School of Business Management

2016/17 Semester 1

BM0249

INVESTMENT ANALYSIS AND PORTFOLIO MANAGEMENT

Date of Issue: 1 Nov 2016

Deadline of Submission: **12pm, 16 Jan 2017** (via BLACKBOARD)

1. PROJECT GUIDELINES

1.1 Project Introduction

This project constitutes **30%** of the total assessment for the module, BM0249 – Investment Analysis & Portfolio Management. This project covers all topics. Students will submit on a group basis a typewritten report including any supporting appendices and present their findings in class.

This project is designed for you to be resourceful and analytical. The ability to work as a team will be important, thus brainstorming and group meetings are essential. Individual efforts will be recognized through individual presentation, peer evaluation and submission of individual roles at the end of the project. As such, everyone should have a complete understanding of the whole project even though different individuals may focus on separate areas of the project.

1.2 Learning Outcomes

The expected learning outcome of this project is that the student will be able to:

1. Compute holding period returns, average returns, expected returns, and standard deviations.

2. Construct portfolios of different risk levels, and calculate its expected return and standard deviation.

3. Construct portfolios of varying degrees of risk using risk free and risky securities.

4. Calculate or estimate a firm's beta, and determine the firm's reaction to macroeconomic (market) events.

5. Demonstrate with a diversified portfolio the importance of beta as the sole measure of portfolio risk.

1.3 Administrative guidelines

1. This is a group project comprising of about 5 to 6 members. Each group will be assigned different securities. Projects submitted with non-assigned securities will not be graded. Please refer to Appendix A for more details.

2. You must submit the written report by **16 Jan 2017 12:00** to your module tutor. Any late submission will have **10 marks** deducted from the group marks for **each day** of delay. See item 2 for project report requirements on pages 3.

3. You are required to present your research and analysis during your tutorial in **week beginning 16 Jan 2017**. Each group will be given maximum 15 minutes to present their findings followed by no more than 10 minutes of Q&A. Every member of the team must present.

Any student absent from the oral presentation without valid reasons will be given 0 marks for the individual presentation component. See Table B on page 6 for the presentation guidelines.

4. You are to quote all sources of information and attach any supporting information in the Appendices. **Any form of plagiarism would not be tolerated. Zero marks would be awarded and students would be subjected to disciplinary action.**

1.4 Submission

Your submission should contain the following:

1. A written report of not more than 10 pages **including appendices** – Arial Font size 12 with single spacing. You are strongly advised to organize your report in the manner specified in Table A (see page 4).

2. Appendices of sources of industry research data or any other supporting schedules.

1.5 Grading of the project

The project will be graded as follows:

Report	50%	Group basis
Group Presentation	10%	Group basis
Individual Presentation	30%	Individual basis
# Peer evaluation	10%	Individual basis
Total	100%	

In peer evaluation, students are required to complete a confidential peer evaluation of your team members during the tutorial session. Students are to consider their fellow members' attitudes, sense of responsibility, team spirit, contribution and participation and quality of output during the whole project. The peer evaluation will be conducted in the week commencing **16 Jan 2017.** Instructions will be provided by your tutor on the day of the peer evaluation.

It is strongly advised that the presence of any inactive member must be brought to the attention of your tutor IMMEDIATELY, prior to submission of report, so that appropriate action can be taken!

2. PROJECT REQUIREMENTS

The scope and requirement of the project is as follows :

2.1 Requirement 1 : Security Analysis (20 marks)

a. Perform statistical analysis on TWO (2) ETFs, S&P 500 Index and risk-free assets daily returns over the past 5 years. Using the individual security's daily return, compute the following: (See Appendix B: Table 1)
   i. Maximum daily returns
   ii. Minimum daily returns
   iii. Average daily returns
   iv. Median daily returns
   v. Standard deviation & Variance of daily returns
   vi. Skewness
   vii. Kurtosis

b. Compute and plot return frequency distribution (vs Normal distribution) of the selected ETFs, S&P 500 Index and risk-free assets daily's returns. (See Appendix B: Table 2 & Table 3)

c. Calculate the correlation coefficient of your allotted securities, S&P 500 Index and risk-free assets daily returns.

d. Calculate the individual ETF's beta (See Appendix B: Figure 4 & 5). Do not use an external source like Bloomberg to perform this task. Calculate your own beta.

e. Is there a difference between your beta and those from Bloomberg that you obtained in requirement part d? Why?

