial ratios. A score of seven indicates good financial well-being and a score of ten indicates highest financial well-being. Thus, only eight families were found to be financially well.

Almost two third of the samples (63.4%) scored at least five and having fulfilled at least one ratio from the three financial ratios. With this less stringent condition for financial well-being, a total of 507 families were considered to be financially well. Consequently, taking a moderate condition for financial well-being, a total of 212 families were considered to be financially well. Slightly above a quarter of the samples (26.5%)

achieved at least good financial well-being state with a score seven and fulfilling at least one of the financial ratios.

4.4 COMPARISON BASED ON ETHNICITY AND RESIDENTIAL AREAS

4.4.1 Comparison of Financial Well-being Based On Ethnicity

Malaysian Personal Financial Well-being

The differences in financial well-being among ethnicities were highly significant ($\chi^2 = 21.43$; $p = 0.0001$) using Chi-square test as exhibited in Table 4.10. The Chinese families (41.7%) perceived themselves as having better financial well-being as compared to the Malay (29.4%) or Indian (20.0%) families. On the other hand, the Indian families (31.3%) perceived themselves as having poorer financial well-being as compared to the Malay (19.2%) or Chinese (17.9%) families. As a conclusion, Chinese ethnicities were financially well as compared to Malay or Indian ethnicities based on this measurement of financial well-being. This result was consistent with a study on Malaysian employees by Mohamad Fazli et al. (2008a). They found Malay ethnicity and Chinese ethnicity as significant predictor of financial wellness.

Table 4.10
Malaysian Personal Financial Well-being by Ethnicity

Financial Well-being (Average Score)	Malay		Chinese		Indian		Chi-Square Test	
	n (N = 480)	%	n (N = 240)	%	n (N = 80)	%	χ^2	Sig. (p)
Low to Average (0 to 4.99)	92	19.2	43	17.9	25	31.3	21.43**	0.0001
Average to Good (5.00 to 6.99)	247	51.5	97	40.4	39	48.8		
Good to Highest (7.00 to 10.00)	141	29.4	100	41.7	16	20.0		

Financial Satisfaction

Table 4.11 displays the results of analysis of variance for financial satisfaction by ethnicity. Only one aspect of financial satisfaction was significantly different among the three ethnicities. Further analysis using Scheffe post-hoc test confirmed that the Indian families were significantly less satisfied with their savings level as compared to the Chinese families. Other aspects of financial satisfaction were not significantly different among the ethnicities in Malaysia. Thus, conclusion that could be made was limited to differences among ethnicities regarding satisfaction with savings level only. It was concluded that Chinese families were significantly more satisfied with their savings level compared to Indian families. Hence, Chinese families were financially well based on their satisfaction with their savings level. However no conclusion could be withdrawn regarding the satisfaction with savings level for Malay ethnicity. Due to no available past studies, comparison with previous studies could not be made.

Table 4.11
Financial Satisfaction by Ethnicity

	Malay (N = 480) Mean	Chinese (N = 240) Mean	Indian (N = 80) Mean	ANOVA Test	
				F	Sig. (p)
Satisfied with savings level	4.15	4.35	3.78	4.591**	0.010
Satisfied with debt level	4.26	4.48	4.23	1.921	0.147
Satisfied with current financial well-being	4.54	4.58	4.39	0.518	0.596
Satisfied with ability to meet long-term goals	4.43	4.36	4.09	1.748	0.175
Satisfied with preparedness to meet emergencies	4.56	4.58	4.26	1.575	0.208
Satisfied with financial management skills	4.36	4.44	4.14	1.39	0.321

Financial Problem

Financial problem by ethnicity is tabulated in Table 4.12 with the results of the analysis of variance (ANOVA). All items asked regarding the financial problems faced by families were found to be significantly different among the three ethnicities. Three financial problems asked were found to be highly significantly different among the ethnicities at the 99 percent confidence level. Those were 'Cannot afford to buy adequate insurance', 'Pay late some due bills', and 'Pay late some installment debts'. This means that the differences among the ethnicities for these financial problems were 99 percent sure to be different.

Table 4.12
Financial Problem by Ethnicity

	Malay (N = 480) Mean	Chinese (N = 240) Mean	Indian (N= 80) Mean	ANOVA Test	
				F	Sig. (p)
Cannot afford to buy adequate insurance	3.28	2.78	3.63	12.156**	0.0001
Do not have enough money for doctor, dentist, or medicine	2.66	2.46	2.89	3.114*	0.045
Cannot afford to buy new shoes or clothes	2.58	2.36	2.86	4.037*	0.018
Cannot afford to pay for utilities	2.48	2.47	2.91	3.565*	0.029
Unable to repay installment debts	2.59	2.45	2.94	3.696*	0.025
Received "overdue notices" from creditors	2.56	2.32	2.75	3.547*	0.029
Pay late some due bills	2.80	2.46	3.21	8.905**	0.0001
Pay late some installment debts	2.70	2.46	3.05	5.270**	0.005

Indian families were frequently facing difficulties in all the financial problems asked as compared to Malay or Chinese ethnicities. They were reported to be significantly below average in their affordability to buy adequate insurance ($F = 12.156$; $p = 0.0001$). This was the most frequently problem faced by them compared to the other problems asked. Furthermore, Indian families were also frequently making late payments for certain bills and installment debt.

Conversely, Chinese families were least frequently facing financial problems as compared to Malay and Indian families. The mean scores for them were far below the average scale of 3.5. Malay families were found to be between the two other ethnicities in their financial problems. Chinese families were concluded to be more financially well compared to Malay and Indian families based on their financial problems. No available previous research was found to make comparison.

Financial Ratio

Table 4.13 displays the financial ratio fulfilled by ethnicity. The differences between ethnicities for the three ratios that were the liquid ratio ($\chi^2 = 7.97$; $p = 0.019$), solvency ratio ($\chi^2 = 9.38$; $p = 0.009$) and consumer debt ratio ($\chi^2 = 16.81$; $p = 0.0001$) were significant. More Chinese families (49.2%) fulfilled the liquid ratio as compared to the Malay (43.3%) or Indian families (31.3%). This revealed that the Chinese families were more prepared to face financial emergencies as compared to the other ethnicities.

Table 4.13
Financial Ratio Fulfilled by Ethnicity

Fulfilled the Financial Ratio	Malay (N = 480)		Chinese (N = 240)		Indian (N = 80)		Chi-Square Test	
	n	%	n	%	n	%	χ^2	Sig. (p)
Liquid Ratio							7.97*	0.019
Yes	208	43.3	118	49.2	25	31.3		
No	272	56.7	122	50.8	55	68.8		
Solvency Ratio							9.38**	0.009
Yes	333	69.4	139	57.9	51	63.8		
No	147	30.6	101	42.1	29	36.3		
Consumer Debt Ratio							16.81**	0.0001
Yes	51	10.6	5	2.1	5	6.3		
No	429	89.4	235	97.9	75	93.8		

For the solvency ratio and consumer debt ratio, the cross-tabulation showed that more Malay families (69.4% & 10.6%) fulfilled those ratios as compared to Indian (63.8% & 6.3%) and Chinese (57.9% & 2.1%) families. This indicated that the Malay families were able to pay off their debts and less burdened with debts as compared to other ethnicities.

The cross-tabulation of total financial ratios fulfilled by ethnicity is shown in Table 4.14 accompanied by the result of Chi-square test. The differences between ethnicities regarding total financial ratios fulfilled were significant at 90 percent confidence level ($\chi^2 = 14.26$; $p = 0.027$). The Chinese families (24.6%) preceded the other ethnicities in terms of not fulfilling the requirements of any of the financial ratios, followed by the Indian (23.8%) and the Malay families (21.2%). Referring to this result, Chinese families were concluded as less financially stable compared to the other ethnicities.

Table 4.14
Total Financial Ratios Fulfilled by Ethnicity

Financial Ratio Fulfilled	Malay (N = 480)		Chinese (N = 240)		Indian (N = 80)		Chi-Square Test	
	n	%	n	%	n	%	χ^2	Sig. (p)
None	102	21.2	59	24.6	19	23.8	14.26*	0.027
Only one ratio	184	38.3	103	42.9	42	52.5		
Any two ratios	174	36.3	75	31.3	18	22.5		
All three ratios	20	4.2	3	1.3	1	1.3		

In fulfilling the requirement of at least one financial ratio, however, Malay families (78.8%) led the other ethnicities. Furthermore, Malay families fulfilled all three financial ratios (4.2%) more than the Chinese (1.3%) or Indian families (1.3%). Thus, the Malay families were concluded to be more financially stable as compared to the Chinese or Indian families based on these objective measurements. Comparison with previous research could not be made as there was no study found on financial ratios among ethnicities in Malaysia.

4.4.2 Comparison of Financial Well-being Based On Residential Areas

The following were comparisons of financial well-being using various measurements across residential areas. No past studies were found regarding these analyses, thus comparisons with previous research could not be made.

Malaysian Personal Financial Well-being

Table 4.15 shows significant cross-tabulation of Malaysian Personal Financial Well-being by residential areas.

Table 4.15
Malaysian Personal Financial Well-being by Residential Areas

Average Score	Financial Well-being		Urban (N = 480)		Rural (N = 320)		Chi-Square Test	
			n	%	n	%	χ^2	Sig. (p)
0 to 4.99	Low	to	81	16.9	79	24.7	7.458*	0.024
	average							
5.00 to 6.99	Average	to	241	50.2	142	44.4		
	Good							
7.00 to 10.00	Good	to	158	32.9	99	30.9		
	highest							

The Chi-square test was significant at 90 percent confidence level ($\chi^2 = 7.458$; $p = 0.024$). Half of the urban families were found to be at the average to good financial well-being state (50.2%) and only less than half of the rural families (44.4%) were at the same state of financial well-being. For the good to highest financial well-being state, more urban families (32.9%) were in this state compared to the rural families (30.9%). More rural families (24.7%) were found to be in the low to average financial well-being state compared to urban families (16.9%). Thus, urban families were more financially stable compared to rural families using this measurement.

Financial Satisfaction

Financial utility by residential areas as measured by financial satisfaction is shown in Table 4.16. The t-test analysis was used to determine the difference in financial satisfaction between urban and rural families with the mean scores for each items displayed.

Table 4.16
Financial Satisfaction by Residential Areas

Items	Urban (N = 480) Mean	Rural (N = 320) Mean	t- Test	
			t	Sig. (p)
Satisfied with savings level	4.24	4.07	1.666	0.096
Satisfied with debt level	4.35	4.28	0.615	0.538
Satisfied with current financial well-being	4.59	4.46	1.246	0.213
Satisfied with ability to meet long-term goals	4.45	4.27	1.672	0.095
Satisfied with preparedness to meet emergencies	4.50	4.46	1.187	0.235
Satisfied with financial management skills	4.47	4.20	2.416*	0.016

The results indicated that the financial satisfaction in the various aspects of financial matters of the families did not differ significantly across residential areas. Exception for this was only in the satisfaction with their financial management skill ($t = 2.416$; $p = 0.016$). The difference in the mean score of financial satisfaction for the urban and rural families was significant at 90 percent confidence level. The financial satisfaction mean score of the urban families regarding this financial aspect was higher than the rural families and was at the moderate level. Families resided in urban area thus, were more satisfied with their financial management skill as compared to those resided in the rural area. Hence, referring to the satisfaction on financial aspects of the families, urban families may be slightly more satisfied than rural families.

Financial Problem

The mean score for each of the financial problem faced by the family resided in urban and rural areas are displayed in Table 4.17. The results of t-test to determine the differences in financial problems between urban and rural families are also presented in the same table. Significant difference between the residential areas was found for one financial problem only regarding their affordability to buy adequate insurance for their family ($t = -2.550$; $p = 0.011$).

Table 4.17
Financial Problem by Residential Areas

Items	Urban	Rural	t-Test	
	(N = 480) Mean	(N = 320) Mean	t	Sig. (p)
Cannot afford to buy adequate insurance	3.05	3.33	-2.550*	0.011
Do not have enough money for doctor, dentist, or medicine	2.61	2.65	-0.384	0.701
Cannot afford to buy new shoes or clothes	2.51	2.58	-0.684	0.494
Cannot afford to pay for utilities	2.49	2.57	-0.790	0.430
Unable to repay installment debts	2.54	2.65	-1.138	0.256
Received "overdue notices" from creditors	2.49	2.53	-0.391	0.696
Pay late some due bills	2.69	2.82	-1.226	0.220
Pay late some installment debts	2.66	2.68	-0.156	0.876

Financial problems related to their affordability in expenditures on medical treatment, clothing, utility bills, and their ability to make payments of bills and debts were found to be not significantly different between the urban and rural families. This may be due to the high cost of living for the urban families even they may earn higher income than the rural families.

The rural families were thus concluded as being less affordable to buy adequate insurance as compared to the urban families as perceived by them. However, both urban and rural families faced low financial problems with below average scores. Overall based on their financial problems, rural families may be slightly having lower financial well-being as compared to urban families.

Financial Ratio

Cross-tabulation of financial ratio fulfilled by residential areas and the result of Chi-square analysis are exhibited in Table 4.18. The urban and rural families were significantly different in the financial ratios met by them. More urban families (47.1%) exceeded the liquid ratio of three compared to the rural families (39.1%). This means that the urban families were significantly having higher liquidity compared to the rural families ($\chi^2 = 5.016$; $p = 0.025$), thus they were more prepared for any financial emergencies.

Table 4.18
Financial Ratio Fulfilled by Residential Areas

Fulfilled the Financial Ratio	Urban (N = 480)		Rural (N = 320)		Chi-Square Test	
	n	%	n	%	χ^2	Sig. (p)
Liquid Ratio					5.016*	0.025
Yes	226	47.1	125	39.1		
No	254	52.9	195	60.9		
Solvency Ratio					7.290*	0.007
Yes	296	61.7	227	70.9		
No	184	38.3	93	29.1		
Consumer Debt Ratio					3.221†	0.073
Yes	30	6.3	31	9.7		
No	450	93.8	289	90.3		

The following Table 4.19 gives the total financial ratios fulfilled by residential areas and the result of Chi-square test. The results found that more urban families (25.2%) significantly ($\chi^2 = 10.887$; $p = 0.012$) did not fulfilled any of the three financial ratios used to determine their financial well-being as compared to the rural families (18.4%). In fulfilling all three financial ratios, the rural families significantly (3.8%) exceeded the urban families (2.5%). With these results, the rural families were concluded to be in better financial well-being state as compared to the urban families.

Table 4.19
Total Financial Ratios Fulfilled by Residential Areas

Financial Ratio Fulfilled	Urban (N = 480)		Rural (N = 320)		Chi-Square Test	
	n	%	n	%	χ^2	Sig. (p)
None	121	25.2	59	18.4	10.887*	0.012
Only one ratio	178	37.1	151	47.2		
Any two ratios	169	35.2	98	30.6		
All three ratios	12	2.5	12	3.8		

4.5 VALIDITY AND RELIABILITY OF THE CONSTRUCTS

4.5.1 Validity Test

Validity checks for the measurement used in the study were carried out by several types of validity tests. Among the validity established in this study were content validity, discriminant construct validity, and convergent validity. Content validity and construct validity were discussed for the main variables used in this study. Convergent validity for Malaysian Personal Financial Well-being was justified using financial satisfaction and financial problem scales and presented after discussion on construct validity.

Content validity was established through the reviews of measurement items used in previous studies and the concepts explained by experts in this field. As mentioned by Rosnow and Rosenthal (2005), it assessed the items in the instrument to determine whether all major aspects reflecting the concepts have been included. Furthermore, Prawitz et al. (2006) did stated that each concept in an item must have been used in previous conceptual frameworks and/or research. The existence of this validity was presented in the literature review in Chapter 2 and in the methodology in Chapter 3. Pretest of the questionnaire was used to establish validity in terms of the readability of the questions.

Discriminant construct validity, a type of construct validity, represented the extent of discrimination among items used to measure the construct. Construct validity was assessed using factor analysis for the items used in each of the measurement of construct (Garson, 2006). In this study, factors were extracted via varimax rotation. Detailed explanations on factor analysis regarding the measurement of the concepts were presented in this section. These validity checks ensured that the instrument measured what it is supposed to measure.

Factor Analysis

Although most of the constructs used in this study were adopted from previous studies, they were factor analysed to determine the underlying dimensions regarding the environment in this study. Thus, this was to ascertain the construct validity of the measurements used in this study, whether they were able to measure what they were

supposed to measure. Exploratory factor analysis was used to reduce a large number of variables or items to a limited number of factors or dimensions. Items that were correlated with each other will tend to group together. Each factor will be given a name based on some perceived common characteristic of the items found to be grouped together by the factor analysis.

Factor Analysis For Future Time Orientation

Principal component factor analysis with varimax rotation was conducted on the six items of the future time orientation construct adopted from Hershey and Mowen (2000). Two factors with eigenvalues greater than 1.00 were produced with factor loadings of greater than 0.701 that exceeded the cut-off points of 0.50 (Hair, Anderson, Tatham, and Black, 2006). However, one of the factors that comprised of two items had values below 0.25 for the corrected item-total correlations and was eliminated (Nunnally and Bernstein, 1994) (Refer Appendix E). Thus only one factor with four items was retained for this construct. The two items deleted were measuring something different from the scale.

The two items eliminated from further analysis were:

- i. I follow the advice to save for a rainy day.
- ii. I enjoy thinking about how I will live years from now in the future.

Table 4.20 shows the items in the factor retained for the measurement of future time orientation. With the deletion of one of the factors, the Cronbach's alpha for the scale

substantially increased from 0.552 to 0.802 (Table 4.27), thus the reliability of the measurement increased.

With the four-item factor, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.754 and the Bartlett's test of sphericity was significant (approximate $\chi^2 = 1015.063$, $df = 6$, $p = 0.0001$) that indicated the appropriateness of the items for factor analysis. The one factor retained for future time orientation represented 63 percent of the total variance explained with the items having factor loadings between 0.723 and 0.835 (Table 4.20). As a result, future time orientation construct had one factor with only four items instead of six items originally.

Table 4.20
Result of Factor Analysis on Future Time Orientation

Items	Factor Loading
1. The distant future is too uncertain to plan for.	0.787
2. The future seems very vague and uncertain to me.	0.827
3. I pretty much live on a day-to-day basis.	0.835
4. I enjoy living for the moment and not knowing what tomorrow will bring.	0.723

The financial risk tolerance construct used to measure risk preferences of family adopted the construct developed by Grable (2000). As the measure was used previously in different culture, the construct with six items was factor analysed in this study. The principal component factor analysis resulted in a clean structure of one factor with factor

loadings between 0.593 and 0.794 as in Table 4.21. Further examination on the corrected item-total correlation found values between 0.440 and 0.665 for the six items and thus none of the values was below 0.25. Moreover, the reliability analysis on the six recoded items resulted in a high Cronbach's alpha of 0.808 (refer Table 4.27).

Factor Analysis For Financial Risk Tolerance

For financial risk tolerance construct, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.789 and the Bartlett's test of sphericity was significant (approximate $\chi^2 = 1525.698$, $df = 15$, $p = 0.0001$) that indicated the appropriateness of the items for factor analysis. The six-item factor represented 52 percent of the total variance explained. From this analysis, financial risk tolerance construct retained its six items under one factor.

Table 4.21
Result of Factor Analysis on Financial Risk Tolerance

	Items	Factor Loading
1.	In terms of investing, safety is more important than returns.	0.593
2.	I am more comfortable putting my money in a bank account than in the stock market.	0.794
3.	When I think of the word "risk" the term "loss" comes to mind immediately.	0.782
4.	Making money in stocks and bonds is based on luck.	0.704
5.	I lack the knowledge to be a successful investor.	0.723
6.	Investing is too difficult to understand.	0.700

Factor Analysis For Self-Worth

Self-worth construct adopted the construct developed by Hira and Mugenda (1999). In this study the construct with four items was factor analysed to confirm the underlying dimension. The principal component factor analysis resulted in one factor as found in previous research with high factor loadings between 0.841 and 0.891 and is shown in Table 4.22. The corrected item-total correlation also had high values between 0.722 and 0.797 (Appendix E) and thus the items in the scale were highly correlated. Moreover, the reliability analysis on the four items resulted in a high Cronbach's alpha of 0.896 (refer Table 4.27).

For this construct, the Kaiser-Meyer-Olkin measure of sampling adequacy was 0.789 and the Bartlett's test of sphericity was significant (approximate $\chi^2 = 1525.698$, $df = 15$, $p = 0.0001$) that indicated the appropriateness of the items for factor analysis. The adopted self-worth scale with four-item factor represented 76 percent of the total variance explained that was considered a high representation. Thus, self-worth construct retained the original four items under one factor.

Table 4.22
Result of Factor Analysis on Self-worth

Items	Factor Loading
1. I take a positive attitude toward myself.	0.874
2. I am a person of worth.	0.891
3. I am able to do things as well as other people.	0.890
4. As a whole, I am satisfied with myself.	0.841

Factor Analysis For Financial Management Practices

Financial management practices construct was developed from combining selected items from previous research resulted in 36 items. The construct composed of six conceptual dimensions including financial planning. In the previous studies, financial planning was not treated as one separate dimension in the financial management studies. Other dimensions were cash-flow, credit, savings, investment, and risk. In this study, factor analysis was performed to verify the conceptual dimensions of the construct. Table 4.23 presents the result of factor analysis on the financial management practices construct.

Table 4.23
Result of Factor Analysis on Financial Management Practices

Items	Factor Loading	Factor (% of Variance)
1. Planned for finances needed for my child/children education	0.576	Factor 1 Financial Planning (15.102)
2. Planned for finances needed to buy vehicle/s	0.423	
3. Planned before taking any kind of credit/loan	0.669	
4. Planned to have adequate insurance for big items & family members	0.711	
5. Planned before involving in any investment activity	0.752	
6. Planned to minimised tax	0.709	
7. Do estate (property) planning	0.659	
8. Planned for finances needed during retirement	0.675	
9. Planned for savings in emergency fund	0.514	
10. Revised the financial plan	0.487	
11. Pay all bills on time	0.449	Factor 6 Cash-flow 'Record-keeping' (8.078)
12. Have a complete financial record-keeping system	0.743	
13. Track expenses	0.585	
14. Control expenses using separate accounts for different items	0.757	

Table 4.23 (continued)
Result of Factor Analysis on Financial Management Practices

Items	Factor Loading	Factor (% of Variance)
15. Make written budget for all items	0.454	
16. Followed accordingly a written spending plan or budget	0.707	Factor 2
17. Make mental budget for all items	0.760	Cash-flow
18. Followed accordingly a mental spending plan or budget	0.732	‘Budgeting’
19. Compare actual expenditures to planned expenditures	0.745	(12.550)
20. Revising a spending plan	0.696	
21. Evaluate and control of accounts	0.590	
22. Have a list of all the debts owed	0.677	Factor 7
23. Keep track of debt payment	0.733	Credit
24. Repayment of credit/loan made on time	0.642	(6.311)
25. Save for short-term goals out of each salary such as buying electrical appliances, furniture, vehicle	0.751	Factor 3
26. Save for emergency fund	0.621	Savings
27. Save for long-term goals out of each salary such as child education, home	0.582	(8.786)
28. Save for retirement	0.472	
29. Have money spread over different types of investments	0.712	Factor 5
30. Invested some money in trust funds	0.650	Investment
31. Invested some money in stocks	0.872	(8.112)
32. Invested some money in bonds	0.832	
33. Vehicle/s is/are adequately insured	0.680	Factor 4
34. Have homeowner's/renter's insurance policy	0.698	Risk
35. Family members have life insurance	0.782	(8.540)
36. Family members have health insurance	0.786	

The principal component factor analysis with varimax rotation resulted in seven factors having eigenvalues greater than 1 with factor loadings between 0.423 and 0.872. The lowest acceptable value for factor loading was 0.40 according to Hair et al. (2006).

