

**A STUDY OF RISK TAKING BEHAVIOR IN MALAYSIAN  
STOCK MARKET**

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Research report is partial fulfillment of the requirements for the degree of  
Masters of Business Administration

2007

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## AKNOWLEDGEMENT

I would like to thank Allah The Almighty who has given me the strength and courage to complete my pursue of higher learning.

I would also like to extend my gratitude and appreciation to Associate Professor Dr. Fauziah Md Taib for her invaluable advice, guidance and helpful discussions throughout the period of this research. Special thanks go to Amy Pablo and Sim Sitkin, the original authors of the model used in this study, for providing the questionnaire in carrying out my research. My gratitude also goes to all the clients from various stock broking companies in Penang who were patient in responding the lengthy questionnaire.

I would also like to take this opportunity to dedicate my work to my family who has been the pillar of my strength throughout this endeavor.

Finally, I am indebted to my husband for his encouragement and patience.

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## ABSTRAK

Penyelidikan ini bertujuan untuk mengkaji perilaku pengambilan risiko para pelabur individu di pasaran saham Malaysia. Kerangka penyelidikan telah direkabentuk untuk menguji perilaku pengambilan risiko para pelabur. Terdapat lima pembolehubah bagi menganalisa pengambilan risiko iaitu kecondongan mengambil risiko, inersia, hasil terdahulu pengambilan kurang risiko, rangka masalah dan kebiasaan bidang masalah. Selain daripada itu, kecenderungan pengambilan risiko dan persepsi risiko juga diperkenalkan sebagai pembolehubah pencilahan. Ujian hipotesis telah dilakukan kepada 162 pelabur yang diterima daripada 8 broker saham. Keputusan telah membuktikan bahawa kecondongan megambil risiko dan inersia mempunyai kesan yang signifikan terhadap kecenderungan pengambilan risiko manakala kebiasaan bidang masalah mempunyai kesan yang signifikan terhadap persepsi risiko. Penyelidikan ini gagal membuktikan fungsi pembolehubah pencilahan kecenderungan pengambilan risiko dan persepsi risiko. Secara keseluruhan, inersia, hasil terdahulu pengambilan kurang risiko dan kecenderungan pengambilan risiko mempunyai kesan yang signifikan terhadap perilaku pengambilan risiko para pelabur.



## **ABSTRACT**

This research studied the risk taking behavior of individual investors in the Malaysian stock market. A theoretical framework was developed to test the risk taking behavior of individual investors. There were five independent variables in the proposed model – risk preference, inertia, less risk outcome history, problem framing and problem domain familiarity. Risk propensity and risk perception were the two mediating variables in this model. Hypotheses were tested with 162 investors from eight stock broking companies. It was found out that risk preference and inertia had significant effect on risk propensity whereas problem domain familiarity had significant effect on risk perception. This study failed to confirm the mediating role of risk propensity and risk perception. Overall, inertia, less risk outcome history and risk propensity have been found to have significant effect on investors risk taking behavior

## Chapter 1

### INTRODUCTION

#### 1.1 Introduction

During the super bull run the Kuala Lumpur Composite Index (KLCI) soared from the level around 600 points in July, 1992 to a high of 1330 points in May, 1994. The Second Board Index also went to high of 682 points in 1997. The strong performance of local bourses attracted large participation among investors. However, the onset of the Asian financial crisis in 1998 had a very profound impact on Malaysian stock market. The KLCI plummeted to a low of 261 points in September, 1998 while the Second board Index went to a low of 75 points also in September 1998. As a consequence, large amount of market capitalization of the KLSE was wiped off during this period.

A study by Law (2006) provides empirical evidence that Bursa Malaysia has had a period of prolonged stock market volatility after the Asian Financial crisis. Market volatility is of great concern because it is a perceived measure of risk. Excessive volatility in the stock market may delay investment in the market due to high level uncertainty. Law's study also found that even though Malaysian stock market volatility has decreased from the period during the crisis it has not yet returned to the pre crisis level.