2.2 Requirement 2 : Portfolio Analysis[1] (20 marks)

a. Using the data and analysis you have performed in part 2.1, construct TWO Securities Portfolio of different risk levels with different combinations of the selected ETFs **EXCLUDING** the risk free asset[2].

   i. Calculate the portfolios expected return
   ii. Calculate the portfolios standard deviation
   iii. Locate the minimum variance combinations of two securities

[1] You may use Chapter 6 of recommended text "Essentials of Investments" as a guide

[2] Note: All the portfolios I have requested are only two assets in nature. That means, you are **NOT** required to construct portfolio with more than two assets in it. Do keep that in mind. Of course, if you want to include more assets, you are welcome to do so.

b. Using the data and analysis you have performed in part 2.1, construct TWO Securities Portfolio of different risk levels with different combinations of the selected ETFs **INCLUDING** the risk free asset[3].

   i. Calculate the portfolios expected return
   ii. Calculate the portfolios standard deviation
   iii. Construct the optimal portfolio consisting of both risky and risk-free assets

c. With learning outcome 2 to 5 in mind, draw conclusion(s) with the analysis you have performed in part a and b.

The assessment of report and oral presentation will be based on the following:

Table A – Suggested format of report

Parts	Descriptions	Marks
I	Title Page containing the following : 1. Project title 2. Names, admission numbers and class of **EACH** of the member and the summary of each individual's role, duties and contributions in the project	5 marks
II	Table of contents	
III	Executive Summary	
IV	Background and Introduction of project scope and requirement	40 marks
V	Content/Analysis as per the project scope/requirement	
VI	Recommendation & Conclusion	5 marks
VII	Appendices	
Total		**50 marks**

[3] Hint: For this part, use your constructed portfolio in requirement 1 and add a risk free asset to it.

Table B : Presentation Guidelines

1. Formal attire is required
2. A handout of the presentation slides must be provided to the tutor before the presentation

Parts	Descriptions	Marks
I	Group 1. Organisation 2. Visual Aids	10 marks
II	Individual - Delivery Skills 1. Engaging & Eye contact 2. Clarity & Diction	 10 marks 10 marks
III	Individual - Questions and Answer Sessions 1. Ability to answer the question confidently 2. Ability to answer the question correctly	10 marks
Total		**40 marks**

RUBRIC FOR ORAL PRESENTATION (40 marks)

FACTOR	RATINGS SCHEME			
	0 – 1	2	3 – 4	5
ORGANISATION Assess the organization of the presentation	Audience cannot understand presentation as there is no logical flow of information.	Audience has difficulty following presentation because there is little logical flow of information	Group presents information in a logical sequence which the audience can follow	Group presents information in logical, interesting sequence which audience can follow
VISUAL AIDS	0	1 - 2	3 – 4	5
Assess the quality of visual aids used and how they enhance the audience's understanding	No visual aids were used.	Few visual aids were used and they enhance the presentation minimally	Visual aids supported the presentation effectively. They clarified and reinforced the spoken message.	Visual aids were carefully prepared and supported the presentation effectively. They clarified and reinforced the spoken message. The aids added impact and interest to the presentation.
ENGAGING & EYE CONTACT	0 - 2	3 – 5	6 -8	9 – 10
Assess the ability to engage the audience and maintain eye contact with them.	No eye contact or very little eye contact was made. Attempt to engage the audience is not apparent.	Some eye contact was made. Techniques used to engage audience were minimal, or mainly ineffective.	An interesting approach taken to topic. Speaker used techniques such as props, anecdote, surprising facts, direct audience participation. Good eye contact with audience	Speaker monitored audience and adapts presentation accordingly. An interesting or original approach taken to the topic. Speaker used techniques such as props, anecdote, humour, surprising facts, direct audience participation. Eye contact was maintained with audience all the time.
CLARITY & DICTION	0 - 2	3 – 5	6 -8	9 – 10
Assess ability to present clearly and with good diction.	Presenter did not speak clearly most of the time.	Presenter occasionally spoke clearly and at a good pace.	Presenter usually spoke clearly to ensure audience comprehension. Delivery was usually fluent.	Presenter spoke clearly and at a good pace to ensure audience comprehension. Delivery was fluent and expressive.
Q&A	0 - 2	3 – 5	6 -8	9 – 10
Assess ability to answer questions correctly and confidently	Rarely answered any questions. No or little knowledge of the topic was demonstrated.	Not all questions could be answered. Questions answered with difficulty, and little knowledge of the topic was demonstrated.	Most questions answered. Answers showed good knowledge and understanding of the topic. Language was mainly correct.	Questions answered with little difficulty. Very good knowledge of the topic was demonstrated. Language was correct and fluent.

