



MÄLARDALENS HÖGSKOLA

**School of Sustainable Development of Society and Technology
Eskilstuna-Västerås**

Bachelor Thesis in Business Administration EFO703

CAPITAL INVESTMENT PROCEDURE FOR FEMYSO

SUPERVISOR: LEIF SANNER

**Group1957
Longinus I. Duru (721026)
Francis Oluduro (771107)
Mofid Al Jaafar (861017)**

VÄSTERÅS 2008-06-05

ABSTRACT

Date: 2008-06-05

Level: Bachelor Thesis in Business Administration EF0703, 15 ECTS Credits.

Authors: Longinus Duru, Francis Oladele Oluduro and Mofid Al Jaafar

Supervisor: Leif Sanner

Title: Capital Investment Procedures for FEMYSO

Problem Area: Undertaking an investment by FEMYSO involves weighing up the risk against the returns but still capital investment decision are still one of the most undertaken decisions by organization managers because it involves commitment of huge amount of money, which will affect the business over time. FEMYSO is embarking on a capital project at the hearts of Brussels but there is still a problem associated with the profitability of such venture.

Purpose: The purpose of this study is to provide Capital Investment guidelines and procedures for FEMYSO and to show how it can maximize profit through decision-making. Furthermore show the role of risk and interest rate in the investment.

Methodology/Design/Approach: This paper used theoretical framework of existing investment theories to assess investment opportunity for FEMYSO and other organizations. The role of Mintzberg *et al.* Rational model of decision-making in investments was analyzed. This research paper went further to provide deeper insights into capital investment process by evaluating the net present value of an investment and determining the risk associated with investments.

Research Limitation/Implications: This study is limited to FEMYSO and other non-profit organizations that want to assess Capital Investment Projects.

Conclusion and Result: The more you wait to earn a dollar, the more heavily you discount for it because of the time value of money. Good management decision in FEMYSO and other related organizations will lead to profit maximization. The time value of money problem can be solved by heavily discounting for the present value. Profitability of capital projects will depend on the future interest rate, which is uncertain and subject to risk.

Key word: FEMYSO – Forum of European Muslim Youth and Student Organization, Net Present Value, Internal Rate of Return.

ACKNOWLEDGMENT

Firstly, we want to thank God Almighty for the knowledge, wisdom and understanding that He has given us to be whom we are today. Without Him this work wouldn't have been possible.

We would like to use this medium to appreciate the immense contribution of our tutor- Mr. Leif Sanner for his guidance all through this research work.

We must also thank our colleagues at Mälardalen University who are numerous to mention for their constructive criticisms to better our thesis.

Also not forgetting the President of FEMYSO- Mr. Mohammad Fateh Atia and other people in the organization whose empirical field-work, goodwill and kindness during interview provided us with the basis for this study.

Lastly, we would like to thank our families for their strong support during the research period.

Longinus Duru

Mälardalen University

Francis O. Oluduro

Västerås, Sweden, 5th June 2008

Mofid Al Jaafar

Table of Contents

1. INTRODUCTION.....	4
1.1 BACKGROUND.....	4
1.2 STATEMENT OF RESEARCH PROBLEM	5
1.3 PURPOSE AND OBJECTIVE OF THIS STUDY	5
1.4 LIMITATION OF THIS STUDY	6
1.5 OUTLINE OF THIS PAPER.....	6
2. PRESENTATION OF FEMYSO.....	7
2.1 HISTORY OF FEMYSO.....	7
2.2 ORGANIZATIONAL STRUCTURE OF FEMYSO	7
FIGURE 1 ORGANIZATIONAL STRUCTURE OF FEMYSO.....	8
2.4 AIMS AND OBJECTIVES OF FEMYSO TO CAPITAL INVESTMENT	8
FIGURE 2 AREAS OF FINANCE OF FEMYSO.....	9
3. THEORETICAL FRAMEWORK	10
3.1 INTRODUCTION	10
3.2 CAPITAL INVESTMENTS.....	10
3.2.1 ECONOMIC PROFITABILITY ANALYSIS	11
3.2.2 FINANCIAL FEASIBILITY.....	11
3.3 INTEREST RATES AND INFLATION.....	11
3.4 FOREIGN-EXCHANGE RISKS, FORECASTING, AND INTERNATIONAL INVESTMENT.....	12
3.5 FOREIGN –EXCHANGE RISK PREMIUM.....	12
3.6 RISK MEASURE	13
3.7 THE CHOICE OF NET PRESENT VALUE TECHNIQUE.....	14
3.8 MINTZBERG ET AL`S RATIONAL MODEL OF DECISION MAKING	15
TABLE 1 COMPONENTS OF MINTZBERG ET AL MODEL (1976)	16
FIGURE 3 SIX KEY FACTORS FOR DECISION-MAKING BY MINTZBERG ET AL (1976).....	17
FIGURE 4 FOUR STAGE PROCESS OF DECISION-MAKING BY BUTLER ET AL (1993).....	18
3.9.1 STAGE 1 (IDENTIFICATION)	18
3.9.2 STAGE 2 (DEVELOPMENT)	19
3.9.3 STAGE 3 (SELECTION).....	19
3.9.4 STAGE 4 (CONTROL).....	20
4. METHODOLOGY/APPROACH.....	21
4.1. CHOICE OF FEMYSO	21
4.2 DATA COLLECTION METHOD	21
4.2.1 PRIMARY DATA.....	22
4.2.2 SECONDARY DATA	22
4.3 LITERATURE SEARCH.....	22
4.4 RESEARCH/APPROACH.....	22
4.5 DATA ANALYSIS.....	23
5. EMPIRICAL STUDY AND ANALYSIS	24
5.1 TIME VALUE OF MONEY	24
TABLE 2 TIME VALUE OF MONEY COMPUTATIONS	24
5.2 NET PRESENT VALUE EVALUATION.....	24
TABLE 3 COMPUTATIONS TO DISCOUNT TO PRESENT VALUE	25
5.3 CHOOSING APPROPRIATE DISCOUNT RATE TO REFLECT THE TIME VALUE OF MONEY	25
6. CONCLUSIONS	28
7. RECOMMENDATIONS.....	29
REFERENCES:	30
APPENDIX 1.....	31
APPENDIX 2.....	34