Most of the items loaded high on the factors extracted. The seven factors represented the six dimensions mentioned above with the cash-flow dimension separated into two factors. The two factors emerged were identified as cash-flow 'record-keeping' as items were related to record-keeping and the other factor was cash-flow 'budgeting'. Two items were loaded almost equally on two factors such as 'planned for finances needed to buy vehicle/s' with factor loading of 0.423 on Factor 1 and 0.476 on Factor 3.

Decision was made based on the item that was more related to Factor 1 (financial planning dimension) as compared to Factor 3 (savings dimension). The other item was 'make written budget for all items' that loaded on Factor 2 (cash-flow 'budget') and factor 6 (cash-flow 'record-keeping') with loading values of 0.454 and 0.572 respectively. This item on budget was listed under factor 2, namely the cash-flow 'budget' factor. The corrected item-total correlation for the 36 items also had values above the accepted value of 0.25 that were between 0.272 and 0.716 (Appendix E), thus none of the items was eliminated. Moreover, the overall reliability analysis on the 36 items resulted in a high Cronbach's alpha of 0.951 (Table 4.28). The total variance explained by the seven factors on the financial management practices construct were 68 percent.

Factor 1 was loaded with 10 items on financial planning that explained 15 percent of the total variance. Factor 2 on cash-flow 'budgeting' was loaded with seven items that explained 13 percent of the total variance. Factors 3 to 6 each was loaded with four items that explained between 8 to 9 percent of the total variance in the financial management practices construct. The items loaded on Factor 3 were on savings and items loaded on Factor 4 were related to risk management.

Factor 5 consisted of items focusing on investment management whereas items loaded on Factor 6 were mainly about the cash-flow 'record-keeping'. Three items related to credit management were loaded on Factor 7 and explained only 6 percent of the total variance. Thus, financial planning and cash-flow 'budgeting' were the dimensions that explained mainly the financial management practices construct followed by risk, investment, cash-flow 'record-keeping' and credit.

The Kaiser-Meyer Olkin analysis resulted in an adequate measure of sampling with a high value of 0.944. The Bartlett's test of sphericity was significant (approximate $\chi^2 = 19012.0$, $df = 630$, $p = 0.0001$) suggesting that the items were appropriate for factor analysis. The factors extracted portrayed the importance of the dimensions of managing financial matters. The seven factors extracted from factor analysis for financial management practices were financial planning, cash-flow 'record-keeping', cash-flow 'budgeting', credit, investment, and risk. For the purpose of this study, the financial management practices construct was used as seven separate factors or dimensions.

Factor Analysis For Malaysian Personal Financial Well-being

As Malaysian Personal Financial Well-being was newly developed to measure financial well-being and used in the family setting, the scale was applied exploratory factor analysis. Factor analysis on the scale resulted in only one clean factor structure with eigenvalue of more than 1.0. The items for the factor extracted through principal component analysis had high factor loadings between 0.746 and 0.888. Table 4.24 displays the results of factor analysis on Malaysian Personal Financial Well-Being.

Table 4.24
Result of Factor Analysis on Malaysian Personal Financial Well-being

Items	Factor Loading
1. On the steps below, mark with a circle how satisfied you are with your present financial well-being. Those who are dissatisfied will be toward the lower steps. Those who are satisfied will be toward the higher steps.	0.776
2. How worried or concerned are you about your personal finances today?	0.746
3. How well off are you financially?	0.862
4. Which of the following best describes your current financial well-being?	0.863
5. How do you feel about your current financial well-being?	0.862
6. How sure are you that you will have enough money to provide for a comfortable old age?	0.808
7. How often does your last pay run out before the next payday?	0.799
8. How often do you have trouble paying monthly bills (electricity, telephone, installment, credit card)?	0.748
9. How confident are you that you have control over your personal finances?	0.888
10. How confident are you that you know how to manage personal finances?	0.881
11. How easy would it be for you to get money to pay for a financial emergency that costs RM1,000?	0.832
12. How worried or concerned are you about your personal finances in general?	0.835

The Kaiser-Meyer-Olkin measure of sampling adequacy for this construct was analysed as 0.958. The items in this construct were appropriate for factor analysis as the Bartlett's test of sphericity was significant (approximate $\chi^2 = 8612.325$, $df = 66$, $p = 0.0001$). This twelve-item factor represented 68 percent of the total variance explained and all the items were retained as the corrected item-total correlations were between 0.702 and 0.860 (Appendix E). Thus, Malaysian Personal Financial Well-being had one factor with 12 items.

Factor Analysis For Financial Satisfaction

Financial satisfaction construct developed by Hira and Mugenda (2000) was also used as the measurement for financial well-being. This established six-item construct was applied factor analysis in this study that resulted in one clean factor with high factor loadings between 0.766 and 0.912 and displayed in Table 4.25. The eigenvalue for the factor was 4.508 and it explained a high percentage of the total variance of financial satisfaction that was 75 percent.

The items in this construct were appropriate for factor analysis as the Bartlett's test of sphericity was significant (approximate $\chi^2 = 3961.126$, $df = 15$, $p = 0.0001$). The Kaiser-Meyer-Olkin measure of sampling adequacy was also high with a value of 0.914. By examining the corrected item-total correlation for the six items, all items were retained for this construct as the correlation values were acceptably high that was between 0.679 and 0.865 (Appendix E). Thus, financial satisfaction construct had six items under one factor.

Table 4.25
Result of Factor Analysis on Financial Satisfaction

Items	Factor Loading
Are you satisfied with your family...	
1. savings level	0.766
2. debt level	0.818
3. current financial well-being	0.912
4. ability to meet long-term goals	0.900
5. preparedness to meet emergencies	0.904
6. financial management skills	0.892

Factor Analysis For Financial Problem

The financial problem items by Fitzsimmons et al. (1993) and Garman et al. (1996) were adapted in this study. The eight-item construct gave a two factor result with reasonably high factor loadings between 0.643 and 0.875 as shown in Table 4.26. The eigenvalue for the factors were 1.019 and 5.077 and a high percentage that was 76.2 percent of the total variance of financial satisfaction was explained.

The items in this construct were appropriate for factor analysis as the Bartlett's test of sphericity was significant (approximate $\chi^2 = 4544.654$, $df = 28$, $p = 0.0001$). The Kaiser-Meyer-Olkin measure of sampling adequacy was also high with a value of 0.895. The corrected item-total correlation examined gave values between 0.608 and 0.766 for the eight items therefore all items were retained for this construct (Appendix E). Hence, financial problem construct had one factor with eight items.

Table 4.26
Result of Factor Analysis on Financial Problem

Items	Factor Loading
Cannot afford to buy adequate insurance	0.736
Do not have enough money for doctor, dentist, or medicine	0.865
Cannot afford to buy new shoes or clothes	0.848
Cannot afford to pay for utilities	0.762
Unable to repay installment debts	0.643
Received "overdue notices" from creditors	0.832
Pay late some due bills	0.864
Pay late some installment debts	0.875

Consistency of the Malaysian Personal Financial Well-being Scale with similar measurement was confirmed through its correlation with a more established financial well-being measure that is financial satisfaction developed by Hira and Mugenda (2000). The reliability for financial satisfaction comprising six items in this study was high with a Cronbach alpha value of 0.933. Both this financial well-being measures should be positively and highly correlated. The result of the correlation analysis found that the Pearson correlation coefficient of 0.727 between the two constructs was positive and highly significant. The large coefficient value revealed the strength of the two constructs that were highly correlated. Those who scored high for Malaysian Personal Financial Well-being also scored high for financial satisfaction construct. Therefore, the result supported the validity of the Malaysian Personal Financial Well-being.

Consistency test was also carried out for the Malaysian Personal Financial Well-being with financial problem scale developed by Fitzsimmons et al. (1993). The Cronbach

alpha value for financial problem in this study was 0.916 suggesting high reliability. Those who experienced high satisfaction or utility in terms of their financial well-being should be facing lesser problems. A negative correlation would be expected from the association of the scales. The Pearson correlation analysis found a highly significant negative correlation between financial well-being and financial problem. With a coefficient of -0.480, the strength of the association between them was at the moderate level. Thus, those having high financial utility or financial well-being as measured by the Malaysian Personal Financial Well-being Scale faced low financial problems and vice-versa.

4.5.2 Reliability Test

The scale's internal consistency was one of the main issues in assessing reliability. This refers to the degree to which the items that make up the scale measuring the same underlying construct and was indicated by the Cronbach's alpha coefficient. Other information sought after checking for reliability was the corrected item to total correlation. The corrected item to total correlation indicated the degree to which each item correlates with the total score. The items were measuring something different from the scale as a whole if the correlation were less than 0.25 and thus were deleted (Nunnally and Bernstein, 1994). The item-total statistics results were as presented in the Appendix E. The corrected items to total correlations for the items retained in the constructs used in this study were between 0.440 and 0.865. Two items in the future time orientation's construct were deleted following the corrected item to total correlations of 0.0001 and 0.010.

The reliability test results with the Cronbach's alpha values for the constructs are as shown in Table 4.27 and Table 4.28. The Cronbach's alpha for all the constructs recorded high reliability with coefficient values above 0.7 as suggested by Nunnally and Berstein (1994).

The alpha values for future time orientation, financial risk tolerance and self-worth constructs were between 0.802 and 0.896. The Malaysian Personal Financial Well-being and financial satisfaction constructs each had high alpha values of 0.956 and 0.933. Financial problem construct also exhibited high alpha value of 0.916.

Table 4.27
Reliability Coefficients for Constructs

Constructs	Number of Items	Cronbach's Alpha
Future Time Orientation	4	0.802
Financial Risk Tolerance	6	0.808
Self-worth	4	0.896
Malaysian Personal Financial Well-being	12	0.956
Financial Satisfaction	6	0.933
Financial Problem	8	0.916

The financial management practices with seven factors extracted from the factor analysis had high alpha values between 0.813 and 0.917 as shown in Table 4.28. The Cronbach's alpha values if the items were deleted for three of these factors were less than the alpha values for each of the factor. The three factors were financial planning, cash-flow

‘record-keeping’ and investment. Thus, the items in these factors were retained following the results from factor analysis and reliability analysis.

Table 4.28
Reliability Coefficients for Financial Management Practices Construct

Factors/Dimensions	Number of Items	Cronbach’s Alpha
Financial Planning	10	0.909
Cash-flow ‘record-keeping’	4	0.813
Cash-flow ‘budgeting’	7	0.917
Credit	3	0.825
Savings	4	0.817
Investment	4	0.834
Risk	4	0.841
Overall	36	0.951

The other financial management practices factors had items with Cronbach’s alpha values if the items were deleted that were more than the alpha values for each of the factor and shown in Table 4.29. These factors were cash-flow ‘budgeting’, credit, savings, and risk. Further examining the item to total statistics for these factors found that such items had quite a high coefficient of corrected item to total correlation. The coefficients were far above the suggested cut-off point of 0.25 by Nunnally and Bernstein (1994). The reliability coefficient for the overall construct of financial management practices was 0.951. The factors or dimensions were treated as seven separate constructs to answer several objectives outlined in this study.

Table 4.29
Item-Total Statistics for Selected Financial Management Practices Construct

Factors/ Dimensions	Items	Corrected Item-Total Correlation	Cronbach's Alpha if Items Deleted
Cash-flow 'budgeting'	Make written budget for all items	0.618	0.919
Credit	Repayment of credit/loan made on time	0.605	0.831
Savings	Save for short-term goals out of each salary such as buying electrical appliances, furniture, vehicle	0.481	0.844
Risk	Vehicle/s is/are adequately insured	0.526	0.857

4.6 DESCRIPTIVE STATISTICS FOR PREDICTOR VARIABLES

Descriptive statistics that consist of the mean, standard deviation, minimum and maximum scores for the main variables are as presented in Table 4.30. The mean scores that were below the mid-point of the total score for the constructs were for financial risk tolerance, savings, investment practices, and risk practices. On the average, the samples had low financial risk tolerance and they were less involved in those financial activities. Whilst constructs that exhibited mean scores that were above the mid-point were future time orientation, self-worth, financial planning, both the cash-flow dimensions and credit practices. The future time orientation and self-worth for the samples on the average were slightly high. As for the financial practices, namely financial planning, both the cash-flow dimensions, and credit practices; these were the practices that the samples on the average involved more.

Table 4.30
Descriptive Statistics for Main Constructs

Constructs	Number of Item	Mean	Standard Deviation	Minimum	Maximum
Financial Risk Tolerance	6	19.485	6.650	6	36
Future Time Orientation	4	17.116	5.039	5	28
Self-worth	4	21.115	4.678	9	28
Financial Planning	10	46.739	11.635	17	70
Cash-flow ‘record-keeping’	4	16.745	4.890	4	28
Cash-flow ‘budgeting’	7	31.660	8.174	8	49
Credit	3	13.453	3.918	4	21
Savings	4	14.489	3.725	5	21
Investment	4	10.652	5.003	4	24
Risk	4	15.544	6.175	4	28

Statistical techniques used to analyse the data of this study were the t-test for independent samples, the analysis of variance, Pearson correlation and logistic regression. These techniques assumed that the distribution of scores of the independent variables on the dependent variable specifically the financial well-being of family is normally distributed.

As for logistic regression, assumption on multi-collinearity must be fulfilled (Palant, 2005). Apart from that, the presence of outliers is critical to the model. Outliers should be identified especially if the model was not fit. For this study, the result of assessing the goodness of fit of the model was presented together with the logistic regression analysis result in the hypothesis testing section. Violation of these assumptions would understate the supposed results of correlation among the variables.

Other descriptive statistics that are skewness and kurtosis of the scores presented in Table 4.31 are used to assess normality. As shown in Table 4.31, the statistics for skewness and kurtosis for the variables were mainly distributed near the zero value which indicated that the scores of the variables were symmetrically distributed and thus assumed normal distribution. However, some of the variables exhibited quite a departure from the zero value of skewness and kurtosis. Further looking at the graphical presentation of the scores of the variables as in Appendix F revealed that the scores of the variables such as self-worth, savings and investment were observed as not normally distributed.

Table 4.31
Assessing Normality for Main Constructs

Constructs	Skewness	Kurtosis
Financial Risk Tolerance	0.110	-0.579
Future Time Orientation	-0.130	-0.544
Self-worth	-0.537	-0.431
Financial Planning	-0.258	-0.681
Cash-flow 'record-keeping'	0.124	-0.409
Cash-flow 'budgeting'	-0.180	-0.422
Credit	-0.182	-0.562
Savings	-0.262	-0.421
Investment	0.681	-0.197
Risk	0.140	-0.905

With large samples, Tabachnick and Fidell (2001) suggested researchers to inspect the graphical presentation of the scores such as using histogram and the normal probability plot. Self-worth and savings variables were negatively skewed whilst the investment

variable was positively skewed. Transformation was done as suggested by Tabachnick and Fidell (2001) resulted in a reasonable normal distribution (Appendix F).

Self-worth and savings variables were transformed using the following formula: new variable = $\text{SQRT}(K - \text{old variable})$ where $K = \text{largest possible value} + 1$; while investment variable was transformed using logarithm based 10. The transformed data were used in further analyses.

4.7 HYPOTHESES TESTING

4.7.1 Financial Well-being Framework

Hypothesis 1: Relationship Between Future Time Orientation And Financial Risk Tolerance

Null Hypothesis 1, H_{01} :

Future time orientation is not significantly related with financial risk tolerance of the family financial manager.

Table 4.32 shows the result of Pearson correlation analysis between financial risk tolerance and future time orientation of the family financial manager whereas Table 4.33 gives the result of the correlation after controlling for self-worth of the family financial manager. The association between the two constructs was positive and highly significant even after controlling for self-worth of the financial manager, however the strength was weak ($r = 0.231$; $p = 0.0001$). The null hypothesis 1 of no significant relationship between future time orientation and financial risk tolerance was rejected at 99 percent

confidence level. Those having high financial risk tolerance were also future time-oriented type of person.

The results of the preliminary analysis performed ensured no violation of the assumptions of normality, linearity and homoscedasticity, thus the data were appropriate for correlation analysis. Scatterplot of the relationship between the two constructs to support the assumptions is presented in Appendix G.

Table 4.32
Pearson Correlation between Financial Risk Tolerance
and Future Time Orientation

Construct	Financial Risk Tolerance
Future Time Orientation	0.231**
Significance (2-tailed)	0.0001

Both the relationships were found to be weak between financial risk tolerance and future time orientation even after controlling for self-worth (Table 4.32 and Table 4.33). Cohen, Cohen, West, and Aiken (2003) suggested that a correlation coefficient of less than 0.3 was considered as small, thus having a weak relationship. However, after controlling for self-worth effect, the relationship between financial risk tolerance and future time orientation was slightly stronger but is still considered as weak ($r = 0.245$; $p = 0.0001$). The increase in the strength of relationship suggested that self-worth of financial managers influenced the relationship between risk preference and time horizon of financial managers. By removing the influence of self-worth statistically, the relationship remained highly significant but with a stronger relationship.

Future time orientation of a family manager helped to explain about five percent of the variance in the family financial managers' scores on the financial risk tolerance scale ($r^2 = 0.0534$). Having self-worth as the control variable, future time orientation explained slightly higher percentage of six percent of the variance in financial risk tolerance ($r^2 = 0.0600$).

Table 4.33
Pearson Partial Correlation between Financial Risk Tolerance
and Future Time Orientation Controlling for Self-worth

Control Variable	Construct	Financial Risk Tolerance
Self-worth	Future Time Correlation	0.245**
	Orientation	
	Significance	0.0001
	(2-tailed)	

As a conclusion, the risk preference of family financial managers was positively and significantly but weakly related to their time horizon. The result rejected hypothesis 1 regarding the non-significant relationship between financial risk tolerance and future time orientation of the family financial manager. No comparison with previous studies could be made.

Hypotheses 2: Relationships Between Financial Risk Tolerance And Financial Management Practices

Null Hypothesis 2a, H_{02a} :

Financial risk tolerance is not significantly related with financial planning of a family financial manager.

Null Hypothesis 2b, H_{02b} :

Financial risk tolerance is not significantly related with cash-flow practice of a family financial manager.

Null Hypothesis 2c, H_{02c} :

Financial risk tolerance is not significantly related with credit practice of a family financial manager.

Null Hypothesis 2d, H_{02d} :

Financial risk tolerance is not significantly related with savings practice of a family financial manager.

Null Hypothesis 2e, H_{02e} :

Financial risk tolerance is not significantly related with investment practice of a family financial manager.

Null Hypothesis 2f, H_{02f} :

Financial risk tolerance is not significantly related with risk practice of a family financial manager.

Table 4.34 gives the results of the Pearson correlation analysis on financial risk tolerance and each of the financial management practices factors or dimensions. Financial management practices that were found to be negatively related to financial risk tolerance

were in the areas of financial planning ($r = -0.371$; $p = 0.0001$), cash-flow ‘record-keeping’ ($r = -0.254$; $p = 0.0001$), cash-flow ‘budgeting’ ($r = -0.382$; $p = 0.0001$), credit ($r = -0.361$; $p = 0.0001$), savings ($r = -0.349$; $p = 0.0001$) and risk ($r = -0.103$; $p = 0.003$). All of the abovementioned financial practices were highly significant in their relationships with financial risk tolerance. Thus, the 2a, 2b, 2c, 2d, and 2f null hypotheses of those relationships with financial risk tolerance were rejected at 99 percent confidence level. The results suggested that the more they were involved in financial planning, cash-flow in the aspects of record-keeping and budgeting, credit, savings and risk activities, the less risk tolerance or the more risk averse were they.

Table 4.34
Pearson Correlation between Financial Risk Tolerance
and Financial Management Practices

Financial Management Practices Constructs	Strength of Relationship (r) with Financial Risk Tolerance	Significant (p)
Financial Planning	-0.371**	0.0001
Cash-flow ‘record-keeping’	-0.254**	0.0001
Cash-flow ‘budgeting’	-0.382**	0.0001
Credit	-0.361**	0.0001
Savings	-0.349**	0.0001
Investment	0.091*	0.013
Risk	-0.103**	0.003

Financial practice in the area of investment was however positively related to financial risk tolerance with a less significant relationship level ($r = 0.091$; $p = 0.013$). The 2e null hypothesis of the relationship between investment practice and financial risk tolerance was rejected at the 95 percent confidence level. The more risk tolerant they were, the more diversified were the investments. In risk averse term, the less risk averse were they, the more diversified were the investments.

Financial risk tolerance reflected that individuals were capable of facing financial risk. A negative relationship with this construct showed that when they were highly involved in those practices, they were less tolerant with financial risk and vice-versa. Those who were less tolerant with financial risk were less willing to face financial risk, thus, they intended to do more financial planning to reduce the financial risk that might occurred. Doing financial planning helped them to be prepared with the finances needed for each of their financial goals. Thus, risk averse individuals were more likely to do financial planning as compared to risk tolerance individuals.

Paying bills on time and having a good record-keeping had the finances in control by the individuals. Moreover, doing budgeting either mentally or in written were the cash-flow activities that contributed to a sound financial well-being as it assisted in detecting the probable future problem in the family finances. Detecting probable future financial problem helped in overcoming the problem earlier, hence, reducing the financial risk faced. Results showed that those with low financial risk tolerance were highly involved in the cash-flow activities. The less financial risk tolerant individuals were likely to be

highly involved in these activities to reduce the probability of facing the financial risk. Risk averse individuals were probably more involved in cash-flow activities as compared to risk tolerance individuals.

Managing wisely the use and repayment of loan, credit and debt of the family would avoid unmanageable debt. Those unwilling to face financial risk especially the negative circumstances of an unmanageable debt would be consistently managing their credit wisely. Thus individual with low financial risk tolerance were involved in good credit practices. Risk averse individuals were then be managing credit wisely.

Savings practices make the individuals well-prepared for the finances needed during their life-cycle. This would eventually reduce the financial risk over their life-cycle. Low financial risk tolerance individuals engaged in active savings with regular savings from their monthly salary. Risk averse individuals were more likely to save regularly to minimise financial risk and would be prepared for any financial emergencies as compared to the risk tolerance individual.

Involving in risk management activities tended to absorb the risk that they would face in the long-run. Buying insurance policy was expected to cover for the uncertainty in financial loss. Those with low financial risk tolerance were highly involved and more diversified in their risk management activities. These individuals were having insurance for various purposes such as for the house, vehicle, health and life. Risk averse

individuals tended to be purchasing various types of insurance to protect them from any financial risks as compared to the risk tolerance individual.

Individuals who tolerated more towards financial risk were more willing to face and absorb financial risk, thus invested more in diversified portfolios. They were mentally prepared to encounter high loss expected from their investment in high return shares such as stocks and bonds. As a result, individuals with high financial risk tolerance participated more in investment activities. Alternatively, individuals who were risk averse invested less.

In terms of the relative strengths, cash-flow 'budgeting' had the strongest negative relationship with financial risk tolerance, followed by financial planning, credit, savings, cash-flow 'record-keeping', and risk. Budgeting enabled individual to foresee the financial problems that might occur as compared to record-keeping or other financial practices, hence, the activity helped to avoid or reduced financial risk faced by the individuals.

Among the negative relationships, financial practices that were considered as having moderately strong relationships with financial risk tolerance of family financial managers based on the r value as suggested by Cohen et al. (2003) were in the areas of cash-flow 'budgeting' ($r = -0.382$), financial planning ($r = -0.371$), credit ($r = -0.361$), and savings ($r = -0.349$). Whilst those that were considered as having weak relationships with financial risk tolerance were in the areas of cash-flow 'record-keeping' ($r = -0.254$) and risk ($r = -$

0.103). Risk management had the weakest relationship regarding the inverse relationship with financial risk tolerance. Meanwhile, investment practice had a weak positive relationship with risk preferences of family financial managers ($r = 0.091$).

