Estimating Equity Risk Premium:
The Case of Amman Stock Exchange

By: Hala Fawzi Al - Barakat

2009720010

Supervisors:
Dr. Mohammad Ajlouni
Prof. Ahmad M. Al- Omari

Master Thesis to Complement the Requirements for Obtaining a Master Degree Majoring in Banking and Finance Sciences

First Semester

December, 2012
Faculty of Economics and Administrative Sciences
Department of Banking and Finance

Estimating Equity Risk Premium:
The Case of Amman Stock Exchange

"تقدر علاوة مخاطر الأسهم في بورصة عمان للأوراق المالية"

By:
Hala Pawzi Al – Barakat
B.A. of Banking and Finance Sciences, Yarmouk University, Irbid, 2007

A thesis submitted in partial fulfillment of the requirements for the degree of master of Banking and Finance Sciences at Yarmouk University, Irbid, Jordan.

Approved by:
Dr. Mohamad Ajlouni
Supervisor
Professor Ahmed M. Al- Omar
Co-Supervisor
Professor Mishiels Suwaidan
Member
Dr. Devad Daradkah
Member

December 11, 2012
Acknowledgment

Master thesis takes a great deal of planning and research. It often takes months to complete. So this thesis would not have been possible without the support of many people. Many thanks to my advisers, Doctor Mohammad Ajlouni and Professor Ahmad Al- Omari who have offered me their assistance and support, as well as gave advice and suggestions of major importance. Also thanks to my committee members, who offered guidance and support. Thanks to the Yaromuk University for providing me with all means to complete this thesis. And finally, thanks to my parents who endured this long process with me, always offering support and love.
# TABLE OF CONTENTS

## Chapter One.... Framework of the Study

1.1 Introduction  
1.2 Objective of the Study  
1.3 Problem of the Study  
1.4 Importance of the Study  
1.5 Hypotheses  
1.6 Data and Methodology  
1.7 The Structure of the Study

## Chapter Two.... Theoretical Framework

2.1 Introduction  
2.2 History of the Equity Risk Premium  
2.3 Definition of Equity Risk Premium  
2.4 Approaches for Estimating Equity Risk Premium  
2.5 Determinants of Equity Risk Premium  
  2.5.1 Risk Aversion  
  2.5.2 Economic Risk  
  2.5.3 Information  
  2.5.4 Liquidity
2.6 The Reasons behind the Differences in Equity Risk 14
2.7 Attractiveness of Stock Market Relative to Bond market 16
2.8 Risk and Return 17
2.9 Amman Stock Exchange (ASE) 18

Chapter Three.... Literature Review

3.1 Introduction 21
3.2 Foreign Studies 21
3.3 Arabic Studies 32
3.4 What Distinguishes this Study? 33
3.5 Summary Table of the Previous Studies 34

Chapter Four.... Data and Methodology

4.1 Introduction 41
4.2 Data Sources and Sample 41
4.3 Hypotheses of the Study 43
4.4 Measurement of Variables 44
   4.4.1 Average Stock Return 44
   4.4.2 Market Risk 45
   4.4.3 Risk free rate 45
   4.4.4 Firm Size 46
### Chapter Five: The Empirical Results

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Introduction</td>
<td>51</td>
</tr>
<tr>
<td>5.2 Descriptive Statistics</td>
<td>51</td>
</tr>
<tr>
<td>5.3 Simple Regression Analysis</td>
<td>52</td>
</tr>
<tr>
<td>5.4 Multiple Regression Analysis</td>
<td>55</td>
</tr>
<tr>
<td>5.4.1 Overall Analysis</td>
<td>56</td>
</tr>
<tr>
<td>5.4.2 Forming Portfolios</td>
<td>57</td>
</tr>
</tbody>
</table>

### Chapter Six: Summary and Recommendations

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1 Introduction</td>
<td>67</td>
</tr>
<tr>
<td>6.2 Summary of the Results</td>
<td>67</td>
</tr>
<tr>
<td>6.3 Conclusions</td>
<td>68</td>
</tr>
</tbody>
</table>

**References**

72
## List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Number of Companies listed in Amman Stock Exchange</td>
<td>18</td>
</tr>
<tr>
<td>3.5</td>
<td>Summary Table of the Previous Studies</td>
<td>34</td>
</tr>
<tr>
<td>5.1</td>
<td>Descriptive Statistic of the Variables of the Study</td>
<td>51</td>
</tr>
<tr>
<td>5.2</td>
<td>Results of the Simple Regression Model of Market Risk Premium</td>
<td>53</td>
</tr>
<tr>
<td>5.3</td>
<td>Results of the Simple Regression Model of Market Capitalization</td>
<td>53</td>
</tr>
<tr>
<td>5.4</td>
<td>Results of the Simple Regression Model of Book-to-Market Ratio</td>
<td>54</td>
</tr>
<tr>
<td>5.5</td>
<td>Results of the Simple Regression Model of Price-to-Earnings Ratio</td>
<td>55</td>
</tr>
<tr>
<td>5.6</td>
<td>Results of the Multiple Regression Analysis – Overall Analysis</td>
<td>56</td>
</tr>
<tr>
<td>5.7</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on Beta If Beta &gt; Average</td>
<td>58</td>
</tr>
<tr>
<td>5.8</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on Beta If Beta &lt; Average</td>
<td>59</td>
</tr>
<tr>
<td>5.9</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on Firm Size If MC &gt; Average</td>
<td>60</td>
</tr>
<tr>
<td>5.10</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on Firm Size If MC &lt; Average</td>
<td>61</td>
</tr>
<tr>
<td>5.11</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on BV/MV If BV/MV &gt; Average</td>
<td>62</td>
</tr>
<tr>
<td>5.12</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on BV/MV If BV/MV &lt; Average</td>
<td>62</td>
</tr>
<tr>
<td>5.13</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on P/E Ratio If P/E &gt; Average</td>
<td>64</td>
</tr>
<tr>
<td>5.14</td>
<td>Results of the Multiple Regression Analysis – Forming Portfolios Based on P/E Ratio If P/E &lt; Average</td>
<td>64</td>
</tr>
</tbody>
</table>
Abstract