1. INTRODUCTION

1.1 Background

Capital investment Assessment is ranked as one of the most important forms of decision made in every profit and non-profit organization either directly or indirectly in the day-to-day operation of an entity. Hence the purchase of capital inputs is usually important to run the day-to-day activity the assessment of alternative investments and their impact on profitability and cash flow is a crucial task in an organization planning process. According to Boehlje and Eidman *et al.* (1983:pp314) for many businesses the long-run production plan calls for expansion to obtain more income and a better standard of living.

The success of capital investment can be achieved through the use of capital budgeting, financial analysis, interest rate risk and good decision-making process discussed in this paper. This process will lead to alternative investments to be evaluated and good managerial decision taken to enhance performance measures in organizations. According to Boehlje and Eidman *et al.* (1983) if a business is been financed solely by leverage, the effects of different proportions of debt and equity on risk and return of the organization should be analyzed.

According to the Times 100 (*Capital Investment and productivity* accessed 2008-04-24) Capital investment involves plugging financial assets into tangible or physical assets that tend to generate wealth for the business organization overtime. In other Words, it is said to be money set-aside by a business or organization for the procurement of fixed assets, such as land, machinery or buildings. It can also mean money invested in a business with perception that the money will be used for the procurement of fixed assets rather than been used to cover the day-to-day running of the business expenses.

Capital project involves different stages as mentioned by Mintzberg *et al.* model (1993:pp51). According to this view, decision-making is an incremental activity involving many people throughout organization hierarchy over a distinct period of time. While the senior management may retain final approval, actual decision are effectively taken much earlier by the lower level by a process that is not quite clear. We tend to regard investment decision-making as a rational process of resource allocation although in principle decision-making may be less ordered and rational than supposed.

Furthermore, the cost of credit generally regarded as interest rates will have an effect on investments. Interest rates must be paid for leverage in spite failure or success achieved in different capital projects because they are fixed cost on borrowed money. They are part of what we describe as unavoidable cost in leverage. Whether a business generates profit or not will not affect interest payments. For instance, according to Boehlje and Eidman *at el.* (1983:pp646) numerous factors influence the cost of borrowed funds or interest rates that must be paid by farmers and ranchers.”

Generally, supply and demand conditions influences the rate in the national money markets because many agricultural lending institutions, particularly the cooperative Farm credit Banks, obtain funds from these national money markets that are reacting to national and international monetary conditions have a direct impact on the cost of money and interest rates

paid have a direct impact on the cost of money and interest rates paid by farmers” So also do these factors affect capital investment.

1.2 Statement of Research problem

For organizations to sustain growth, decisions on investment policy must be an important array to carry out capital project. Is capital investment the optimal investment for FEMYSO? Undertaking an investment involves weighing up the risk against the returns but still capital investment decision are still one of the most undertaken decisions by organization managers because it involves commitment of huge amount of money which will affect the business over time.

The truth in investment decision-making as in any other type of organizational decision comes in the reality testing to which such actions must eventually be put. The basis of such testing is whether an organization can gather sufficient support from its environment in order to sustain investment. For an organization like FEMYSO operating in a non-competitive environment, the reality testing may come from persuading the EU government to provide funds.

The impact of time and opportunity cost in capital investment can be in decision-making. The time enters our discussion from managerial time and therefore imposes a cost upon the organization, whereas the concept of opportunity cost of possible benefits forgone whilst the search for optimal investment goes on. If we say that managerial time comprises the total of the time spent by the various participants in the decision summed over its duration, a time cost in principle could be allocated to this. The organization uses managerial time in anticipation for future expected return not necessarily in the form of a single lump but over time as the decision proceeds. This is a classical problem (Butler *et al.* 1993)

The decision taken in the evaluation of investments will influence what the organization does. When considering different evaluation techniques, a number of issues must be addressed like the financial feasibility analysis and economic profitability. Another important concept to be considered in capital investment is the opportunity cost of that investment decision. (Oldcorn & Parker *et al.* (1996)

1.3 Purpose and objective of this Study

The purpose of this study is to provide capital investment guidelines for FEMYSO and to show the procedures involved in capital investment with respect to profit maximization. We will also analyze the role of interest rates and decision-making in investment. Furthermore, organizations will be able to associate the impact of risk on capital investment.

This study attempts to shade some light on the time value of money and organizations will be able to calculate the net present value of a project in association with future risk and determine if the investment will generate enough cash to make debt payments.

This study will also solve the problem of decision-making associated with capital investment for FEMYSO and other non-government organizations.

1.4 Limitation of this study

This study is limited to FEMYSO and other non-profit organizations that want to assess Capital Investment Projects. Attempts to extract current information from FEMYSO proved a severe limitation. A single interview was conducted to get an overview of the organization.

1.5 Outline of this paper

The remaining of the paper proceeds as follows:

Section 2 provides the historical background and finance structure of FEMYSO. Section 3 deals with the theoretical Framework of the paper. Section 4 provides the research methodology. Section 5 provides empirical study and Analysis. Section 6 deals with conclusion and further research studies. Section 7 deals with recommendation.

2. PRESENTATION OF FEMYSO

This chapter discusses the history of FEMYSO, organizational structure, its mission and its areas of finance.