For a financial risk tolerance type of people, they were least likely to involve in cash-flow 'budgeting' activities as compared to other financial practices. Investment was the most likely practice to be participated by this type of people. Conversely, for the financial risk averse people, they were most likely to embark in cash-flow activities such as record-keeping as compared to other practices, the least being the investment practices.

The result on savings practice contradicted with the study on young working adults by Jacobs-Lawson and Hershey (2005) who found positive association between financial risk tolerance and savings profiles. The reason for the difference could be due to the life-cycle of the respondents. The majority of the respondents in this study were in their middle age as compared to young adults in the previous study. At this middle age, most of them would be using up their savings or did not save to fulfill their financial goals that would be due by then.

For the other financial practices such as financial planning, budgeting, and credit, the results contradicted with the findings by Joo and Grable (1999 and 2004) and Parotta and Johnson (1998). They found positive relationships between financial risk tolerance and those financial practices and financial management practices in general. Persons with higher level of financial risk tolerance tended to report better financial behaviours.

To conclude, all of the null hypotheses namely 2a, 2b, 2c, 2d, and 2f were rejected. Thus, financial management practices factors were significantly and inversely related to risk preferences except for investment practices that had a positive relationship with risk preferences.

Hypotheses 3: Differences in Financial Management Practices Among Ethnicities

Null Hypothesis 3a, H_{03a} :

There are no significant differences in financial planning practice among the main ethnicities in Malaysia.

Null Hypothesis 3b, H_{03b} :

There are no significant differences in cash-flow practice among the main ethnicities in Malaysia.

Null Hypothesis 3c, H_{03c} :

There are no significant differences in credit practice among the main ethnicities in Malaysia.

Null Hypothesis 3d, H_{03d} :

There are no significant differences in savings practice among the main ethnicities in Malaysia.

Null Hypothesis 3e, H_{03e} :

There are no significant differences in investment practice among the main ethnicities in Malaysia.

Null Hypothesis 3f, H_{03f} :

There are no significant differences in risk practice among the main ethnicities in Malaysia.

Table 4.35 presents the mean for each of the financial practices, the results of the analysis of variance (ANOVA) tests and the post-hoc tests for the main ethnicities in Malaysia. Using ANOVA to determine the differences in financial management practices carried out by families among the main ethnicities in Malaysia resulted in investment ($F = 5.271$; $p = 0.005$) and risk practices ($F = 4.678$; $p = 0.010$) differed among the ethnicities. The differences among ethnicities for investment practice and the risk practice were highly significant. Thus, the 3e and 3f null hypotheses regarding the differences in investment and risk practices among ethnicities were rejected suggesting significant differences among ethnicities in Malaysia for both practices.

Regarding the credit practice among the ethnicities, this practice had only marginal significant difference ($F = 2.908$; $p = 0.055$). The difference in other financial practices such as financial planning, cash-flow 'record-keeping', cash-flow 'budgeting', and savings among the ethnicities were not found to be significant. Thus, the 3a, 3b, 3c, and 3d null hypotheses failed to be rejected.

Table 4.35
Mean of Financial Management Practices by Ethnicities

Financial Management Practices	Malay	Chinese	Indian	Total	F	Sig. (p)	Ethnicity Comparison
Financial Planning	46.088	47.996	46.812	46.732	2.137	0.117	
Cash-flow 'record-keeping'	16.479	17.304	16.662	16.745	2.298	0.101	
Cash-flow 'budgeting'	31.519	32.117	31.125	31.659	0.615	0.541	
Credit	13.194	13.942	13.488	13.448	2.908†	0.055	
Savings	18.765	18.846	19.050	18.818	0.664	0.515	
Investments	10.567	11.792	9.800	10.858	5.271**	0.005	C > M, I
Risk	15.681	15.825	13.875	15.544	4.678**	0.010	C > I

Mean score was based on the total score for each of the dimensions of the financial management practices
Level of significance using one-way ANOVA, Scheffe Post-Hoc Test

The post-hoc analysis with Scheffe test confirmed the significant difference in the investment practice was between the Chinese families and, the Malay and Indian families. The Chinese families involved more in investment activities as compared to the Malay and the Indian families. Chinese families also differed significantly with the Indian families by involving more in risk management practices specifically buying more insurance as proved by the post-hoc analysis. The Malay and Indian families were not significantly different in any of their financial management practices.

Comparison with previous local studies revealed that the results obtained contradicted with a study by Mohamad Fazli and Jariah (2003) on planning prior to making financial decisions for university students in Malaysia. Chinese students always planned before

making financial decisions as compared to other ethnicities. However, each study have different target samples namely families versus university students. The difference might be due to the different type of samples as each of the samples had different responsibilities.

The results from this study also were not in line with the study of savings behavior conducted by Ariffin et al. (2002) who found that Malay ethnicity had mean savings significantly higher than the other ethnicities. This again might be due to the different target samples in the studies. Both local previous studies focused on certain populations that did not resemble the population in the current study. While Mohamad Fazli and Jariah (2003) had a university student population, Ariffin et al. (2002) focused on adults in only one state in Malaysia. The current study covered a larger population in Malaysia specifically Peninsular Malaysia.

The results of further analysis on the items in each of the financial practices factors are shown in Table 4.36. As for the credit practices, the differences in having a list of all the debts owed and repayment of credit or loan made on time among the ethnicities were only marginally significant.

The results also showed that Chinese families were significantly engaged in more diversified portfolios ($F = 8.209$; $p = 0.0001$) and risky assets in their investments such as in stocks ($F = 7.410$; $p = 0.001$) and bonds ($F = 5.745$; $p = 0.003$) as compared to the Malay families. The Indian families were found to be significantly investing less money

in stocks as compared to Chinese families ($F = 7.410$; $p = 0.001$). In comparison between the Malay and Indian families, the Malay families significantly invested more in less risky assets such as the trust funds as compared to the Indian families ($F = 3.694$; $p = 0.025$).

Table 4.36
Mean of Credit, Investment and Risk Practices by Ethnicities

Financial Management Practices	Mean			Total	F	Sig. (p)	Ethnicity Comparison
	Malay	Chinese	Indian				
Credit Practices							
Have a list of all the debts owed	4.50	4.75	4.76	4.60	2.623†	0.073	
Keep track of debt payment	4.37	4.62	4.43	4.45	2.172	0.115	
Repayment of credit/loan made on time	4.33	4.58	4.30	4.40	2.381†	0.093	
Investment Practices							
Have money spread over different types of investments	2.78	3.26	2.81	2.92	8.209**	0.0001	C > M
Invested some money in trust funds	3.41	3.32	2.84	3.33	3.694**	0.025	M > I
Invested some money in stocks	2.29	2.74	2.11	2.41	7.410**	0.001	C > M, I
Invested some money in bonds	2.08	2.47	2.04	2.20	5.745**	0.003	C > M
Risk Practices							
Vehicle/s is/are adequately insured	4.54	4.18	4.03	4.38	5.643**	0.004	M > C, I
Family members have life insurance	3.81	3.95	3.24	3.79	3.870*	0.021	C > I
Have homeowner's/renter's insurance policy	3.58	3.90	3.43	3.66	3.070*	0.047	No significant difference (Scheffe test)
Family members have health insurance	3.76	3.80	3.19	3.72	3.359*	0.035	C > I

Mean score was based on a seven-point scale with “1 = never” to “7 = very often”

Level of significance using one-way ANOVA, Scheffe Post-Hoc Test

The analysis on the individual items of the risk practices found that the Malay families were significantly different from the Chinese and Indian families in terms of adequately insured their vehicle or vehicles ($F = 5.643$; $p = 0.004$). Most probably they were involved more in this activity due to the compulsory type of this insurance. Chinese families significantly bought more health ($F = 3.359$; $p = 0.035$) and life insurance ($F = 3.870$; $p = 0.021$) policies for family members as compared to the Indian families.

As a conclusion, only 3e and 3f null hypotheses regarding the differences in investment and risk practices among ethnicities were rejected. There were significant differences among ethnicities only for investment and risk practices.

Hypotheses 4: Differences in Financial Management Practices Across Residential Areas

Null Hypothesis 4a, H_{04a} :

There is no significant difference in financial planning practices across residential areas in Malaysia.

Null Hypothesis 4b, H_{04b} :

There is no significant difference in cash-flow practices across residential areas in Malaysia.

Null Hypothesis 4c, H_{04c} :

There is no significant difference in credit practices across residential areas in Malaysia.

Null Hypothesis 4d, H_{04d} :

There is no significant difference in savings activities across residential areas in Malaysia.

Null Hypothesis 4e, H_{04e} :

There is no significant difference in investment practices across residential areas in Malaysia.

Null Hypothesis 4f, H_{04f} :

There is no significant difference in risk practices across residential areas in Malaysia.

Independent-samples t-tests were conducted to examine the differences in financial management practices between two groups of families that were based on their residential areas. Table 4.37 shows results from the t-test on the financial management practices factors.

Cash-flow in the aspect of record-keeping ($t = 2.613$; $p = 0.009$), investment ($t = 2.755$; $p = 0.006$), and risk ($t = 3.627$; $p = 0.0001$) practices were highly significantly different across the residential areas. Thus, the 4e and 4f null hypotheses regarding the differences in investment and risk practices across residential areas were rejected suggesting significant differences across residential areas in Malaysia for the two practices. The 4b null hypothesis was partially rejected due to only one significant factor under cash-flow namely 'record-keeping'. Families living in urban areas were engaged more in cash-flow

activities specifically doing the record-keeping. They were also involved more in investment and risk practices as compared to families living in the rural areas. Past studies on relevant aspects was not available to make comparison. Aspects studied in local past research found focused on savings behaviour only. Household's mean savings was found to be significantly higher for the rural areas as compared to the household's in urban areas Ariffin et al. (2002).

Table 4.37
Mean of Financial Management Practices by Residential Areas

Financial Management Practices	Mean		Total	t	Sig. (p)
	Urban	Rural			
Financial Planning	46.665	46.850	46.739	-0.218	0.828
Cash-flow 'record-keeping'	17.112	16.193	16.745	2.613**	0.009
Cash-flow 'budgeting'	31.783	31.475	31.660	0.522	0.602
Credit	13.425	13.494	13.452	-0.239	0.812
Savings	14.400	14.622	14.489	0.999	0.318
Investments	11.065	10.034	10.652	2.755**	0.006
Risk	16.185	14.581	15.544	3.627**	0.0001

Mean score was based on the total score for each of the dimensions of the financial management practices
Level of significance using independent-sample t-test

The other financial management practices factors such as financial planning, cash-flow 'budgeting', credit, and savings were not found to be significantly different across residential areas. Thus, the 4a, 4c, and 4d null hypotheses failed to be rejected. The 4b null hypothesis partially failed to be rejected due to the non-significant difference among residential areas for the cash-flow 'budgeting'.

Table 4.38
Mean of Cash-flow, Investment and Risk Practices by Residential Areas

Financial Management Practices	Mean		t	Significance (p)
	Urban	Rural		
Cash-flow ‘record-keeping’				
Pay all bills on time	4.70	4.44	2.532*	0.012
Have a complete financial record-keeping system	4.07	3.79	2.487*	0.013
Track expenses	4.33	4.13	1.810†	0.071
Control expenses using separate accounts for different items	4.01	3.83	1.564	0.118
Investment Practices				
Have money spread over different types of investments	3.04	2.76	2.513*	0.012
Invested some money in trust funds	3.39	3.24	1.153	0.249
Invested some money in stocks	2.50	2.27	1.974*	0.049
Invested some money in bonds	2.27	2.08	1.799†	0.072
Risk Practices				
Vehicle/s is/are adequately insured	4.42	4.32	0.830	0.407
Have homeowner's/renter's insurance policy	3.90	3.30	4.424**	0.0001
Family members have life insurance	3.96	3.54	2.988**	0.003
Family members have health insurance	3.91	3.43	3.452**	0.001

A thorough analysis on the items in each of the financial management practices factors are presented in Table 4.38. For the cash-flow practice in the ‘record-keeping’ factor, paying all bills on time ($t = 2.532$; $p = 0.012$) and having a complete financial record-keeping system ($t = 2.487$; $p = 0.013$) were activities that were significantly different

between the urban and rural families. The urban families were significantly more frequently paying all bills on time and having a more complete record system on financial matters as compared to the rural families. The difference in tracking expenses ($t = 1.810$; $p = 0.071$) however, was marginally significant between the urban and rural families.

The differences in investment activities between the urban and rural families were also found to be significant specifically in having money spread over different types of investments ($t = 2.513$; $p = 0.012$) and invested some money in stocks ($t = 1.974$; $p = 0.049$). The urban families invested more in diversified portfolio and risky assets as compared to the rural families. As for investment in bonds, the difference between the residential areas of the families was marginally significant ($t = 1.799$; $p = 0.072$) with the urban families invested more in bonds as compared to the rural families.

The differences in the items for the risk practices were highly significant between the urban and rural families. Those activities were having homeowner's/renter's insurance policy ($t = 4.424$; $p = 0.0001$), having health insurance ($t = 2.988$; $p = 0.003$), and life insurance ($t = 3.452$; $p = 0.001$) policies for the family members. The urban families were found to be significantly more involved in purchasing homeowner's/renter's insurance, health insurance and life insurance policies for the family members as compared to the rural families. However, the urban and rural families were not significantly different in adequately insuring their vehicles. No relevant past studies was found for the difference in investment and risk practices across residential areas.

To conclude, only the 4e and 4f null hypotheses regarding the differences in investment and risk practices across residential areas were rejected. There were significant differences across residential areas in Malaysia only for investment and risk practices.

Hypotheses 5: Socioeconomic Characteristics As Predictors For Financial Well-being

Null Hypothesis 5a, H₀5a:

Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting financial well-being of family.

Null Hypothesis 5b, H₀5b:

Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting financial well-being of family.

Null Hypothesis 5c, H₀5c:

Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting financial well-being of family.

Null Hypothesis 5d, H₀5d:

Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting financial well-being of family.

Null Hypothesis 5e, H₀5e:

Controlling for influence from other socioeconomic characteristics in the model, respondent's working experience is not significantly predicting the financial well-being of family.

Null Hypothesis 5f, H₀5f:

Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting financial well-being of family.

Null Hypothesis 5g, H₀5g:

Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting financial well-being of family.

Null Hypothesis 5h, H₀5h:

Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting financial well-being of family.

Binary logistic regression was applied to test the null hypotheses outlined above. Since dummy variables were involved as the independent variables, logistic regression was the better choice compared to discriminant analysis. Categorical variables used as dummy variables in discriminant analysis encountered problems with the variance-covariance equalities. Logistic regression was also less affected by the variance-covariance inequalities across the groups (Hair et al., 2006).

Financial well-being of the family was determined from both the subjective and objective measurements. Financially stable family in this analysis was taken as those families that scored more than the mean value of 6.21 for the average Malaysian Personal Financial Well-being Scale and fulfilled any one of the three financial ratios that were the liquidity ratio, solvency ratio and consumer debt ratio. Those who scored otherwise were classified as less financially stable. The score two for financial well-being was the family that was classified as financially stable and the one that was less stable was given a score one. The number of families classified as financially stable was 349 and as financially less stable was 451 families. One assumption made in this selection was the equal weightage of the objective and subjective measurement.

The selected socioeconomic characteristics that were residential areas, ethnicity, respondent's education level, work experience, household income, homeownership, and household size were entered as the independent variables. Residential area, ethnicity, and homeownership were entered as categorical variables. Respondent's education level, work experience, household income, and household size were entered as continuous variables. The two-category of financial well-being was entered as the dependent variable. The result of the binary logistic regression Model 1 is tabulated in Table 4.39.

For the potential problem of outliers, the goodness of fit of the model was examined. The outliers were not influencing the results of the logistic regression as the model was found as a fit model. The assessment of the goodness of fit of the model is presented in Table 4.49 following the result of the interaction Model 5 of the binary logistic regression.

Similar to the t value in multiple regression analysis, the Wald statistic in logistic regression output provided the statistical significance for each estimated coefficient that was labeled as B. The logistic coefficient, B, is interpreted similar to the b coefficient in multiple regression analysis. A positive value of B gives a direct relationship between the two variables and an inverse relationship existed for a negative value of B.

Table 4.39
Socioeconomic as Predictors for Financial Well-being: Model 1

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential areas (Urban)	-0.164	0.157	1.094	0.295	0.848
Ethnicity			2.403	0.301	
Ethnicity (Malay)	0.386	0.269	2.058	0.151	1.471
Ethnicity (Chinese)	0.433	0.290	2.224	0.136	1.542
Respondent's Education Level	0.070	0.034	4.179*	0.041	1.073
Respondent's Working Experience	0.021	0.012	3.392†	0.066	1.021
Household Income	1.352	0.304	19.755**	0.000	3.864
Homeownership	-0.031	0.176	0.031	0.860	0.969
Household Size	-0.066	0.051	1.646	0.200	0.936
Constant	-6.354	0.983	41.769	0.000	0.002

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no ownership)

Household income of the family was found to be positively (B = 1.352) and highly significant (Wald = 19.755; p = 0.0001) in predicting financial well-being. Respondent's education level was also significant (Wald = 4.179; p = 0.041) and positive (B = 0.070) in predicting financial well-being of family. However, respondent's working experience (Wald = 3.392; p = 0.066; B = 0.021) was only marginally significantly and positively predicting financial well-being of family. Thus, only the 5d and 5f null hypotheses were

rejected suggesting significant influence on financial well-being for respondent's education level and household income after controlling for other socioeconomic characteristics.

The other socioeconomic characteristics such as residential areas, ethnicities, working experience, homeownership, and household size were not found to be significantly predicting financial well-being of families. Thus, the 5a, 5b, 5c, 5e, 5g, and 5h null hypotheses failed to be rejected.

Based on the expected logistic coefficient value or the odd ratio, household income ($\exp(B) = 3.864$) predicted the likelihood of a family to be financially stable almost 4 times more than being financially unstable. The family would more likely be financially stable with higher household income. Higher education level for the respondent's predicted the family to be more financially stable. It could be justified that higher income would enable individuals to fulfill their short-term and long-term financial needs, thus leaving them financially prepared and financially secured along their life-cycle.

The expected logistic coefficient value for respondent's education level ($\exp(B) = 1.073$) suggested that a family would be financially stable 7 percent more than being financially unstable. Since income and education was closely related as individuals were able to earn higher income with higher education background, the positive predictor of education on financial well-being was as expected.

Results from these hypotheses testing using Model 1 revealed the profile of family that was financially stable. Thus, using binary logistic regression analysis, a family that was more likely to be financially stable was the one with higher household income and the responded financial manager having higher education level. The findings were consistent with Baek and DeVaney (2004), Hong and Kao (2004), Husniyah et al. (2005a), and Mohamad Fazli et al. (2008a) for income, and consistent with Baek and DeVaney (2004), Hong and Kao (2004), and Joo and Grable (2004) for education. Baek and DeVaney (2004) used integrated financial well-being that was similar to the measurement used in the current study.

As a conclusion, only the 5d and 5f null hypotheses regarding no influence from education and household income were rejected. Thus, there were significant influence on financial well-being for respondent's education level and household income after controlling for other socioeconomic characteristics.

Hypotheses 6: Future Time Orientation and Financial Risk Tolerance As Predictors For Financial Well-being

Null Hypothesis 6a, H_{06a} :

Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation of family financial manager is not significantly predicting financial well-being of family.

Null Hypothesis 6b, H₀6b:

Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance of family financial manager is not significantly predicting financial well-being of family.

Binary logistic regression was also applied to the data to test the hypotheses outlined above. The same groups of families were used as in Hypotheses 5. Families having scored more than the mean value of 6.21 for the average score of the Malaysian Personal Financial Well-being and those who fulfilled any one of the three selected financial ratios were classified as financially stable. Those who scored otherwise were classified as less financially stable.

The goodness of fit of the model was assessed to address the potential problem of outliers. The model was found as deemed fit, thus the outliers were of no influence to the results of the logistic regression. The discussion on the goodness of fit of the model is presented in Table 4.49 following the result of the interaction Model 5 of the binary logistic regression.

Table 4.40 gives the result of logistic regression with socioeconomic and personality characteristics as the predictors for family financial well-being. Hierarchical logistic regression was employed to statistically controlling the socioeconomic characteristics. The first model of the logistic regression were entered the socioeconomic characteristics.

The second model then were entered the personality variables namely future time orientation and financial risk tolerance.

Referring to Model 2 in Table 4.40, household income was once again found to be positively ($B = 1.377$) and highly significantly ($Wald = 20.075$; $p = 0.0001$) predicting financial well-being of family. The result for respondent's education was the same as found in Model 1 with a positively ($B = 0.072$) and significantly ($Wald = 4.328$; $p = 0.037$) predicting financial well-being. Respondent's working experience had the same result as in Model 1 with a positively and marginally significant ($B = 0.022$; $Wald = 3.645$; $p = 0.056$) in predicting financial well-being.

Table 4.40
Socioeconomic and Personality as Predictors for Financial Well-being: Model 2

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential areas (Urban)	-0.122	0.159	0.590	0.442	0.885
Ethnicity			3.048	0.218	
Ethnicity (Malay)	0.419	0.273	2.346	0.126	1.520
Ethnicity (Chinese)	0.509	0.295	2.970†	0.085	1.663
Respondent's Education Level	0.072	0.035	4.328*	0.037	1.075
Respondent's Working Experience	0.022	0.012	3.645†	0.056	1.023
Household Income	1.377	0.307	20.075**	0.000	3.964
Homeownership	-0.053	0.177	0.091	0.764	0.948
Household Size	-0.068	0.052	1.686	0.194	0.934
Future Time Orientation	-0.039	0.015	6.589**	0.010	0.961
Financial Risk Tolerance	-0.022	0.012	3.476†	0.062	0.978
Constant	-5.421	1.021	28.217	0.000	0.004

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no ownership)

As mentioned in the previous section, the findings for income and education were consistent with past studies. The effect of income was consistent with Baek and DeVaney (2004), Hong and Kao (2004), Husniyah et al. (2005a), and Mohamad Fazli et al. (2008a), and for education, it was consistent with Baek and DeVaney (2004), Hong and Kao (2004), and Joo and Grable (2004). Another socioeconomic characteristic was found to be positively marginally significant ($B = 0.509$; Wald = 2.970; $p = 0.085$) that was Chinese ethnicity in predicting financial well-being in Model 2 as compared to Model 1.

The household income ($\exp(B) = 3.964$) was more influential in predicting financial well-being than respondent's education ($\exp(B) = 1.075$) due to the higher expected logistic coefficient value or odd ratio ($\exp(B)$). The likelihood of a family to be financially stable was predicted more by household income than by the respondent's education. Household income was 4 times more likely to predict financial stability than to predict financial instability. Meanwhile respondent's education was only 1.1 times more likely to predict financial stability than to predict financial instability.

The family would more likely be financially stable with higher household income and higher education level of the responded family financial manager. Hence, after controlling for other socioeconomic characteristics and personality variables, two socioeconomic characteristics namely household income and respondent's education were significant predictors of financial well-being.

As for the future time orientation variable, it was found to be negatively highly significant ($B = -0.039$; Wald = 6.589; $p = 0.010$) in predicting financial well-being of family. Families having future oriented family financial manager were more likely to be financially instable. Hence, families with future-oriented financial manager were unlikely to be financially stable.

Future time orientation was 4 percent ($\exp(B) = 0.961$) less likely to predict financial stability as compared to financial instability. The result obtained on the relationship of future time and financial well-being contradicted with findings by Hershey and Mowen (2000) however these researchers focused only on one aspect of financial well-being where they found that future-oriented individuals were financially prepared for retirement. The current study measured overall financial well-being and was not limited to financial satisfaction for retirement only.

Vice-versa, families with current-oriented financial manager were likely to be financially stable. The result could be explained as follows. For more future-oriented person, they were more of thinking and doing things for their future and thus would sacrifice their current consumption. Foregoing their current consumption would most probably lead to dissatisfaction. Hence, they would be most probable to be dissatisfied with their financial matters.