RUBRIC FOR PEER EVALUATION (10 marks)

FACTOR	RATINGS SCHEME				
	0 - 2	3 - 4	5 - 6	7 - 8	9- 10
DISCIPLINE/ ATTENDANCE Assess the attendance and punctuality of meetings/discussions.	Highly irregular attendance, Always late /absent.	Needs reminders to attend meetings on time.	Seldom late/absent from meetings.	Very regular attendance and always punctual.	Never late and very regular attendance.
QUALITY OF WORK Assess quality of output.	0 - 2	3 - 4	5 - 6	7 - 8	9- 10
	Unacceptable quality of output that do not meet the project requirement at all	Below average quality of output that meet only some of the project requirement	Average quality output that meet most of the project requirement	Good quality output that meets all the project requirement	Very high quality output that exceeds the project requirement
RESPONSIBILITY Assess the ability to complete assigned tasks.	0 - 2	3 - 4	5 - 6	7 - 8	9- 10
	Does not complete assigned tasks.	Irregular outputs. Completes some tasks but not others.	Average output. Completes tasks most of the times.	Highly reliable. Always able to complete assigned tasks.	Completes tasks ahead of schedule. Keeps teammates informed of progress when required.
TEAMWORK / CONTRIBUTION Assess ability and willingness to accept team objectives and to participate constructively.	0 - 2	3 - 4	5 - 6	7 - 8	9- 10
	Very uncooperative. Poor team spirit. Very difficult to work with.	Little team spirit, sometimes difficult to work with.	Good cooperation, participates actively in team. Positive team spirit.	Understands and supports team very well. Very cooperative, has very good team spirit.	Extremely cooperative. Constantly promotes teamwork and team spirit.

Appendix A

Group	Ticker
Group 1	XLU VTI SPY H15T3M
Group 2	AGG QQQ SPY H15T3M
Group 3	BND XLP SPY H15T3M
Group 4	BSV EEM SPY H15T3M
Group 5	BIV EFA SPY H15T3M
Group 6	VNQ EWJ SPY H15T3M

Appendix B

Mean	0.0003
Standard Error	0.0003
Median	0.0000
Mode	0.0000
Standard Deviation	0.0166
Sample Variance	0.0003
Kurtosis	13.3540
Skewness	0.3045
Range	0.3225
Minimum	-0.1466
Maximum	0.1759
Sum	0.7042
Count	2301