2.1 History of FEMYSO

The first meeting between Muslim youth organisations across Europe took place in Sweden in 1995, when the Foreign Ministry of Sweden in co-operation with the Swedish Muslim youth organisation SUM (Sveriges Unga Muslimer), organised an international conference on 'Islam in Europe'. The participants at this conference felt the need to establish better communications between the organisations and undertake steps towards greater co-operation and co-ordination.

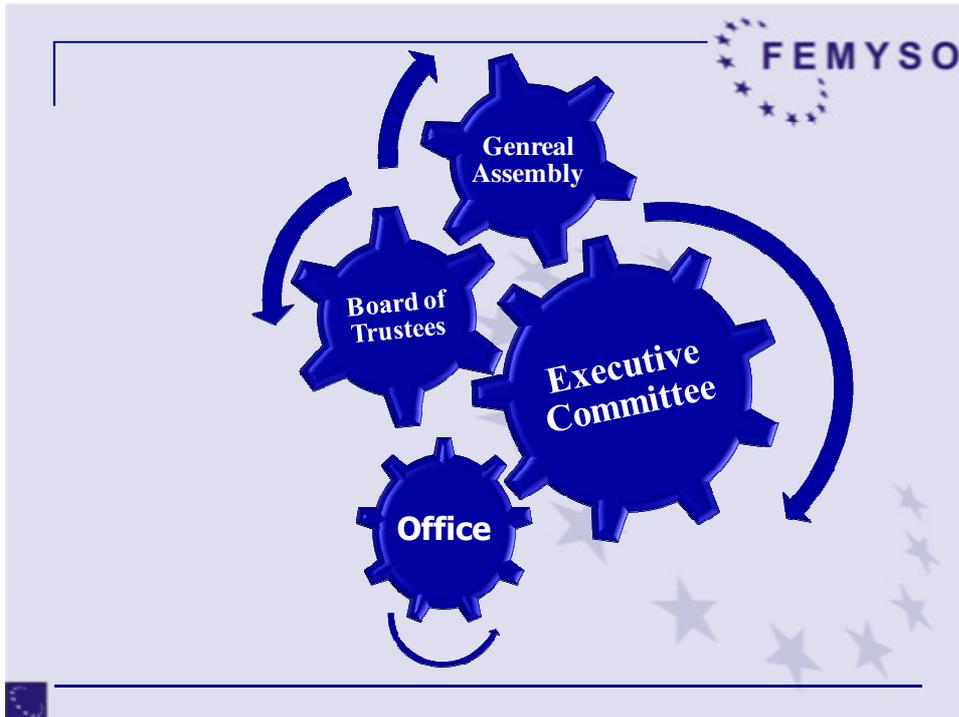
The JMF (Jeunes Musulmans de France), the YMUK (Young Muslims UK) and the SUM (Sveriges Unga Muslimer) were given the responsibility to further develop this idea. In June 1996 the FIOE (Federation of Islamic Organisations in Europe) joined these organisations and invited them to a meeting in Birmingham (UK) to facilitate this process along with the Islamic Foundation, Leicester (UK).

It was agreed that a further meeting would be held in Leicester. Thirty-five participants attended this meeting from eleven countries with representatives from nineteen youth and student organisations. This meeting helped create bonds between those present and the FEMYSO (Forum of European Muslim Youth and Student Organisations) was officially launched. In the beginning FEMYSO's mission was to provide a platform for youth organisations to congregate, exchange information, gain experience and benefit from each other's good practise and in turn work for a better Europe.

2.2 Organizational Structure of FEMYSO

FEMYSO comprises of the Member Organizations, which form the highest authority, and the President, who is responsible for carrying out the work plan, heads the Executive. The General Assembly comprises the Member Organizations and meets once every two years. At this meeting the Executive presents its bi-annual report and financial statements to the Member Organization.

New Executive and President are elected directly by the Member Organizations at the General Assembly. The Executive has many departments to enable it to perform its tasks effectively. Among these are the Office, based in Brussels, The Interfaith Dialogue Department, the Media Department, The Education and Training Department, the Scouts Department, the Treasury and Fundraising Department, the Human Rights Department, and the Public Relations Department.



Source: www.femyso.org

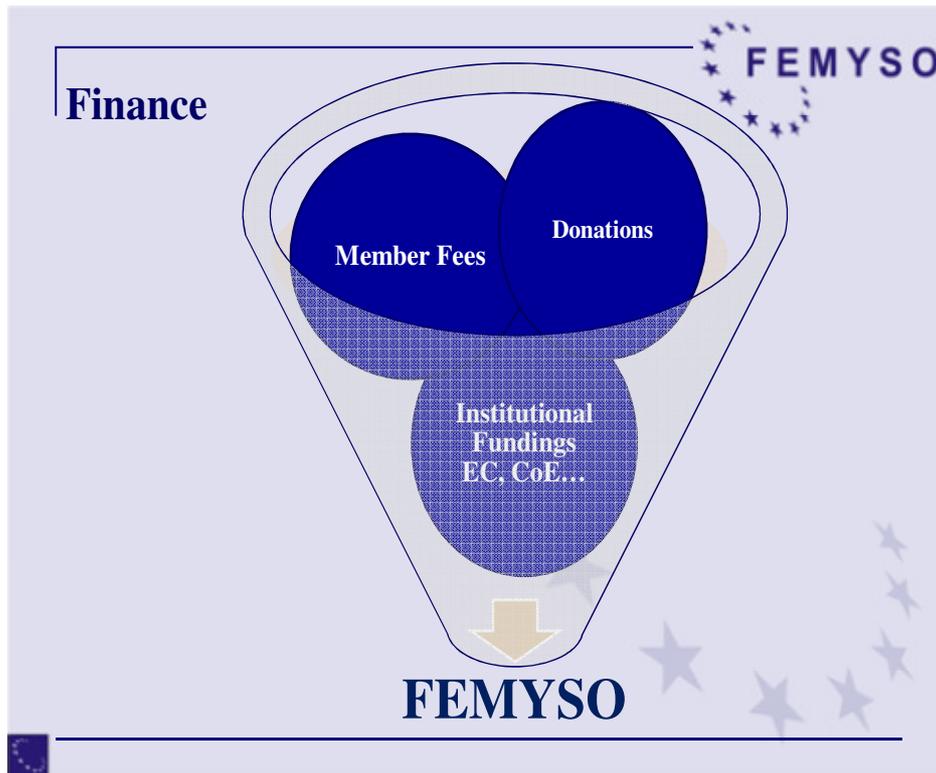
Figure 1 *Organizational Structure of FEMYSO*

2.3 Mission of the Organization

Facilitate networking between Muslim youth and student organisations.
Enable member organisations to achieve their potential.
Contribute to the development of a diverse, cohesive and strong Europe.