The other personality variable namely financial risk tolerance had also a negative effect, similar to the results found by Joo and Grable (1999 and 2004). However, it was only marginally significant in predicting financial well-being.

Thus, the 6a null hypothesis was rejected at the 99 percent confidence suggesting highly significant influence on financial well-being for future time orientation after controlling for influence from socioeconomic characteristics and financial risk tolerance of family financial manager. The 6b null hypothesis on the ability of financial risk tolerance in predicting financial well-being failed to be rejected. To note, past studies on the effect of financial risk tolerance had inconsistent results with studies observing positive and negative effects. Positive effects were revealed by Yuh and DeVaney (1996), Grable and Joo (1997), and Hogarth and Anguelov (2004).

Referring to Model 2, results from these hypotheses testing revealed the profile of family that was financially stable. Binary logistic regression analysis determined that a family that was more likely to be financially stable was the one with higher household income and the responded financial manager having higher education level and was less future-oriented.

To conclude, only the 6a null hypothesis regarding the influence on financial well-being by future time orientation was rejected. There was significant influence on financial well-being for future time orientation after controlling for influence from socioeconomic characteristics and financial risk tolerance of family financial manager.

Hypotheses 7: Financial Management Practices As Predictors For Financial Well-being

Null Hypothesis 7a, H_{07a} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting financial well-being of family.

Null Hypothesis 7b, H_{07b} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting financial well-being of family.

Null Hypothesis 7c, H_{07c} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting financial well-being of family.

Null Hypothesis 7d, H_{07d} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting financial well-being of family.

Null Hypothesis 7e, H_{07e} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, investment practice is not significantly predicting financial well-being of family.

Null Hypothesis 7f, H_{07f} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting financial well-being of family.

Binary logistic regression was also applied to the data to test the hypotheses outlined above. The same groups of families were used as in Hypotheses 5. Families having scored more than then mean value of 6.21 for the average score of the Malaysian Personal Financial Well-being and those who fulfilled any one of the three selected financial ratios were classified as financially stable. Those who scored otherwise were classified as less financially stable.

To address the potential problem of outliers, the goodness of fit of the model was assessed. The model was found as deemed fit, thus the outliers were of no influence to the results of the logistic regression. The discussion on the goodness of fit of the model is presented in Table 4.49 following the result of the interaction Model 5 of the binary logistic regression.

Table 4.41 gives the result of logistic regression with selected socioeconomic and personality characteristics as control variables in determining the relationships between each of the financial management practices' factors with financial well-being. As such, hierarchical logistic regression was employed to statistically controlling the socioeconomic and personality characteristics.

Table 4.41
Socioeconomic, Personality and Financial Management Practices as
Predictors for Financial Well-being: Model 3

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential areas (Urban)	-0.206	0.169	1.484	0.223	0.814
Ethnicity			2.862	0.239	
Ethnicity (Malay)	0.430	0.290	2.206	0.137	1.538
Ethnicity (Chinese)	0.518	0.311	2.783†	0.095	1.679
Respondent's Education Level	0.063	0.036	2.963†	0.085	1.065
Respondent's Working Experience	0.031	0.012	6.290*	0.012	1.031
Household Income	0.889	0.329	7.323**	0.007	2.433
Homeownership	-0.144	0.187	0.594	0.441	0.866
Household Size	-0.097	0.056	3.013†	0.083	0.907
Future Time Orientation	-0.017	0.017	0.960	0.327	0.984
Financial Risk Tolerance	0.006	0.014	0.214	0.644	1.007
Financial Planning	0.015	0.011	1.920	0.166	1.015
Cash-flow 'Record-keeping'	0.039	0.024	2.737†	0.098	1.040
Cash-flow 'Budgeting'	0.044	0.016	7.558**	0.006	1.045
Credit	-0.022	0.029	0.578	0.447	0.978
Savings	0.020	0.147	0.019	0.892	1.020
Investment	1.067	0.434	6.051*	0.014	2.906
Risk	0.022	0.016	1.788	0.181	1.022
Constant	-8.368	1.448	33.389	0.000	0.000

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no ownership)

The first model of the logistic regression were entered the selected socioeconomic characteristics. The second model then were entered the personality variables namely future time orientation and financial risk tolerance. In the third model, the seven financial management practices factors were entered.

Referring to Model 3 in Table 4.41, household income was once again found to be positively ($B = 0.889$) and highly significantly ($\text{Wald} = 7.323$; $p = 0.007$) predicting financial well-being of family. The relationship of respondent's working experience with financial well-being was positive ($B = 0.031$) and significant ($\text{Wald} = 6.290$; $p = 0.012$) instead of marginally significant in the second model. Respondent's education turned to be marginally significant in this third model compared to being significant in Model 2. Chinese ethnicity was only marginally significant ($\text{Wald} = 2.783$; $p = 0.095$) with a positive relationship with financial well-being while household size having a negative relationship with financial well-being was also marginally significant ($\text{Wald} = 3.013$; $p = 0.083$).

The household income ($\exp(B) = 2.433$) was more influential in predicting financial well-being than respondent's working experience ($\exp(B) = 1.031$) due to the higher expected logistic coefficient value or odd ratio ($\exp(B)$). The likelihood of a family to be financially stable was predicted more by household income than by respondent's working experience. Household income was 2.4 times more likely to predict financial stability than to predict financial instability. Meanwhile respondent's working experience was

only 1.03 times or 3 percent more likely to predict financial stability than to predict financial instability.

The family would more likely be financially stable with higher household income and longer respondent's working experience. Hence, after controlling for personality and financial management practices, two socioeconomic characteristics that were household income and respondent's working experience were significant predictors of financial well-being. As stated in the previous section, the finding on income was consistent with Baek and DeVaney (2004), Hong and Kao (2004), Husniyah et al. (2005a), and Mohamad Fazli et al. (2008a).

The finding on the effect of working experience on financial well-being was inconsistent with the result found by Mohamad Fazli et al. (2008a). Their study on Malaysian employees found negative association between length of employment and financial well-being. However, the result obtained by the current study could be explained as follows. Longer working experience most probably leads to increased salary and individuals would be able to meet their financial needs and financial obligations. Hence, they would be satisfied with all aspects of financial matters and might even achieve certain financial ratios indicating good financial well-being.

In this model, financial risk tolerance and future time orientation variables were found to be non-significant in predicting financial well-being, in contrast to the results in Model 2. Thus after controlling for socioeconomic characteristics and financial management

practices in Model 3, both personality variables turned out to be not predicting financial stability of family.

Observing the effect of financial management practices' factors after controlling for socioeconomic characteristics and personality variables, revealed significant and positive contribution to the financial well-being of families by cash-flow 'budgeting' (Wald = 7.558; $p = 0.006$) and investment (Wald = 6.051; $p = 0.014$). The 7e null hypothesis was rejected suggesting investment practice as a significant predictor for financial well-being. The 7b null hypothesis was partially rejected by having only cash-flow 'budgeting' as a predictor for financial well-being but not cash-flow 'record-keeping'. Cash-flow 'record-keeping' was found to be only marginally significant in predicting financial well-being.

The other null hypotheses on financial planning, credit, savings, and risk practices that were the 7a, 7c, 7d, and 7f null hypotheses failed to be rejected. Thus these financial management practices were not found as significant predictors for financial well-being of family. From results in Model 3, after controlling for socioeconomic characteristics and personality variables, financial management practices that significantly predict financial stability of family were cash-flow 'budgeting' and investment practice.

The result on the effect of budgeting was similar to the findings by Mullis and Schnittgrund (1982), and Mannion (1992) but in contrast to DeVaney et al. (1996) and Xiao et al. (2004). However consistency of the investment effect with past studies or with families in other countries could not be confirmed as no relevant studies were found. Past

study focused on the relationship of investment in retirement accounts (Xiao et al., 2004) while the current study looked on financial market. Nevertheless, the past study revealed contradicting effect of investment on financial well-being. Xiao et al. (2004) found that contributing to employer's retirement plan was negatively associated with financial satisfaction. The negative effect may be caused by their inability to control the money contributed to the employer's retirement plan.

Families involved in cash-flow 'budgeting' and investment led to better financial well-being. Families doing budgeting would have control over their flow of income and expenses. They would be able to achieve their financial needs. Investment participations have their money spread into diverse potential sources of current income and future income. Hence, participating in these financial activities would predict good financial well-being for the families. Financial planning, cash flow 'record-keeping', credit, savings, and risk practices were found to be not significantly predicting financial well-being of family.

Participation and investing in diversified portfolio by families was the more influential predictor of good financial well-being ($\exp(B) = 2.906$) compared to budgeting. Doing budgeting for the family expenses emerged as the second influential predictor ($\exp(B) = 1.045$) for financial well-being.

Investment practice was almost 3 times more likely to predict a family to be financially well than to predict a family to be less financially well. The likelihood to be financially

stable being determined by budgeting practices was only slightly more than 1 as compared to being less financially stable.

The findings from hierarchical binary logistic regression in Model 3 revealed that in order to be financially stable, a family had higher household income with longer respondent's working experience, participated in diversified investment and doing budgeting for the family expenses. However, carrying out financial planning, keeping financial records, managing credit, and buying insurance to overcome various financial risks did not predict the probability of being financially well.

As the conclusion for hypothesis testing, only the 7th null hypothesis regarding investment as a predictor for financial well-being was rejected. Investment practice was a significant predictor for financial well-being after controlling for socioeconomic characteristics, future time orientation, financial risk tolerance, and other financial management practices.

In comparing the results with past studies on families from other countries such as USA (MacEwen et al., 1995; Xiao et al., 2004) and Japan (Hira and Nagashima, 1988) for other dimensions of financial management practices, it revealed that financial planning were consistently found as significant financial management practice influencing financial well-being in those countries but not for Malaysia. Furthermore, a past local study focusing on credit consumers concluded that financial planning was negatively correlated with satisfaction towards financial matters (Husniyah et al., 2005b). This may

be due to the financial planning activities being promoted through financial planning services offered by professionals such as by licensed financial planners. The financial planning industry involving licensed financial planners in Malaysia has just begun in this millennium as compared to those countries that offered the financial planning services earlier on.

For the savings dimension, savings regularly by families in other countries were found to be significantly and positively influencing financial well-being (Baek and DeVaney, 2004; DeVaney et al., 1996; Mugenda et al., 1990; Sumarwan and Hira, 1992; Xiao et al., 2004). Past local study by Mohamad Fazli et al. (2008b) found a negative effect of savings on financial problems, hence a positive effect on financial well-being however it did not show the same result for the Malaysian families in this study.

The credit practice dimension involving regular monthly debt payments, full monthly payment of credit card bills, limiting credit card use, and reducing some of the personal debts were positively and significantly associated with financial well-being for the USA residents (DeVaney et al., 1996; Joo, 1998; Mugenda et al., 1990; Xiao et al., 2004) but did not reveal the same for this study. This may be the result of having smaller excess of income due to the debt repayment.

Risk management practices of Malaysian families in this study were observed to be not significantly affecting financial well-being as found in past studies for other countries. In determining the effect of purchasing insurance on the financial well-being of USA

families, Sumarwan and Hira (1992) stated that the number of insurance types was found to be not significantly affecting financial satisfaction. A similar result was revealed by Scannel (1990) using expenses for property insurance and financial ratio namely debt to asset ratio. Hence, families in Malaysia were not different with families in other countries in the effect of purchasing insurance on financial well-being.

To conclude, families in Malaysia in this study were different with families in other countries in the effect of investment, financial planning, savings, and credit repayment on financial well-being. On the other hand, Malaysian families studied were not different with families in other countries in the influence of risk management on financial well-being. As for the effect of budgeting on financial well-being, the families under study could be said as behaved similarly and also differently from the families in other countries.

Profile of Successful Families in Managing Their Financial Matters

Results from Model 1, Model 2 and Model 3 in Tables 4.39, 4.40 and 4.41 were used to identify the profile of successful families in managing their financial matters.

From Model 1, families tend to be financially successful for those with higher household income and the responded financial manager having higher education level. Analysis from Model 2 resulted in a family that was more likely to be financially stable had higher household income and the responded financial manager had higher education level and was less future-oriented. Findings from Model 3 revealed that in order to be financially

stable, a family had higher household income with longer respondent's working experience, participated in diversified investment and did budgeting for the family expenses.

Hypotheses 8: Self-worth As Moderating Variable Between Financial Management Practices and Financial Well-being

Null Hypothesis 8a, H_{08a} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate financial planning as the predictor of financial well-being of families.

Null Hypothesis 8b, H_{08b} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate cash-flow as the predictor of financial well-being of families.

Null Hypothesis 8c, H_{08c} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate credit practice as the predictor of financial well-being of families.

Null Hypothesis 8d, H₀8d:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate savings as the predictor of financial well-being of families.

Null Hypothesis 8e, H₀8e:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate investment as the predictor of financial well-being of families.

Null Hypothesis 8f, H₀8f:

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate risk practice as the predictor of financial well-being of families.

Hierarchical binary logistic regression analyses were conducted to test for the moderating role of self-worth on the relationships between each of the factors of financial management practices and financial well-being of family. As suggested by Cohen and Cohen (1983), significant interactions must be found between financial management

practices as the independent variables and self-worth as the moderator. The same financial well-being groups were used in this regression as in hypotheses 5 and 6.

The goodness of fit of the model was later assessed and found that the model was fit, thus the presence of outliers did not influenced the result of the analysis. The discussion on this was presented in Table 4.49 following the result of the interaction Model 5 of the binary logistic regression.

Prior to the discussion of the moderating effect of self-worth on financial well-being, the main effect of self-worth was explained first. When self-worth construct was entered in Model 4 after including the seven dimensions of the financial management practices in Model 3, future time orientation and financial risk tolerance in Model 2, and controlling for socioeconomic characteristics in Model 1, the results for the socioeconomic characteristics and the dimensions of the financial management practices as significant predictors remained the same as in Model 3. Only for the marginally significant predictors, there were slightly different results.

Referring to the result in Model 4 as displayed in Table 4.42, Chinese ethnicity and household size remained their marginally significant predictors as in Model 3 but not for respondent's education level that turned to be not significant. Respondent's working experience (Wald = 5.615; $p = 0.018$; $\exp(B) = 1.030$), and household income (Wald = 5.709; $p = 0.017$; $\exp(B) = 2.199$) retained their positive and significant predictors of financial well-being of family as in Model 2. As shown in previous sections, the effect of

income was consistent with Baek and DeVaney (2004), Hong and Kao (2004), Husniyah et al. (2005a), and Mohamad Fazli et al. (2008a), and for education, it was consistent with Baek and DeVaney (2004), Hong and Kao (2004), and Joo and Grable (2004).

Table 4.42
Socioeconomic, Personality Including Self-worth and Financial Management
Practices as Predictors for Financial Well-being: Model 4

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential Areas (Urban)	-0.207	0.171	1.471	0.225	0.813
Ethnicity			2.781	0.249	
Ethnicity (Malay)	0.386	0.295	1.717	0.190	1.471
Ethnicity (Chinese)	0.528	0.316	2.781†	0.095	1.695
Respondent's Education Level	0.058	0.037	2.480	0.115	1.060
Respondent's Working Experience	0.029	0.012	5.615*	0.018	1.030
Household Income	0.788	0.330	5.709*	0.017	2.199
Homeownership	-0.120	0.189	0.405	0.525	0.887
Household Size	-0.100	0.057	3.106†	0.078	0.905
Future Time Orientation	-0.025	0.017	2.138	0.144	0.975
Financial Risk Tolerance	0.011	0.014	0.615	0.433	1.011
Financial Planning	0.016	0.011	2.020	0.155	1.016
Cash-flow 'Record-keeping'	0.039	0.024	2.664	0.103	1.040
Cash-flow 'Budgeting'	0.038	0.016	5.466*	0.019	1.039
Credit	-0.021	0.029	0.533	0.465	0.979
Savings	0.075	0.150	0.246	0.620	1.077
Investment	1.267	0.443	8.191**	0.004	3.550
Risk	0.009	0.017	0.302	0.582	1.009
Self-worth	-0.423	0.102	17.355**	0.000	0.655
Constant	-6.748	1.502	20.169	0.000	0.001

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

The likelihood of respondent's working experience to predict financial wellness remained 3 percent more than it predicting less financial wellness as in Model 3. The probability of household income to predict financial stability increased to 2.3 times than it predicting less financial stability. Future time orientation and financial risk tolerance of family financial manager were once again insignificant in predicting financial well-being of family as in Model 3.

For the financial management practices, the same two financial management practices factors were significantly and positively predicting financial well-being as found in Model 3. As displayed in the result from Model 4 in Table 4.42, cash-flow 'budgeting' (Wald = 5.466; $p = 0.019$) and investment (Wald = 8.191; $p = 0.004$) contributed significantly to the determination of good financial well-being as in Model 3. As explained in previous section, the result on the effect of budgeting was similar to the findings by Mullis and Schnittgrund (1982), and Mannion (1992) but in contrast to DeVaney et al. (1996) and Xiao et al. (2004). Other financial management practices such as financial planning, cash-flow 'record-keeping', credit, savings, and risk practices were not significantly predicting the probability to be financially well or otherwise.

There was an increase in strength of prediction observed between investment and financial well-being of family. The strength of investment ($\exp(B) = 3.550$) increased from 2.9 in Model 3 to 3.6 in this model. Investment predicted good financial well-being more than 3 times it predicted poor financial well-being. However, the prediction strength for cash-flow 'budgeting' ($\exp(B) = 1.039$) reduced slightly to 1.039 in this model as

compared to 1.045 in Model 3. Cash-flow 'budgeting' predicted good financial well-being only about 4 percent more than it predicted poor financial well-being.

Self-worth variable was found to be negatively related and highly significant (Wald = 17.355; $p = 0.0001$; $\exp(B) = 0.655$) with financial well-being of family. The likelihood to experience good financial well-being was 34 percent less than it predicted poor financial well-being. Family financial manager possessing high self-worth thus was found to be in a less financially stable family and vice-versa.

The result could be explained as follows. For high self-worth person, they have high expectations or high standard of references in any matters. What was perceived as good by others would not be perceived the same by them. High self-worth individual would perceive their financial well-being as low whilst low self-worth individual would perceive the same situation as high.

The result however contradicted with previous studies by Grable and Joo (2001), and Hira and Mugenda (1999). Positive relationship was found between self-worth and financial satisfaction in these studies. This might be due to the difference in culture of the study samples. They focused on university staffs in USA while the current study covers various types of workplace in an Asian country.

Considering all the significant predictors in Model 4, investment practice was ranked the most influential predictor, followed by household income, cash-flow 'budgeting',

respondent's working experience, and self-worth as the least influential predictor of financial well-being.

Following the above explanation of the main effect of self-worth on financial well-being, the moderating effect of self-worth or the interaction of the self-worth moderator with financial management practices factors were discussed here. Referring to Model 5 in Table 4.43, when the interaction terms between each of the financial management practices factors and self-worth were entered into the regression, the same results as in Model 3 and 4 for the significant predictors appeared for the socioeconomic characteristics.

In Model 5, both respondent's working experience (Wald = 5.527; $p = 0.019$) and household income (Wald = 6.285; $p = 0.012$) were again found to be positively and significantly predicting financial well-being. Household size remained marginally significant whereas Chinese ethnicity turned out to be not a significant predictor in predicting financial wellness. The probability of respondent's working experience to predict financial wellness remained 3 percent ($\exp(B) = 1.030$) more than it predicting less financial wellness as in Model 4. The likelihood of household income to predict financial wellness was 2.3 times ($\exp(B) = 2.309$) than it predicting less financial wellness. The household income strength in predicting financial wellness increased in Model 5 compared to Model 4.

Table 4.43
Interactions between Financial Management Practices and Self-worth
on Financial Well-being: Model 5

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential Areas (Urban)	-0.170	0.174	0.961	0.327	0.843
Ethnicity			1.769	0.413	
Ethnicity (Malay)	0.332	0.295	1.269	0.260	1.394
Ethnicity (Chinese)	0.422	0.319	1.747	0.186	1.524
Respondent's Education Level	0.057	0.037	2.301	0.129	1.058
Respondent's Working Experience	0.030	0.013	5.527*	0.019	1.030
Household Income	0.837	0.334	6.285*	0.012	2.309
Homeownership	-0.163	0.194	0.712	0.399	0.849
Household Size	-0.096	0.058	2.726†	0.099	0.909
Future Time Orientation	-0.032	0.018	3.303†	0.069	0.968
Financial Risk Tolerance	0.019	0.015	1.621	0.203	1.019
Financial Planning	0.021	0.012	3.234†	0.072	1.021
Cash-flow 'Record-keeping'	0.027	0.025	1.195	0.274	1.027
Cash-flow 'Budgeting'	0.050	0.018	7.851**	0.005	1.051
Credit	-0.030	0.031	0.895	0.344	0.971
Savings	0.061	0.157	0.149	0.700	1.062
Investment	1.258	0.462	7.417**	0.006	3.518
Risk	0.011	0.018	0.375	0.540	1.011
Self-worth	-0.463	0.108	18.548**	0.000	0.629
Self-worth x Financial Planning	0.332	0.142	5.455*	0.020	1.394
Self-worth x Cash-flow 'Record-keeping'	-0.301	0.127	5.578*	0.018	0.740
Self-worth x Cash-flow 'Budgeting'	0.420	0.146	8.243**	0.004	1.522
Self-worth x Credit	-0.068	0.119	0.329	0.566	0.934
Self-worth x Savings	0.146	0.115	1.593	0.207	1.157
Self-worth x Investment	0.060	0.099	0.367	0.545	1.062
Self-worth x Risk	0.000	0.106	0.000	0.997	1.000
Constant	-7.006	1.531	20.931	0.000	0.001

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

Future time orientation had a negative prediction on financial well-being however was marginally significant. This was a slight change from it being a non-significant predictor in Model 4. Financial risk tolerance of family financial manager had the same non-significant predictor for financial well-being as in Model 4.

The same result emerged for the financial management practices in Model 5 as in previous models. Cash-flow 'budgeting' (Wald = 7.851; $p = 0.005$) and investment (Wald = 7.417; $p = 0.006$) remained in the list of positive and significant predictors for financial well-being.

There was a reduction in strength of prediction observed between investment and financial well-being of family. The strength of investment ($\exp(B) = 3.518$) reduced from 3.550 in Model 4 to 3.518 in this model. Investment predicted good financial well-being more than 3 times it predicted poor financial well-being. However, the prediction strength for cash-flow 'budgeting' ($\exp(B) = 1.051$) increased slightly to 1.051 in this model as compared to 1.039 in Model 4. Cash-flow 'budgeting' predicted good financial well-being slightly more than 5 percent than it predicted poor financial well-being.

Self-worth construct (Wald = 18.548; $p = 0.0001$; $\exp(B) = 0.629$) in Model 5 was also observed as it behaved in Model 4. As said earlier, the result however contradicted with previous studies by Grable and Joo (2001), and Hira and Mugenda (1999). It remained as a negative and highly significant predictor for financial well-being of family. However the likelihood to predict financial well-being had a slight change. The likelihood to

experience good financial well-being was only 33 percent less than it predicted poor financial well-being as compared to Model 4. This means that the strength of prediction for self-worth increased one percent in Model 5 as compared to Model 4. Thus, family financial manager possessing high self-worth was found to be in a less financially stable family and vice-versa.

The influential predictors among the socioeconomic characteristics, future time orientation, and financial risk tolerance of family financial managers, and financial management practices had the same ranking as in Model 4. Investment practice was ranked first followed by household income, cash-flow 'budgeting' and respondent's working experience. Self-worth was also observed as the least influential predictor in Model 4 and in Model 5 having the interaction terms.

