Speculative Risk Assignments for an Introductory Risk and Insurance Course

by

Stephen M. Avila, Ph.D., CPCU
Professor, Risk Management and Insurance
Department of Finance and Insurance
Miller College of Business
Ball State University
savila@bsu.edu

Kevin M. Gatzlaff, Ph.D.
Assistant Professor, Risk Management and Insurance
Department of Finance and Insurance
Miller College of Business
Ball State University

Stephen Avila is a Professor of Risk Management and Insurance and Co-Director of the Center for Actuarial Science, Insurance, and Risk Management at Ball State University. His research interests include the demand for earthquake insurance, large deductible workers compensation plans, employer sponsored health plans, and executive compensation. He has published in *Risk Management and Insurance Review, Journal of Insurance Issues, Journal of Insurance Regulation, Compensation and Employee Benefits, eCPCU Journal, Journal of Financial Service Professionals, Journal of Financial Education, and the Journal of Business Ethics.*

Kevin Gatzlaff is an Assistant Professor of Risk Management and Insurance at Ball State University where he currently teaches Principles of Risk Management and Insurance and Employee Benefits and Retirement Planning. His research interests include insurer performance, insurer use of financial derivative instruments, privacy breaches, optimal health insurance structure, and litigation involving accidental death or material misrepresentations. He has published in *Risk Management and Insurance Review*, *Journal of Insurance Regulation, Compensation and Employee Benefits,* and the *eCPCU Journal.*

This paper was supported by the Center for Actuarial Science, Insurance, and Risk Management at Ball State University.

Speculative Risk Assignments for an Introductory Risk and Insurance Course

Abstract

This paper summarizes the implementation of three assignments that examine speculative risk in a Principles of Risk Management and Insurance course. The first assignment examines financial markets and investments. Students follow stocks and mutual funds throughout the semester. A second assignment consists of examining a 401(k) plan, and making investment decisions and selecting appropriate asset allocation within the plan. The last assignment examines additional mutual funds, asset allocation recommendations for given ages, and target retirement date funds. Experience has shown us that students benefit from this approach in understanding the general concept of speculative risk and the specific concepts of investments and retirement planning.

Introduction

In the Principles of Risk Management and Insurance course, pure risk exposures are a primary focus. While assignments exploring pure risk exposures are an important component of an introductory RMI course, speculative risk encountered in the form of retirement savings is likely to also play a significant role in the typical student's career. Further, there is no assurance that students in a RMI principles course will later take an investments course. Consequently, speculative risk assignments are given to provide the opportunity for students to learn about the stock market and investing for retirement planning purposes.

The first assignment explores individual stocks and stock mutual funds, the Dow Jones Industrial Average, the NASDAQ Composite Index, the S&P 500 Index, certificates of deposit, common stock, preferred stock, bonds, mutual funds, and inflation. This assignment allows students to become familiar with financial markets and to research and examine stocks and mutual funds. This assignment is given early in the semester to allow for a discussion on speculative risk, and to examine investing within 401(k) plans throughout the semester. A recent article by Mark Coba, Senior Editor for CNBC titled, “Can’t figure out your 401(k)? You’re not alone” is assigned to the class to discuss how they will make educated decisions regarding their 401(k) plan. The first speculative risk assignment is the initial step in better understanding the markets and investments.

The second speculative risk assignment explores the strategy of asset allocation within the context of a 401(k) retirement account. Students construct portfolios of mutual funds and examine how asset allocation changes over the lifetime of an investor. This assignment prepares students to make choices when constructing their own retirement portfolios in the future. The third speculative risk assignment examines mutual funds and target date retirement funds as an application of an asset allocation strategy. Students review a stock mutual fund, a bond mutual fund, and a money market fund to compare their characteristics, holdings, and returns. Then, students compare a target date retirement fund with a date they construct themselves using asset allocation recommendations.

This article proceeds as follows: First, some recent pedagogical research is outlined. Then, each of the three speculative risk assignments is discussed in turn, with learning objectives and a short description. At the conclusion of the discussion of each assignment, the actual assignment follows. Those interested in incorporating these assignments in their courses are encouraged to contact the authors.

Recent Pedagogical Research

Several recent studies have examined risk management and education related assignments, concluding that their inclusion enriches the classroom experience and enhances student learning. For example, Baranoff (2001) uses “risk balls” as tangible objects representing the concepts of both risk and insurance, inducing risk-related feelings of anxiety and the desire to reduce it among students. Eckles and Halek (2007) utilize a simulation to introduce the concept of adverse selection to risk management students, showing how it can influence insurance markets. DePaolo and Mikolaj (2007) outline a method of teaching enterprise risk management using quantitative modeling to senior-level students.