2.4 Aims and objectives of FEMYSO to capital investment

Today three different areas finance FEMYSO: the member fees, donations and the funding from European commission. The figure below illustrates the sources of finance of FEMYSO:



Source: www.femyso.org

Figure 2 *Areas of Finance of FEMYSO*

One of the major problems of any ideal organization is sustainability during growth. With critical views assessed during the interview with Mr. Mohammad Fateh Atia, the finance is dwindling whereas membership growth is increasing.

The major aim of FEMYSO with respect to investment is to find an optimal investment to sustain the growth of the organization and to maximize the profits from the investment. The profits generated can be used to sponsor membership trainings, staff salaries and other activities in the organization. This can be achieved through the investment guidelines provided in this study.

3. THEORETICAL FRAMEWORK

3.1 Introduction

This chapter will discuss existing theoretical framework on capital investment and other topics that relates to capital investment, especially when carrying out an investment plan/decision.

3.2 Capital Investments

Capital investment involves plugging financial assets into tangible or physical assets that tend to generate wealth for the business organization overtime. In other Words, it is said to be money set-aside by a business or organization for the procurement of fixed assets, such as land, machinery or buildings. It can also mean money invested in a business with perception that the money will be used for the procurement of fixed assets rather than been used to cover the day-to-day running of the business' expenses. *Capital Investment and productivity: The Times 100* accessed 2008-04-24

Making an investment involves weighing up the risk against the returns and as such, capital investments decisions are still one of the most undertaken decisions by business managers because it involves the commitment of huge amounts of money and they will affect the business over time. Also, the funds are invested now but the benefits are generated later on. According to Times 100 before a firm embarks on any investments decisions, it is important to put the following into consideration:

What is scale of the investment- can the company afford it?

How long will it be before the investments starts yielding results?

How long will it take to pay back the investments?

What are the expected profits from the investments?

Could the money that is being ploughed into the investment yield higher returns elsewhere?

Care should also be taken to evaluate the investments options thoroughly because the benefits are future results and ability to certainly predict what will happen in the future is uncertain.

The difficult part of investment analysis is compilation of right data and if one has erroneous or curtailed data during analysis, this will give a deceptive or misleading result Boehlje, M.D. and V.R. Eidman *Farm management* Wiley, (1983).

Deciding investments that will perk up the financial performance of the business involves two essential tasks:

- Economic profitability analysis
- Financial feasibility analysis

3.2.1 Economic Profitability Analysis

Economic profitability analysis helps to show if an alternative is economically profitable. In other words, it shows if the venture will be profitable for the organization. The rationale behind the economic profitability analysis is to determine if the project will add to the long-run profits of the business.

Although a number of techniques can be used to evaluate alternative investments such as the payback and internal rate of return, but the generally accepted technique is the net present value, which is also known as “discounted cash flow” Further explanation will be made on Net Present Value in the theoretical part of the work.

3.2.2 Financial Feasibility

Financial feasibility analysis helps to determine if the venture will be financially feasible. That is, it helps to determine whether the cash flow will be sufficient to make the required principal and interest payments on borrowed funds used to acquire the asset. The two analyses above should be completed before making a final judgement whether to accept or reject a particular project or investment. In principle, carrying out a comprehensive project analysis could be cumbersome but the end result with a good judgement will worth the effort invested in the whole process. Thus, once the profitability of various investments has been analyzed and alternative chosen, its financial feasibility should be evaluated. (Boehlje, M.D and V.R., Eidman *Farm Management* Wiley (1983).

3.3 Interest Rates and Inflation

There are two types of interest rates namely nominal and real interest rates. Nominal interest rate gives us the dollar value on an investment whereas real interest rate gives us the power to purchase. This implies that when you invest a dollar today the future return on your investment will be worth the level of real exchange rate plus the percentage change in prices (*expected inflation*) (Husted and Melvin, 2007) This means that the nominal rate of interest will tend to incorporate inflation expectations to provide investors (creditors) with the real return for the use of their money. This is inflation expectation effect on nominal interest rate often called the *Fisher equation* with parameters;

$$i \text{ for nominal interest rate, } r \text{ for real rate and } \pi \text{ for inflation, } \quad i = r + \pi \quad (3.2)$$

As π increases so does i , it is concluded that across countries at a point in time we should expect interest rates to vary with inflation.

If the real interest rate is the same everywhere in the world then we shall have equilibrium values where r in one country will equal to r in another country and is the same applies to i in all countries.

If we consider U.K. and U.S

$r_{\$} = r_{\pounds}$ in this case the nominal interest rates $i_{\$}$ and i_{\pounds} , differ entirely by expected inflation, thus:

$$i_{\$} - i_{\pounds} = \pi_{\$} - \pi_{\pounds} \quad (3.3)$$

(Demery and Duck, 1978, *The Behaviour of Nominal Interest Rates in the United Kingdom, 1961-1973*, *Economica*, Vol. 45, Issue 177, pp.23-37.) It stated the first concern about the relevance of the Fisher theory when the authorities are setting interest rates or its equivalent. It might be argued that because the authorities determine bank rate (and hence other interest rates), to use the Fisher hypothesis to explain interest rate behaviour is misconceived. Because authorities can be seen as reacting to market forces when they set interest rates and Fisher theory is one theory about what these market forces are.