Table 4.43 also displays the results of the prediction of financial well-being by the interaction terms. It was found that the interaction terms were highly significant for self-worth x financial planning (Wald = 5.455; $p = 0.020$; $B = 0.332$) and both cash-flow factors that were self-worth x cash-flow 'record-keeping' (Wald = 5.578; $p = 0.018$; $B = -0.301$) and cash-flow 'budgeting' (Wald = 8.243; $p = 0.004$; $B = 0.420$). These interaction terms contributed significantly and positively to the determination of financial well-being except for cash-flow 'record-keeping' that had a negative prediction on financial well-being.

The probability of the interaction between self-worth x financial planning ($\exp(B) = 1.394$) to predict good financial wellness was 1.4 times more than it predicting poor financial wellness. The likelihood of the interactions between self-worth and cash-flow factors that were self-worth x cash-flow 'record-keeping' ($\exp(B) = 0.740$) and self-worth x cash-flow 'budgeting' ($\exp(B) = 1.522$) to predict better financial wellness were 26 percent less and 48 percent more respectively than they predicting poorer financial wellness.

Referring to the above results, the 8a and 8b null hypotheses of no moderation by self-worth for the prediction of financial well-being by financial planning and cash-flow were rejected. Hence, moderation by self-worth for the prediction of financial well-being by financial planning and cash-flow were fully supported.

The other interaction terms of self-worth and financial management practices factors were found to be not significantly predicting financial well-being. Referring to these, the null hypotheses on the moderation by self-worth between financial management practices factors and financial well-being were unable to be rejected. Hence, the 8c, 8d, 8e, and 8f null hypotheses involving the interaction terms for self-worth and credit, savings, investment, and risk practices were not supported.

Self-worth of family financial manager moderated the influence of financial planning on financial well-being, such that a family having a family financial manager with high self-worth was more likely to strengthen the prediction of financial well-being by financial

planning. A family having high self-worth financial manager highly involved in financial planning would probably experience better financial well-being. Having a low self-worth financial manager in a family highly involved in financial planning was unlikely for the family to be financially well.

A family having a financial manager with high self-worth depended more on financial planning to be financially stable as compared to the low self-worth family financial manager. In contrast, a family having low self-worth financial manager and involved more in financial planning was more likely to be financially unstable. Thus, the influence of financial planning on financial well-being was different depending on the self-worth of the family financial manager. With the positive relationship between the two variables, by doing financial planning, it would result in predicting good financial well-being for a family having high self-worth financial manager. Conversely, engaging in financial planning did not result in predicting good financial well-being for families having low self-worth financial manager.

For high self-worth individual, financial planning make them realised that their financial goals are achievable. Hence, the activities make them perceived themselves as being financially stable. On the other hand, low self-worth individual engaging in financial planning would have a feeling of financial resources insufficiency while developing their financial goals. In that sense, they would feel financially insecure. Thus, low self-worth individual would tend to perceive their family as being less financially well.

Apart from moderating financial planning in its prediction of the family financial well-being, self-worth of family financial manager also moderated the influence of cash-flow 'record-keeping' on financial well-being, however in a negative manner. A family having financial manager with high self-worth was more likely to strengthen the prediction of poor financial well-being by cash-flow 'record-keeping'. A family having a high self-worth financial manager highly involved in cash-flow 'record-keeping' would probably experience poorer financial well-being. Low self-worth individual highly involved in cash-flow 'record-keeping' was unlikely to be financially well.

A family having a financial manager with high self-worth depended more on cash-flow 'record-keeping' to be financially unstable as compared to the low self-worth family financial manager. Alternatively, low self-worth financial manager who did more cash-flow 'record-keeping' was more likely to be financially stable. Thus, the influence of cash-flow 'record-keeping' on financial well-being was different depending on the self-worth of the family financial manager. With the negative relationship between the two variables, by doing cash-flow 'record-keeping', the family would result in poor financial well-being for families having high self-worth financial manager. In contrast, engaging in the same activity did not result in poor financial well-being for families having low self-worth financial manager.

For high self-worth individual, cash-flow 'record-keeping' enabled them to foresee that their expenses were increasing and their repayment of loans or payment of bills might not be sustained later. Hence, the activity makes them perceived themselves as being

financially unstable. On the other hand, low self-worth individual engaging in cash-flow 'record-keeping' wouldn't care less of the situation that they might be unable to sustain their bill payment and loan repayment. In that sense, they would feel financially secure. Thus, low self-worth individual would tend to perceive themselves as being financially well.

Self-worth of family financial manager also moderated the influence of cash-flow 'budgeting' on financial well-being in a positive manner similar to financial planning, such that a family having a family financial manager with high self-worth was more likely to strengthen the prediction of financial well-being by cash-flow 'budgeting'. High self-worth financial manager highly involved in cash-flow 'budgeting' would probably experienced better financial well-being. Low self-worth individual highly involved in cash-flow 'budgeting' was unlikely to be financially well.

A family having a financial manager with high self-worth depended more on cash-flow 'budgeting' to be financially stable as compared to a low self-worth family financial manager. Alternatively, a family with low self-worth financial manager doing more budgeting was more likely to be financially unstable. Thus, the influence of cash-flow 'budgeting' on financial well-being was different depending on the self-worth of the family financial manager. With the positive relationship between the two variables, by doing cash-flow 'budgeting', the family would result in a good financial well-being for a family having high self-worth financial manager. Conversely, engaging in the same

activity did not result in good financial well-being for a family having low self-worth financial manager.

For high self-worth individual, budgeting make them feel that they were able to achieve their financial goals. Hence, doing the activity makes them perceived themselves as being financially stable. On the other hand, families having low self-worth financial managers engaging in cash-flow 'budgeting' would have a feeling of financial resources insufficiency in their process of allocating the resources for certain purposes. In that sense, they would feel financially insecure or instable. Thus, families with low self-worth financial manager would tend to perceive themselves as being less financially well.

As a conclusion, only two null hypotheses were rejected namely 8a and 8b for the moderating role of self-worth on the prediction of financial well-being by financial planning and cash-flow. The null hypotheses for the moderating role of self-worth on the prediction of financial well-being by other financial practices were not substantiated. Hence, self-worth was found to moderate the prediction of financial well-being by financial planning and cash-flow. The prediction of financial well-being by financial planning was moderated positively, the same with the prediction by cash-flow 'budgeting' but was moderated negatively by cash-flow 'record-keeping'. No comparison with previous research can be made as self-worth had not been tested as a moderator between financial management practices and financial well-being.

4.7.2 Investment In Risky Assets Framework

Participation in risky assets for the families was determined from their investment in stocks. The statement ‘Invested some money in stocks’ was recoded into two categories namely the ‘non-participation in risky assets’ and ‘participation in risky assets’. Those with score 1 was the one that never invested in any risky asset (stock) and those that invested in risky assets were those with scores 2 to 7. Binary logistic regression was used to determine the probability to invest in risky assets by family.

The selected socioeconomic characteristics that were residential area, ethnicity, respondent’s education, respondent’s working experience, household income, home ownership, and household size were entered as the independent variables. Respondent’s education and working experience, household income, and household size were entered as continuous variables. Education was transformed into years of education. Residential area, ethnicity, and home ownership were entered as categorical variables. Residential areas were the urban and rural areas, and ethnicities were the three main ethnicities in Malaysia specifically Malay, Chinese and Indian. The two-category participation in risky assets was entered as the dependent variable. Results of the binary logistic regressions are tabulated in Table 4.44, Table 4.45, Table 4.46, Table 4.47 and Table 4.48.

Goodness of fit of the model was examined for potential problem of outliers. As the model was found to be a fit model, the outliers were not influencing the results of the logistic regression. Table 4.52 presents the assessment of the model’s goodness of fit.

Hypothesis 9: Socioeconomic Characteristics As Predictors For Investment In Risky Assets

Null Hypothesis 9a, H_09a :

Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting investment in risky assets by family.

Null Hypothesis 9b, H_09b :

Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting investment in risky assets by family.

Null Hypothesis 9c, H_09c :

Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting investment in risky assets by family.

Null Hypothesis 9d, H_09d :

Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting investment in risky assets by family.

Null Hypothesis 9e, H_09e :

Controlling for influence from other socioeconomic characteristics in the model, respondent's work experience is not significantly predicting investment in risky assets by family.

Null Hypothesis 9f, H₀9f:

Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting investment in risky assets by family.

Null Hypothesis 9g, H₀9g:

Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting investment in risky assets by family.

Null Hypothesis 9h, H₀9h:

Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting investment in risky assets by family.

Model 1 of the binary logistic regression in Table 4.44 was used to test hypothesis 9. Being a Chinese family relative to an Indian family was positively ($B = 0.560$) significant ($\text{Wald} = 4.059$; $p = 0.044$) in predicting participation in risky assets. Respondent's working experience ($B = -0.032$; $\text{Wald} = 7.781$; $p = 0.005$) however was negatively and significantly predicting participation in risky assets. Household income of the family was found to be positively ($B = 0.903$) significant ($\text{Wald} = 8.623$; $p = 0.003$) in predicting participation in risky assets. Thus, the 9c, 9e, and 9f null hypotheses were rejected suggesting significant influence on participation in risky assets for Chinese families having high household income and with short tenure of working experience after controlling for other socioeconomic characteristics in the model.

Based on the expected logistic coefficient values or the odd ratios, household income of the family ($\exp(B) = 2.466$) predicted the likelihood of a family to participate in risky assets 2.5 times more than predicting not to participate. Thus, family earning high household income had higher likelihood to participate in risky assets compared to family earning low household income. With higher household income, the risk associated with the risky assets if occurred would not create much financial problem as they have large source of money.

Table 4.44
Socioeconomic as Predictors of Participation in Risky Assets: Model 1

	B	S.E.	Wald	Sig.	Exp(B)
Residential Areas (Urban)	0.203	0.155	1.714	0.190	1.225
Ethnicity			10.343	0.006	
Ethnicity (Malay)	-0.029	0.252	0.014	0.907	0.971
Ethnicity (Chinese)	0.560	0.278	4.059*	0.044	1.751
Respondent's Education Level	0.046	0.035	1.772	0.183	1.047
Respondent's Working Experience	-0.032	0.011	7.781**	0.005	0.968
Household Income	0.903	0.307	8.623**	0.003	2.466
Homeownership	0.012	0.173	0.005	0.944	1.012
Household Size	0.076	0.051	2.224	0.136	1.078
Constant	-3.756	0.963	15.211	0.000	0.023

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

Previous studies consistently showed the positive effect of income (Bodie et al., 1992; Cocco et al., 2005; Ding and DeVaney, 2000; Farhi and Panageas, 2005; Storesleten et al., 2004) and supported the findings in this study on income. They contended that as labour income was implicitly holding of safe assets, this positively influenced investment in risky financial assets.

For the ethnicity, being a Chinese family ($\exp(B) = 1.751$) predicted the likelihood of a family to participate in risky assets almost 2 times more than being an Indian family. Being a Malay family as compared to an Indian family was not found to be significantly predicting participation in risky assets. The result also showed that a Chinese family had higher probability of investing in risky assets compared to an Indian family. Thus, this reflected that a Chinese family was more tolerable towards the risk associated with risky assets compared to an Indian family, hence exhibiting a more risk tolerance state by the Chinese family. The result was similar to Gutter and Fontes's (2006) study on US households who found that Whites were two times more likely to own risky assets as compared to Blacks.

Respondent's working experience on the other hand, predicted the probability of a family to participate in risky assets only 3 percent ($\exp(B) = 0.968$) less than predicting non-participation. Long tenure of working for the family financial manager would most probably result in less likely to participate in risky assets by the family with a small probability not to participate. With longer working experience, individuals were more careful with the high risk associated with risky assets, thus they would be doing a lot of

thinking before participating in such assets. No comparison for working experience with past studies could be made.

Residential areas of the family, being a Malay ethnicity, education level of the family financial manager, home ownership, and household size however were found to be not significantly predicting their participation in risky assets. Thus, the 9a, 9b, 9d, 9g, and 9h null hypotheses were unable to be rejected. These socioeconomic characteristics namely residential areas of the family, being a Malay ethnicity, education level of the family financial manager, home ownership, and household size were not able to predict participation in risky assets by families.

The non-significant effect of education on risky investments was not consistent with previous studies (Cardak and Wilkins, 2008; Christiansen et al., 2006; Rosen and Wu, 2004; Yamishita, 2003). The result obtained for homeownership effect was also not in line with previous studies. However inconsistent results were found among the previous studies for the effect of homeownership on risky assets investments, such as a negative effect by Cocco (2005) and a positive effect by Cardak and Wilkins (2008).

To conclude, only Chinese ethnicity relative to Indian, respondent's working experience, and household income were able to predict investment in risky assets. Household income had stronger prediction on the likelihood to invest in risky assets compared to Chinese ethnicity. Respondent's working experience in contrast predicted the likelihood of not investing in risky assets. Other socioeconomic characteristics such as residential areas of

the family, being a Malay ethnicity, education level of the family financial manager, home ownership, and household size however were unable to predict investment in risky assets.

Hypothesis 10: Future Time Orientation and Financial Risk Tolerance As Predictors For Investment In Risky Assets

Null Hypothesis 10a, H_{010a} :

Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation is not significantly predicting investment in risky assets by family.

Null Hypothesis 10b, H_{010b} :

Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance is not significantly predicting investment in risky assets by family.

Model 2 of the binary logistic regression was used to test hypothesis 10. Table 4.45 gives the result of logistic regression with socioeconomic characteristics as control variables in determining the influence of future time orientation and financial risk tolerance on participation of families in risky assets. As such, hierarchical logistic regression was employed to statistically controlling the socioeconomic characteristics. After the first model of the logistic regression was entered the socioeconomic characteristics, the

second model then was entered the future time orientation and financial risk tolerance variables.

Table 4.45
Socioeconomic and Personality as Predictors of
Participation in Risky Assets: Model 2

	B	S.E.	Wald	Sig.	Exp(B)
Residential Areas (Urban)	0.162	0.158	1.050	0.306	1.176
Ethnicity			8.768	0.012	
Ethnicity (Malay)	-0.028	0.256	0.012	0.913	0.972
Ethnicity (Chinese)	0.526	0.284	3.434†	0.064	1.692
Respondent's Education Level	0.054	0.035	2.306	0.129	1.055
Respondent's Working Experience	-0.027	0.012	5.455*	0.020	0.973
Household Income	0.859	0.313	7.549**	0.006	2.361
Homeownership	-0.031	0.177	0.030	0.862	0.970
Household Size	0.053	0.052	1.049	0.306	1.054
Future Time Orientation	-0.039	0.016	6.368*	0.012	0.962
Financial Risk Tolerance	0.054	0.012	20.454**	0.000	1.056
Constant	-4.023	1.023	15.452	0.000	0.018

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

In this second model after controlling for personality variables, the same socio-economic characteristics that were respondent's working experience and household income were found to be significant in predicting investment in risky assets, however Chinese ethnicity was marginally significant. Household income of the family were also found to be positively (B = 0.859) significant (Wald = 7.549; p = 0.006) in predicting participation in risky assets as found in Model 1. Respondent's working experience remained to be

negatively ($B = -0.027$) predicting participation in risky assets by a family. It was also significant as in Model 1 in predicting participation in risky assets (Wald = 5.455; $p = 0.020$). Chinese family was also found to be positively ($B = 0.526$) predicting participation in risky assets but was only marginally significant (Wald = 3.434; $p = 0.064$) instead of being significant in Model 1.

The result from Model 2 revealed that household income of the family ($\exp(B) = 2.361$) predicting the likelihood of a family to participate in risky assets 2.4 times more than predicting non-participation. The strength of prediction slightly reduced from 2.5 to 2.4 after controlling for personality variables. The family would more likely to participate in risky assets for those earning high household income. As stated in the previous section, past studies supported the finding on income in this study (Bodie et al., 1992; Cocco et al., 2005; Ding and DeVaney, 2000; Farhi and Panageas, 2005; Storesleten et al., 2004).

Respondent's working experience had similar strength as in Model 1 that was only 3 percent ($\exp(B) = 0.973$) less likely for the family to participate in risky assets than predicting non-participation. As discussed in the previous section, family financial manager as an experienced worker would less likely to invest in risky assets with a small probability of non-participating. Experienced workers would be very careful when dealing with risky assets, thus the tendency to invest in such assets reduced. Comparison with past studies was unavailable.

Thus after controlling for future time orientation, financial risk tolerance, and other socioeconomic characteristics in the model, socioeconomic characteristics namely respondent's working experience and household income predicted the likelihood to invest in risky assets by the family.

In terms of relative strength in predicting investment in risky assets, the ranking of socioeconomic characteristics was the same as in Model 1. Household income once again had strong prediction on the likelihood to invest in risky assets. Respondent's working experience predicted the likelihood not to invest in risky assets as in Model 1. Other socioeconomic characteristics such as residential areas of the family, being a Malay ethnicity, education level of the family financial manager, home ownership, and household size however remained as factors that were unable to predict investment in risky assets.

The effect of future time orientation on risky investing was further explored in this model. Future time orientation of the family financial manager was found to be negatively significant ($B = -0.039$; $Wald = 6.368$; $p = 0.012$) in predicting investment in risky assets by family. Families having family financial manager possessing more future-time oriented were found to be unlikely to participate in risky assets and vice-versa. Families with current-time oriented financial manager were more likely to participate in risky assets.

The result could be explained as follows. For current-time oriented financial managers, they were thinking more of the current gain and tend to invest in high return stocks with less attention on the risk associated with the assets. Hence, they would be most probable to participate in risky assets. In contrast to future-time oriented individuals, they were expecting to gain in long-term investments that were stable over time. These individuals tend to participate in stable investments and thus were not keen to invest in risky assets. Comparison with past studies was not possible as direct effect of future time orientation on investment in risky assets had not been observed. Indirect effect could be deduced by its positive effect on financial risk tolerance and the positive effect of risk tolerance on risky investment. Hence, the indirect effect of future time orientation on investment in risky assets was expected to be positive. In contrast, the result from this study contradicted with this expected indirect effect.

As for the financial risk tolerance variable, it was found to be positively highly significant ($B = 0.054$; $Wald = 20.454$; $p = 0.0001$) in predicting participation of family in risky assets. Families having family financial manager possessing high financial risk tolerance were found to be more participating in risky assets and vice-versa. Families with risk averse financial manager were unlikely to participate in risky assets.

The explanation for the result could be as follows. For high financial risk tolerance individuals, they were more tolerant with financial risk and thus would more readily accept the risk associated with the assets. Hence, they would be most probable to participate in risky assets. Possessing low financial risk tolerance resulted in them not to

be readily accepting risk. This led to the probability of not participating in risky assets. This result was supported by past studies done by Guiso et al. (2001), Rosen and Wu (2004), Bailey and Kinerson (2005), Corter and Chen (2005), Jacobs-Lawson and Hershey (2005), Gutter and Fontes (2006), and Cardak and Wilkins (2008).

Thus, the 10a null hypothesis was rejected at the 95 percent confidence level suggesting significant influence on participation in risky assets for future time orientation after controlling for influence from socioeconomic characteristics and financial risk tolerance of family financial manager. The 10b null hypothesis on the ability of financial risk tolerance to predict participation in risky assets by families was rejected at the 99 percent confidence level leading to highly significant influence on participation in risky assets for financial risk tolerance after controlling for influence from socioeconomic characteristics and future time orientation of family financial manager.

Based on the expected logistic coefficient value, future time orientation of the family financial manager ($\exp(B) = 0.962$) predicted the likelihood of a family to participate in risky assets 3 percent less than predicting non-participation. The family would less likely to participate in risky assets by having future-time oriented family financial manager as compared to current-time oriented family financial manager.

Financial risk tolerance of the family financial manager ($\exp(B) = 1.056$) predicted the likelihood of a family to participate in risky assets 1.06 times more than predicting non-participation. The family would more likely to participate in risky assets by having high

financial risk tolerance family financial manager as compared to low financial risk tolerance or high risk averse family financial manager.

As a conclusion, both future time orientation and financial risk tolerance were significant predictors for participation in risky assets by family however with opposite influence hence both null hypotheses 10a and 10b were rejected. Future time orientation predicted the unlikelihood of family to participate in risky assets while financial risk tolerance predicted the probability to participate in risky assets by families. The result for financial risk tolerance was as expected from the literature. Even though the risk tolerance assessed in this study referred to who respond to the questionnaire, it seems to be associated with their spouses. Bernasek and Shwiff (2001) had highlighted the possibility of the risk preferences inferred from investment decisions were the combined risk preferences of the couple for those married.

Hypothesis 11: Financial Management Practices As Predictors For Investment In Risky Assets

Null Hypothesis 11a, H_{011a} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting investment in risky assets by family.

Null Hypothesis 11b, H_{011b} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting investment in risky assets by family.

Null Hypothesis 11c, H_{011c} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting investment in risky assets by family.

Null Hypothesis 11d, H_{011d} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting investment in risky assets by family.

Null Hypothesis 11e, H_{011e} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting investment in risky assets by family.

Hypothesis 11 was tested using Model 3 of the binary logistic regression. Table 4.46 tabulates the result of logistic regression with socioeconomic characteristics, future time orientation, and financial risk tolerance as control variables in determining the influence of financial management practices on participation in risky assets. The final model of the logistic regression was entered the six financial management practices factors.

Table 4.46
Socioeconomic, Personality and Financial Management Practices as Predictors of Participation in Risky Assets: Model 3

	B	S.E.	Wald	Sig.	Exp(B)
Residential Areas (Urban)	0.029	0.168	0.030	0.862	1.030
Ethnicity			13.054	0.001	
Ethnicity (Malay)	-0.236	0.273	0.750	0.387	0.790
Ethnicity (Chinese)	0.498	0.299	2.767†	0.096	1.645
Respondent's Education Level	0.040	0.037	1.139	0.286	1.040
Respondent's Working Experience	-0.018	0.012	2.072	0.150	0.982
Household Income	0.316	0.331	0.913	0.339	1.372
Homeownership	-0.186	0.187	0.997	0.318	0.830
Household Size	0.027	0.054	0.244	0.621	1.027
Future Time Orientation	-0.014	0.017	0.672	0.412	0.986
Financial Risk Tolerance	0.060	0.014	18.474**	0.000	1.062
Financial Planning	0.005	0.011	0.201	0.654	1.005
Cash-flow 'Record-keeping'	0.065	0.024	7.132**	0.008	1.067
Cash-flow 'Budgeting'	0.019	0.016	1.403	0.236	1.019
Credit	-0.081	0.030	7.381**	0.007	0.922
Savings	0.343	0.151	5.118*	0.024	1.409
Risk	0.103	0.016	42.017**	0.000	1.109
Constant	-5.636	1.412	15.930	0.000	0.004

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

Referring to Model 3 in Table 4.46, none of the socio-economic characteristics showed significant prediction for participation of family in risky assets. Household income was insignificantly predicting participation in risky assets unlike the earlier result obtained from Model 1 and Model 2 without the inclusion of financial management practices. Chinese ethnicity relative to Indian ethnicity was marginally significant in predicting participation in risky assets ($B = 0.498$; $Wald = 2.767$; $p = 0.096$) as found in the second model.

Future time orientation variable however was found to be not significant in predicting participation of family in risky assets in contrast to the result found in Model 2 of the logistic regression after controlling for socio-economic characteristics, financial risk tolerance, and financial management practices. The results from Model 3 thus suggested that future time orientation was most likely not a predictor for family to invest in such risky assets. Past studies on future time orientation as significant predictor for investment in risky assets was not found.

Model 3 revealed the same result for financial risk tolerance variable as obtained in Model 2. The variable was found to be positively and highly significant ($B = 0.060$; $Wald = 18.474$; $p = 0.0001$) in predicting participation of family in risky assets. Financially risk tolerant family financial manager was found to be more participating in risky assets and vice-versa compared to financially risk averse family financial manager. High financial risk tolerance person possessed high tolerant towards financial risk and hence would more readily accept the risk embedded in the risky assets. As a conclusion, financially

risk tolerance individual would more likely to participate in such assets compared to financially risk averse individual. As stated in the previous section, various past studies supported this result such as by Guiso et al. (2001), Rosen and Wu (2004), Bailey and Kinerson (2005), Corter and Chen (2005), Jacobs-Lawson and Hershey (2005), Gutter and Fontes (2006), and Cardak and Wilkins (2008).