Others have used stock market simulations to introduce discipline-based concepts. For example, Seo, Goldfarb, and Barrett (2010) observed how simulated stock market decisions and results impacted students’ feelings about risk-taking. More traditionally, finance courses have used investment simulations to enhance student experience. Lekvin (2005) outlines how courses using this approach may have an assessment advantage.

While exercises and assignments investigating pure risk remain a key part of introductory risk management and insurance courses, the opportunity to examine speculative risk in the context of retirement planning is worthwhile introducing, especially since there is no guarantee that students will eventually encounter exposure to the financial markets and their risks later in their academic careers. An explanation of the three speculative risk assignments that are used in the course follows, and the actual copy of the assignment follows each discussion in turn.

Stock and Mutual Fund Portfolio Assignment

Learning Objectives

1. Students will research and choose a stock and stock mutual fund and track price changes throughout the semester and report a mutual fund objective, its stock, bond, and cash composition, and a mutual fund's top ten holdings.

2. Students will explain the definitions of the Dow Jones Industrial Average, NASDAQ Composite Index, and the Standard and Poor's 500 Index and report current trading levels and track changes in the indices throughout the semester.

3. Students will demonstrate an understanding of certificates of deposit, common stock, preferred stock, bonds, mutual funds, and inflation.

These objectives will allow students to better understand financial markets and become better informed in their decision-making process regarding their investment choices.

Each student has $100,000 to invest in at least one stock and one stock mutual fund. Students are limited to investing $50,000 in one stock and $50,000 in one stock mutual fund. A stock mutual fund was chosen as part of the assignment since a stock mutual fund will have more volatility during the semester than a bond fund or money market fund. Further research on a bond fund and a money market fund is part of the third speculative risk assignment to examine additional mutual funds later in the semester.

The simplest possibility is that the student could choose a single stock and stock mutual fund; however, most students distribute their capital among a few stocks and stock funds. Students who choose more than a couple of stocks and mutual funds are generally the more advanced students in their investment knowledge.

Students track their portfolios throughout the semester and record and turn in their portfolio value at the beginning and end of the semester for assessment and points. As part of this assignment, students are required to define certain investment terms, define common indices, and report their portfolio values. For the first report, students report on the mutual fund objectives, profile, and composition of assets within the fund (stocks/bonds/cash). Within Yahoo Finance, these can be found under Profile and Holdings for the mutual fund.

Near the end of the term, points are awarded for tracking their portfolio performance, the indices, and providing additional information for the stock mutual fund. In addition, the students report on the top ten holdings for one of their mutual funds. After understanding the mutual fund's objective and composition, the top ten holdings will provide additional information regarding the top ten companies that the mutual fund is investing in. The top ten holdings are companies that are often recognizable to students. The actual stock and mutual fund portfolio assignment follows below.

Stock and Mutual Fund Portfolio Assignment
Each student has $100,000 to invest in at least one stock and one stock mutual fund. The limits are $50,000 invested in one stock and $50,000 in one stock mutual fund.

Track your portfolio throughout the semester and record and turn in your definitions and portfolio value on August 29th (for 10 points). In addition, turn in your portfolio on November 19th (for 10 points). The November report will consist of your values for the last week of September, the last the week of October, and the week leading up to turning in the assignment on November 19th with the total investment amount listed.

For the first report, list the mutual fund objective and composition (stocks/bonds/cash). For the November 19th Report, you need to list the top ten holdings in at least one mutual fund.

Example	Stock Name	Symbol	Price	# of Shares	Total Investment
August					
September					
October					
November					

	Mutual Fund Name	Net Asset Value	# of Shares	Total Investment
Aug.				
Sept.				
Oct.				
Nov.				

Total Stock and Mutual Fund Investment

Define and **report the number**	August	Sept.	Oct.	Nov.
Dow Jones Industrial Average				
NASDAQ Composite Index				
S&P 500 Index				

Define the following terms
certificates of deposit
common stock, preferred stock
bonds
mutual fund
inflation

Investing Within a 401(k) Retirement Plan Assignment

Learning Objectives

1. Students will distinguish between stock, bond, and money market mutual funds and understand different asset allocation recommendations for different ages.

2. Students will demonstrate how to allocate their investments within a 401(k) plan. They will also explain how and why their asset allocation should change over time.

These objectives will allow students to better understand choices within their 401(k) plan and asset allocation recommendations for given ages, and become better informed in their decision-making process regarding their asset allocation decisions within 401(k) plans.

Within the employee benefits and retirement planning section of the course, students are required to choose investments within a company 401(k) plan. Students are given a list of investment choices, along with a chart showing each mutual fund's returns. The chart is created each semester by going to Fidelity.com, then Research, then Mutual Funds and typing in the name of the fund. This takes about thirty minutes to an hour to complete.