The Malaysian equity market consists of several categories of players namely retailers, institutional funds, foreign funds, hedge funds, and market makers. As with the rest of the stock market, the performance of Malaysian stock market has always been

driven by liquidity. Strong economic fundamentals and corporate earnings have always been the catalyst for fund, especially the foreign fund, to flow into the market.

Based on my personal experience as a licensed dealers representative in a stock broking company and the general opinion of other dealers and remisiers, it can be said that retail investors have less knowledge and expertise in investing. Generally, retailers pay less attention to the fundamental valuation of equity investment. Anecdotal evidence also shows that retailers depend more on rumors and hearsay in the market when making investment decisions. Most of them regard stock market investment as speculative and short term orientated. Investment performance in stock market is often regarded in terms of “win” or “loss” as more emphasis is placed on capital gains. A study by Ozorio and Fong (2004) confirms that even though individual investors believe that their abilities to bear risks are not high, gratification for instant or fast rewards may help explain why some investors engage in risky investment.

Excess market volatility during the pre-crisis period has exposed investors to higher risk. Among those who were badly hit during this time were the retail investors. This has made them to be more careful in their investment strategies. The strong rally in KLCI since mid-2006 saw lack of significant retail participation. The Edge Malaysia dated February 26, 2007 reports that retail participation in the Malaysian stock market improved from 28 percent of market turnover in 2005 to about 35 percent in 1Q2006 and 40 percent in 2H2006. However, these figures are still way below previous levels of up to 60 percent during the 1990s.

The below average performance of the Second Board Index which has traditionally been retail driven is a partial reflection of this. Even though at present the

KLCI has re-rated back to its historical high of 1332 points in May 1994, the Second Board Index is hovering at mere 105 points compared to its record high of 682 points in March 1997. The emergence of unit-trust industry that has grown tremendously could have absorbed part of the liquidity of the stock market which would have gone to the lower liners (The Edge Daily, 26 February, 2006). The introduction of lower capitalized Mesdaq Board also could have accounted for the lack of interest in the Second Board Index.

According to Bursa Malaysia Chairman Yusli, the ideal ratio for institutional and retail participations in the Malaysian stock market is 50-50 (The Star, 13 July 2005). Bursa Malaysia, Securities Commission and the stock broking firms, in addressing this issue, have undertaken various measures. Among the measures taken are reducing the tradable quantity from 1000 shares to 100 shares, make it compulsory for dealer and remisiers to attend training in order for them to be more knowledgeable and conduct road show to better educate the retailer on various investing technique.

## **1.2 Background**

Investment in stock market has always been dynamic and uncertain. Investors need to consider many factors before deciding to invest. As such, it is very crucial to understand the reason why investors trade. Apart from increasing their wealth, investors also trade in order to diversify their portfolio and increase market liquidity (Odean, 1999). Odean mentions that rational investors should correctly assess their expected profit from trading activities. If the expected returns from trading are insufficient to offset costs, rational investor will not trade.

It is a well known fact that stock market investment entails exposure to risk. Since risk is factored into the stock market investment at all time, it remains as one of the fundamental factors that need to be addressed in understanding investor behavior. This fact is event more prevalent in the context stock market investment in Malaysia due to the fact that our market exhibits a weak form of efficient market hypothesis. According to Jimmy Loke, the founder and chief executive officer of OSK 188.com, about 80% of retail investors in Malaysia do not have adequate knowledge to invest in the market (The Star, 6 March, 2006). It is extremely crucial to understand investors risk taking behavior given the facts that investors in Malaysia are exposed to higher amount risk and are less knowledgeable.

A vast body of knowledge exists with regard to risk taking behaviors in decision making. How people actually make decision under conditions of uncertainty appears to be far more complex issue. In general, it is known that given choice investors will always want to maximize their returns. Often time, investor need to compromise between maximizing expected return and minimizing the level of risk.

