THE MODERATING ROLE OF RISK TOLERANCE ON LIFE INSURANCE

OWNERSHIP

by

HEEJUNG PARK

(Under the Direction of Lance Palmer)

ABSTRACT

Using data from 2013 Survey of Consumer Finances (SCF), this study explored the

determinants associated with the amount of life insurance purchased by households.

Based on Heckman's two-stage analysis, this study focused on the interaction effect of

risk-tolerance and various financial variables, such as income, assets, and debts on the

purchase of term life insurance and the corresponding amount of coverage. The results

indicate that the interaction of risk-tolerance with financial variables moderates the

relationship between the amount of life insurance owned and financial variables. The

interaction of risk-tolerance and income was found to be negatively associated with the

amount of life insurance owned. The key findings of this study reinforce the notion that

consumer educators and financial service providers should consider an individual's level

of risk tolerance when formulating life insurance purchase recommendations.

INDEX WORDS: Life insurance, Risk tolerance, Heckman model, Attribution

theory, Moderator effect

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DEDICATION

I dedicate this thesis to my dear family and friends. I'm very thankful to my parents, Jongha Park, and Sungyae Jung. If it had not been for their sincere support and encouragement, I would not have completed my degree. To live up to their expectations, I will become a person who contributes to the society. I'm also grateful to my uncle, Sungwoong Jung, and my aunt, Sungsin Jung, who are supportive since when I was young. I always wish the happiness of their families, and I'll keep doing my best to be responsive to their favor.

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INTRODUCTION

Introduction and Statement of the Problem

The expansion of information technology and networking systems has enhanced

the quality and quantity of personal finance data and the ease with which individuals can

enter into financial contracts. However, the inaccurate interpretation or inappropriate

application of the tremendous amount of financial information has led to unanticipated

crises for financial markets and human society, such as the Great Recession and similar

events (Karanikolos, Mladovsky, Cylus, Thomson, Basu, Stuckler, & McKee, 2013).

Excessive confidence among consumers and sellers combined with inaccurate predictions

based on data on economic conditions have led to unexpected disasters that threaten very

basic survival needs. Even though people have abundant information, they still have

financial problems at the household level. This research discussed one of the specific

financial products that can contribute to a household's overall financial well-being: life

insurance. Households are frequently unaware of their need for life insurance and may

have utilized the resources necessary for life insurance for different purposes, which can

lead to a financial crisis in the event of the untimely death of a primary earner in the

household. Many researchers have been interested in exploring the role of economic

resources in households' decisions to purchase life insurance to protect against financial

hardship. Decisions regarding how to allocate limited financial resources are critical to

household planning. Household financial resources can be divided into two main areas: ownership of financial products and the household's overall balance sheet. Durvasula, Lysonski, Mehta, and Tang (2004) pointed out that life insurance is likely to be ignored in research because of the fact that it is considered a high credence service, and the future benefit of such products are hard to capture. Even though the benefits of life insurance are difficult to demonstrate if unused, such insurance is an important financial decision for the household.

What is Life Insurance?

William Talbot and Sir Thomas Allen (Anzovin & Podell, 2000) formed the first company to offer life insurance in London in 1706 at the beginning of the Industrial Revolution. The purpose of life insurance was to guard against financial damage resulting from death. Life insurance quickly came to be based on increasingly complex mathematics and statistics (Bell & Miller, 2015). A number of life insurance products have been created since 1706, such as term insurance, cash value insurance, universal insurance, whole life insurance, variable life insurance, and variable universal insurance, to name just a few.

There are two primary purposes for purchasing life insurance (Huebner, 1921): protection and investment. The main purpose of life insurance is to protect the beneficiaries against the unanticipated death of the insured (Yaari, 1965). It protects the deceased individual's estate and the dependents of the deceased from financial risks, such as debt repayment, estate tax obligation or income loss caused by the main income earner's untimely death (Li, Moshirian, Nguyen, & Wee, 2007). A second purpose of life

insurance is to serve as an investment and a financial planning tool (Cummins, Tennyson, & Weiss, 1999). People seeking deferred taxation on investments may choose to purchase cash value life insurance policies (Brennan & Schwartz, 1976).

Term Life Insurance or Cash Value Life Insurance

There are two primary types of individual life insurance: term life insurance and cash value life insurance. With cash value insurance, also called permanent insurance, the customer pays a "leveled" premium throughout his or her life. The premium is allocated between the cash value account and the mortality risk premium. Regardless of when an individual passed away, a death benefit will be paid so long as necessary life insurance premiums have been paid. Term life insurance, also called pure insurance, offers coverage for a defined period, normally, anywhere from one to 30 or more years. If the insured dies during the policy period, his or her beneficiary obtains the death benefit. If the insured survives beyond the defined period, the beneficiary receives no payment because the life insurance policy is no longer vailed. Term life insurance costs less when the risk of death is low, and the cost increases as the risk of death increases. The premium of term policies are typically the same for the entire period of coverage, but they may increase each year depending on how the policy is designed. Because term life insurance is the most basic form of life insurance it will be the focus of this study.

Problem Statement

Given that life insurance can help prevent financial loss resulting from untimely death, it is important to understand the factors associated with its purchase, or lack of

purchase. It is also important to examine the factors that affect the amount of life insurance coverage purchased, or face value of the policy. An online survey conducted among 2,000 U.S. adults who did not have life insurance (Harris Interactive, 2012) found that the most common reason given for not having life insurance was "It costs too much" (45%). However, according to Insurancequotes.com, 68% of adults with life insurance pay less than $100 per month. Thus, it can be seen that many families choose not to purchase life insurance even though the cost of an untimely death for these families likely far exceeds the cost of premiums. Moreover, 56% of people between the ages of 18 and 34 do not have life insurance. While some of these individuals do not have financial dependents and should not have life insurance. However, it is likely that many uninsured individuals have financial dependents and simply have not purchased life insurance. Term life insurance is more beneficial during the younger years because younger individuals often do not have any financial resources with which to protect their financial dependents in the event of their unexpected death.

Once an individual chooses to purchase life insurance, a second decision must be made regarding the amount of insurance to purchase. The Life Insurance and Market Research Association (LIMRA, 2011) found that 78% of those with life insurance were not sure whether the amount of life insurance they owned was too much or not enough in the event of their untimely death, suggesting that some consumers either over-purchased or under-purchased life insurance.

Income, net worth, and work status generally has a positive association with life insurance ownership. Lewis (1989), Hakansson (1969), Fischer (1973), Fortune (1973), and Campbell (1980) showed that the demand for life insurance was positively correlated

with income. Hau (2000) found that net worth is positively correlated with demand for life insurance. Fitzgerald (1987) indicated that the demand for life insurance is positively correlated with work status.

However, marital status, risk aversion, and bequest motives were both positively and negatively associated with life insurance ownership. Some studies found no significant relationship among these variables. Lewis (1989) and Lin and Grace (2007) showed that the demand for life insurance is positively correlated with marital status. However, Hammond et al. (1967) and Mantis and Falmer (1968) indicated that the demand for life insurance is negatively correlated with marital status. Schlesinger (1981), Szpiro (1986), Xiao (1996) and Kwok and Tadesse (2006) showed that the demand for life insurance is positively correlated with risk tolerance. However, Chesney and Louberge (1986), Eisenhauer and Halek (1999) Esho, Kirievsky, Ward and Zurbruegg (2004) mentioned that the relationship between risk tolerance and demand for life insurance is inconclusive.

Some of the variations in correlation may have been due to social changes over time and individual differences in the sample populations. Both external conditions (e.g., household finances) and internal conditions (e.g., risk tolerance) may have explained the differing results in previous studies. Therefore, the interaction of internal and external conditions should be taken into account when predicting life insurance ownership and the amount of insurance owned.