(Husted and Melvin, 2007) In their summary on interest parity condition of equation (3.1) indicated that the interest differential where $i_{\$} - i_{\pounds} = (F - E)/E$ is equal to the forward premium

$$i_{\$} - i_{\pounds} = \pi_{\$} - \pi_{\pounds} = (F - E)/E \quad (3.4)$$

Which summaries the link between interest rates, inflation, and exchange rates. All variable are determined simultaneously, because they are jointly affected by the government policy changes and other new events and information. They continue saying that if central bank intervention is pegging exchange rates at a fixed exchange levels by buying and selling so as to maintain the fixed rate, both the domestic and foreign currency interest rates will have to rise to maintain the parity levels.

According to Times 2007 Western Europe, something that looks contradicting we quote, the economy is growing at its fastest pace since 2000, which inflation and interest rates remain low an economy cannot function if half the people think that inflation is at 100% and the other half think it's at 2% it finally says that whatever the truth about inflation the wage squeeze is real and hard felt. The study shows that households spending power has barely budged in a decade, even as the nation economy in Spain has boomed. We connect this example to Fisher effect in the equation:

$$i = r_n + g_m \quad (3.5)$$

Where r_n is natural real interest rate and g_m is growth in medium run.

3.4 Foreign-Exchange Risks, Forecasting, and International Investment.

It is necessary for international investors to be aware of the direction of the exchange rates since individual countries use different currencies. It is ultimate that the future path of the exchange rates should be determined so as to measure the amount of risks foreign –exchange has on international business, that's why exchange rate forecasts are an important part of decision- making process as far as international investments are concern.

3.5 Foreign –Exchange Risk Premium

In situations where the forward rate is equal to future spot exchange rate, they consider the foreign –exchange rate risk free. Conversely if the difference between forward rate and the expected future spot rate arise then we get foreign exchange rate risk premium, which is usually incorporated, in the forward rate. This can serve as an insurance premium meant to attract investors to take risk. Usually investors are classified as either risk lovers or risk averters (neutral). More so are two investors may agree on the amount of risk associated with

two assets, but the more risk-averse investor would look for higher interest on the more risky asset to attract him/her to hold it than the less risk-averse investor would. Husted and Melvin (2007) say that individual and corporations with bad credit must pay a higher interest rate than those with good credit. The interest differential is needed to attract creditors to make loans to the bad credit risks.

Let's consider the effective return differential between assets of U.S and U.K following the path of foreign-exchange risk premium (f (risk averse, risk)). We get,

$$i_{U.S} - (E^*_{t+1} - E_t)/E_t - i_{U.K.} = f(\text{risk averse, risk}) \quad (4.1)$$

Where E^*_{t+1} is the expected dollar spot price of pounds in the next period. Equation 4.1 implies that the return differential is a function of risk and risk aversion.

We can look at equation 4.1 as a risk premium using covered interest rate relation

$$i_{U.S} - (E^*_{t+1} - E_t)/E_t - i_{U.K.} = (F - E^*_{t+1})/E_t \quad (4.2)$$

If the effective return differential is zero then risk premium is also zero, but if it is positive then there is a positive risk premium on domestic currency. The reason is that the expected future spot price of pounds is less than the prevailing forward rate. Investors who wish to sell pounds for dollars in the future will receive a premium and so will pound depreciate as demand increases whereas dollar will appreciate at equal rate as supply decreases.

3.6 Risk Measure

Risk is an important element virtually, in all investment decisions. Because most people in business are risk averse, the identification, measurement and reduction of risk should be a main characteristic in the decision-making process.

An assessment of the risk involved in making investment decisions is a crucial element of the evaluation process in capital project but may vary considerably across organizations depending on the technique used in the project. The most popular approach will be testing the sensitivity of critical investment inputs and underlying economic assumptions. (Butler, *et al.* 1993)

Risk in our context is assumed to be getting involved in activities which may fail or which may do extremely well. Financial risk in broad context refers to the extent a firm has borrowed money which determines the expected or forecasted variability of outcome. Whether or not the risk premium is adequate is yet another subjective decision that one has to make about investment decisions.

There is no magic formula that tells us whether the extra return is in fact, worth the risk. The information about risk variability in expected return and otherwise will be weighed with respect to other factors before a decision is made. (Oldcorn & Parker, 1996)

With reference to www.caen.com, typically, capital investments projects involve complex decision-making multiple stakeholders, with a need to make value tradeoffs and with a likelihood that the contract will be scrutinized after been awarded. Risk management therefore needs to be taken into consideration during the project development stage.

Under the traditional method of measuring risk, risk management is measured as a product of likelihood and accuracy. But such an approach has limitations that include the following:

1. It fails to identify the monetary value (cost) of the risk.
2. It many practitioners use their own preferred variation on the theme without any correlation to the universally accepted norms and practice.
3. It fails to recognize the inter-relationships between risks.
4. It often fails to address the biases outlined above.

With regards to the publication on “Human Decisions Making and Projects Risk for Capital Investment Projects” on www.caenz.com, has shown that cost based estimating approach recognizes that all construction investment projects have inherent risk. Such an approach recognizes that funding of projects needs to be made for the following:

1. Base cost (no contingencies, or risk allowance)
2. Expected cost. This equals to the expected turnout cost of the project, with appropriate consideration for uncertainty and risk.
3. An upper bound confidence level (often taken at the 95% confidence level)
4. This equates to a near worst-case scenario.