The study aims to examine the determinants of equity risk premium in the Jordanian companies listed in the Amman Stock Exchange over the period (2000-2010). These factors are market risk premium, market capitalization, book-to-market value and price-to-earnings ratio of firms. The sample of the study consists of 89 companies distributed among different sectors of Amman Stock Exchange as follows: 13 companies in bank sector, 48 companies in industrial sector and 28 companies in service sector.

The statistical methods used in this study are based on Mouslli (2010) model using CAPM. These approaches are simple regression model and multiple regressions model which includes: First, overall analysis. Second, constructing four different formations of portfolios. Then, run the CAPM to test the hypotheses.

The results of simple regression model found that there is a positive and significant relationship between market risk premium and equity risk premium. There is no relationship between firm size and equity risk premium. In addition, there is no relationship between book-to-market ratio and equity risk premium". Finally, there is no relationship between price-to-earnings ratio and equity risk premium.

Under multiple regression model, the overall regression reports that the first hypothesis is accepted and the remaining hypotheses are rejected.
Finally, after four different formations of portfolios are taken place. The results of regression as follows:-

(1) For portfolios constructed based on beta, market risk premium is the only variable that has impact on equity risk premium in both high and low risk portfolios.

(2) For portfolios constructed based on market capitalization, market risk premium and market capitalization in portfolio large firms' size are significantly correlated with equity risk premium as expected direction. In portfolio small firm's size, market risk premium is positive and significant related with equity risk premium.

(3) The results of portfolios formed based on book-to-market ratio, market risk premium is the only variable that is significant and as expected direction in both high and low BV/MV portfolios.

(4) The regression results for portfolios formed based on price-to-earnings ratio, the market risk premium is the only variable supports the first hypothesis in both high and low P/E portfolios. But in low P/E portfolio, P/E variable has negative and significant association with equity risk premium at the 5% level.

Key Words: Equity Risk Premium, Book to Market Ratio, Price to Earnings Ratio, Amman Stock Exchange
Chapter One
Framework of the Study

1.1 Introduction
1.2 Objective of the Study
1.3 Problem of the Study
1.4 Importance of the Study
1.5 Hypotheses
1.6 Data and Methodology
1.7 The Structure of the Study
Chapter One

Framework of the Study

1.1 Introduction

Equity risk premium is a central component of every risk and return model in finance. In fact, it is a key input when estimating the required rate of return and cost of capital in both corporate finance and valuation. While the returns on risky asset are uncertain, investors need to make balance between the expected returns on their investment and the risks associated with those investments. Thus, the equity risk premium represents the amounts that investors require to induce them to hold a risky asset rather than the risk-free asset. It is an important measure used by investors for estimating required rate of return on their risky investments, and for corporate managers in estimating funds that they need to meet their obligations. The size of this premium varies with the risk in a particular stock, or in the stock market as a whole. Therefore, high risk investments are compensated with a higher premium. The reason behind this premium stems from the risk–return trade off.

1.2 Objective of the Study

This study aims to examine the determinants of equity risk premium in the Jordanian companies listed in the Amman Stock Exchange by using Capital Asset Price Model over the period (2000-2010). These factors are market risk premium, market capitalization, book-to-market value and price-to-earnings ratio of firms.
1.3 Problem of the Study
The equity risk premium is widely used in corporate finance and provides a sensitive measure of the extent to which the investors need to be compensated for riskiness of the assets. Because of its significance for the investors to determine the required rate of returns and for managers to estimating cost of equity, it is very important to examine the determinants that have impact on equity risk premium. Therefore, this problem not only carried out in markets with richness in data and information, such as in United States, where the availability of data of high quality since 1871 (Cohen, 2009). But also compounded in Jordan where little data is available and the market is less liquid.

1.4 Importance of the Study
The equity risk premium has attracted the interest of many academics and institutional investors over the past decades. Because of the significance of the subject, equity risk premium reflects the fundamental judgment that make about how much risk in the market and what price should compensate that risk. The equity risk premium is important for investment strategists where investors require estimating of this premium for asset allocation decisions. (As well as its importance for corporate manager which is figures into the cost of equity to estimating long–term obligation such as pension and health care obligations and for longer-term strategic investment decisions). Moreover, it offers an important benchmark for investors to determine the required rate of returns on stock. Most research on the equity risk premium has focused on developed markets such as United States equity markets with few studies that provide evidences in emerging markets. This study attempts to