Purpose of Study

Previous studies found that households' financial characteristics, such as income and net worth, affect the demand for life insurance (e.g., Hammond et al., 1967; Mantis & Farmer,1968; Duker, 1969; Neumann, 1969; Fortune, 1973; Anderson & Nevin, 1975; Ferber & Lee, 1980; Burnett & Palmer, 1984; Truett & Truett, 1990; Browne & Kim, 1993; Showers & Shotick, 1994; Gandolfi & Miners, 1996). Other studies found that psychological factors, such as risk aversion, bequest motives, and self-esteem, were important determinants of life insurance decisions. However, the effect of risk tolerance on the demand for life insurance was inconsistent across studies (e.g., Szpiro, 1986; Xiao, 1996; Chesney & Louberge, 1986; Eisenhauer & Halek, 1999).

According to Attribution Theory (Heider, 1958), there are two types of attributions that influence the outcome of a decision-making process: internal and external. An internal attribution (also called dispositional attribution) pertains to internal factors, such as preference, intelligence, or risk tolerance. An external (dispositional) attribution pertains to outside factors such as an individual's financial situation. In the context of purchasing life insurance, external attribution can be operationalized as financial variables, such as income, assets, and debt. Internal attributes can be operationalized as psychological factors, such as risk tolerance. Xiao (1996) reported a positive association between willingness to take financial risk and the amount of life insurance purchased. However, this study will focus more on the moderating effect between financial risk tolerance and the amount of life insurance purchased.

This study focuses on the interaction between external financial traits and psychological factors, namely risk tolerance, in (1) the household's decision to purchase

life insurance and (2) the determination of how much life insurance to purchase. It is anticipated that findings from the current research will contribute to the theoretical and empirical understanding of life insurance demand.

Research Questions

There are two objectives of this study. One is to measure the correlations among the purchase of life insurance, subjectively reported risk tolerance, and numerous financial characteristics. Another objective is to examine whether risk tolerance moderates the relationship among the amount of life insurance purchased and a number of financial variables. The findings are intended to improve the understanding of factors associated with the purchase of life insurance.

Commonly Used Terms

Life insurance.

Life insurance is an agreement among a person or persons who have purchased an insurance policy and a guarantor or broker, wherein the guarantor promises to pay the designated beneficiaries a sum of money upon the death of the insured individual and, in exchange, the policyholder agrees to pay a set premium amount to the guarantor or broker. (Kane, Anzovin, & Podell, 1981)

Risk tolerance.

Risk tolerance is the extent to which an individual is comfortable with the risk of financial loss as a result of a given behavior. According to the Grable and Lytton (1999) financial risk tolerance is considered to be a critical element for various financial

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decisions. They pointed out that measuring subjective risk tolerance is the most concise and accurate way to assess a person's financial risk tolerance. For example, a person who is unwilling to take the chance that an investment may drop in value has little or no risk tolerance. On the other hand, a person who is willing to make an investment that may change in value has greater risk tolerance.

Interaction term.

An interaction term is the effect of two independent variables on the dependent variable at different values. Variable interactions will be operationalized by including the product of two interacting independent variables.

Financial characteristics.

Financial characteristics are variables related to expenditures, income, assets, debt, and net worth.

Psychological factors.

Psychological factors include an individual's thoughts or feelings (e.g., self-esteem, satisfaction, self-control, anxiety, and risk tolerance) that affect his/her decision making or behavior. In this research, risk tolerance was chosen as a psychological factor. Due to data limitations, other common psychological factors, such as self-esteem, satisfaction, self-control, or anxiety could not be measured.

CHAPTER 2

REVIEW OF LITERATURE

Introduction

As mentioned in the introduction, the amount of life insurance purchased by a family is associated with numerous variables. Instead of reviewing the literature extensively, this chapter will discuss some of the key findings from the existing body of knowledge on factors associated with the purchase of life insurance. Based on Zietz's (2003) historical review of the demand for life insurance, this chapter will focus on how the variables from the previous research can be categorized and how they affect life insurance demand based on the theoretical model adopted by this research.

Research studies focusing on life insurance can be categorized into two broad groupings (Zietz, 2003). The first category focuses on the effects of demographics and socio-economic status on the demand for life insurance. The other category focuses on the influence of behavioral attributes, such as risk aversion, bequest motives, and other individual traits, on demand. Previous studies have found mixed results regarding the relationship among such variables and life insurance ownership (see Table 1).

Income, assets, and debts were found to be significant financial factors associated with life insurance (e.g., Hammond et al.,1967; Mantis & Farmer, 1968; Duker, 1969; Neumann, 1969; Fortune, 1973; Anderson & Nevin,1975; Ferber & Lee, 1980; Burnett & Palmer, 1984; Truett & Truett, 1990; Browne & Kim, 1993; Showers & Shotick, 1994; Gandolfi & Miners, 1996; Lin & Grace, 2007; Lee & Chiu, 2012). Age, gender, marital

status, work status, education level, and household size were found to be significant

demographic factors associated with the demand for life insurance (e.g., Hammond et

al.,1967; Ferber & Lee, 1980; Burnett & Palmer, 1984; Truett & Truett, 1990; Brown &

Kim, 1993; Gandolfi & Miners, 1996; Webb, Grace & Skipper, 2002; Hwang & Gao,

2003; Hwang & Greenford, 2005; Arena, 2008; Lee & Chiu, 2012).

Table 1

Research Results Related to Life Insurance Demand

Variable	Positively Significant Association	Negatively Significant Association	Non-significant Association
Demographic and SES			
Age	Berekson(1972) Showers & Shotick (1994) Truett & Truett (1990) Lin & Grace (2007)	Ferber & Lee (1980) Auerback & Kotlikoff (1989) Bernheim (1991) Chen et al. (2001)	Hammond et al. (1967) Duker (1969) Anderson & Nevin (1975) Burnett & Palmer (1984) Fitzgerald(1987)
Gender	Gandolfi & Miners (1996)		
Marital Status/Times	Lewis (1989) Lin & Grace (2007)	Hammond et al. (1967) Mantis & Falmer (1968) Hong & Ríos-Rull (2012)	Burnett & Palmer (1984)

Occupation/Employment	Hammond et al. (1967) Mantis & Falmer (1968) Duker (1969) Ferber & Lee (1980) Miller (1985) Fitzgerald (1987) Auerbach & Kotlikoff (1989)		Anderson & Nevin (1975)
Education	Hammond et al. (1967) Ferber & Lee (1980) Burnett & Palmer (1984) Truett & Truett (1990) Brown & Kim (1993) Gandolfi & Miners (1996) Webb, Grace & Skipper (2002) Hwang & Gao (2003) Hwang & Greenford (2005) Arena (2008) Lee & Chiu (2012)	Duker (1996) Anderson & Nevin (1975) Auerbach & Kotlikoff (1989)	Beck & Webb (2003) Esho et al. (2004) Park & Lemaire (2011)
Family Size/ Family Structure	Ferber & Lee (1980) Burnett & Palmer (1984) Lewis (1989) Browne & Kim (1993) Showers & Shotick (1994)	Hammond et al. (1967) Mantis & Farmer (1968)	Duker (1996) Anderson & Nevin (1975) Gutter & Hatcher (2008)
Race			Hammond et al. (1967)
Region	Truett & Truett (1990)		

Income	Hammond et al. (1967) Mantis & Farmer (1968) Duker (1969) Neumann (1969) Fortune (1973) Anderson & Nevin (1975): low& high -income only Ferber & Lee (1980) Burnett & Palmer (1984) Truett & Truett (1990) Browne & Kim (1993) Showers & Shotick (1994) Gandolfi & Miners (1996) Lin & Grace (2007) Lee & Chiu (2012)	Anderson & Nevin (1975): mid-income only	Berekson (1972) Nakata & Sawada (2007)
Net Worth	Hammond et al. (1967) Duker (1969) Headen & Lee(1974) Anderson & Nevin (1975) Ferber & Lee (1980) Lewis (1989) Bernheim (1991) Eisenhauer & Haylek (1999) Hau (2000) Heo, Grable & Chatterjee (2013)	Fortune (1973)	Fitzgerald (1987) Auerbach & Kotlikoff (1989)
Credit Cards (Number of Cards)	Ferber & Lee (1980)		

Homeownership/Type of Housing	Anderson & Nevin (1975) Ferber & Lee (1980) Gandolfi & Miners (1996)		
General Issues			
Risk Aversion	Schlesinger (1981) Szpiro (1986) Xiao(1996) Kwok & Tadesse (2006) Heo, Grable & Chatterjee (2013)		Chesney & Louberge (1986) Eisenhauer & Halek (1999) Esho, Kirievsky, Ward & Zurbruegg (2004)
Deductible Level & Loading Factors	Sinha (1986)	Campbell (1980)	Razin (1976)
Bequest Motives	Fischer (1973) Bernheim (1991) Inkmann & Michaelides (2012)		Karni & Zilcha (1986)

Note. Zietz, E.N. (2003). An examination of the demand for life insurance. *Risk Management and Insurance Review, 6*, 159−191.