In this third model of logistic regression with the inclusion of financial management practices, it was found that financial management practices factors that contributed significantly and positively to participation in risky assets of families after controlling for socioeconomic characteristic, future time orientation, financial risk tolerance, and other financial management practices in the model were cash-flow 'record-keeping' ($B = 0.065$; Wald = 7.132; $p = 0.008$), savings ($B = 0.343$; Wald = 5.118; $p = 0.024$), and risk practices ($B = 0.103$; Wald = 42.017; $p = 0.0001$). Negative prediction for participation in risky assets was found only by credit practices ($B = -0.081$; Wald = 7.381; $p = 0.007$). Thus, the 11c, 11d, and 11e null hypotheses were rejected suggesting these financial practices as significant predictors for participation in risky assets namely credit, savings, and risk practices.

The 11b null hypothesis on cash-flow as predictor for participation in risky assets was partially rejected due to only one significant cash-flow factor namely 'record-keeping'. Consequently, cash-flow was concluded as a significant predictor for participation in risky assets by families limited to the 'record-keeping' aspect only, and not including the 'budgeting' aspect. Families involved in record-keeping would most probably be

investing in risky assets but not those who did budgeting. Furthermore for the 11b null hypothesis, it was partially failed to be rejected due to the non-significant prediction on investment in risky assets by cash-flow 'budgeting'. Hence, cash-flow 'budgeting' was not a significant predictor for participation in risky assets by families.

The finding on the effect of savings was consistent with results from Shum and Faig's (2006) study for savings intended for retirement, with a positive effect on equity share of portfolio. The portion invested in risky assets increased with this saving motive. The retirement savings most probably was made in the form of high return investment. However, it contradicted with findings by Heaton and Lucas (2000) for savings intended for purchasing house or for businesses. To note, the savings in the current study covered both motives. Comparisons with past studies for the effects of cash-flow 'record-keeping', risk practices, and credit practices on risky assets holdings were not possible as available studies were not found.

Nevertheless, their significant effects on risky investing were explained as follows. The above result observed that those participating in risky assets were found to be highly involved in cash-flow 'record-keeping'. This may be due to the high potential of risk associated with the investment or most probably the low performance of the investment. They tend to pay their bills on time and have good record-keeping to keep track their investment performance. They were also keen in keeping track of their expenses and controlling expenses so as not to overspend. By doing so, they would be more prepared financially and psychologically.

As for savings and risk practices, families involved in savings and risk practices were found to participate highly in risky assets. Engaging in these financial activities emerged as activities that would predict more participation in risky assets for the families. With financial security resulting from regular savings for various financial needs such as for short-term and long-term goals, emergency, and retirement, these families would be financially prepared to venture the risks associated with risky assets. Furthermore, holding insurance policies for various protections including automobile insurance, home insurance, health, and life insurance enhanced the long-term financial security. The sense of financially secured might be the main reason for them to participate in risky investments. The high probability of facing the risks would not have much impact on their financial status or financial well-being.

Involving more in credit practices on the other hand, predicted less participation in risky assets. The credit practices included in this variable were: having a list of debt owed, keeping track of debt payment, and repayment of credit or loan was made on time. By having listed all debts owed, focusing on punctual debt repayment, and ensuring debt repaid as scheduled, the family would realise the high financial commitment they have. In their effort to avoid incurring late charges or default payments, they would be unwilling to lose their money in risky investments. Hence, good credit practices by the family will allow them to foresee their low ability to invest in risky stocks. In conjunction to that, highly involved in credit practices would predict less participation in risky assets.

Apart from that, families involved in financial planning were found to be not significantly predicting investment in risky assets by families. Thus, the 11a null hypothesis regarding financial planning as predictor for investment in risky assets failed to be rejected. Financial planning was concluded as not a significant predictor for investment in risky assets by families.

Among the significant financial management practices factors, savings regularly for various purposes emerged as the most influential predictor ($\exp(B) = 1.409$) followed by managing risk ($\exp(B) = 1.109$), and cash-flow 'record-keeping' ($\exp(B) = 1.067$). Families who involved in regular savings practices predicted participation in risky assets 41 percent more than it predicting non-participation. The likelihood of a family to invest in risky assets predicted by their higher involvement in risk practices was only about 11 percent compared to non-participation in risky assets. Families doing extensive 'record-keeping' predicted about 7 percent more likely to invest in risky assets than predicting non-participation in risky assets. As for the negative relationship, highly involved in credit practices by the family ($\exp(B) = 0.922$) was 18 percent less likely to influence participation in risky assets compared to non-participation. On the other hand, financial risk tolerance ($\exp(B) = 1.062$) was 6 percent more likely to predict risky asset holdings and ranked last among the positive predictors.

The reason as to why savings served as the most influential predictor for risky investments would be the higher liquidity of savings as compared to purchasing insurance. Facing the risks from investments required families to be financially cushioned

from financial disaster. Having good record-keeping did not directly prepare them financially however it indirectly affects available money as they keep track of their expenses and investment performance through record-keeping. Among the positive predictors for risky asset holdings, personality variable was the least influential predictor as compared to financial management practices factors. Thus, reflecting that financial practices such as savings, record-keeping, and risk practices do exert high impact on risky investing as compared to personality variable. In contrast, credit practices reflected financial commitment and low liquidity as compared to the other financial practices. Hence, justified the least likely to predict risky investing among significant predictors.

The findings from hierarchical binary logistic regression revealed that in order to participate in risky assets, a family should save more for short-term and long-term financial needs, and purchasing insurance policies to overcome various financial risks. However, doing cash-flow activities specifically engaging in record-keeping activities did not predict much of the occurrence of participation in risky assets. Involvement in credit practices by the family inversely predicting the probability of a family to invest in risky assets. Financial planning and cash-flow in the budgeting aspect carried out by the family did not predict the probability of participating in risky assets.

As a conclusion, three null hypotheses were rejected namely 11c, 11d, and 11e, however the 11c null hypothesis on the effect of credit practices had a negative influence as opposed to the 11d and 11e null hypotheses on the effects of savings and risk practices. These results suggested that financial practices namely credit, savings, and risk practices

were significant predictors for participation in risky assets. The 11b null hypothesis was partially rejected due to only one significant cash-flow factor namely ‘record-keeping’. The budgeting aspect of cash-flow was not significant in predicting risky assets holdings. The 11a null hypothesis on the effect of financial planning was failed to reject, hence suggesting financial planning as not a predictor of risky investing.

Profile Of Families Participating In Risky Assets

Results from these hypotheses testing revealed the profile of family that participates in risky assets based on their socioeconomic characteristics, personality variables, and financial management practices. Thus, using binary logistic regression analysis of Model 1, a family that was more likely to participate in risky assets was of a Chinese family earning high household income and having short tenure of working experience for the respondent.

Analysis from Model 2 resulted in a conclusion whereby families would more likely be participating in risky assets for those earning high household income and having more financial risk tolerant family financial manager. Furthermore, families would more probably investing in risky assets for those having low working experience and current-time oriented responded financial manager.

Result from Model 3 revealed that families would more probably be participating in risky assets for those having more financial risk tolerant responded family financial managers. Apart from that, they would be involved in regular savings and cash-flow activities

specifically engaging in record-keeping, and purchasing various types of insurance for family members. On the other hand, family involved highly in credit practices such as tend to make loan repayment on time and always pay before due date to avoid overdue charges would less likely to participate in risky assets.

Identifying Whether Investors In Risky Assets Performed Financial Management Practices That Are Likely To Predict Good Financial Well-Being

Those participated in risky assets were found to be involved in activities that fall under several financial management practices factors such as cash-flow ‘record-keeping’, credit, savings and risk management. The earlier part in this study on factors predicting financial well-being found that after controlling for influence from other variables in the model, cash-flow ‘budgeting’ and investment were significant factors predicting financial well-being. Thus, those investing in risky assets in the second part of this study had performed the financial management practice specifically investment that contributed to financial well-being except that they were not involved in cash-flow ‘budgeting’.

It is suggested that those investing in risky assets should also be doing cash-flow ‘budgeting’ for their family apart from the other dimensions of financial management practices. This is to ensure high probability of experiencing financial stability even with the risks faced by the family.

Hypotheses 12: Self-worth As Moderating Variable Between Financial Management Practices and Investment In Risky Assets

Null Hypothesis 12a, H_{012a} :

Controlling for influence from socioeconomic characteristics, future time orientation, and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate financial planning as the predictor of investment in risky assets by family.

Null Hypothesis 12b, H_{012b} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate cash-flow as the predictor of investment in risky assets by family.

Null Hypothesis 12c, H_{012c} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate credit practice as the predictor of investment in risky assets by family.

Null Hypothesis 12d, H_{012d} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the

model, self-worth does not moderate savings as the predictor of investment in risky assets by family.

Null Hypothesis 12e, H_{012e} :

Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate risk practice as the predictor of investment in risky assets by family.

The hypotheses testing for the moderating role of self-worth on the relationships between each of the financial management practices factors and investment in risky assets by family were conducted through hierarchical binary logistic regression analyses. Significant interactions must be found between financial management practices as the independent variables and self-worth as the moderator as suggested by Cohen and Cohen (1982).

The goodness of fit of the interaction model was later assessed and found that Model 5 was fit, thus the presence of outliers did not influenced the result of the analysis. The discussion on this was presented in Table 4.52 following the result of the interaction Model 5 of the binary logistic regression.

Prior to the discussion of the moderating effect of self-worth on risky investments, the main effect of self-worth was explained first. Referring to Table 4.47, when self-worth

construct was entered in Model 4 after including the six financial management practices factors in Model 3, future time orientation and financial risk tolerance in Model 2, and controlling for socioeconomic characteristics in Model 1, the results were the same as found in Model 3.

Table 4.47
Socioeconomic, Personality, and Financial Management Practices as Predictors of Participation in Risky Assets Including Self-worth: Model 4

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential Areas (Urban)	0.019	0.169	0.013	0.909	1.019
Ethnicity			12.076	0.002	
Ethnicity (Malay)	-0.202	0.275	0.539	0.463	0.817
Ethnicity (Chinese)	0.508	0.301	2.843†	0.092	1.662
Respondent's Education Level	0.043	0.037	1.354	0.245	1.044
Respondent's Working Experience	-0.017	0.012	1.746	0.186	0.984
Household Income	0.397	0.332	1.426	0.232	1.487
Homeownership	-0.198	0.188	1.115	0.291	0.820
Household Size	0.025	0.054	0.210	0.647	1.025
Future Time Orientation	-0.007	0.017	0.180	0.671	0.993
Financial Risk Tolerance	0.057	0.014	16.422**	0.000	1.058
Financial Planning	0.004	0.011	0.148	0.701	1.004
Cash-flow 'Record-keeping'	0.067	0.024	7.456**	0.006	1.069
Cash-flow 'Budgeting'	0.024	0.016	2.145	0.143	1.024
Credit	-0.084	0.030	7.699**	0.006	0.920
Savings	0.305	0.152	3.995*	0.046	1.356
Risk	0.110	0.016	46.060**	0.000	1.117
Self-worth	0.269	0.101	7.016**	0.008	1.308
Constant	-6.877	1.499	21.050	0.000	0.001

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

Chinese ethnicity remained as marginally significant. Financial risk tolerance and financial management practices factors namely cash-flow 'record-keeping', credit, savings, and risk remained as significant predictors. Future time orientation of family financial manager was once again insignificant in predicting investment in risky assets by family as found in Model 3. Financial risk tolerance was significantly and positively ($B = 0.057$; Wald = 16.422; $p = 0.0001$) predicting investment in risky assets by family. Various past studies supported the effect of financial risk tolerance on risky assets holdings as mentioned in the previous section.

For the financial management practices, the same three financial management practices factors were significantly and positively predicting investment in risky assets by family. The same financial management practices factor was also significantly and negatively predicting investment in risky assets by family. As displayed in Table 4.47, cash-flow 'record-keeping' ($B = 0.067$; Wald = 7.456; $p = 0.006$), credit ($B = -0.084$; Wald = 7.699; $p = 0.006$), savings ($B = 0.305$; Wald = 3.995; $p = 0.046$), and risk ($B = 0.110$; Wald = 46.060; $p = 0.0001$) contributed significantly to the prediction of investment in risky assets by family as in Model 3. Only financial planning and cash-flow 'budgeting' were not significantly predicting the probability to invest in risky assets or otherwise.

As discussed in the earlier section, contradicting findings from past studies were found for savings effect. Thus comparing the effect of saving practices with past studies both led to consistency and inconsistency with those studies. Since no relevant studies were available, comparisons with past studies for the effects of cash-flow 'record-keeping',

risk practices, and credit practices on risky assets holdings were not possible. The explanations on the significant effects of financial management practices on risky investments had been presented in the previous section.

Examining the values of expected B revealed that there was a slight decrease in strength of prediction observed between financial risk tolerance and investment in risky assets by family. The strength of financial risk tolerance ($\exp(B) = 1.058$) decreased from 6.2 percent in Model 3 to 5.8 in this model. Financial risk tolerance predicted investment in risky assets slightly less than 6 percent compared to predicting noninvestment in risky assets.

For the financial management practices instead, there was an increase in strength of prediction observed between cash-flow 'record-keeping' and investment in risky assets by family compared to Model 3. The strength of prediction by cash-flow 'record-keeping' ($\exp(B) = 1.069$) increased slightly from 6.7 percent in Model 3 to 6.9 percent in this model. Record-keeping activities predicted investment in risky assets 6.9 percent as compared to predicting noninvestment in risky assets.

The prediction strength for savings ($\exp(B) = 1.356$) also increased slightly to 1.409 in this model as compared to 1.356 in Model 3. Savings predicted investment in risky assets about 41 percent more than it predicted noninvestment in risky assets. Similar changes in strength of prediction occurred for risk practices ($\exp(B) = 1.117$) with an increment of

0.8 percent to 11.7 percent from 10.9 percent. Risk practices predicted investment in risky assets 11.7 percent as compared to predicting noninvestment in risky assets.

For credit practices, the same negative prediction ($\exp(B) = 0.920$) was found as in Model 3 however with a change in the prediction strength to 0.920 from 0.922. Credit practices predicted investment in risky assets 8.0 percent less than it predicting noninvestment in risky assets. This prediction for investment in risky assets was slightly lower than found in Model 3. In Model 3, credit practices predicted more (7.8 percent less) for investment in risky assets as compared to predicting noninvestment in risky assets. Hence after controlling for socioeconomic characteristics, future time orientation, financial risk tolerance, and self-worth in Model 4, the likelihood to invest in risky assets predicted by credit practices in Model 4 was slightly lower than in Model 3.

Model 4 further displayed the effect of self-worth on risky investments. Self-worth variable was found to be positively and highly significant ($B = 0.269$; Wald = 7.016; $p = 0.008$; $\exp(B) = 1.308$) in predicting investment in risky assets. The likelihood to invest in risky assets was 31 percent more than it predicted noninvestment in risky assets. Family financial manager possessing high self-worth thus was found to hold more risky assets and vice-versa. This result however could not be compared with previous studies as no similar study was found.

The above finding could be explained as follows. For high self-worth individuals, they have high confidence in their ability. They perceived themselves as being able to

overcome any challenges as compared to low self-worth individuals. The risks in risky assets seemed to be low and tolerable to them, thus they have high tendency to invest in risky investments. Low self-worth individuals tend not to invest in risky assets as they perceived themselves as incapable to overcome the challenges in those types of investments.

Considering all the significant predictors in Model 4, savings practice was ranked as the most influential predictor, followed by self-worth, risk practices, record-keeping and financial risk tolerance. Credit practice remained as the negative predictor of investment in risky assets by families as in previous model. With the inclusion of self-worth in Model 4, it ranked higher than risk practices, record-keeping, and financial risk tolerance. This result suggested self-worth as a more important predictor than those predictors.

The explanation on the rankings of significant predictors excluding self-worth was made in the previous section for Model 3. The same applied here for those predictors and in addition, the ranking of self-worth in Model 4 needs clarification. High liquidity from savings remained the most influential factor in predicting risky assets investments as a financial cushion against financial risks. Self-worth as a non-monetary predictor seemed to contribute highly on the likelihood to invest in risky assets, higher than other personality variables and even higher than financial practices except for savings. Perceiving themselves as capable of doing things act as a motivating force for them to venture into challenging tasks. Provided having financial security from savings, they were willing to accept the financial and psychological risks associated with risky assets.

Hence, this justified self-worth as an important factor after savings in the likelihood to participate in risky investments.

Following the above explanation of the main effect of self-worth on investment in risky assets, the moderating effect of self-worth or the interaction of the self-worth moderator with six financial management practices factors were discussed here. As shown in Table 4.48 for Model 5, when the interaction terms between each of the financial management practices factors and self-worth were entered into the regression, the same results appeared as in Model 3 and 4 for the significant predictors.

In Model 5, none of the socioeconomic characteristics was significant in predicting risky investments. Financial risk tolerance of family financial manager had a significant positive ($B = 0.058$; $Wald = 16.415$; $p = 0.0001$) prediction on investment in risky assets as in previous models. The financial risk tolerance effect's result was consistent with various studies across nations as stated in previous section.

The same results emerged for the significant financial management practices in Model 5 as found in Model 3 and Model 4. Cash-flow 'record-keeping' ($B = 0.067$; $Wald = 7.294$; $p = 0.007$), savings ($B = 0.318$; $Wald = 4.245$; $p = 0.039$), and risk ($B = 0.114$; $Wald = 46.934$; $p = 0.0001$) remained in the list of positive and significant predictors for investment in risky assets. Credit also revealed the same negative and significant predictor ($B = -0.085$; $Wald = 7.525$; $p = 0.006$) for investment in risky assets.

Comparison with past studies and explanation on the results obtained were presented in previous sections.

Table 4.48
Predictors of Participation in Risky Assets and Self-worth As Moderator: Model 5

Constructs	B	Standard Error	Wald	Sig.	Exp (B)
Residential Areas (Urban)	0.029	0.170	0.029	0.865	1.029
Ethnicity			11.652	0.003	
Ethnicity (Malay)	-0.222	0.278	0.640	0.424	0.801
Ethnicity (Chinese)	0.485	0.306	2.520	0.112	1.624
Respondent's Education Level	0.035	0.038	0.867	0.352	1.036
Respondent's Working Experience	-0.018	0.013	2.109	0.146	0.982
Household Income	0.471	0.336	1.962	0.161	1.602
Homeownership	-0.178	0.190	0.873	0.350	0.837
Household Size	0.019	0.055	0.112	0.738	1.019
Future Time Orientation	-0.015	0.018	0.680	0.409	0.986
Financial Risk Tolerance	0.058	0.014	16.415**	0.000	1.059
Financial Planning	0.003	0.012	0.058	0.810	1.003
Cash-flow 'Record-keeping'	0.067	0.025	7.294**	0.007	1.069
Cash-flow 'Budgeting'	0.024	0.017	2.080	0.149	1.025
Credit	-0.085	0.031	7.525**	0.006	0.919
Savings	0.318	0.154	4.245*	0.039	1.375
Risk	0.114	0.017	46.934**	0.000	1.121
Self-worth	0.242	0.103	5.509*	0.019	1.274
Self-worth x Financial Planning	-0.096	0.135	0.508	0.476	0.908
Self-worth x Cash-flow 'Record-keeping'	0.136	0.115	1.397	0.237	1.146
Self-worth x Cash-flow 'Budgeting'	0.064	0.126	0.256	0.613	1.066
Self-worth x Credit	-0.069	0.108	0.407	0.524	0.933
Self-worth x Savings	0.200	0.107	3.494†	0.062	1.222
Self-worth x Risk	0.226	0.096	5.494*	0.019	1.253
Constant	-6.841	1.506	20.622	0.000	0.001

Categorical variables: residential areas (relative to rural), ethnicity (relative to Indian), homeownership (relative to no homeownership)

There was a slight increase in strength of prediction observed between financial risk tolerance and investment in risky assets by family in Model 5 as compared to the result in Model 4. The strength of prediction by financial risk tolerance ($\exp(B) = 1.059$) increased from 1.058 in Model 4 to 1.059 in this model. Financial risk tolerance predicted investment in risky assets by family 5.9 percent more than it predicted non-investment in risky assets by family. However, the prediction strength for cash-flow ‘record-keeping’ ($\exp(B) = 1.069$) remained the same in this model as found in Model 4. Cash-flow ‘record-keeping’ predicted investment in risky assets by family 6.9 percent more than it predicted non-investment in risky assets.

Savings had an observable increase in strength of prediction of investment in risky assets by family in Model 5 as compared to the result in Model 4. The strength of prediction by savings ($\exp(B) = 1.375$) increased from 1.356 in Model 4 to 1.375 in this model. Savings predicted investment in risky assets by family 37.5 percent more than it predicted non-investment in risky assets by family in this model of interaction terms. This was similar to the prediction strength for risk practices ($\exp(B) = 1.121$) in this model as compared to Model 4. It increased from 1.117 in Model 4 to 1.121 in this model. Risk practices predicted investment in risky assets by family 12.1 percent more than it predicted non-investment in risky assets.

Credit had almost the same strength of prediction in Model 5 as compared to Model 4. For credit practices, the same negative prediction ($\exp(B) = 0.919$) was found as in Model 4 however with a slight change in the prediction strength to 0.919 from 0.920.

Credit practices predicted investment in risky assets 8 percent less than it predicting noninvestment in risky assets. This prediction for investment in risky assets was almost the same as found in Model 4. Hence after controlling for socioeconomic characteristics, future time orientation, financial risk tolerance, and self-worth in Model 5 the likelihood to invest in risky assets predicted by credit practices in Model 5 was almost the same as in Model 4.

Self-worth construct (Wald = 5.509; $p = 0.019$; $\exp(B) = 1.274$) in Model 5 was also observed as it behaved in Model 4. It remained as a positive and significant predictor for investment in risky assets by family. However the likelihood to predict investment in risky assets had a slight reduction. The likelihood to invest in risky assets was only 27 percent more than it predicted noninvestment in risky assets as compared to Model 4 that was 31 percent. This means that the strength of prediction for self-worth reduced four percent in Model 5 as compared to Model 4. Thus, the interaction terms of self worth with financial management practices factors reduced the predicting strength of self-worth as a predictor for investment in risky assets. Family financial manager possessing high self-worth was found to be investing more in risky assets and vice-versa. As mentioned earlier, comparison with past studies for the effect of self-worth could not be made due to unavailable relevant studies. The explanation on the positive effect of self-worth had been laid out in the previous section.

The influential predictors in Model 5 remained the same ranking as in Model 4 with savings as the most influential predictor followed by self-worth, risk, record-keeping, and

financial risk tolerance. Credit practice remained as the negative predictor in Model 5 as found in Model 4 having no interaction terms. The position for self-worth was the same as in Model 4. Since it ranked higher than risk practices, record-keeping, and financial risk tolerance, this result suggested self-worth as a more important predictor than those predictors. The explanations on the relative positions of the predictors were presented in the previous sections.

Table 4.48 also displays the results of the prediction to participate in risky investments by the interaction terms. It was found that the interaction terms was only significant for self-worth x risk practices ($B = 0.220$; Wald = 5.494; $p = 0.019$). The interaction term for self-worth x savings as the predictor was only marginally significant ($B = 0.200$; Wald = 3.494; $p = 0.062$). These interaction terms contributed positively to the determination of participation in risky investments. The probability of the interaction between self-worth x risk practices ($\exp(B) = 1.253$) to predict participation in risky investments was 1.3 times more than it predicting nonparticipation in risky investments.