Students are required to allocate their investments according to the following the guidelines: Age 20-49 (80% stocks, 20% bonds); age 50-59 (60% stocks, 40% bonds); age 60-74 (40% stocks, 40% bonds, 20% cash); and age 75+ (20% stocks, 60% bonds, and 20% cash). We discuss that these are asset allocation recommendations from one source, can be used as a guide, and individual asset allocation may differ depending on each person's situation. For the final part of the assignment, students choose a group of mutual funds based on their risk tolerance, understanding of the financial markets, and personal preference.

An interesting note is made to students about the Balanced and Puritan growth and incomes funds regarding the asset allocation within each fund. For example, the students need to be aware that the Balanced Fund consists of 68% stocks and 31% percent bonds and Puritan has an allocation of 66% stocks and 33% bonds as of November 2013. So, if a student chooses an allocation of 50% into the Balanced Fund, it would mean that 34% is going into stocks and 15.5% is going into bonds. The actual assignment is below.

Investing Within a 401(k) Retirement Plan Assignment

Students work in groups of 2 or 3 to create a portfolio based on the asset allocation recommendation for the four age categories. Each team member has to construct an individual portfolio. The individual portfolio is constructed based on individual preference. For example, for age 75+ (Stocks 20% (10% Contrafund, 10% Low Priced Stock), Bonds 60% (20% Intermediate Bond, 20% Investment Grade Bond, 20% Mortgage Securities), and Cash 20% (20% Retirement Money Market).

The description of and historical returns of the possible funds in which students can invest follow below.

Following the recommendations of asset allocation below, create a portfolio for someone aged:

20-49 (80% stocks, 20% bonds);
50-59 (60% stocks, 40% bonds);
60-74 (40% stocks, 40% bonds, 20% cash); and
75+ (20% stocks, 60% bonds, and 20% cash)

Age 20-49

50-59

60-74

75+

Individual Portfolio

For their individual portfolio, students can take more risk or less risk than the 80% stocks and the 20% bonds recommendation for ages 20-49.

Cash - Money Market Funds

Retirement Money Market – Portfolio consists of high quality money market instruments of all kinds.

Retirement Government Money Market - Portfolio consists of obligations issued or guaranteed as to principal and interest by the U.S. Government and its agencies and in repurchase agreements secured by those obligations.

Bond Funds

Intermediate Bond Fund – Portfolio consists of high and upper-medium grade, fixed-income obligations with intermediate maturities.

Investment Grade Bond Fund – Portfolio consists of a broad range of fixed income securities, including bonds, debentures, notes, equipment trust certificates, government securities, and fixed income securities convertible into or exchangeable for common stocks.

Mortgage Securities Fund – Portfolio consists of a broad range of mortgage-related securities issued by governmental, government-related and private organizations including Ginnie Mae, Fannie Mae, Freddie Mac and other highly-rated obligations.

Stock and Bond Funds

Balanced Fund - Portfolio consists of common stocks, convertible securities and bonds. As of November 2013, the fund consists of 68% stocks and 31% bonds.

Puritan Fund – Portfolio consists of common stocks, convertible securities and bonds. As of November 2013, the fund consists of 66% stocks and 33% bonds.

Stock Funds

Contrafund - Invests primarily in the common stock of companies whose value Fidelity Management & Research Company (FMR) believes is not fully recognized by the public.

Growth Company –Portfolio consists of common stocks and convertibles of smaller, emerging growth companies.

Growth and Income Fund - Portfolio consists of common stocks, convertible securities and bonds. As of November 2013, the fund consists of 99% stocks and 1% cash.

Low-Priced Stock Fund –Normally investing at least 80% of assets in low-priced stocks (those priced at or below $35 per share)

Magellan Fund –Portfolio consists of common stocks or securities convertible into common stocks.

OTC Portfolio – Portfolio consists of securities traded over-the-counter (NASDAQ)

Overseas Fund – Portfolio consists of foreign securities whose principal business activities are outside of the U.S.

Spartan U.S. Equity Index Portfolio – Portfolio consists of common stocks approximately duplicating the composition and total return of the S&P 500.

YTD, Through 11/8, Annual through October 31, 2013.