Socio-Economic/Demographic Variables

Age, gender, education, and life insurance.

Age, gender, and education are three factors commonly thought to be associated with the demand for life insurance. Interestingly, the literature on age and life insurance was evenly split between findings of a positive association (e.g., Berekson, 1972; Truett & Truett, 1990)—which indicates that older people purchase more life insurance than younger people—and findings of a negative association (e.g., Chen, Wong, & Lee, 2001), which indicates that older people purchase less than younger people. Although the direction and significance of the effect is inconsistent from study to study, age is generally associated with the purchase of life insurance.

Researchers have also noted a relationship between being male and an increased demand for life insurance (Gandolfi & Miners, 1996). Association between gender and insurance coverage suggested that the relationship among these variables and life insurance differs for men and women (Gandolfi & Miners, 1984). Married men purchased more life insurance. Even within couples, the husband tended to own more life insurance than the wife. Higher levels of education have been thought to lead to increased demand for life insurance. According to Browne and Kim (1993), higher levels of education may have led to greater degrees of risk aversion and more awareness of the necessity of insurance in general.

Marital status and life insurance.

Zietz (2003) found that the association between marital status and demand for life insurance is doubtful at best. Generally, people believe that those who are married

need to buy more life insurance as a way to protect their wealth in the event of a spouse's death. Although the results from the research previously mentioned did not support this hypothesis, there are still a few researchers who have concluded that marital status has a positive association with life insurance purchase. To be more specific, married men are supposedly better targets for insurance sales than are single men, and as total marriages increase, life insurance sales should also increase (Hong and Ríos-Rull, 2012).

Household size and life insurance.

Household size cannot be overlooked when investigating demand for life insurance. Early research by Berekson (1972) considered both the amount of insurance and the premium expenditure. He found the number of children, stage of life cycle, and birth order to be associated with life insurance purchasing behavior. However, in more recent research Gandolfi and Miners (1996) and Gutter & Hatcher (2008) did not find a clear relationship between household size and life insurance. Ferber and Lee (1980), Burnett & Palmer (1984), Lewis (1989), Browne and Kim (1993) and Showers & Shotick (1994) showed that household size has a positive association with life insurance purchase.

Work status and life insurance.

Work status is a factor closely associated with financial variables such as income, debt, and assets. According to Lewis (1989), the demand for life insurance is closely associated with employment status. Gandolfi and Miners (1996) also found that work status is significantly and positively associated with purchase of life insurance.

Income and life insurance.

Earlier research has frequently found that income is positively correlated with demand for life insurance. Zietz (2003) has shown that all but two prior research studies found that income had a positive association with demand for life insurance. Many researchers have shown that demand for life insurance is positively correlated with income (Lewis, 1989; Hakansson, 1969; Fischer, 1973; Fortune, 1973; Campbell, 1980; Showers & Shotick, 1994; Gandolfi & Miners, 1996; Lin & Grace, 2007; Lee & Chiu, 2012). As income increases, the demand for life insurance increases.

Total debt, total assets, and life insurance.

Debt and assets are two factors commonly found to be associated with demand for life insurance. Furthermore, these two variables determine the household balance sheet, which should be considered when discussing insurance. Cunat (2007) found a positive correlation between household debt and the ownership and amount of life insurance purchased. Other researchers have noted a positive relationship between household assets and life insurance demand (e.g., Fitzgerald, 1989; Bernheim, 1991). They reported that assets are closely related to the bequest motive and are an important determinant of life insurance coverage.

Risk Tolerance

Behavioral economics emphasizes the effects of psychological states on common financial and investment practices. Recently, the field of behavioral economics has examined the determinants of individuals' attitudes toward risk (Outreville, 2014). One of the purposes of buying insurance is to protect the beneficiaries from the risk of financial hardship. Ultimately, risk is the most basic factor in life insurance. Risk differs

according to individual perception. Some of earlier studies on risk tolerance and life insurance found that risk tolerance has an impact on insurance demand (Chesney & Louberge, 1986; Hanoch & Levy, 1968; Hoy & Robson, 1981; Szpiro, 1986; Xiao, 1996).

Some researchers believe that people who have high-risk tolerance should be less likely to purchase life insurance or have less life insurance. According to Mossin (1968), people with higher risk tolerance will accept increasing risk as their wealth increases. Cleeton and Zellner (1993) developed a model showing how the degree of consumer risk aversion, the specification of the loss, and the price of insurance interact with income and affect the net demand for insurance. Moreover, Dionne and Eeckhoudt (1985) found that less risk-tolerant people would always invest less in insurance activities but necessarily more in protection activities. Eisenhauer and Halek (1999) found an association between risk aversion and life insurance. Xiao (1996) found that risk tolerance was positively associated with demand for life insurance.

Since previous authors have focused on the individual effects of financial and psychological factors, this study seeks to explore the interaction of risk tolerance with financial variables. To be more specific, the interaction between financial characteristics and risk tolerance is expected to be significantly associated with the demand for life insurance. The effect of the interaction on the demand for life insurance may differ, or moderate the individual effects of the variables. When it comes to risk tolerance, observing an interaction effect between risk tolerance and other financial variables can provides more useful insights rather than using risk tolerance itself as an independent variable. Several researchers have pointed out the usefulness of interaction terms. Cohen,

Cohen, West, and Aiken (2003) recommended testing the effect of the moderator because investigating interactions is the essence of theory testing in the social sciences. According to Baron and Kenny (1986), an interaction term was involved in the regression analysis as an extra predictor of the result. They also mentioned that a moderator is effective if the interaction term describes a statistically significant amount of variance in the result variable. Cohen et al. (2013) notes that moderator variables as the relationship between two variables that depend on a third variable. In this research, a moderator variable is the relationship between financial variables and the risk tolerance variable.

Review of the Theoretical Literature

Attribution Theory

The core concepts of the attribution theory concern how to interpret people's behavior (Kelley & Michela, 1980). The term "attribution" refers to the reason that motivated a certain behavior (Heider, 1964). The theory attributes human behavior to both internal factors and external factors. That is, humans make decisions influenced by both internal and external reasons. Internal attributions, or dispositional attributes, are closely related to psychological traits such as personality and character (Heider, 1944). Various factors such as locus of control (Rotter, 1966), emotion (Schacter, 1964), self-perception (Bern, 1967), and perception (Jones et al, 1961; Jones & Wortman, 1973) were suggested as internal attributions which are something within the person.

On the other hand, external attributions are related to the circumstances an individual is in or something outside the person. Thus, external attributions are often called situational attributions.

Extensive research about attribution theory has been carried out in many fields. According to Kelley and Michela (1980), interpreting and explaining behavior play an essential role in behavioral decision-making. Attribution theory has been applied to theories on salespersons' motivations (Teas & McElroy, 1986; Weitz, Sujan, & Sujan, 1986).