Referring to the above result, the 12e null hypothesis of no moderation by self-worth for the prediction of investment in risky assets by risk practices was rejected. Hence, moderation by self-worth for the prediction of investment in risky assets by risk practices was fully supported.

The other interaction terms of self-worth and financial management practices factors were found to be not significantly predicting investment in risky assets. Referring to

these, the null hypotheses on the moderation by self-worth between these financial management practices factors and investment in risky assets were unable to be rejected. Hence, the 12a, 12b, 12c and 12d null hypotheses involving the interaction terms for self-worth and financial planning, cash-flows, credit, and savings practices were not supported.

Self-worth of family financial manager positively moderated the influence of risk practices on investment in risky assets such that a family having high self-worth family financial manager was more likely to strengthen the prediction of investment in risky assets by doing risk practices. A family having high self-worth financial manager highly involved in risk practices would probably invest more in risky assets. Having a low self-worth financial manager in a family highly involved in risk practices was unlikely for the family to be investing in risky assets.

A family having a financial manager with high self-worth depended more on risk practices to be highly participated in risky investments as compared to the low self-worth family financial manager. In contrast, a family having low self-worth financial manager and involved more in risk practices was more unlikely to be participating in risky investments. Thus, the influence of risk practices on participation in risky investments was different depending on the self-worth of the family financial manager. With positive relationship between the two variables, by doing risk practices namely purchasing various types of insurance, it would result in predicting higher participation in risky investments for a family having high self-worth financial manager. Conversely, engaging in risk

practices did not result in predicting participation in risky investments by families having low self-worth financial manager.

For high self-worth individual, risk practices make them feel that they were financially secured. Hence, the purchasing of various types of insurance make them perceived themselves as being capable in handling financial risks. On the other hand, low self-worth individual engaging in risk practices would have a feeling of financial insecurity despite having purchased various types of insurance to protect them from financial disaster. Thus, low self-worth individual would tend to perceive themselves as being incapable of absorbing financial risks.

As a conclusion, only one null hypothesis was rejected namely 12e for the moderating role of self-worth on the prediction of investment in risky assets by risk practices. The null hypotheses for the moderating role of self-worth on the prediction of investment in risky assets by other financial practices were not substantiated. Hence, self-worth was found to moderate the prediction of investment in risky assets by risk practices and it moderated positively. No comparison with previous research could be made as self-worth had not been tested as a moderator between financial management practices and investment in risky assets.

The results of hypotheses testing were summarised in Table 4.49.

Table 4.49
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀₁	Future time orientation is not significantly related with financial risk tolerance of the family financial manager.	Rejected
H _{02a}	Financial risk tolerance is not significantly related with financial planning of a family financial manager.	Rejected
H _{02b}	Financial risk tolerance is not significantly related with cash-flow practice of a family financial manager.	Rejected
H _{02c}	Financial risk tolerance is not significantly related with credit practice of a family financial manager.	Rejected
H _{02d}	Financial risk tolerance is not significantly related with savings practice of a family financial manager.	Rejected
H _{02e}	Financial risk tolerance is not significantly related with investment practice of a family financial manager	Rejected
H _{02f}	Financial risk tolerance is not significantly related with risk practice of a family financial manager	Rejected
H _{03a}	There are no significant differences in financial planning practice among the main ethnicities in Malaysia.	Failed To Reject
H _{03b}	There are no significant differences in cash-flow practice among the main ethnicities in Malaysia.	Failed To Reject
H _{03c}	There are no significant differences in credit practice among the main ethnicities in Malaysia.	Failed To Reject
H _{03d}	There are no significant differences in savings practice among the main ethnicities in Malaysia.	Failed To Reject
H _{03e}	There are no significant differences in investment practice among the main ethnicities in Malaysia.	Rejected
H _{03f}	There are no significant differences in risk practice among the main ethnicities in Malaysia.	Rejected

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 4a	There is no significant difference in financial planning activities across residential areas in Malaysia.	Failed To Reject
H ₀ 4b	There is no significant difference in cash-flow practices across residential areas in Malaysia.	Failed To Reject
H ₀ 4c	There is no significant difference in credit practices across residential areas in Malaysia.	Failed To Reject
H ₀ 4d	There is no significant difference in savings activities across residential areas in Malaysia.	Failed To Reject
H ₀ 4e	There is no significant difference in investment practices across residential areas in Malaysia.	Rejected
H ₀ 4f	There is no significant difference in risk practices across residential areas in Malaysia.	Rejected
H ₀ 5a	Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 5b	Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 5c	Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 5d	Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting financial well-being of family.	Rejected
H ₀ 5e	Controlling for influence from other socioeconomic characteristics in the model, respondent's working experience is not significantly predicting financial well-being of family.	Failed To Reject

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 5f	Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting financial well-being of family.	Rejected
H ₀ 5g	Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 5h	Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 6a	Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation of family financial manager is not significantly predicting financial well-being of family.	Rejected
H ₀ 6b	Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance of family financial manager is not significantly predicting financial well-being of family.	Failed To Reject

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 7a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 7b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 7c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 7d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting financial well-being of family.	Failed To Reject
H ₀ 7e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, investment practice is not significantly predicting financial well-being of family.	Rejected
H ₀ 7f	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting financial well-being of family.	Failed To Reject

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 8a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between financial planning and financial well-being of families.	Rejected
H ₀ 8b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between cash-flow and financial well-being of families.	Rejected
H ₀ 8c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between credit practice and financial well-being of families.	Failed To Reject
H ₀ 8d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between savings and financial well-being of families.	Failed To Reject
H ₀ 8e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between investment and financial well-being of families.	Failed To Reject
H ₀ 8f	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between risk practice and financial well-being of families.	Failed To Reject

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 9a	Controlling for influence from other socioeconomic characteristics in the model, urban family is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 9b	Controlling for influence from other socioeconomic characteristics in the model, Malay family is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 9c	Controlling for influence from other socioeconomic characteristics in the model, Chinese family is not significantly predicting investment in risky assets by family.	Rejected
H ₀ 9d	Controlling for influence from other socioeconomic characteristics in the model, respondent's education level is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 9e	Controlling for influence from other socioeconomic characteristics in the model, respondent's work experience is not significantly predicting investment in risky assets by family.	Rejected
H ₀ 9f	Controlling for influence from other socioeconomic characteristics in the model, household income is not significantly predicting investment in risky assets by family.	Rejected
H ₀ 9g	Controlling for influence from other socioeconomic characteristics in the model, home ownership is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 9h	Controlling for influence from other socioeconomic characteristics in the model, household size is not significantly predicting investment in risky assets by family.	Failed To Reject

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 10a	Controlling for influence from socioeconomic characteristics and financial risk tolerance in the model, future time orientation is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 10b	Controlling for influence from socioeconomic characteristics and future time orientation in the model, financial risk tolerance is not significantly predicting investment in risky assets by family.	Rejected
H ₀ 11a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, financial planning is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 11b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, cash-flow practice is not significantly predicting investment in risky assets by family.	Failed To Reject
H ₀ 11c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, credit practice is not significantly predicting investment in risky assets by family.	Rejected
H ₀ 11d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, savings practice is not significantly predicting investment in risky assets by family.	Rejected
H ₀ 11e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, risk practice is not significantly predicting investment in risky assets by family.	Rejected

Table 4.49 Continued
Summary of Hypotheses Testing Results

	Null Hypotheses	Results
H ₀ 12a	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between financial planning and investment in risky assets by family.	Failed To Reject
H ₀ 12b	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between cash-flow and investment in risky assets by family.	Failed To Reject
H ₀ 12c	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between credit practice and investment in risky assets by family.	Failed To Reject
H ₀ 12d	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between savings and investment in risky assets by family.	Failed To Reject
H ₀ 12e	Controlling for influence from socioeconomic characteristics, future time orientation and financial risk tolerance of family financial manager, and other financial practices in the model, self-worth does not moderate the relationship between risk practice and investment in risky assets by family.	Rejected

4.8 GOODNESS OF FIT OF THE HIERARCHICAL BINARY LOGISTIC REGRESSION MODELS

4.8.1 Model for Financial Well-being of Families

Measures for goodness of fit of the logistic regression models were given in the SPSS output and tabulated in Table 4.50. Model 1 gave the main effects of socioeconomic characteristics and Model 2 showed the main effects of future time orientation and financial risk tolerance controlled for socioeconomic characteristics. Model 3 had the main effects of financial management practices controlled for future time orientation and financial risk tolerance, and socioeconomic characteristics. The main effect of self-worth was examined in Model 4 with self-worth added to Model 3 while Model 5 involved the interaction effects between financial management practices and self-worth.

The first measure of goodness fit of the model examined was the -2 Log Likelihood values that decreased from Model 1 to Model 5 that was from 1040.665 to 910.279 indicating better model fit. Hair et al. (1998) stated that a well-fitting model had a small value for this measure and the reduction in the log likelihood value provided measure of improvement in predictive fit from one equation to another.

Another goodness fit measure assessed was the Omnibus Tests. The Omnibus Tests of Model Coefficients values obtained were highly significant and increased from 55.330 in Model 1 to 142.931 in Model 3 to 185.716 in Model 5. This indicated better goodness of fit of the later models.

Table 4.50
Goodness of Fit of the Financial Well-being Model

Goodness of Fit Measures		Model 1 (Main Effects of Socioeconomic Characteristics)	Model 2 (Main Effects of Personality)	Model 3 (Main Effects of Financial Management Practices)	Model 4 (Main Effect of Self-worth)	Model 5 (Interaction Effects)
-2Log Likelihood (max)		1040.665	1027.427	953.064	953.383	910.279
Omnibus Tests:						
Coefficient		55.330**	68.568**	142.931**	160.612**	185.716**
Significance (p)		0.0001	0.0001	0.0001	0.0001	0.0001
Hosmer and Lemeshow Test:						
Chi-square (χ^2)		6.743	7.785	7.837	10.184	7.948
Significance (p)		0.565	0.455	0.470	0.252	0.439
Cox and Snell R Square		0.067	0.082	0.164	0.182	0.207
Nagelkerke R Square		0.090	0.110	0.219	0.244	0.278
Degree of Freedom (df)		8	10	17	18	25
Percentage Correctly Classified (Hit Ratio)		62.0	63.0	67.1	65.8	68.0

Further supporting the goodness of fit of the models was the reliable Hosmer and Lemeshow Test. The test provided a comprehensive measure of predictive accuracy that was based on the actual prediction of the dependent variable (Hair et al., 1998). The output displayed non-significant Chi-square values for Model 1 to Model 5 that supported the goodness of fit of the models. Increasing values of Chi-square were observed across Model 1 to Model 5 that was from 6.743 to 7.948. Significance levels ranged as low as

0.252 to 0.565 for all the models. The non-significant values indicated that there were no statistical significant differences between the observed and predicted classifications for each of the model.

The Cox and Snell R Square and Nagelkerke R Square were interpreted below. Nagelkerke R Square values ranged from 0 to 1. Higher values of both R squares gave a better model fit as higher percentage of the variance in the dependent variable namely financial well-being was explained by the model.

When only the main effects of the socioeconomic characteristics were considered in Model 1, about seven percent and nine percent of the variance in financial well-being was explained by the model as shown by the Cox and Snell R Square and R squared values of Nagelkerke respectively. By including future time orientation and financial risk tolerance in Model 2, the explained variance increased to eight and eleven percent. The explained variance in financial well-being increased even higher to sixteen and twenty percent with the inclusion of financial management practices in Model 3. Hence, the combination of future time orientation, financial risk tolerance and financial management practices to the socioeconomic characteristics as predictors for financial well-being of family gave a better logistic regression model with substantial explanatory power. There were a total of 17 predictor variables explaining the variance of financial well-being of family in this study.

By including self-worth variable in the fourth model, the explained variance of financial well-being increased to 18 and 24 percent. For the fourth model with the interaction effects, the explained variance increased even more to 21 percent and 28 percent. The predictor variables for Model 4 and Model 5 were 18 and 25 respectively.

From the improved values of goodness of fit measures examined above, it was concluded that the models were accepted as significant binary logistic regression models and further use of the models were valid.

Group Classification

Binary logistic regression for financial well-being showed moderate hit ratios of correctly classified cases for Model 3 as displayed in Table 4.51. The overall hit ratio was 67.1 percent for the model without self-worth as the moderator. For families classified in the first group of less financially stable, they were moderately (75.4%) correctly classified in this group using Model 3 of the binary logistic regression. Families were also moderately correctly classified in the more financially stable group, with a lower percentage of 56.4%.

Table 4.51
Group Classification of the Logistic Regression Model 3 for Financial Management Practices with Financial Well-being

Observed	Predicted		Percentage Correct
	Less Financially Stable	More Financially Stable	
Less Financially Stable	340	111	75.4
More Financially Stable	152	197	56.4
			67.1

As a whole, the two groups of financial well-being were different in their characteristics based on the socioeconomic characteristics namely working experience and household income, financial risk tolerance and financial management practices such as budgeting and investment. The logistic regression model was able to differentiate the two groups on the basis of the above characteristics.

Referring to Model 3 without self-worth as the moderator, the more financially stable family was most likely having high household income, more working experience, doing budgeting and participating in high diversified portfolio.

The less financially stable family was most probably those having lower household income, less working experience, doing less budgeting and less participating in diversified portfolio.

As displayed in Table 4.52, binary logistic regression for financial well-being also showed moderate hit ratios of correctly classified cases for Model 5. The overall hit ratio was 68.0 percent for the model with self-worth as the moderator. Families classified in the first group of less financially stable were moderately (75.6%) correctly classified in this group using Model 5 of the binary logistic regression. Families were also moderately correctly classified in the more financially stable group, with a lower percentage of 58.2%.

Table 4.52
Group Classification of the Logistic Regression Model 5 for Financial Management Practices with Financial Well-being and Self-Worth as Moderator

Observed	Predicted		Percentage Correct
	Less Financially Stable	More Financially Stable	
Less Financially Stable	341	110	75.6
More Financially Stable	146	203	58.2
			68.0

Overall, the two groups of financial well-being were different in their characteristics based on the socioeconomic characteristics namely working experience and household income, financial management practices such as budgeting and investment, and self-worth. The logistic regression model was able to differentiate the two groups on the basis of the above characteristics.

Referring to Model 5 with self-worth as the moderator, the more financially stable family was most likely having high household income, more working experience, doing more budgeting, participating in high diversified portfolio and having a low self-worth family financial manager.

The less financially stable family was most probably those having lower household income, less working experience, doing less budgeting, less participating in diversified portfolio and having a high self-worth family financial manager.

As a conclusion, the two groups of financial well-being were correctly classified at a moderate hit ratio of 67.1 percent for Model 3 without self-worth as the moderator and a higher hit ratio of 68.0 percent for Model 5 with self-worth as the moderator.

4.8.2 Model for Investment in Risky Assets by Families

Measures for goodness of fit of the logistic regression models were given in the SPSS output and tabulated in Table 4.53. Model 1 column gives the main effects of socioeconomic characteristics and Model 2 column presents the main effects of future time orientation and financial risk tolerance. The column having Model 3 shows the main effects of financial management practices and the column with the measures for Model 4 gives the main effect of self-worth. The last column containing the measures for Model 5 displays the results for the interaction effects between self-worth and financial management practices.

The -2 Log Likelihood values measure the model's goodness of fit that decreased throughout from Model 1 to Model 5 that was from 1045.632 to 942.982 in Model 3 to 929.401 in the final interaction model indicating better model fit. The Omnibus Tests of Model Coefficients values would also determine the goodness fit of the model. Results obtained showed that the coefficients were highly significant and increased from 57.271 for Model 1 to 155.921 for Model 3 and further increased to 173.502 for Model 5. This indicated better goodness of fit of the later regression models.

Table 4.53
Goodness of Fit of the Model for Participation in Risky Assets

Goodness of Fit Measures	Model 1 (Main Effects of Socioeconomic Characteristics)	Model 2 (Main Effects of Future Time Orientation and Financial Risk Tolerance)	Model 3 (Main Effects of Financial Management Practices)	Model 4 (Main Effect of Self-worth)	Model 5 (Interacti on Effects)
-2Log Likelihood (max)	1045.632	1022.227	946.982	939.872	929.401
Omnibus Tests:					
Chi-square (χ^2)	57.271**	80.675**	155.921**	163.031**	173.502**
Significance (p)	0.0001	0.0001	0.0001	0.0001	0.0001
Hosmer and Lemeshow Test:					
Chi-square (χ^2)	1.708	11.887	14.738	14.857	15.567
Significance (p)	0.989	0.156	0.064	0.062	0.051
Cox and Snell R Square	0.069	0.096	0.177	0.184	0.195
Nagelkerke R Square	0.092	0.128	0.237	0.246	0.261
Degree of Freedom (df)	8	10	16	17	23
Percentage Correctly Classified	61.4	64.6	69.5	70.4	71.5

The Hosmer and Lemeshow test offered support for the goodness of fit of the models. The non-significant Chi-square values for Model 1 to Model 5 supported the goodness of fit of the models. Increasing values of Chi-square were observed throughout Model 1 to Model 5 that was from 11.887 for Model 1 to 14.738 for Model 3 to 15.567 in the final

model. Significance levels were 0.989 to 0.051 across the models. The non-significant values indicated that there was no statistical significant difference between the observed and predicted classifications for each of the model.

The Cox and Snell R Square and Nagelkerke R Square are interpreted as follows. The pseudo R Square values ranges from 0 to 1. Higher values of both R squares give a better model fit as higher percentage of the variance in the dependent variable is explained by the model.

With only socioeconomic characteristics in Model 1, about seven and nine percent of the variance in investment decision to participate in risky assets was explained by the model as shown by the R squared values of Cox and Snell, and Nagelkerke. The explained variance in participation in risky assets was higher that was almost ten and thirteen percent with future time orientation and financial risk tolerance included in Model 2.

Later in Model 3, the explained variance increased to eighteen and twenty four percent with the inclusion of financial management practices factors. Financial management practices in the model resulted in a better logistic regression model with substantial explanatory power. There were a total of 16 predictor variables explaining the variance in investment decision to participate in risky assets for this study.

For Model 4 with the inclusion of self-worth, the explained variance increased slightly to more than eighteen and almost twenty five percent. By having self-worth in the model, it

resulted in a better logistic regression model with substantial explanatory power. There were a total of 17 predictor variables explaining the variance in investment decision to participate in risky assets for this study.

Model 5 with the inclusion of the interaction terms of self-worth and financial management practices factors resulted in a slight increase in the explained variance presented by the Cox and Snell, and Nagelkerke R squares. They increased to more than nineteen and about twenty six percent respectively. By having the interaction terms of self-worth and financial management practices in the model, it resulted in a better logistic regression model with substantial explanatory power. There were a total of 23 predictor variables explaining the variance in investment decision to participate in risky assets for this study. Hence, the regression models were concluded as being fit and valid for further analysis and interpretation.

Group Classification

The percentage correctly classified or hit ratios increased from 61.4 percent in Model 1 to 71.5 percent in Model 5 as shown in Table 4.53. This suggested that the later models were better models than the previous one.

Table 4.54 shows the group classification of the binary logistic regression Model 3 for participation in risky assets. For families classified in the first group of non-participation in risky assets, they were moderately (62.7%) correctly classified in this group using Model 3 of the binary logistic regression. Families were also moderately correctly

classified in the participation in risky assets group, with a slightly higher percentage of 75.2%. The overall hit ratio was also at the moderate level (69.5%).

Generally, the two groups of participation in risky assets were different in their characteristics based on financial risk-tolerance and financial management practices namely record-keeping, credit practices, savings and risk practices. The binary logistic regression model was able to differentiate the two groups based on the above characteristics.

Families participating in risky assets were most likely had more financial risk tolerant family financial managers. They would also be doing more cash-flow activities specifically engaging in record-keeping, saving regularly and purchasing various types of insurance policies for family members. On the other hand, the families would be less likely involved in credit practices such as having fewer tendencies to make loan repayment on time or paying before due date to avoid overdue charges.

Families not participating in risky assets were most probably those having lower financial risk tolerant family financial manager. Apart from that, the families seldom did cash-flow 'record-keeping' activities, save irregularly, buying limited types of insurance policies for family members and involved more in credit practices such as tend to make loan repayment on time or paying before due date to avoid overdue charges.

Table 4.54
Group Classification of the Binary Logistic Regression Model 3
for Participation in Risky Assets

Observed	Predicted		Percentage Correct
	Non-participation in Risky Assets	Participation in Risky Assets	
Non-participation in Risky Assets	229	136	62.7
Participation in Risky Assets	108	327	75.2
			69.5

Table 4.55 shows the group classification of the binary logistic regression Model 5 for participation in risky assets. For families classified in the first group of non-participation in risky assets, they were moderately (63.0%) correctly classified in this group using Model 5 of the binary logistic regression. Families were also moderately correctly classified in the participation in risky assets group, with a slightly higher percentage of 78.0%. The overall hit ratio was also at the moderate level (71.5%).

Generally, the two groups of participation in risky assets were different in their characteristics based on financial risk-tolerance and financial management practices such as record-keeping, credit, savings, risk practices and self-worth. The binary logistic regression model was able to differentiate the two groups based on the above characteristics.

Families participating in risky assets were most likely had more financial risk tolerant family financial managers. They would also be doing more cash-flow activities specifically engaging in record-keeping, saving regularly, purchasing various types of insurance policies for family members and having high self-worth family financial managers. Conversely, the families would be less likely involved in credit practices such as having fewer tendencies to make loan repayment on time or paying before due date to avoid overdue charges.

Families not participating in risky assets were most probably those having lower financial risk tolerant family financial managers. Apart from that, the families seldom did cash-flow 'record-keeping' activities, save irregularly, buying limited types of insurance policies for family members and having low self-worth family financial managers. The families would also be more likely to involve in credit practices such as tend to make loan repayment on time or paying before due date to avoid overdue charges.

Table 4.55
Group Classification of the Binary Logistic Regression Model 5
for Participation in Risky Assets, and Self-worth as Moderator

Observed	Predicted		Percentage Correct
	Non-participation in Risky Assets	Participation in Risky Assets	
Non-participation in Risky Assets	230	135	63.0
Participation in Risky Assets	93	342	78.6
			71.5

As a conclusion, the two groups of participation in risky assets were correctly classified at a moderate hit ratio of 69.5 percent for Model 3 without self-worth as the moderator and a higher hit ratio of 71.5 percent for Model 5 with self-worth as the moderator.

CHAPTER 5

CONCLUSION

5.1 INTRODUCTION

This chapter consists of six sections. The chapter starts with the overview of the study. Second, the summary of the findings including the hypotheses testing results are presented. Following the summary of the result, contributions of the study are outlined. The fourth section will discuss managerial implications of the findings from the study. Limitations of the study are presented in the following section and the final section offers recommendations for future research.

5.2 OVERVIEW OF THE STUDY

The study developed a framework that displays antecedents and consequences of financial management practices. The moderating role of self-worth of the family financial manager was introduced in the framework. The moderating effect of the construct was explored between factors of financial management practices and financial well-being.

The framework was tested in the context of family in a multiracial population namely Malaysia. Associations of time horizon with risk preference and risk preference with factors of financial management practices were determined. Time horizon of family financial manager was measured by future time orientation and risk preference of family financial manager was measured by financial risk tolerance. Financial management practices consisted of dimensions such as financial planning, cash-flow, credit, savings,

investment, and risk. It was also aimed at finding the differences in financial management practices among the main ethnicities in Malaysia and among families residing in urban and rural areas.

Effective management of the financial matters by family financial manager is critical for the financial success of the family. Financial well-being or financial instability of a family depends on the financial management practices as been stated in financial management textbooks. However, which financial management practices really gives impact on financial well-being and which of the financial management practices is the strongest predictor of financial well-being remained uncertain.