The relationship between risk and return has long been established in various financial theories. One of the earliest theories developed to explain decision making under risk and uncertainty is the expected utility model by von Neumann and Morgenstern. The axioms of Utility Theory argue that investors are (1) completely rational (2) able to deal with complex choices (3) risk averse and (4) wealth maximizing. In principle the theory basically says that a rational decision maker will select the alternative for which the sum of probabilities times the utilities is at maximum (Milburn and Billings, 1976). This theory assumes that investors select the portfolio that

maximizes expected return while minimizing risk. Utility theory has long dominated economic theory because the theory offers a parsimonious representation of truly rational behavior under uncertainty.

Efficient Market Hypothesis, which is the widely used proposition in financial market, postulates that stock market is efficient. Rational investors will use all available information in making their decision. Prices of stocks, therefore, should reflect all available information about present and future fundamental value of the company. The main question here is whether investors are actually always rational in their financial decision-making?

Behavioral finance, a subdiscipline of finance that explains the behavioral aspects of investment decisions, studies choice under uncertainty. Proponents of behavioral finance argue that investors may not be rational all times but they are always human. Nagy and Obenberger (1994) study using various utility maximization and behavioral variables found that classical wealth maximization criteria are important to investors even though investor use diverse criteria when picking up stocks.

Baker and Nofsinger (2002) state “Traditional finance concerns the rational solution to the decision problems by developing ideas and financial tools for how investors should behave”. Behavioral finance, on the other hand, examines actual investors’ behavior in financial settings. It incorporates psychological factors in investment behavior. This concept very much relates to Sigmund Freud’s theory of motivation that postulates that human behavior is motivated by both conscious and unconscious cues. As stated by Law (2006), in recent years the efficient market

hypothesis has been increasingly supplanted by behavioral finance due to the failure of the previous theory in incorporating human behavior.

A study by Mukerji and Wright (2002) looks into the different approaches in assessing risk taking behavior between financial economic theory and behavioral theories. Under the earlier theory individuals are assumed to make rational and objective choices. As a result they would use similar measures in assessing their risk taking behavior and positive risk return relationship is expected across the board regardless of non-economic differences among the individuals.

However risk taking is approached with greater subjectivity from the perspective of behavioral theories. Individual's preference for risk is said to vary according to time framing, situational constraints, problem framing and also other contingencies. As a result, individuals will have different assessment of risk and their risk taking behavior will vary according to changing circumstances that are internal and external to the person and the situation.

### **1.3 Problem Statement**

One of the most crucial factors that need to be addressed in stock market investment is the amount of risk to be taken. Probability of loss is higher for stocks than safer investments like bond (Thaler, 1995). His study documents that since possible losses are weighted 2.5 times more heavily than possible gains, the extra weighting of the negative outcome need to be fully compensated in order to match the attractiveness of the safer assets.

The high complexity and uncertainty nature of financial decision making makes the investors not to rely on fixed rules in decision making (Kahneman and Riepe, 1998).

Investors are normal human beings that are prone to be influenced by both individual and situational characteristics in their decision making (Sitkin and Pablo, 1992). In any situation, given the limited amount of time and information processing capabilities, investors are subjected to heuristic biases in their decision making. A study by Diacon (2004) shows that individual investors perceive higher risk compared to financial advisors. This in itself may encourage individual investors to make more conservative investment choices by investing too little in equities and too much in fixed-income assets.

As far as the Malaysian stock market is concerned, the lack of retail participation in KLCI mid 2006 stock market rally makes us think as to what are reasons that are making the retail investors to shy away from the market now given the fact that they accounted for about 60 percent of the volume in the market during the 90's. The dwindling participation of retail investors since the prelude of Asian financial crisis poses a very interesting question for us: What have they learned from the 1997 financial crisis episode? Has it made them to be more cautious about their investment that they are not willing to take as much risk as before?

This study is undertaken in order to see if risk aversion is a factor that is causing the retail investors to participate less in the market. As such, a study that examines the risk taking behavior of retail investors would be helpful in identifying factors that influence investors to participate less in the Malaysian stock market. In assessing their risk taking behavior situational characteristics, problem characteristics and also individual characteristics are looked into. The mediating role of risk propensity and risk perception is also investigated.