Applying attribution theory is not common in the field of life insurance study because most research in the demand for life insurance has focused on individuals' financial and economic conditions. However, Koonce and Mercer (2005) pointed out the significance of the role of psychology in financial papers. They found that only 2 % of research in non-experimental financial papers had depended on psychological theories while 98% of which were dominated by economic theory. They noticed non-experimental financial research could benefit from the use of psychological theory. Most financial-related research eliminates personal psychological behavior (Camerer, 1987; Kothari, 2001) whereas only a few researchers took the role of personal psychological factors into account. For example, previous research has shown that behavior with regard to a given product is influenced by an individual's knowledge of the product, and that knowledge is determined by both personal characteristics and market effect (Latour & Peat, 1980; Tse & Wilton 1988). When considering Koonce and Mercer's comments, employing some psychological element into the analysis of life insurance demand research would be beneficial to understand an individual's decision making.

Attribution theory is appropriate to incorporate dispositional and external characteristics into the life insurance purchase behavior. In this study, the dispositional attribute included in the model was risk tolerance. A number of research studies have

shown that life insurance is affected by risk tolerance (Briys & Schlesinger, 1990; Chesney & Louberge, 1986; Cook & Graham, 1977; Doherty, 1984; Greene, 1963; Hanoch & Levy, 1968; Hoy & Robson, 1981; Karni & Zilcha, 1986; Kwok & Tadesse, 2006; Szpiro, 1986; Xiao, 1996). As Kimball (1988) noted that each individual has his or her own level of risk tolerance. On the other hand, external attribution factors are income, assets, and debt. The financial conditions, along with demographic variables belong to the socio-economic environment which is situational. Overall, internal and external attributions are expected to affect both the purchase of life insurance in general and the amount of insurance purchased. The conceptual model of this research is presented in Figure 1.
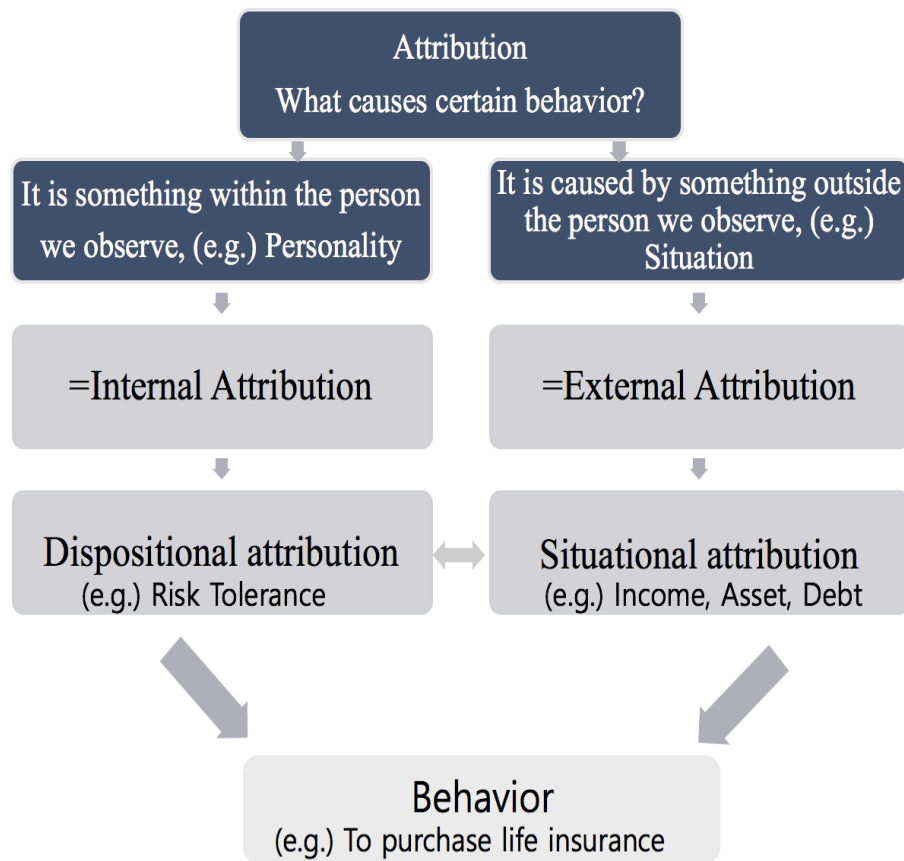
Figure 1. Conceptual Framework

The important point of this study is that the variables interplay with each other. For example, a risk-taking person with high income might behave differently compared to a risk-averse person with high income when purchasing life insurance, even though both individuals share a similar financial trait. The difference in behavior would be in addition to any changed behavior resulting from the individual effect of varying risk tolerance.

Hypotheses

Research question and hypotheses

This section explains how internal factors (e.g., risk tolerance), external factors (e.g., income, assets, and debt), and interaction factors (e.g., risk tolerance * income, risk tolerance * assets, and risk tolerance * debt) affect the purchase of life insurance and influence how individuals make decisions regarding the amount of life insurance to purchase. Risk tolerance is an important factor in understanding the purchase of life insurance because insurance functions as a protection against the risk of negative financial consequences of untimely death. According to the Grable and Lytton (1999), risk tolerance and preference are significant factors for both financial service providers and clients. In addition, Grable and Lytton (1999) noted that plenty of household financial managers neglected risk tolerance when understanding financial beliefs, feelings, and needs. For that reason, this study included a risk tolerance variable as well as financial resources.

Normally, people purchase life insurance to protect their family from negative financial consequences arising from the risk of untimely death of the main income earner.

How individuals perceive the uncertainty associated with an untimely death in this study is represented by the individual's risk tolerance. Thus, risk tolerance and financial factors were included in the model examining the purchasing behavior of life insurance. These two important factors will be investigated for their effect on the purchase of life insurance using the conceptual model of attribution theory.

The variables were selected based on previous research focused on the correlation between the independent variable and the ownership or amount of life insurance coverage. Additionally, this study examines the interaction effect between risk tolerance and financial variables as well as the individual correlation of these variables with the dependent variable based on dispositional and situational factors.

Table 2

Variable specification

Dispositional Variables	Risk Tolerance
Situational Variables	Income, Asset, Debt
Control Variables	Age, Gender, Marital Status, Work Status, Education Level, Household Size

Based on the conceptual background and previous research, the major questions are as follows:

- First, do situational variables, including income, assets and debts, influence the purchase of life insurance?

- Second, does disposition, such as risk tolerance, influence the purchase of life insurance?

- Third, does the interaction of disposition and situation (risk tolerance * financial variables) affect the decision to own life insurance and the amount of life insurance owned?

The following hypotheses were established based on the literature review and research questions. The first hypothesis is associated with risk tolerance:

- H1: Risk tolerance has a positive association with the purchase of life insurance.

The second hypothesis is associated with financial variables:

- H2a: Income has a positive association with the purchase of life insurance.

- H2b: Assets have a positive association with the purchase of life insurance.

- H2c: Debt has a positive association with the purchase of life insurance.

The third hypothesis is associated with the interaction of risk tolerance and individual financial variables:

- H3a: The relationship between income and the amount of insurance demanded is weaker in the group of respondents who report high tolerance of financial risk.

- H3b: The relationship between assets and the amount of insurance demanded is weaker in the group of respondents who report high tolerance of financial risk.

- H3c: The relationship between debt and the amount of insurance demanded is weaker in the group of respondents who report high tolerance of financial risk.