3.7 The choice of Net Present Value Technique

Although a number of techniques can be used to evaluate alternative investments such as the payback period, discounted payback period, average accounting return, internal rate of return and net present value, but the generally acceptable technique or method is the net present value, which is also known as the “discounted cash flow”. For the purpose of the work we shall use the net present value because of the reasons mentioned below.

Under the Payback Period rule, a particular cut-off date, e.g. three years is chosen. All investments that have payback periods of three years or less are accepted and those that pay off in more than three years are rejected. Problems with the payback periods are that it does not regard the timing of the cash flows within the payback and it also ignores all cash flows taking place after the payback period. (Ross *et al*, 2005 pp.146-147)

Under the Discounted Payback Period, cash flows are discounted first. Then the question of how long it takes for the discounted cash flows to equal the initial investment is asked. Like the problem with payback period, the discounted payback first requires to some extent a magical choice of an arbitrary cut-off period, and then it ignores all of the cash flows after that date. (Ross *et al*.2005 pp.149)

The Average Accounting Return is the average project income after taxes and depreciation has been deducted, divided by the average book value of the investment during its life. One major problem with average accounting return is that it does not use correct raw materials. It

works with the net income and book value of the investment, both of which are from accounting books. It also offers no guidance on what the right-targeted rate of return should be. (Ross *et al.*2005 pp.149-151)

The Internal Rate of Return is somewhat close to the NPV without actually being the NPV. The basic underlying principle behind this method or technique is that it provides a single number summarizing the merits of a project. That number does not depend on the current interest rates. One major problem of the IRR is that it is not a true signal of project's annual return on investments when the project produces internal cash flow. In both cases the required rate of return is central to the investment. (Ross *et al.*2005 pp.152-154)

The fundamental notion of a Net Present Value is that a dollar in hand today is worth more than a dollar to be received in the near future. A dollar is more valuable today than tomorrow because today's dollar can be invested and can create earnings. Also, the uncertainty of receiving a dollar in the future and inflation make a future dollar worthless than if it were received today. In order to generate wealth, the present value of all future cash inflows must surpass the present value of all expected cash outflows. This simply means that positive Net Present Value investments will increase the owners' wealth. (Ross *et al.*2005 pp.144-146)

The NPV is better off with other approaches because it uses all the cash flows of the project but other approaches overlook cash flow beyond a particular a date. Another reason why the NPV is better off with other approaches is that it discounts the cash flows properly but other approaches may disregard the time value of money when managing cash flows. Also, cash flows from a project can be used for other corporate purposes (e.g. dividend payments, other capital-budgeting projects or payments of corporate interest). (Ross *et al.*2005 pp146)

The whole point about discounted cash flow is that the present values of future cash flows can be added up-they are each the equivalent present values of the cash flow expected in the future. The total of these present values can be compared with the initial cost of the investment. Oldcorn & Parker (1996)

3.8 Mintzberg et al`s Rational Model of Decision Making

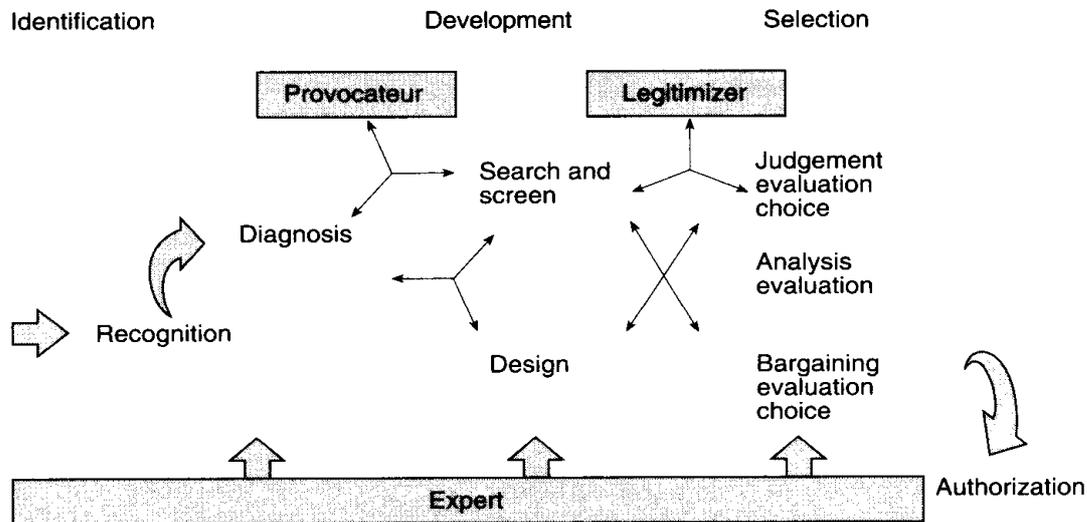
Investment decision is the process whereby resources are allocated in anticipation of future gain.

Mintzberg *et al.* (1976) Shows the way in which a decision presents itself. Before a decision can take place, a stimulus of some sort needs to evoke it. Such stimuli lay on a continuum, starting at the opportunity stimulus, through to problem and finally at the other end, the crisis stimulus. An opportunity stimulus improves on a secure situation and is voluntary. A crisis Stimulus requires immediate attention and often involves the organisations well being. Once a stimulus has evoked action, a solution can be implemented in one of four ways. Either solution can be given fully developed, found ready-made, found custom-made or found readymade and then tailored to create a suitable solution. (Alistair McKinnon, 2003 pp.5)

Table 1 Components of Mintzberg et al model (1976)

Recognition	The principle idea at this stage is to conduct SWOT analysis.
Diagnosis	The problem is defined according to the decision maker objectives.
Search	Information is sought concerning possible solution.
Design	Possible solutions are created to solve the problem.
Evaluate	Each information is thoroughly assessed and evaluated through the use of opportunity cost.
Choice	The optimal choice is chosen; the president gives authorization of implementation.