## 1.4 Research Questions

In order to understand the factors that influence individual investors risk taking behavior it is important for the present study to address these questions:

1. How does individual investors risk preference influence their risk propensity?
2. How does individual investors' routine way of handling investment risk influence their risk propensity?
3. How does individual investors' previous investment outcome influence their risk propensity?
4. How does investors risk propensity influence their risk perception?
5. How does problem framing influence individual investors risk perception?
6. How does problem domain familiarity influence individual investors risk perception?
7. How does individual investors risk propensity and risk perception influence their risk taking behavior?
8. How does risk propensity mediates the influence of risk preference, inertia and outcome history on individual investors risk taking behavior?
9. How does risk propensity mediates the influence of risk preference, inertia and outcome history on individual investors risk perception?
10. How does risk perception mediates the influence of risk propensity, problem framing and problem domain familiarity on individual investors risk taking behavior?

## 1.5 Research Objectives

This study is undertaken in order to identify the determinants of individual investors risk taking behavior in stock market investment. In doing so, this study will look into various factors that have been posited to influence individual investors risk taking behavior. More specifically, the objectives of this study are to:

1. Examine if individual investors preference towards risk influences their general tendency to either take or avoid risk (risk propensity).
2. Examine if individual investors exhibit habitual or routine ways of handling risk-related situations that predispose them to react in predictable ways in their general tendency to either take or avoid risk.
3. Examine if individual investors prior risk-seeking outcome influence their current tendency to either take or avoid risk.
4. Examine if individual investors general tendency to take or avoid risks, that is, the decision maker's risk propensity influence their risk perception.
5. Examine if the way a risky situation is framed (i.e. as loss or gain) influence individual investors risk perception.
6. Examine if individual investors prior experience in handling risky investment decision influence their risk perception.
7. Examine if individual investors risk propensity and risk perception influence their risk taking behavior.
8. Examine if individual investors risk propensity mediates the influence of risk preference, inertia and outcome history on their risk taking behavior.

9. Examine if individual investors risk propensity mediates the influence of risk preference, inertia and outcome history on their risk perception.
10. Examine if individual investors risk perception mediates the influence of risk propensity, problem framing and problem domain familiarity on their risk taking behavior.

### **1.6 Significance of the Study**

Even though risk taking behavior is widely researched topic in finance, findings show that consumer decision making research in the context of financial products is surprisingly scarce (Byrne 2005) as most of the past researches on risky decision making have only focused on individual risk taking behavior in an organizational context. Specifically, decision making within the context of stock market investment has not received much research attention. In the context of Malaysian stock market, there has not been any publicly available research that addresses this issue. Nevertheless, it is very crucial to understand the determinants of investors risk taking behavior.

Traditional theories have classified financial risk as something objective that can be measured by the degree of volatility of returns and individual tradeoff between risk and return (Diacon, 2004). Since many factors have been found to influence the psychology of decision making, subsequent theories have incorporated attributes other than return in their evaluation of risk. The present study contributes towards understanding individual investors' investment risk taking behavior from the perspective of behavioral theory.

Kahneman and Tversky (1979) propose Prospect Theory as an alternative to Expected Utility Theory. It is one of the widely used theories of individual decision making that looks into cognitive limitation of decision maker. Prospect Theory postulates that

individuals will be risk averse in gain situation and risk seeking in loss situation. In reviewing Prospect Theory, Sitkin and Pablo (1992) observed that inconsistencies have been found in previous studies with regard individual decision making in gain and loss situation. Individuals have been found to be more risk taking in a situation labeled as opportunities and less risk taking in a situation labeled as threat. Based on analysis of the existing theory, Sitkin and Pablo (1992) reconciled these contradictions and proposed an alternative model of the determinants of risky behavior. In their reconceptualization of the determinants of risk behavior, Sitkin and Pablo (1992) suggested that risky behavior is mediated by two individual factors: risk propensity and risk perception.