Figure 2 demonstrates these hypotheses.
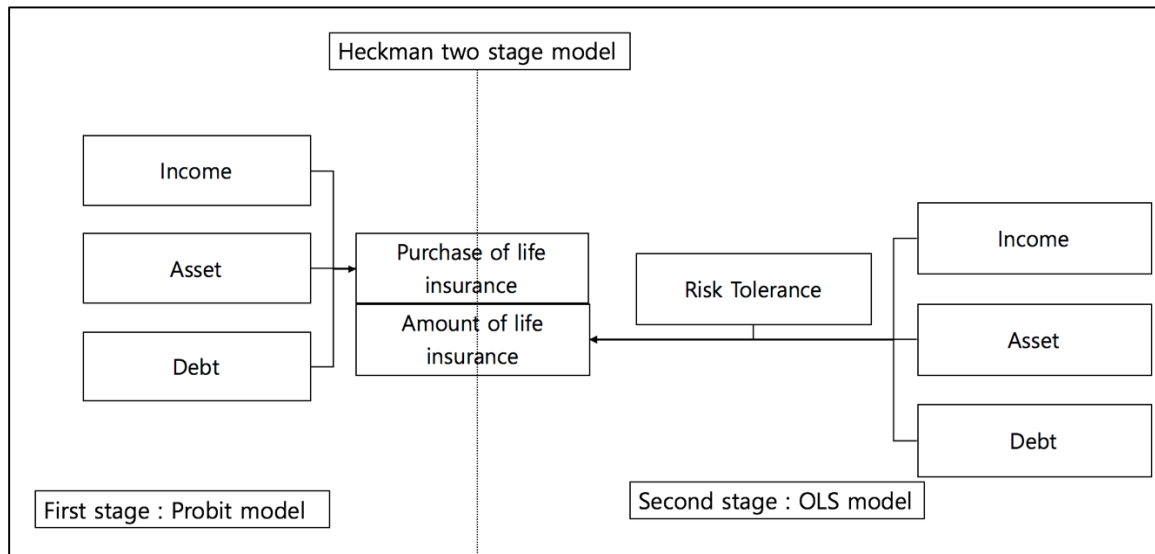
Figure2. Hypotheses model

Summary of the Chapter

The literature suggests that the dispositional factor of risk tolerance influences decisions pertaining to life insurance. Moreover, situational factors, such as income, assets, and debt, are also associated with life insurance decisions. Other demographic variables are also associated with life insurance decisions with mixed results.

CHAPTER 3

METHODOLOGY

Brief Overview

Unique to this research was the focus on the interaction effect between the dispositional and situational variables. Previous research (Xiao, 1996) has already explained the association between life insurance and these variables individually, but few of those studies have taken into account the interaction between these variables (Arena, 2008; Schachter, 1964). The interaction of variables is expected to improve the understanding of conditions that lead to the ownership and amount of life insurance coverage.

Heckman's two-stage model was used to model the purchase and amount of coverage. In Heckman's two-stage model, ownership of life insurance was investigated based on financial variables and socio-economic variables at the first stage. Heckman's model uses λ (lambda), which is called either Inverse Mill's Ratio (IMR) or Hazard Rate when linking between the two models. Inverse Mill's Ratio (lambda) represents the probability that each observation is excluded from the analysis due to unobserved values; the higher the value in lambda, the higher the probability of exclusion. Unobserved values may cause selection bias. To control for this possible selection bias lambda was estimated for each observation (respondent) in the dataset and the estimated lambda was included in the regression model as an independent variable. In this research, λ refers to the non-selection hazard derived from whether or not the observed case has life

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insurance. In other words, lambda was estimated as the likelihood that an individual owns term life insurance to control for censored observations arising from individual's who would otherwise have term life insurance but did not at the time of survey due to transitory circumstances (i.e., had group coverage through work but changing jobs and is in process of purchasing term life policy).

The first stage of the model utilized a probit model to estimate λ, which was then included in the second stage of analysis which utilized an OLS regression model. Lambda refers to individual characteristics of the sample that are excluded because they do not have life insurance. And in the second stage, λ is added as the independent variable to test the research hypothesis and control for any sample selection bias resulting from censored data. The second stage of the model provided a corrected estimate of the amount of term life insurance owned. Thus, this two-stage model made it possible to examine the determinants of the ownership of life insurance and the amount of life insurance. Figure 3 shows that details of the Heckman model.
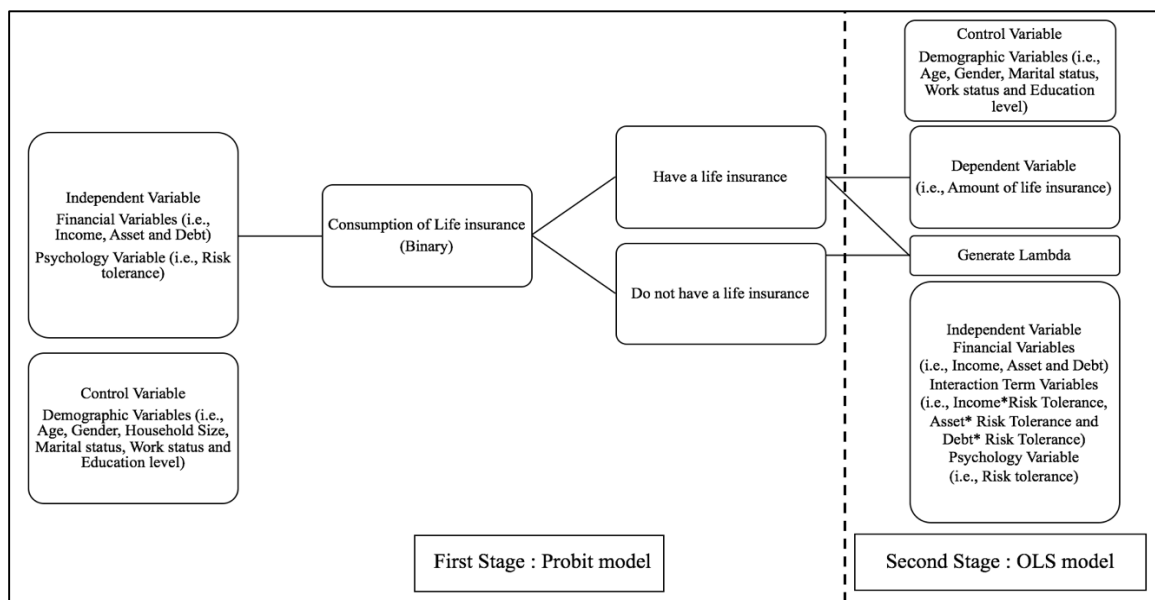

Figure 3. Heckman's Two-Stage Method

As shown in Figure 3, probit and linear regression models were used for the analysis. The probit model (first stage) used to predict life insurance policy ownership included age, gender, household size, marital status, work status, and education level as control variables and income, assets, debt, and risk tolerance as situational and dispositional variable. OLS regression (second stage) was used to estimate the amount of life insurance coverage owned and used all of the same variables that were used in stage one, except for household size. Additionally, the stage two model also included the interaction or risk tolerance with income, assets, and debt.

Design of the Study and Methods

Description of Data

The data for this research was drawn from the 2013 Survey of Consumer Finances (SCF), a large, nationally representative dataset on U.S. consumers' financial, demographic, and attitudinal characteristics. SCF data has been sponsored by the Federal Reserve Board since 1983, and the 2013 SCF was released in 2014. The SCF provides broad and specific information on the financial status of U.S. households (Bricker, Dettling, Henriques, Hsu, Moore, & Krimmel, 2014). In the 2013 survey, 6,026 families were interviewed. Table 3 shows details of the income quintiles. However, in this dataset, the SCF oversamples higher wealth groups and weights are required to make the data representative of the U.S. population as a whole. For OLS, however, this study does not use weights, following the reference from Lindamood and Hanna's article (2007). The

sample size was reduced to 5,240 because cash value insurance holders were eliminated from this research.

Table 3

SCF Income Quintiles Table

Item	Survey Year				
Quintiles	*2001*	*2004*	*2007*	*2010*	*2013*
20	24,300	25,800	25,200	26,200	23,300
40	43,200	44,300	43,300	43,600	40,500
60	67,500	69,700	69,300	67,500	63,100
80	108,000	112,700	110,200	108,900	104,500
90	155,300	164,600	155,900	163,400	154,600

Note. Table adapted from "Changes in US family finances from 2007 to 2010: Evidence from the Survey of Consumer Finances," by R. A. Ackerman, , G. Fries, & R. A. Windle, R. A., 2012, *Federal Reserve Bulletin, 100, 1−80.*

Research Design

In this study, there were two dependent variables. The first was purchase of life insurance; the second was the dollar amount of term life insurance purchased. This study was limited to term life insurance and did not include cash value life insurance. If protection from financial hardship caused by untimely death is the primary function of

the life insurance, it is better to buy term life rather than cash value insurance and to place

the rest in a tax-deferred investment vehicle. Moreover, this study investigated many

different demographic and social-economic variables, such as income, assets, debt, age,

gender, work status, marital status, household size, and education level. Lastly, three

interaction terms were included to test our model. Analyses were conducted to examine

the effect of age, gender, marital status, work status, education level, risk tolerance,

income, assets, and debt. More detailed descriptions of each variable's measurement will

be given below.