Source: Mintzberg et al (1976)



Source: Adapted from Mintzberg, et al. (1976)

Figure 3 Six Key Factors for Decision-Making by Mintzberg et al (1976)

The process of decision-making is an important area to understand. Mintzberg provided six key factors for decision-making shown in figure 3. Mintzberg provides a break down of the process of decision making into various stages. The area of decision implementation gives rise to models that can help provide a match with decision solution and an environment.

3.9 Decision Making

Capital project involves different stages as mentioned earlier in our description of Mintzberg et al model. According to this view, decision-making is an incremental activity involving many people throughout an organization hierarchy over a distinct period of time. While the General Assembly may retain final approval, actual decision are effectively taken much earlier by the member organization at a lower level by a process that is not quite clear. We intend to regard investment decision-making as a rational process of resource allocation although in principle decision-making may be less ordered and rational than supposed.

For the purpose of this study we will embark on four stage process suggested by (Butler et al 1993 pp.51)

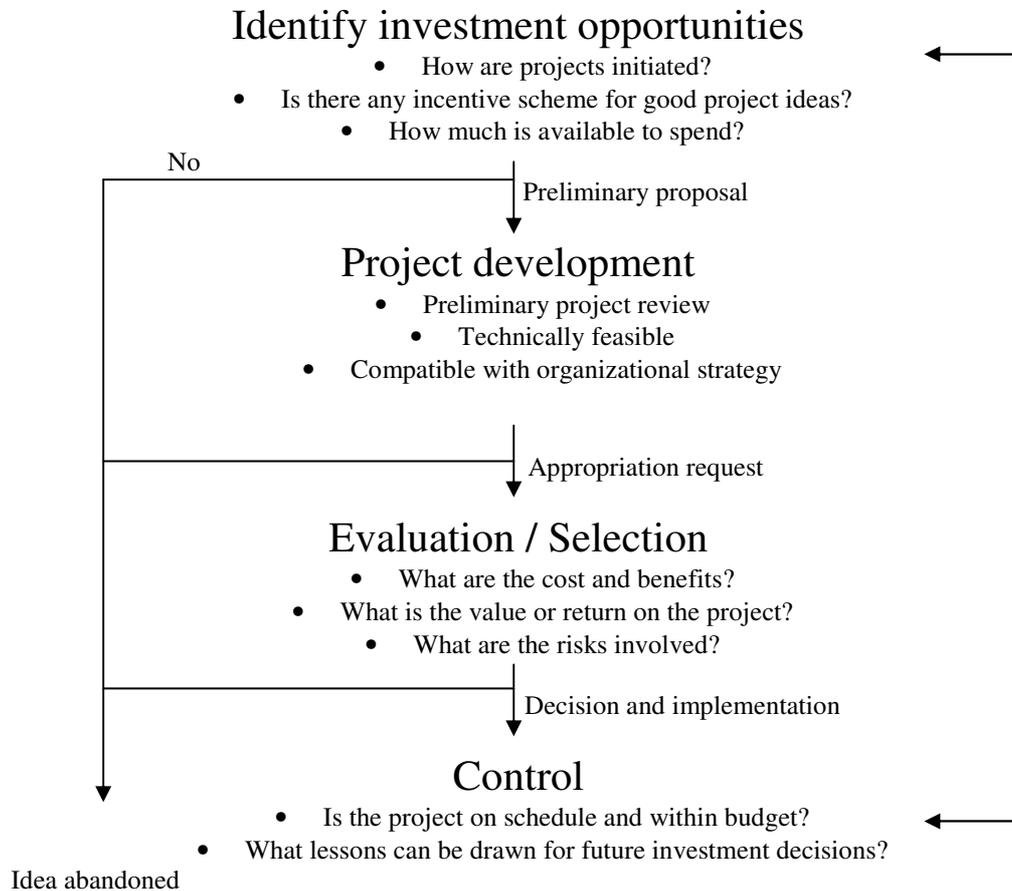


Figure 4 Four Stage Process of Decision-Making by Butler et al (1993)

3.9.1 Stage 1 (Identification)

Economic theory views investment as the interaction of the supply of capital and the flow of investment opportunities. It may be wrong to assume that there is a continuous flow of investment idea. The most important point for FEMYSO to cultivate at this stage is for the President and the financial secretary to search for, identify and sponsor investment ideas. The questions to be addressed at this stage will include the following:

- (i) How are projects proposals initiated?
- (ii) At what level are projects typically generated?
- (iii) Is there a formal process for submitting ideas?

(iv) Is there an incentive scheme for identifying a good project idea?

Generating investment idea involves considerable ideas, effort, time and personal risk on the part of the proposer. Any manager who has experienced the hurt and frustrations of having an investment proposal dismissed or an investment proposal fail is likely to develop an inbuilt resistance to creating further unless the organizational culture and rewards are conducive to such activity.

There is evidence that firms employing long-term incentive plans encourage the initiation and implementation of capital investment projects. For the identification phase of non-routine, strategic capital budgeting decisions to be productive, managers need to conduct environmental scanning, gathering information, which is largely externally oriented, much of which is non-financial. Information systems of communication are frequently more important in identifying investment ideas. (Butler *et al.* 1993 pp.53)

3.9.2 Stage 2 (Development)

The second stage is the capital investment decision-making process is the screening of all investment ideas and development of those showing evidence of good return, which is sometimes termed as the project review. It might be difficult to conduct full-scale evaluation of each investment idea. This is an important means to filter out ideas that are not worthy in the investment project. The investment process usually forms part of a wider strategic process. Capital projects are not normally viewed in isolation, but within the context of the business, its goals and strategic direction.