As asserted by Kahneman and Riepe (1998) although choice problem may appear to be objectively defined, in actual fact it is very contextual and can only be viewed through the lens of individual decision maker's interpretation. Sitkin and Pablo's model looks into individual risk taking behavior from broader perspectives that includes cognitive, individual and situational perspectives. Essentially this model was chosen for the present study due to its various dimensions that are relevant in understanding the complexity of individual decision making under risk.

The present study was embarked in order to understand retail investors' lack of participation in the Malaysian stock market. Studies on investor behavior have mostly used Prospect Theory. However, looking at risk taking behavior purely from the context of Prospect Theory limits the focus of the study only to the way the decision situation is framed. Analysis of previous literature shows that there are also other factors that have been found to have strong influence on individuals' investment risk taking behavior. As such, the present study incorporated Sitkin and Pablo's (1992) model in order to look at

risk taking behavior from a broader perspective. By empirically testing this model on Malaysian stock market context, the present study wishes to contribute towards better understanding individual investors risk taking behavior in Malaysian stock market.

By understanding investors risk taking behavior, it would be easier for the regulatory bodies like Bursa Malaysia Berhad and Securities Commission to work in hand with the stock broking companies in formulating proper measures to tackle investors concern. Apart from that, by understanding individual investors' behavior it will be easier for the relevant parties to advise investors and design financial products that caters to their specific needs. Even though risk taking behavior has certain element of predisposition; it is also a learned behavior. As such steps can also be taken in educating the investors to make better investment decisions.

### **1.7 Definitions of Key Terms**

The following are the key words and phrases used in this research with its definitions within the context of this document.

- i. Stock market: Institution that offers listing and trading in shares of public listed companies.
- ii. Risk taking: Engaging in stock market investment activities that exposes the investors to wide range of possible outcome.
- iii. Risk preference: Individuals desirability in engaging in investment activities that expose them to risk.
- iv. Inertia: Individuals normally practiced way in approaching risky investment activities.

- v. Outcome history: The extent to which the decision maker is rate outcome from previous investment activities (i.e. gain or loss) that influence the current period investment risk taking.
- vi. Problem framing: The way the decision situation is worded or structured that influence individuals' interpretation of the decision situation.
- vii. Problem domain familiarity: Individuals experience in handling risk in similar investment activities.
- viii. Risk propensity: Individuals likelihood in taking or avoiding risk taking activities.
- ix. Risk perception: Individuals way of understanding or interpreting the risky investment decision situation that they encounter.

## **1.8 Organization of Remaining Chapters**

The report consists of five chapters. Chapter 1 starts as introduction giving an overview of the research and its background set up. The problem statement is defined along with the key objectives that the research would like to achieve. Chapter 2 presents the literature reviews on elements relating to this research such as risk taking behavior, risk propensity, risk perception, risk preference, inertia, outcome history, problem framing and problem domain familiarity.

The theoretical framework and hypotheses are also defined in this chapter. Chapter 3 explains the methodology used in this research, questionnaire development, measures, sampling design, data collection, coding and analysis. Chapter 4 presents the profile of the respondents and the descriptive analysis on the research data. The chapter also explains the detailed analysis performed and the hypothesis testing with the summary of findings, statistical results and relationship between variables.

Finally, the paper concludes with Chapter 5 on the results interpretation and discussion. The findings from the study are discussed in the context of its implication and contribution. Any limitation observed is also reviewed with recommendations and suggestions on how future research on this topic can be improved.

## Chapter 2

### LITERATURE REVIEW

#### 2.1 Introduction

Risk is one of the most crucial factors considered in financial decision making. Even though Expected Utility Theory proposes positive relationship between risk and return, decision makers have been found deviating from making optimal investments. Many factors apart from return actually influence the decision makers. As such, it is very crucial to understand the complex nature of investor behavior.

#### 2.2 Review of Literature

##### 2.2.1 Risk Taking Behavior

In analyzing decision making perspective from psychological viewpoint, Milburn and Billings (1976) postulate that there are probabilities attached to each alternative in a decision made by an individual. If the decision maker has complete and accurate knowledge about all alternative consequences, the decision made is one of "certainty". "Risk" is when the decision maker has accurate knowledge of the probability distribution of the alternatives consequences. Decisions occur under "uncertainty" if no definite probabilities can be assigned to each alternative.