$Amount\ of\ life\ insurance$

$$= \beta_0 + \beta_1 age + \beta_2 gender + \beta_3 marital\ status + \beta_4 work\ status$$

$$+ \beta_5 education\ level + \beta_6 risk\ tolerance + \beta_7 income + \beta_8 assets$$

$$+ \beta_9 debt + \beta_{10}(risk\ tolerance * income)$$

$$+ \beta_{11}(risk\ tolerance * assets) + \beta_{12}(risk\ tolerance * debt)$$

$$+ \beta_{13} Lambda + e_1$$

It is assumed that amount of life insurance is observed if:

$$\gamma_0 + \gamma_1 age + \gamma_2 gender + \gamma_3 marital\ status + \gamma_4 work\ status + \gamma_5 education\ level$$

$$+ \gamma_6 household\ size + \gamma_7 risk\ tolerance + \gamma_8 income + \gamma_9 assets$$

$$+ \gamma_{10} debt + \gamma_{11}(risk\ tolerance * income)$$

$$+ \gamma_{12}(risk\ tolerance * assets) + \gamma_{13}(risk\ tolerance * debt)$$

$$+ \gamma_{14} Lambda + e_2 > 0$$

The described results for the amount of life insurance equation are interpreted, as

though we observed the amount of life insurance data for all people in the sample; the

coefficients for age, gender, marital status, work status, education level, risk tolerance,

income, assets, debt, and the three specific interaction terms represent the estimated

marginal effects of the regressors in the underlying regression equation.

Dependent Variables from the Data

There were two dependent variables, one for each stage. The dependent variables

for this study were the purchase of term life insurance and amount of term life insurance

purchased.

Purchase of term life insurance at first stage

Respondents in the 2013 survey were asked: Are any of your (family's) policies

term insurance? The answers were coded as a binary variable. The answers were coded 1

if respondent bought term life insurance, otherwise, 0.

Amount of term life insurance at second stage

The amount of term life insurance was a continuous variable measured by dollar

amount. Respondents in the 2013 survey were asked: What is the current face value of all

the term life policies that you (and your family living here) have?

Independent Variables from the Data

Based on the literature review, the following factors were thought to be

connected with the demand for and amount of life insurance: demographic, financial, and

psychological.

Table 4

Independent Variables from SCF.

Factors from Literature	Variables from SCF		
	Measurement	Variable Type	Code
Demographic Variables	Age	Numeric	Number of years
	Gender	Binary	Male = 1, Female = 0
	Marital Status	Binary	Married = 1, Not married = 0
	Work Status	Binary	Working = 1, Not working = 0
	Education Level	Binary	Some College or More = 1 High School or Less = 0
	Household Size	Numeric	Total Number in Household
Internal Variable	Risk Tolerance	Binary	High Risk Tolerance = 1 Low Risk Tolerance = 0
External Variables	Income	Numeric	Total Dollar Amount of Income
	Assets	Numeric	Total Dollar Amount of Asset
	Debt	Numeric	Total Dollar Amount of Debt

Age

Age was a continuous variable. The SCF does not include age, but instead asks for date of birth and age was calculated.

Marital status

Normally, marital status is a categorical variable. However, as this study focused on whether or not the respondent was married or partnered, it was coded as binary. The original survey asked whether the respondent is currently married or living with a partner, separated, divorced, widowed, or has never been married. The status of separated,

divorced, widowed, or never married was coded as 0 and if married or living with a partner was coded as 1.

Work status

Work status was an indicator variable distinguishing someone who works (coded 1) from someone who did not work (coded 0). The SCF question asked about the respondent's current work status. The respondents were asked to provide detailed answers among the given choices (e.g. worker, student, homemaker, unemployed, retired, temporarily laid off, etc.) Respondents who said they were categorized as working and the remaining responses were categorized as not working.

Education level

The original survey used level of education as a categorical variable. In the SCF data, there were four categories: Less than high school (= 1), High school (= 2), College (= 3), and Over college (= 4). However, education level was recoded here as a binary variable: Less than high school and high school were coded 0, and college or more were coded 1.

Risk tolerance

An individual's willingness to take risks is measured by the SCF question asking "Which of the following statements comes closest to describing the amount of financial risk that you are willing to take when you save or make investments?" It is coded into two categories: the answers were coded 1 for high-risk and 0 for low-risk. Respondents who answered that they "take substantial financial risks expecting to earn substantial returns" or "take above average financial risks expecting to earn above average returns"

were coded as high risk; those who answered that they "take average financial risks expecting to earn average returns" or were "not willing to take any financial risks" were coded as low-risk. According to Yao, Gutter, and Hanna (2005), some risk includes the substantial, above-average SCF financial risk tolerance. The categorization of risk in this study followed Yao, Gutter, and Hanna's categorization.

Financial variables

The survey data included information on various aspects of household finances. In this study, total income, total assets, and total debt were used. Total income, total assets and total debt were measured in dollar amounts. The income variable included all sources, before taxes and other deductions were made. Assets include financial assets (e.g., stocks, bonds, bank deposits) and non-financial assets (e.g., real estate, home and personal property). Assets were also measured in dollar amounts. The debt variable included all debts, such as credit card debt, installment debt, student loan, and other debts.

Statistics Programs for Analyses.

In this research, SAS 9.0 was used as a tool for testing Heckman's two-stage model. Probit and OLS regression analysis were automatically performed by running Heckman's Selection Model. Multicollinearity was also examined.

The Heckman selection model (Gronau, 1974; Heckman, 1976; Lewis, 1974) predicted the following regression relationship:

$$y_i = x_i \beta + e_i \qquad \text{regression equation}$$

However, the dependent variable is not always discovered. That means the dependent variable for observation i is observed if:

$$z_i \gamma + e_i > 0 \qquad \text{selection equation}$$

where

$$u1 \sim N(0, \sigma)$$

$$u2 \sim N(0, 1)$$

$$\text{corr}(u1, u2) = \rho$$

In the last equation, ρ should not be 0 to apply the first equation. However, it is a biased result. Thus, Heckman's model provided the effective logical estimates for all the parameters in the models. It first determined whether the life insurnce was purchased or not. Mathmatically, the ownership likelihood was transfered to Mill's Ratio (lambda) and then included as an independent variable for the second-stage analysis that determined the predictors that influece the amount of life insurance. In the process, the selection bias was resolved by including lambda. For better undersatanding of Heckman's Model, it is necessary to understand the Inverse Mill's Ratio (lambda).

People make decisions about whether they need to have life insurance and how much they need to have. People who would normally own life insurance may have recently canceled a policy or are in the process of buying a policy. Since the data was cross sectional, individuals could be excluded and bias the results. Heckman's model helped control for this bias.

CHAPTER 4

ANALYSIS AND RESULTS

Descriptive Analysis of the Sample

The results of statistical analysis was as follows: (a) descriptive analysis for

understanding overall features of the total sample used in Heckman two-stage model, (b)

Probit to generate lambda, and (c) OLS to estimate the model. To complete the analysis,

SAS 9.4 was used.

Table 5 describes the household characteristics of respondents.