Name	YTD	1	3	5	10
Retirement MM	0.01%	0.01%	0.01%	0.52%	1.75%
Retirement Govt MM	0.01%	0.01%	0.01%	0.12%	1.62%
Intermediate Bond	-0.51%	0.08%	3.02%	7.35%	4.28%
Investment Grade Bond	-0.52%	-1.15%	3.43%	7.51%	7.51%
Mortgage Securities	-1.24%	-3.40%	3.10%	5.91%	4.03%
Balanced 68/31	16.31%	17.31%	11.53%	13.51%	7.67%
Puritan 66/33	15.97%	17.18%	11.53%	13.18%	7.26%
Growth and Income 99/1	28.52%	29.67%	18.46%	14.14%	3.48%
Contrafund	27.01%	29.92%	15.80%	16.12%	10.12%
Growth Company	30.28%	33.98%	18.73%	19.60%	10.31%
Low Priced Stock	29.49%	34.48%	17.71%	20.50%	10.92%
Magellan	28.18%	29.82%	12.92%	14.46%	5.11%
OTC Portfolio	38.11%	43.94%	18.42%	22.23%	10.48%
Overseas	19.98%	28.17%	10.03%	11.27%	6.84%
Spartan U.S. Equity Index	26.31%	27.06%	16.47%	15.11%	7.39%

Mutual Fund, Retirement Asset Allocation, & Target Retirement Date Fund

Assignment

Learning Objectives

1. Students will be able to explain the definition of a Target Retirement Date Fund and demonstrate understanding of the asset composition within the fund.

2. Student will compare an asset allocation recommendation to a Target Retirement Date Fund based on their current age and make a decision on whether they will choose selecting their own asset allocation or the Target Retirement Date Fund.

The mutual fund assignment consists of researching information on three mutual funds; one stock, one bond, and one money market fund. For the stock mutual fund, students are required to identify the fund manager, returns for 1, 5 years, 10 years, and life of the fund, the top ten holdings, the fund's asset allocation (stock/bond/cash) and the fund objective. Students can report on the stock mutual fund they have been tracking throughout the semester if they choose, or they may select a different one. For the bond mutual fund, students must identify the fund objective, fund manager, and returns for 1 year, 5 years, 10 years and life of the fund. For the money market fund, students identify the 1, 5, and 10 year returns. This assignment provides an opportunity for students to research bond and money market funds, and an opportunity for additional research on stock funds.

The next part of the assignment consists of completing research on a recommended asset allocation for their given age. The students are then asked to provide an asset allocation between stocks, bonds, and money market mutual funds for their 401(k) plan. The students are asked to conduct research on a Target Retirement Date Fund close to the year when they would like to retire and list the asset allocation within the fund. For example, if a student would like to retire in forty years, the 2055 Target Retirement Date Fund would be selected. Students are asked if they would choose a Target Retirement Date fund or actively manage their own asset allocation within their retirement plan. The actual assignment is below.

Mutual Fund, Retirement Asset Allocation, & Target Retirement Date Fund Assignment

List three mutual funds (one stock, one bond, and one money market fund). For the stock mutual fund, identify the fund manager, returns (1, 5, and 10 year), top ten holdings, and the fund objective. Identify the fund manager and returns for the bond fund. For the money market, identify the returns. Allocate your retirement funds between stock, bond, and money market mutual funds. List one Target Retirement date fund and list the asset allocation. Will you choose a Target Retirement Date fund or choose your own asset allocation?

Summary

Pure risk assignments are an essential component of an introductory RMI course. However, because most students will encounter retirement planning issues throughout their careers and because some students may not experience future courses examining financial markets, a discussion of speculative risk as it relates to retirement planning is also useful. This paper outlines three assignments examining speculative risk in a Principles of Risk Management and Insurance course relating to retirement planning. Students are required to define certain investment terms, to allocate investment dollars to individual stocks and stock mutual funds, and explore the strategy of asset allocation within a retirement plan. Students report benefiting from this approach in understanding the general concept of speculative risk and the specific concepts of investments and retirement planning.

References

Baranoff, Etti, 2001, “The Risk Balls Game: Transforming Risk and Insurance into Tangible Concepts”, *Risk Management and Insurance Review,* 4(2): 51-58.

DePaolo, Concetta, and Mikolaj, Peter, 2008, “Teaching Enterprise Risk Management: A Modeling Approach”, *Journal of Risk Education,* 2007: 20-28.

Eckles, David L., and Halek, Martin, 2007, “The Problem of Asymmetric Information: A Simulation of How Insurance Markets Can Be Inefficient”, *Risk Management and Insurance Review,* 10(1): 93-105.

Lekvin, Brent J., 2005, “Some Evidence Regarding Computer-Based Financial Instrument Trading Simulations and Their Use as an Assessment Tool”, *Journal of Financial Education,* 31(1): 23-33.

Seo, Myeong-Gu, Goldfarb, Brent, and Barrett, Lisa Feldman, 2010, “Affect and the Framing Effect within Individuals over Time: Risk-Taking in a Dynamic Investment Simulation”, *Academy of Management Journal,* 53(2): 411-431.