Similarly, Holton (2004) defines risk as an exposure to a proposition of which one is uncertain. Increasing level of uncertainty results in the increase in perceptions of situational risk. Researchers also found that the expectation of the amount of possible disappointment related to specific outcomes influences situational riskiness. Even



positive expected outcomes can be perceived as risky if they are relatively difficult to achieve (Sitkin & Pablo, 1992).

Sitkin and Pablo (1992) definition of risk includes three key dimensions that are essential for its understanding:

*Outcome uncertainty* : Is defined in terms of outcome variability, lack of knowledge of the distribution of potential and the uncontrollability of outcome attainment.

*Outcome expectations* : As stated by Kahneman & Tversky (1979) a positive expected return elicits a very different decision-framing and decision-making behavior compared to negative expected values. Sitkin and Pablo (1992) argues that conceptualization of risk should include the whole range of outcome (i.e. positive to negative) because risk actually constitute the degree to which that outcome would be disappointing to decision maker.

*Outcome potential*: According to Prospect Theory extreme outcomes are often overweighed by individuals even though the probability of realizing it is remote. Sitkin and Pablo (1992) conceptualize this dimension of risk into two aspects. First, the expected outcome must be perceived to be of sufficient magnitude in order for the decision makers to consider the potential threat or opportunity present in the situation. Second, outcome need to be conceptualized as a categorical rather than a continuous variable.

Masters (1989) states that there are three types of decision makers: risk takers, risk neutrals, and risk avoiders. An investor is a risk taker if he prefers high risk and high return. Risk avoiders are those who will get away from decisions that have risk of

low return. Risk neutral investor will be indifferent to risk as long as the risk is equal to the return.

Although definitions of risk vary, most theorists agree that a risky decision involves the unspecified possibility of an undesirable outcome and includes some element of choice for the decision maker. Risky decision contexts can be defined as those situations in which some degree of uncertainty exists and in which decision makers have preferences regarding potential outcomes and believe they possess some degree of control (i.e., choice) over the risk decision process. A review of the risk literature suggests that the dimensions along which risky decisions vary include outcome magnitude, personal exposure, outcome uncertainty, and personal expectations (MacCrimmon & Wehrung, 1986; Sitkin & Pablo, 1992).

Previous findings indicate that the magnitude or potential of an outcome associated with a decision determines to some extent the riskiness of that choice (Kahneman & Tversky, 1979; Sitkin & Pablo, 1992). In addition, the amount of personal exposure to risky decisions has been found to influence perceptions of risk (MacCrimmon & Wehrung, 1986); decisions that have more of a direct personal impact on a manager are perceived to be riskier than decisions that have only indirect consequences. It is a known fact that there is tradeoff between risk and return. Higher risk is normally accompanied by higher return but the probability of loss is also higher. On the other hand the lower risk is usually associated with lower return and lower probability of loss.

The extent of commitment demanded is also found to influence the aspects of the decision situation considered in determining risk (Weber et.al., 2002). For example, in a

gambling situation a person might rate his or her chance of winning differently when rating the gamble than actually bidding on it. A person who is better off financially might be willing to take higher risk compared to someone with lower income.

Different individual considers different dimensions in assessing risk and these dimensions remain very stable within the decision paradigm and the time frame used (Milburn and Billings, 1976). Risk taking behavior has been shown to vary depending on the risk domain (Weber et.al., 2002). Their study states this might be due to the differences in marginal value for outcomes in different domains. For example, a person having decreasing marginal value for money and an increasing marginal value for time will have different risk taking behavior in financial and recreational domains. Importance are normally given based what an individual already have and also what they have recently gone through (Milburn and Billings, 1976).

Demographic variables have also been used in order to predict risk taking behavior. A large literature in psychology and sociology indicates that women are averse than men. A major study by Barber and Odean (2000) provides empirical evidence that men take more risk than women. Bajtelsmit and Bernasek (1996) looked into three factors that may influence risk aversion namely wealth, income and employment. Women, having lower wealth level, lower income and lower paying jobs were found to be less likely to take risk than men. A study by Hallahan et.al.(2004) shows that gender, income, and wealth are significantly associated with financial risk tolerance.