Table 5

Descriptive Table of Observations. (N = 5,240)

Variable	Frequency (%)	Mean (S.D.)
AGE		49.77 (16.81)
Gender		
Male	72.03	
Female	27.97	
Marital Status		
Married	57.30	
Not Married	42.70	
Work Status		
Work	73.77	
Not Work	26.23	
Education Level		
High School or Less	57.95	
College or More	42.05	

Household Size		2.61 (1.49)
Risk Tolerance		
High Risk Tolerance	17.72	
Low Risk Tolerance	82.28	
Income		$ 86,284
		(373,317)
Assets		$ 576,148
		(3,438,253)
Debt		$ 93,435
		(383,798)
Amount of Life Insurance		$ 184,109
		(1,032,503)
Purchase of Term Life Insurance		
Have Term Life Insurance	54.74	
Do Not Have Term Life Insurance	45.26	

Note. N = 5,240

The average age was approximately 50. Almost 72% of respondents were males; 28% were females. Approximately 57% of people were married or living with a partner, and 73% of people were working. Over half of respondents had an education level of high school or less (57%). The average household size was 2.61, with a standard deviation of 1.49. Approximately 17% fall into the high-risk tolerance group. The mean income level is $86,284, and the average assets equal $576,148. The average amount of debt was $93,435. Finally, the average amount of life insurance was $184,109.20. In this study, roughly half of respondents (54%) purchased life insurance.

As mentioned above, this study was interested in the determinants of the amount of life insurance households purchased. One of the important questions in this study was whether financial variables were more or less related to having a given amount of life insurance when moderated by the effect of risk tolerance. The results indicate that

financial variables have a meaningful impact on the dependent variable. The interaction of risk-tolerance and income has negative association with the amount of life insurance.

Table 6. Heckman's Two-Stage Model Results for Life Insurance (N=5240)

Variable	Heckman's Model	
	Probit Selection Equation (*y* = Purchase of Life Insurance) β(*SE*)	OLS Main Equation (*y* = Amount of Life Insurance) β(*SE*)
Demographic Variables		
Age	0.003(0.001)*	-0.010(0.005)
Gender (1 = Male)	-0.119(0.059)*	-0.190(0.214)
Marital Status (1 = Married)	0.438(0.060)***	2.013(0.240)***
Work Status (1 = Work)	0.156(0.055)**	1.021(0.202)***
Education Level (1 = Some College or More)	0.225(0.042)***	1.183(0.168)***
Household Size	-0.007(0.015)	
Psychological Variable		
Risk Tolerance (1 = High Risk Tolerance)	0.678(0.276)*	2.731(1.007)**

Financial Variables

Income	0.073(0.018)***	0.427(0.068)***
Assets	0.067(0.009)***	0.543(0.049)***
Debt	0.045(0.004)***	0.184(0.024)***

Interaction Variables

Risk Tolerance*Income	-0.045(0.028)	-0.294(0.098)**
Risk Tolerance*Assets	-0.008(0.018)	0.094(0.063)
Risk Tolerance*Debt	0.004(0.009)	-0.002(0.031)
Lambda		6.370***
Logged Likelihood		-3060
R^2		0.542
Observations	5240	

[1]*Note*: *, **, and *** indicate significance levels at 0.05, 0.01, and 0.001, respectively. Figures in parentheses present standard errors.

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[1] An OLS model without adjusting for Lambda was run, but not shown. The basic results were similar.

Table 6 shows the results from Heckman's two-stage model with the dependent variable in the first instance being the ownership of term life insurance. The total amount of life insurance was the dependent variable for the second stage.

The results indicated that as respondents married and attained higher levels of education, they were more likely to have a greater amount of life insurance. Further, people who were working were likely to have more life insurance than those who were not working. Plus, respondents with higher amounts of income, assets, and debt, were more likely to have a greater amount of life insurance. Risk tolerance was positively and significantly related to the amount of life insurance, meaning that those people with high risk tolerance were more likely to have a greater amount of life insurance.

Household size was not statistically significant in its association with the ownership of life insurance. Age, marital status, work status, and education level were positively and significantly related to the purchase of life insurance, implying that the overall model influenced the decision to purchase life insurance. Gender was also negatively associated with the purchase of life insurance. Risk tolerance was positively and significantly related to the purchase of life insurance, meaning that those people with high risk tolerance were more likely to purchase life insurance.

All of the financial variables were significant. Thus, people who had more income, more assets, or more debt were more likely to purchase life insurance. It is noteworthy that the interaction terms (moderator variables) were not significant at this stage.

At the second stage, results for most of the demographic variables were consistent with prior research in both stages. The same factors that make people more

likely to purchase life insurance are also positively related to the amount of life insurance purchased.

All of the financial variables were consistent with prior research in both stages. The same financial factors that make people more likely to purchase life insurance were also positively related to the amount of life insurance.

However, the interaction variables had a different result. In the first stage, none of the interaction terms are significant. In the second stage, however, one interaction terms were associated with the amount of life insurance purchased. Results indicate that the moderation effects, except for asset and debt, was significant. More specifically, the relationship between income and the amount of insurance demanded is weaker in the group of respondents who report high tolerance of financial risk.

Hypothesis Testing

A number of independent variables were added to the two-stage model to account for additional variation (Table 7). These models were used to test hypotheses drawn from the theoretical model. All hypotheses were tested at the 0.05 significance level.

In the first stage,

- H1 (risk tolerance had a positive association with the purchase of life insurance) was supported.

- H2a (income had a positive association with the purchase of life insurance) was supported.

- H2b (assets had a positive association with the purchase of life insurance)

was supported.

- H2c (debt had a positive association with the purchase of life insurance) was supported.

In the second stage, risk tolerance was negatively associated with income and amount of life insurance, meaning that the relationship between income and the amount of insurance demanded was weaker in the group of respondents who reported high risk tolerance. Therefore, H3a was supported. However, the interaction of risk tolerance and assets was not significantly associated with the amount of life insurance. Therefore, H3b was not supported. Lastly, risk tolerance was not associated with debt and the amount of life insurance. Therefore, H3c was not supported.

CHAPTER 5

DISCUSSIONS AND CONCLUSION

Discussion

This study had two objectives: (1) to measure the correlations among the purchase of life insurance, subjectively reported risk tolerance, and numerous financial characteristics; and (2) to examine whether risk tolerance moderates the relationships between the amount of life insurance purchased, and numerous financial characteristics. Heckman's model uses rho to investigate whether the selection model and the outcome model are independent. These results showed that the two models are not correlated and provides support for using Heckman's two-stage model for this analysis.

According to the Heckman model, all of the financial variables had a significantly positive relationship with the dependent variable, the purchase of life insurance, in the first stage. These results corresponded with many other studies and were consistent with the hypothesized outcomes (Anderson & Nevin, 1975; Browne & Kim, 1993; Burnett & Palmer, 1984; Duker, 1969; Ferber & Lee, 1980; Fortune, 1973; Gandolfi & Miners, 1996; Hammond et al., 1967; Mantis & Farmer, 1968; Neumann,1969; Showers & Shotick, 1994; Truett & Truett, 1990). All of the demographic variables except household size were associated with the purchase of life insurance. As shown in the previous research, demographic variables such as age, gender, marital status, work status, and education level all affected the purchase of life insurance. All variables except gender were positively associated with the purchase of life insurance. Only gender had a

negative association in the Heckman model. The results of model analysis matched the expected results almost exactly.

Theoretical Expansion

As mentioned in a previous chapter, attribution theory pointed out that individual behavior is influenced by both internal attributes and external attributes. Utilizing attribution theory (Heider, 1958), this study attempted to expand the theoretical explanations of consumer behavior and household economics.

First, the results of this study confirmed that both internal factors and external factors had effects on consumers' decision making. In addition, the effect of interaction between internal and external factors were found either to boost or reduce the outcome of consumer behavior. This new approach that incorporated both dispositional and situational factors and the interaction between them should be considered when conducting consumer behavior-related research.