Table 1: Statistical Measure

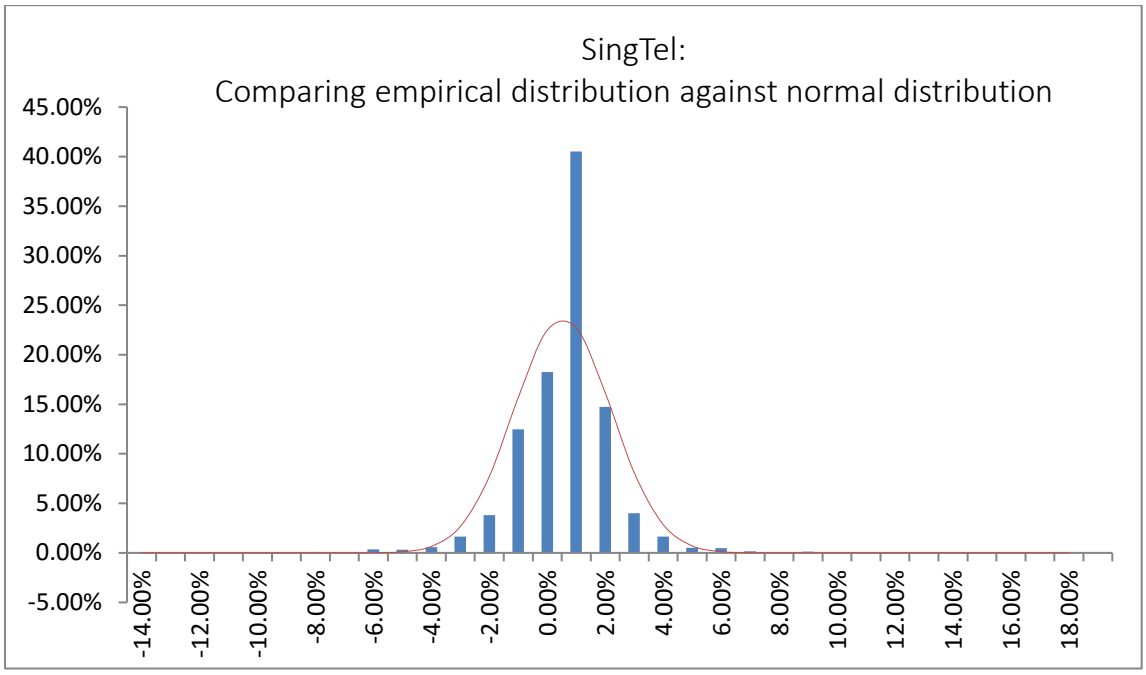

Table 2: Empirical Distribution vs Normal Distribution

Bin	Frequency	Actual %	Norm %
-14.00%	1	0.04%	0.00%
-13.00%	0	0.00%	0.00%
-12.00%	0	0.00%	0.00%
-11.00%	0	0.00%	0.00%
-10.00%	1	0.04%	0.00%
-9.00%	1	0.04%	0.00%
-8.00%	2	0.09%	0.00%
-7.00%	0	0.00%	0.00%
-6.00%	8	0.35%	0.01%
-5.00%	7	0.30%	0.11%
-4.00%	13	0.56%	0.65%
-3.00%	38	1.65%	2.66%
-2.00%	88	3.82%	7.70%
-1.00%	287	12.47%	15.67%
0.00%	420	18.25%	22.48%
1.00%	933	40.53%	22.72%
2.00%	339	14.73%	16.17%
3.00%	92	4.00%	8.11%
4.00%	38	1.65%	2.86%
5.00%	12	0.52%	0.71%
6.00%	11	0.48%	0.12%
7.00%	4	0.17%	0.02%
8.00%	1	0.04%	0.00%
9.00%	3	0.13%	0.00%
10.00%	1	0.04%	0.00%
11.00%	0	0.00%	0.00%
12.00%	0	0.00%	0.00%
13.00%	0	0.00%	0.00%
14.00%	1	0.04%	0.00%
15.00%	0	0.00%	0.00%
16.00%	0	0.00%	0.00%
17.00%	0	0.00%	0.00%
18.00%	1	0.04%	0.00%
	2302		

Table 3: Returns Frequency Table

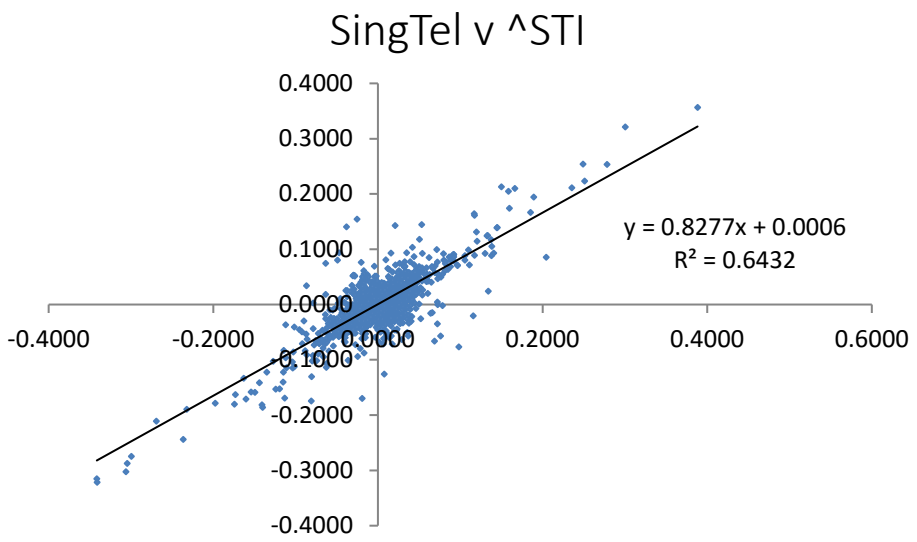

Figure 4: SingTel v STI

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.8020
R Square	0.6432
Adjusted R Square	0.6431
Standard Error	0.0239
Observations	2292

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	2.3587	2.3587	4128.73	0
Residual	2290	1.3083	0.0006		
Total	2291	3.6670			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	0.00	0.00	1.18	0.24	0.00	0.00	0.00	0.00
^STI Excess Rtn	0.83	0.01	64.26	0.00	0.80	0.85	0.80	0.85

Figure 5: SingTel v STI Regression Output

END OF PROJECT INSTRUCTION