The relationship between age and risk tolerance is negative and exhibits a significant nonlinear structure. Negative relationship between marital status and risk tolerance was also identified Males, both married and unmarried, were consistently found

to be more risk tolerant than married and unmarried women. Unmarried individuals were found to be more willing to take risk compared to married ones. In general, unmarried men has the highest risk tolerant followed by married men, unmarried women and married women. However, as stated by Grable and Lytton (1998), demographic characteristic only provides a starting point in accessing investor risk tolerance. Mood also has been used in situational framing of risky decision (Williams and Voon, 1999). Baz et.al.(1999) states that risk taking behavior vary according to the time frame used.

### **2.2.2 Prospect Theory**

Human behavior has been systematically mispredicted because under certain circumstances human behaviors are not rational. Kahneman and Tversky experimental study were the first to bring behavioral aspects into economically based risk models (Byrne, 2005). Subjects in Kahneman and Tversky (1979) study were asked to choose between a lottery offering a 25% chance of winning 3,000 and a lottery offering a 20% chance of winning 4,000. 65% of the subjects chose the second option. However, when the subjects were asked to choose between a 100% chance of winning 3,000 and an 80% chance of winning 4,000, 80% chose the first option. Based on the utility theory, the subjects must choose the second option in both cases since it provides a higher return. The subjects' preference for the first option in the second case shows the preference for a *certain outcome* rather than a *probable outcome*. This is the underlying principle of the Prospect Theory postulated by Kahneman and Tversky (1979).

There are two phases in Prospect theory choice process. The first phase is the editing phase which consists of preliminary analysis of offered prospects. The second phase consists of evaluating the edited prospects and choosing the prospect with the

highest value. This involves the judgmental principles that evaluate gains and losses and the weighting of uncertain outcomes. Anomalies of preference often result from the editing of prospects.

According to Prospect Theory, the weights are determined based on the probabilities of the events. Zero weight is given extremely low probabilities and a weight of one is given to extremely high probabilities. However, the theory is not precise about what constitute an extremely high probability or an extremely low probability. Shiller (1997) states that Prospect Theory does resemble expected utility theory since individuals are represented as maximizing a weighted sum of "utilities". However, the weights are not the same as probabilities and the "utilities" are determined by a "value function" rather than a utility function. Modifying the expected utility function by replacing the Prospect Theory's weights for the probabilities in expected utility theory might help in explaining a number of puzzling phenomena in observed human behavior toward risk (Shiller, 1997).

The value function differs from the utility function in a very crucial respect (i.e. the reference point). The location of the reference point is very dependent on the subjective impressions of the individual and it is often used as point of comparison. Kahneman and Tversky (1979) used value as a function of wealth. The value function is upward sloping everywhere, but it declines abruptly at the reference point. As such, for wealth level above the reference point the value function is concave downward and for wealth level below the reference point the value function is concave upward. Based on these illustrations, Prospect theory postulates that individuals are risk averse to gain and risk seeking for loss. The aggravation that individual experience in losing some amount

of money appears to be more than the pleasure associated with gaining the same amount of money.

### **2.2.3 An Alternative Model - The Mediating Role of Risk Propensity and Risk Perception**

Sitkin and Pablo(1992) state that risky behavior is ultimately determined by the label attached to the risky situation. Other characteristics of the decision problem may also have undetected influences that can slightly change the nature of the decision experience for the decision makers. Findings also show that the framing effect of Prospect Theory can be reversed or eliminated based on gain or loss sizes, success probabilities, and completeness of information and focusing on the rationale of the choice behavior (Pablo, 1997). Studies on risk taking behavior have also focused on decision makers characteristics. Risk taking behavior have been found to strongly rooted in personality and sensation seeking is found to be the key component of this characteristics (Nicholson et.al., 2002).