The studies on financial management practices previously were concentrated on the socioeconomic characteristics of the individual doing those practices thus, knowing who and to what extent they practiced the specific financial activities. However the role of financial management practices on financial well-being had not much been explored empirically especially in Malaysia. Hence, this study also focused on the probability of financial management practices to be predictors of financial well-being of families in Malaysia controlling for socioeconomic characteristics and personality attributes namely future time orientation and financial risk tolerance of family financial managers. The study also could be of use to check for consistency in socioeconomic characteristics as predictors. Apart from that, the probability of personality variables to predict financial well-being could be ascertained.

The analysis on socioeconomic characteristics, personality variables, and financial management practices as predictors for financial well-being were meant for determining the profile of financially well families. Thus this study will result in setting-up the profile of successful families in managing their financial matters in terms of their socioeconomic background, personality variables and financial management practices.

Self-worth of a family financial manager was previously investigated in the context of its relationship with financial behavior and with subjective financial well-being measured by financial satisfaction. This study intended to explore the construct as a moderator between financial management practices and financial well-being.

The second research framework extended from the first one looked at the possibility of socioeconomic characteristics, personality factors namely future time orientation and financial risk tolerance and financial management practices in predicting investment in risky assets by families. The profile of families participating in risky assets in terms of socioeconomic characteristics, personality factors, and financial management practices were thus determined.

Self-worth of a family financial manager was also determined its moderating role between financial management practices and investment in risky assets. No previous study regarding these was found.

Investment decision in risky assets in past research used objective determination of investment whereas this study used a subjective measurement. Investment in risky assets was determined from the response to a Likert scale statement. The study also aimed to identify whether investors in risky assets performed financial management practices that were likely to predict good financial well-being.

This quantitative study adopted the survey method. Quota sampling was employed to gather data through questionnaire forms from 800 samples. Respondents were the reported family financial manager in families comprising the three main ethnicities in Malaysia that were the Malay, Chinese, and Indian and residing in urban and rural areas throughout Peninsular Malaysia. As the study looked into comparisons between the residential areas and among the main ethnicities in Malaysia, East Malaysia was excluded as it was not representative of the ethnicities. The quota sampling was based on both the ratio of the residential areas and the ratio of the ethnicities. The ratio for ethnicity was 60 percent of Malay, 30 percent of Chinese and 10 percent of Indian (Population and Housing Census of Malaysia, 2000). The residing areas were in a ratio of 60 percent of urban area to 40 percent of rural area (Economic Planning Unit, 2006). The sample mix resulted in 480 Malays, 240 Chinese and 80 Indians. Further break-down according to the ratio of urban area to rural area for each ethnicity were 288 to 192, 144 to 96 and 48 to 32 respectively.

Socioeconomic characteristics investigated were the ethnicity, residential area, household income, household size and home ownership. Other than that, the education level, and

working experience of the family financial manager were examined. Among the variables used in this study were future time orientation, financial risk tolerance and self-worth of family financial manager, and dimensions of financial management practices. Financial well-being of family measuring the financial utility concept was determined by the Malaysian Personal Financial Well-being and financial satisfaction. Other measurements for financial well-being were financial ratios and financial problem.

Descriptive and inferential data analyses were applied on the data collected. Associations between constructs were assessed using Pearson correlation. Tests of significant difference were used to determine differences between residential areas as well as among ethnicities. Scheffe Post-Hoc tests were used together with analysis of variance to confirm the direction of the significant differences among the three ethnicities.

Multivariate analysis specifically the hierarchical binary logistic regression were employed to reveal predictors for financial well-being and hence discriminating between the two groups of financial well-being in terms of socioeconomic characteristics, personality and financial management practices. Financial well-being as the dependent variable integrated both objective and subjective measurements of financial well-being that were financial ratios and Malaysian Personal Financial Well-being respectively.

The financially stable group or good financial well-being was determined from their ability to fulfill any one of the three financial ratios namely liquidity, solvency and consumer debt ratios and those who scored 6.21 and above this mean value for the

Malaysian Personal Financial Well-being scale. The rest of the respondents fell in the other group that was the less financially stable group or having poor financial well-being. The final model of the hierarchical binary logistic regression determined the moderating role of self-worth between factors of financial management practices extracted from factor analysis and the integrated financial well-being.

Further analysis using hierarchical binary logistic regression determined the profile of families investing in risky assets based on the socioeconomic characteristics, personality variables and financial management practices. Thus, significant predictors for investment in risky assets by families were determined. Consequently, the probability of socioeconomic characteristics, personality variables such as future time orientation and financial risk tolerance, and financial management practices (excluding investment) in predicting investment in risky assets by families were ascertained from the hit ratios.

The two groups of participation in risky assets were able to be discriminated in terms of socioeconomic characteristics, personality variables and financial management practices based on the hit ratios from the binary logistic regression. Participation in risky assets by families was determined from their investment in stocks, referring to their response to the statement 'Invested some money in stocks'. Those that never invested in any risky asset (stock) were classified as not participating in risky asset.

The study also identified whether investors in risky assets performed financial management practices that were likely to predict good financial well-being by comparing results from both frameworks on financial well-being and investment in risky assets.

The analyses helped to find support for the hypotheses and objectives developed in the study. Assumptions needed for the analyses were checked prior to the analyses. The assumptions of normality and multicollinearity were met in this study. Validity and reliability of the measurements were examined and presented.

5.3 MAJOR FINDINGS

Correlations among personality and financial management practices factors were identified together with differences between residential areas and among the main ethnicities in Malaysia in terms of financial management practices factors. The profile of family considered being successful in managing financial matters consisting of socioeconomic characteristics, personality, and financial management practices predicting financial well-being had been determined in this study. Characteristics of the financially stable and the less financially stable families used binary logistic regression to discriminate between the two groups of family. This resulted in two different sets of socioeconomic characteristic, personality, and financial management practices factors for the two groups.

Factor analysis on financial management practices items resulted in seven factors that were financial planning, cash-flow ‘record-keeping’, cash-flow ‘budgeting’, credit

practice, savings, investment, and risk practice. Other constructs were confirmed with one factor only that was for future time orientation, financial risk tolerance, self-worth, financial problem, financial satisfaction and Malaysian Personal Financial Well-being. High reliabilities were exhibited for each of the factors in financial management practices and other constructs used.

Pearson correlation analysis revealed that more risk tolerant family financial manager towards financial matter was associated with more future time oriented of the family financial manager. Thus, time horizon of family financial manager was positively related to their risk preference.

Risk preferences of the family financial manager was also analysed in relation to the factors of financial management practices. Financial risk averse individual was most likely to engage in cash-flow activities whereas financial risk tolerance individual was most likely to participate in diversified investment.

Test of significant difference analysis revealed that the extent of involvement in investment practice was different among the three main ethnicities in Malaysia that were Malay, Chinese, and Indian. Among the ethnicities, the Chinese families were more involved in diversified investment as compared to the Malay or Indian families using Scheffe Post-Hoc test. The Chinese also bought various types of insurance policies as compared to the Indian families. As for the differences in residential areas, the analysis of independent sample t-test found that the urban residents were more involved in

diversified investment and bought various types of insurance as compared to the rural residents.

Results of binary logistic regression analysis showed investment practice and cash-flow 'budgeting' as positive and significant predictors of good financial well-being. A family that was financially stable had high household income and more working experience, apart from investing and budgeting. These findings provided evidence that specific financial management practices, socioeconomic characteristics, and personality did had impact on financial well-being. Hence, the two groups of families with different state of financial well-being were discriminated using the binary logistic regression. The socioeconomic characteristics and type of personality identified for both groups of financial well-being and the financial management practices carried out by them would assist interested parties to help families who are at most risk of financial instability.

Self-worth of family financial manager was found to moderate positively the prediction of financial well-being by financial planning and cash-flow. The moderating effect of self-worth on other factors of financial management practices was not found. The support found for the moderating role of self-worth on financial planning and cash-flow practice however contributed to the theoretical development of family financial management model.

Another binary logistic regression identifying factors predicting investment decision in risky assets resulted in several significant predictors. Financial risk tolerance and several

factors of financial management practices were significantly predicting investment in risky assets. The family would more likely to participate in risky assets by having more financial risk tolerant family financial manager. Only three factors of the financial management practices were positive and significant namely savings, cash-flow 'record-keeping', and risk practices. The participated family in risky assets involved in regular savings, cash-flow activities, specifically engaging in record-keeping, and purchasing various types of insurance policies for family members. In contrast, family involved highly in credit practices would less likely to participate in risky assets.

Self-worth of family financial manager was again found as a moderator between risk practices and investing in risky assets. The moderating effect of self-worth on other factors of financial management practices was not found. The support found for the moderating role of self-worth however contributed to the theoretical development of investment decision model.

In the comparison between families in Malaysia and other countries such as USA and Japan for the dimensions of financial management practices, families in Malaysia in this study were different with families in other countries in the effect of investment, financial planning, savings, and credit repayment on financial well-being. On the other hand, Malaysian families studied were not different with families in other countries in the influence of risk management on financial well-being. As for the effect of budgeting on financial well-being, the families under study could be said as behaved similarly and also differently from the families in other countries.

5.4 SPECIFIC CONTRIBUTION OF THE STUDY

The study contributed to the body of knowledge of the family financial management and personal finance fields in general. The association of future time orientation with financial risk tolerance gave empirical evidence to the existing relationship between time horizon and risk preference of family financial manager.

The study also contributed to the understanding of the relationships of risk preference with factors of financial management practices. Financial risk tolerance was found to be positively related to investment practice whilst the relationships with the other factors of financial management practices were found to be negative. The more risk tolerant were they, the more diversified were their investment. For the other factors of financial management practices, the more risk averse were they, the higher their involvement in those practices. A risk averse individual would participate more in cash-flow activities such as doing record-keeping. They would likely be doing financial planning and practice wise credit management, saves regularly, and buying various type of insurance.

The financial management practices measurements were developed in the study gathering items from previous research and personal finance references. This contributed to reducing the methodological gap in this field. The measurement was factor analysed to determine the underlying factors. The items for financial management practices were decomposed to seven factors. The factors resulted from factor analysis were namely financial planning, cash-flow 'record-keeping', cash-flow 'budgeting', credit practice, savings, investment, and risk practice. Each factor consisting of at least three items

produced high reliability and thus could be treated as individual constructs. This enabled them to be used as separate constructs in the analysis. The seven factors constituted the six dimensions in financial management practices. Hence, differences in the factors or dimensions of the financial management practices across ethnicities or residential areas were possible to determine. Consequently, the factors were treated as separate potential predictors of financial well-being in the logistic regression analysis. The different strengths of the factors were able to be assessed.

The decomposition of the items for financial management practices resulted in at least three items for each individual construct. Thus each individual construct was a multi-item scale. Multi-item scale or composite measure was better in measuring the underlying concept for a construct compared to a single item scale. The concept of financial planning was previously measured by single item scale. However, in this study it was measured using multi-items scale. The multi-item financial planning measurement resulted from the factor analysis in the study filled the methodological gap. Other multi-item measurements of the factors in financial management practices also contributed to the methodological aspect as different items were involved in those dimensions compared to the previous studies.

Previous studies focused on socioeconomic characteristics as predictors of financial well-being and the extent of financial management practices carried out by families. In this study, along with socioeconomic characteristics, personality namely future time orientation, financial risk tolerance and self-worth of family financial manager, and

financial management practices were also studied as predictors for financial well-being. Specifically, there is an inclusion of a new variable tested in the financial management framework that was time horizon measured by future time orientation. Time horizon was found as a significant predictor for financial well-being after controlling for socioeconomic characteristics only. It was found as a non-significant predictor after controlling also for financial management practices. This however contributed to the prediction of financial well-being by personality variables. Thus, this contributed to the theoretical framework of financial management.

This study determined the predictors of financial well-being using integrated objective and subjective measurements of financial well-being. Previous studies used objective measures such as net-worth, income, financial ratios, and subjective measures of financial well-being such as financial satisfaction separately. Only one study found that integrated both type of measurements. The objective measurements used in this study were the financial ratios of the family that were specifically the liquidity ratio, solvency ratio, and consumer debt ratio. Past research on integrated measure of financial well-being used perception on financial well-being as the subjective measurement and financial ratios. This study instead adopted the Malaysian Personal Financial Well-being scale apart from having financial ratios. Thus, this integrated measure of financial well-being for the Malaysian families filled the methodological gap in this field of study.

Previous studies determined predictors for financial well-being of family using separate analysis for subjective financial well-being and objective financial well-being except for

Baek and DeVaney (2004). However they were using independent samples t-test to differentiate between two groups of financial well-being. This study on the other hand attempted to use integrated measure of financial well-being in a binary logistic regression analysis. Thus it contributed to fill a methodological gap in analysing predictors for integrated measurement of financial well-being.

Self-worth had been previously used as an independent variable. It was tested in this study as a moderator variable between factors in financial management practices and financial well-being of families. Financial planning and cash-flow practices that incorporated budgeting and record-keeping as predictors for financial well-being were moderated by self-worth. Hence, self-worth was a moderator between financial planning and financial well-being and also between cash-flow practices and financial well-being. These contributed to the theoretical framework of the family financial management.

The study as a whole involved a comprehensive framework of family financial management based on the resource management model by Deacon and Firebaugh (1988). There were associations among socioeconomic characteristics, financial risk tolerance, and future time orientation as the input, financial management practices as the throughput and financial well-being as the output components of the resource management model. Both personality variables namely financial risk tolerance and future time orientation were included in this framework. This comprehensive framework had not been studied in Malaysia. Thus, this contributed to fill the country gap for such design.

The second framework that was the extension from the first one studied on the predictors of the investment decisions specifically participation in risky assets. Investment decision had previously and vastly studied on its relationships with financial risk tolerance of the investors besides socioeconomic characteristics and time horizon. In this study using hierarchical binary logistic regression, financial management practices were determined their likelihood to predict investment decision in risky assets apart from socioeconomic characteristics, financial risk tolerance, and future time orientation (time horizon). Financial management practices namely record-keeping, credit, savings, and risk practices were found to be significantly predicting investment in risky assets. As reviewed by the researcher, none of the past research looked into financial management practices in predicting investment in risky assets, hence the introduction of the variables as predictors were new to the framework. This study contributed to the theoretical framework of behavioural predictors in investment decisions especially in risky assets.

Self-worth was once again tested as a moderating variable between financial management practices and investment in risky assets. This was also a new study with regard to investment decision studies. Self-worth was found to moderate risk practices in prediction of investment in risky assets by families. Thus, self-worth was a moderator between risk practices and risky assets investing; contributing to the theoretical framework of investment decision.

5.5 MANAGERIAL IMPLICATION

This study resulted in recommendations of specific financial management practices such as budgeting and investment that enabled the family to manage their financial matter effectively. Families actively doing budgeting and participating in investments were most probably be experiencing better financial well-being. Hence, families' knowledge on specific financial management practices that would likely give good impact on their financial well-being would also increase. A sound financial situation was expected from the financial management practices recommended.

By having the information on the profile of successful and unsuccessful individual or family in managing their financial matters, this would help the financial institutions to decide on the eligibility of applicants for financial support. Certain requirements on their back-grounds are needed to ensure non-default repayments of loan or credit. Referring to the results from this study, a family that was financially stable had high household income and more working experience, apart from participating in investment and doing budgeting. Certain criteria could be added for their eligibility as loan applicants such as having high household income and long tenure of work. Loan providers could also determine whether the applicants are active investors or highly involved in budgeting to be ranked higher as potentially approved applications.

In order to have a balance in the financial well-being among the main ethnicities, the government or financial educators are suggested to promote participation in investment especially risky assets that was associated with high return. As there were significant

differences regarding the ethnicities involvement in investments where Chinese families were more involved in diversified investment as compared to the Malay or Indian families, effort should be made to attract the Malay or Indian to invest especially in risky assets and with well-diversified portfolios. Certain infrastructure should be provided to them to initiate and to facilitate their participation in investment.

The study also found differences in residential areas with urban residents more involved in diversified investment and bought various types of insurance as compared to the rural residents. In the effort to blur the line between urban and rural residents in terms of financial well-being, the government is suggested to carry out similar promotion as suggested above and also provide suitable infrastructure. Financial institutions would likely have to offer investment products or insurance products that meet the needs and financial capability of the rural families.

Apart from that, it also gave suggestions to financial advisors who are advising individuals in financial matters or those involved in developing financial education programs namely financial educators to educate families in managing their finances as discussed below. Financial education programs can be modified based on the findings from this study.

Financial advisors might be able to use findings such as having positive significant relationships between self-worth and investment in risky asset, and between financial risk tolerance and investment in risky asset, to build investment portfolios for families. By

assessing the personality of potential or current investor namely self-worth and financial risk tolerance, financial advisors could build appropriate investment portfolios that suits the investors. High self-worth and financially risk tolerant investors may have risky portfolios as compared to low self-worth and financially risk averse investors that may have conservative portfolios. On the contrary, those low self-worth or financially risk averse investors could be trained to increase their self-worth and their financial risk tolerance.

Since self-worth of family financial manager was found to moderate positively the prediction of financial well-being by financial planning and cash-flow meaning that doing financial planning and cash-flow would most probably result in a financially well family if those are carried out by high self-worth family financial manager, a suggestion could be made regarding this. Individuals actively planned their finances and doing cash-flows in the process of managing their financial matters should possess self-worth personality in order to be financially stable. Those who are not highly self-worth individuals could be enhanced their self-worth to lead to a financially stable situation while doing financial planning and cash-flow. Even for those with high self-worth but who are not yet actively doing financial planning or cash-flow, they could be influenced to do financial planning and cash-flow to result in financially well families.

As for the significant effect found for the moderating role of self-worth between risk practices and risky investment which revealed that high self-worth investors purchasing various types of insurance policies for family members were highly participating in risky

investment, this could lead to a suggestion of increasing the self-worth of investors and promoting on purchasing various types of insurances for risky investors.

Financial educators could play its role in enhancing financial stability of the investors. In educating those individuals or families investing in risky assets, financial educators could highlight the necessary financial management practice to result in good financial well-being for the investors. The findings showed that there is a financial management practice that is deemed important in influencing financial stability as found from the first framework of study namely budgeting, was not carried out by those investors. Hence, financial educators could suggest investors to do budgeting to elevate their financial well-being other than involving in regular savings, cash-flow activities, specifically engaging in record-keeping, and purchasing various types of insurance policies for family members, or being less involved in credit practices.

Other people or institutions working to elevate family's well-being in general would also benefit from the findings. Marital counselors might benefit from the knowledge on individual's evaluation of their financial well-being since one of the most frequently reported reasons for marital conflict was arguments over family financial matters.

Handling financial matters effectively by the families will not only benefit the families themselves but also the community and the financial industry. This will in turn helped to avoid facing financial problems and thus reducing problems in the family. A less problematic family will contribute to a good neighbourhood and community. Financial

institutions on the other hand will experience better loan recovery as the family is in a financially stable state.

5.6 LIMITATION

Some limitations do exist in this study even though the findings from the study offer knowledge advancement and gave managerial implication to alter the financial well-being of family at risk of financial instability. Improvements in future study can be initiated by these limitations as it suggest areas to improve.

Even though the measurement for subjective financial well-being was developed considering the Malaysian culture, however for the objective financial well-being namely the financial ratios, the border for differentiating financially well and otherwise were based on borders used on American families. The financial ratios border might not be appropriate for the Malaysian families having different culture from the American families.

As this study was an ex post facto cross-sectional study, the responses to the financial management practices might differ from the actual extent of practices. The financial management practices asked referred to the practices carried out throughout their marriage. Some information regarding the practices might not be recalled exactly by the respondent.

A cross-sectional study also had the possibility of having considerable number of variables that interfere with the results and thus create statistical noise. However, this was overcome by controlling for some variables that could create large differences in respondents, such as ethnicity, income and education. Nevertheless these additional variables imposed threats to the internal validity.

The sample consisted of residents in Peninsular Malaysia excluding those residing in East Malaysia. The Malay, Chinese or Indian living in East Malaysia might develop slightly different culture from the Peninsular Malaysia due to the influence of the major ethnic groups in Sabah and Sarawak specifically the Iban and Kadazan. Hence, the results of the study might not apply to the Malay, Chinese or Indian resided in East Malaysia.

The framework of the study was applied only for family setting with a family consisting of a husband and a wife having at least one child. Differences in the constructs studied might occur in other situations such as those not having any child or was a single parent.

The respondent was either the husband or the wife whoever assumed the role of financial manager of the family. The questions asked were responded according to the respondent's perception. The financial management practices items for example would be responded differently especially if the spouse's of the respondent shared most of the tasks. The financial well-being of the family would be viewed differently by the spouse.

The results of the study could not be generalised to populations other than in Malaysia as vast different of cultures existed for other residents due to differences in geographical regions and races. Nevertheless, the influence of certain factors in financial management practices on financial well-being of family resulted from a robust analysis would provide knowledge to enhance family financial well-being.

The moderation effect on the relationship between financial management practices and financial well-being was limited to only one personality variable namely self-worth. It could not simply be generalised to any other personality variables.

5.7 FUTURE RESEARCH

Limitations of the study discussed above open suggestions for future studies. Future research that researchers should focus on were outlined below.

Since the measurements for objective financial well-being were based on American families, further studies should focus on developing the measurements through qualitative studies. Hence, interviews may be conducted with a small sample of representative families to discuss how they managed emergencies and the amount of debt they were comfortable with.

Researchers should focus on longitudinal study regarding this issue instead of cross-sectional study. This allowed the researchers to gather data as it happens and hence the

data collected would be near to exact. The progress of the practices should be followed for several years for each family.

Researchers should also include residents in East Malaysia who were Malay, Chinese and Indian as samples of their study. This would reduce the differences in the data collected due to the influence of culture for each of the ethnicity. Hence, the results of the study would be more applicable to the ethnicities studied in the whole country.

The study should not be restricted to a traditional family setting only. Samples for the study should include those who are single parents or those having no child. Single parent most probably would be facing more risks especially financial risks as there is only one breadwinner. Handling financial matters would be more critical for their financial well-being. Thus, different results might be anticipated for them.

Respondents for the study should include both husband and wife in a family. This would enable the researcher to identify any differences in the perceptions of the family on their financial well-being or any differences in stating the financial management practices carried out by the family.

This study sampled the Malaysian population that had certain culture. Comparative studies between Malaysian residents and other countries might be useful to examine whether culture plays a major role in financial management practices carried out by families in relation to financial well-being and investment decision.

Other constructs of financial well-being could be used to measure financial well-being of family. The framework of financial management could be tested using other measurement of financial well-being either for the objective or the subjective measurements. This study used an integrated construct of subjective and objective financial well-being specifically the Malaysian Personal Financial Well-being and financial ratios.

Only one construct was tested as a moderator variable between factors of financial management practices and financial well-being of family in this study. Other constructs especially other personality factors such as future time orientation could be tested as moderator variables.

Regarding the investment decision in risky assets, the study on participation in risky assets only looked at the resulting portfolio choice. Thus the decision of families to result in those choices of portfolio had not been determined. Further studies on investment decision might focus on how the families make decisions on the portfolio choices that are the portfolio allocation processes.

5.8 CONCLUSION

The study contributed to enhance the understanding of financial management practices' role on financial well-being of family. The role of future time orientation and financial risk tolerance apart from socioeconomic characteristics were also identified. Besides that, the function of a personality variable specifically the self-worth of financial manager as

moderating variable between financial management practices and financial well-being was supported. In managing financial matters in the family, most family financial managers realized the importance of managing effectively the limited resources they had. Specific financial activities were practiced by the financial managers that helped to elevate their financial situation. This study offered support for the critical role of financial management practices to financial well-being. The inclusion of a moderator variable in the financial management framework reflected the advance field.

In the extension study on investment in risky assets, personality variables other than socioeconomic characteristics were added. These variables together with financial management practices were determined their predictive ability of investment in risky assets. Moderating role of self-worth between financial management practices and investment decision in risky assets offers a reflection of an advance field. Possible future research was also identified to enrich the literature on financial management practices role in the long-run and the financial management in general, and predictors of investment decision in risky assets.

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