Second, financial planning research should continue to incorporate the individual's dispositional financial *perceptions* into consideration rather than just focusing on the situation financial status itself. The results of this study suggest that the purchase of a financial product (e.g., life insurance) varies depending on how an individual perceives the current situation. Internal attributes moderate the perception of external factors, biasing decisions based on the combined effect. An individual perceived the economic situation differently depending on his or her personal disposition with regard to risk tolerance. When it comes to theoretical expansion, the research needs to reflect the individual's dispositional factors as well. The importance of incorporation of

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both internal and external factors cannot be overemphasized, since this has been suggested by several previous studies (Hanna, Guillemette, & Finke, 2013; Nobre & Grable, 2015).

Research Literature and Methodological Expansion

Mantis and Farmer (1968) and Chen, Wong, and Lee, (2001) found that marriage has a negative impact on amount of life insurance. In contrast, this study shows that married people have more life insurance than singles, presumably because of the need to support a family. Additionally, marriage results in a rise in household income, which in turn leads to a higher demand for life insurance.

Employed people tend to have more life insurance than the unemployed because they want to protect their family from income loss resulting from untimely death. This result is consistent with the results of previous research (Auerbach & Kotlikoff, 1989; Duker, 1969; Ferber & Lee, 1980; Fitzgerald, 1987; Hammond et al., 1967; Mantis & Falmer, 1968; Miller, 1985;). Financial resources derive from employment status, resulting in employment affecting the amount of life insurance.

More highly educated people have more life insurance because they are likely to have better financial knowledge than any other education-level group.

According to Heckman's selection model, risk tolerance influences the purchase of life insurance. Highly risk-tolerant people are more likely to purchase life insurance than risk-averse people. According to Shaw (1996), income growth is positively associated with risk tolerance. People who have higher risk tolerance have more income

than risk-averse people. However, risk tolerance itself does not affect the purchase of life insurance.

However, the interaction between risk tolerance and the financial variables did have an effect on the amount of life insurance purchased. The interaction term between income and risk tolerance was significant. The interaction of risk tolerance and income had a negative association with the amount of life insurance. More specifically, the relationship between income and the amount of insurance demanded was weaker in the group of respondents who report high tolerance of financial risk. Lastly, results also indicate that the moderation effects were not significant for asset and debt.

Results from this and previous studies provides implications that are useful to financial planners. Specifically, education level was significantly associated with the purchase of life insurance (e.g., Arena, 2008; Anderson & Nevin, 1975; Brown & Kim, 1993; Duker, 1996; Gandolfi & Miners, 1996; Hwang & Gao, 2003; Hwang & Greenford, 2005; Lee & Chiu, 2012; Truett & Truett, 1990; Webb, Grace & Skipper, 2002). Income was a significant determinant of life insurance ownership (e.g., Anderson & Nevin, 1975; Browne & Kim, 1993; Burnett & Palmer, 1984; Duker, 1969; Ferber & Lee, 1980; Fortune, 1973; Gandolfi & Miners, 1996; Hammond et al., 1967; Lee & Chiu, 2012; Lin & Grace, 2007; Mantis & Farmer, 1968; Neumann, 1969; Showers & Shotick, 1994; Truett & Truett, 1990). In addition to education and income, there were several variables that influence the purchase of life insurance. Age was positively associated with the purchase of life insurance (e.g., Berekson, 1972; Lin & Grace, 2007; Showers & Shotick, 1994; Truett & Truett, 1990). Married people were likely to buy life insurance (e.g., Lewis, 1989; Lin & Grace, 2007). When it comes to employment status, people who are

working were more likely to buy life insurance (e.g., Auerbach & Kotlikoff, 1989; Duker, 1969; Ferber & Lee, 1980; Fitzgerald, 1987; Hammond et al., 1967; Mantis & Falmer, 1968; Miller, 1985). Risk tolerance was positively associated with purchase of life insurance (Kwok & Tadesse, 2006; Schlesinger, 1981; Szpiro, 1986; Xiao, 1996). People who have higher asset were more likely to purchase life insurance (Anderson & Nevin, 1975; Bernheim, 1991; Duker, 1969; Eisenhauer & Haylek, 1999; Ferber & Lee, 1980; Hammond et al., 1967; Hau, 2000; Headen & Lee, 1974; Lewis, 1989).

Expansion for Practitioners and Policy Makers

These findings suggest that individuals perceive assets as an additional safety net rather than a substitute for insurance. In other words, highly risk-averse individuals might both purchase insurance and maintain their financial assets. Thus, the presence of a positive correlation between accumulated assets and demand for life insurance might indicate that highly risk-tolerant respondents overspend on insurance. This study also suggests that individuals perceive income as an investment resource rather than an investment product. In other words, highly risk-tolerant individuals might not invest their financial resources in life insurance. Thus, the presence of a negative correlation between income and demand for life insurance might indicate that highly risk-tolerant respondents underspend on insurance.

This study is intended to improve the understanding of the purchase of life insurance. A misallocation of resources might occur when very risk-averse individuals invest too much in life insurance. Alternatively, results might reveal that risk-tolerant individuals do not buy enough insurance and, as a consequence, their survivors are

vulnerable to financial shock. In conclusion, individuals perceive their financial resources differently, depending on their risk tolerance. Life insurance decision-making is specific to individual situations. Thus, it is necessary for consumer educators and the financial services industry to consider individuals' risk tolerance when providing financial education and services. By doing that, the purpose of life insurance, which is to effectively protect financial resources from the negative consequences of untimely death, will be attained. Investing in life insurance can be one alternative for avoiding the sudden loss of assets. Therefore, this research is significant because it acts as a baseline for financial professionals and educators when counseling customers on optimal decision making about life insurance.

Limitations of the Study

Limitations in the data precluded finding answers to some questions. More research must be attempted to investigate the relationship between financial resources and life insurance. Financial resources, especially, should be studied in detail. A number of financial products that act as either substitutions for or complements to life insurance already exist. Study of the diverse approaches to these various financial products would make it possible to better understand their relationships with life insurance as well as to estimate more accurately their effects on life insurance. Such research would eventually help individuals and families achieve their life goals through proper management of their finances.

This study has advanced the understanding of risk tolerance, but more sophisticated measurements need to be developed if researchers are to make more

accurate estimates regarding the effect of risk tolerance on behavior. The measurement of risk tolerance in this study was self-reported, meaning that individuals may have under- or overestimated their risk tolerance.

Finally, this study did not consider the life stage of the household. According to life cycle theory, the financial behavior of households is likely to change in each stage. Furthermore, as new forms of families emerge in the future, research techniques will need to adjust to reflect those changes.

Future Research

Future research needs to overcome the limitations of this study, as discussed above. More attention must be paid to financial psychology, and more sophisticated measurements of financial risk measurement are required if more accurate prediction is to be realized. In addition, more diverse aspects of financial resources should be considered. This study used financial resources already provided in the data set; however, the relationship between various other aspects of financial resources and life insurance should be investigated in order to more accurately predict the amount of life insurance needed to protect financial well-being from the negative consequences of death. Lastly, life cycle stage should be considered when studying households' life insurance demand. Because this study showed household size to have no significant effect, life cycle may be more important than household size in predicting the purchase of and/or the amount of life insurance. Variables such as the number of children, their ages, and the presence of dependent parents could be used to operationalize family life cycle stage.

Conclusion

The availability of financial resources is an important consideration for an individual making decisions about purchasing life insurance, as is that individual's level of risk tolerance. Key findings of this research are that an individual's risk tolerance level, as a moderator, affects the association between financial resources and the amount of life insurance. In other words, risk tolerance influences insurance consumption. Many researchers have pointed out that financial resources and risk tolerance affect the purchase of life insurance or the amount purchased. This study focuses on how individuals are influenced by both internal and external factors. This study also investigates the individual's decision making about life insurance. Heckman's two-stage model was used to examine whether individuals make life insurance decisions reasonably, considering both their financial status and risk tolerance. This research is significant in that it solves the problem of selection bias by using Heckman's two-stage model to attain an accurate estimation. This study is also valuable because it suggests future directions for research that considers not only economic but psychological characteristics of individuals when conducting consumer education and financial planning.

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