Contradictory findings have been observed on Prospect Theory postulation that individual will be risk averse in gain domain and risk seeking in loss domain (Pablo, 1997). Osborn and Jackson (1988) study on management of complex and dangerous nuclear technology shows that decision makers focus more on the opportunities present in a positive situation and as a result are more willing to take risk. Individuals also have been found to be more conservative in situation characterized as threat (Staw et.al., 1981). Their study mentions that psychological stress associated with threat influence the decision makers' perception by interfering with their ability to identify and discriminate stimuli.

Sitkin and Pablo's (1992) study states that inconsistency in predictions of risk behavior results when findings from various perspectives are juxtaposed and considered together. Their study proposes that the inconsistency is due to a missing variable which is risk propensity. By juxtaposing risk propensity with risk perceptions, their study highlights that variation in perceptions of situational risk were confounded with risk propensity in past work. They suggest that by clearly distinguishing the perception and propensity dimensions earlier findings can be reconciled.

They also propose that there is a need to look beyond situational variables in developing more accurate model of risky behavior. Their argument is based on their conceptualization of risk propensity as a stable but changeable trait. In their study risk propensity is defined as a current tendency that is influenced by risk preference (i.e. stable differences in risk-seeking or risk-avoiding tendencies), inertia (i.e. routine ways of handling risky decisions), and outcome history (i.e. prior risk-taking successes or failures).

Situational Characteristics  
(Objective or Perceived)

		Positive	Negative
Risk Averse	Risk Propensity	Prospect Theory – Conservation of Prior Gains (Kahneman & Tversky, 1979)  Loss Prevention Bias (Jackson & Dutton, 1988)  <b>Prediction</b> : Low Risk Behavior  Cell 1	Threat Rigidity (Staw, Sandellands, & Dutton, 1981)  Hypervigilance (Janis & Mann, 1977)  Prediction : Low Risk Behavior  Cell 2
	Risk Seeking	Attention to Opportunities (March & Shapira, 1987)  <b>Prediction</b> : High Risk Behavior  Cell 3	Prospect Theory – Going for Broke Kahneman & Tversky, 1979 ; Singh, 1986)  <b>Prediction</b> : High Risk Behavior  Cell 4

Source: Adapted from Sitkin and Pablo (1992), p.27

Figure 2.1 Juxtaposing Extant Theoretical Models and Prediction of Risk Behavior.

It is quite obvious that the proposition of Prospect Theory highlights the influence of risk perception on risk taking behavior. However, Sitkin and Pablo (1992) argue that Prospect Theory also deals with risk propensity inadvertently by manipulating outcome history. This idea helps in explaining the inconsistent findings of Prospect Theory in previous researches. March and Shapira study, for example, discovers that by being insensitive to the estimates of the probabilities of possible outcome managers in their study focused more on critical performance target. By paying more attention on the opportunity present in a situation, the managers were found to be risk seeking in gain



situation. Threat rigidity theory proposed by Staw et. al. (1981), on the other hand help explains risk averse behavior in a loss domain. Threatening experience have been found to alter individual level of stress, anxiety and arousal and these in turn affects individuals' cognition and behavior to be risk averse.

In summary, Sitkin and Pablo study postulates that previously identified variables do not exert direct relationship on risk taking behavior. These variables effect on risk taking behavior are instead mediated by risk propensity and risk perception. Their model argues that risk preference, inertia of the decision maker and outcome of previous risky decision affects risky behavior indirectly through their impact the decision maker's risk propensity.

Risk perception, defined as in their study as the decision maker's assessment of the risk inherent in a situation or labeling of a situation, is determined by decision maker's risk propensity (i.e. the general tendency of a person to either take or avoid risk), problem framing (i.e. the framing of a problem as either a loss or a gain), and problem domain familiarity (i.e. the experience or familiarity of handling similar risky decisions).

Sitkin and Pablo (1992) model proposes that decision makers risk propensity (tendency to take or avoid risk) will influence their risk perception. Sitkin and Weingart (1995) test this model and conclude that a mediated model of risky behavior is more powerful than one in which the direct effects of a large number of antecedent variables are examined individually.