It is also important to check at this stage if the proposal is in line or rather compatible with corporate strategy and to notice the technical feasibility. This stage will help to answer some questions like: -

Do we have access to the required resources like finance and skills to enable an organization carry on the projects? Do we need to develop the project further?

According to King 1975:78 in (Butler, *et al.* 1993 pp.54) "Capital projects do not begin life in a filing cabinet awaiting only the information necessary for their evaluation. They must be created. The choice of the form of a project occurs at the screening and definition stages where information is limited, search required and analysis sequential" In other words, it is important to gather information and seek for support for the project. It is advisable to commit and form alliance early in the project before conducting financial analysis. The amount of information gathered is largely determined by data perceived as necessary to gain a favourable decision and the extent to which the proposer will be held responsible for later performance related to the data.

3.9.3 Stage 3 (Selection)

This stage involves evaluation technique of the project and the decision outcome. The Project evaluation will involve the assembly of information and application of specified investment criteria. At this stage the organization will have to decide which model to use in the investment evaluation. Our advice would be to use simple models which captures all important element in the decision. The project would have to be rejected or accepted here.

3.9.4 Stage 4 (Control)

Capital budgeting assumes that control occurs after the selection phase. Controls do however provide useful feedback on how well capital budgeting process is operating for example; realism of assumptions (Butler, *et al.* 1993 pp.58) Capital budgeting control process may be divided into pre decision controls. Pre-decision controls are mechanisms designed to influence managerial behaviour. Examples of such controls include the selection and training of subordinates in the organization to possess goals and risk attitudes consistent with senior management (Selection control), setting authorization levels and procedures to be followed (intervention controls) and influencing the proposals submitted by setting goals and identifying strategic areas for growth. Post decision controls are introduced to help managers of the organization to implement the project on schedule and to achieve the planned levels of performance.

4. METHODOLOGY/APPROACH

This section deals with the methodological choice we used in this paper. It is overview of the company choice, literature search, research type, data collection methods, data analysis and conclusion. The reliability of data if collected will yield consistent findings, similar observations would be made or conclusions reached by other researchers. If the data collected does not serve the purpose of collecting it, then it is term to be irrelevant to the investigation. This paper will use theoretical framework of existing investment theories to Assess capital investment. We will use Mintzberg et al. Rational model of Decision Making and the Net present value technique to assess our investment analysis.

4.1. Choice of FEMYSO

The reason for choosing FEMYSO is to motivate the organization with a capital project in Brussels. Being an international organization, we want to help members of FEMYSO achieve their potential mission through profit maximization.

Another reason for choosing FEMYSO is because of our interest in capital investment and especially for non-profit organizations. We also want to provide a guideline for FEMYSO to use in investment appraisal.

4.2 Data Collection Method

The field for this study was carried out in Västerås and Stockholm, Sweden, which involved the use of primary and secondary information. From this basic model Mintzeberg *et al.* (1976) collected data concerning the extent to which the various routines were used and concerning other factors such as the duration of which decision, the extent to which interruptions occurred in the process and the number of branches and recycles that occurred in the sequence suggested by the model. All these decisions involved major investments for the organizations concerned. (Butler *et al.* 1993)

Data collection method needs to be reliable. The reliability according to Saunders *et al.* (2003) refers to the extent to which your data collection technique or analysis procedures will yield consistent finding. It can be assessed by posing the following three questions:

- 1) Will the measure yield same results on other occasions?
- 2) Will similar observations be researched by other observers?
- 3) Is there transparency in how sense was made by the raw data?

Generally, there are two data collection method namely secondary and primary data.

4.2.1 Primary Data

By primary data, we mean the use of semi-structured interviews, survey and discussions with the president of FEMYSO. This helped us to have an in-depth knowledge on the activities performed by FEMYSO and how it manages its area of finance. An attempt was made to understand how decision-making function in FEMYSO

4.2.2 Secondary Data

By secondary data, we mean data from published books, articles, internet search engines etc. One of the benefits of collecting secondary data is that it saves time and cost for the researcher since the researcher uses existing information. Another major advantage of this process is that it serves as guide and aid on how to conduct the research. According to Ghauri and Kristianslund (1995) the disadvantages of using secondary data is the reliability, accuracy and integrity if the data are not certainly depending on some facts. To support our study, we used articles published by well known researchers through the data base of Mälardalens University.

4.3 Literature Search

In this paper, we reviewed and present different literature researches, studies and theories, which gave an insight into net present value, Internal rate of return and decision-making. We found it necessary because these theoretical ideas and empirical results are used in order to perform our study, assess the outcomes and draw conclusions.

As part of our research process, searching for relevant literature that are of important use for generating research ideas to support the development of our study. This search was found in different literature sources, such as articles in academic and journals contained in EMERALD data base in Mälardalens University, and search engines such as ELIN@Mälardalen, and Samsök which enabled us to access academic review articles. We also used the Internet with search tools like Google and search engine for online publications.

4.4 Research/Approach

According to Saunders *et al.* (2003) a research is term exploratory if the research aims to seek new insights into phenomena, to ask questions, and to assess the phenomena in a new light. This is typically what we are going to do with the effects of interest rates on capital investment and Decision making-process. According to Saunders *et al.* (2003) there are two ways of conducting exploratory research namely:

- 1) A search of the literature
- 2) Interviewing experts in the subject
- 3) Conducting focus group interviews

Its great advantage is that it is flexible and adaptable to change. This suits the purpose of our research because of the flexibility nature of our research i.e. interest rates and decision making.(Saunders *et al.*2003) If you are conducting exploratory research you must be willing to change your direction as a result of new data that appear and new insight that occur to you. Exploratory research tends to be qualitative. Qualitative research can be described as a research process that usually emphasizes words rather than quantification in the collection and analysis of data that predominantly emphasize an inductive approach to the relationship between theory and research. The emphasis is placed in the generation of theories (Bryman 2004).

According to Saunders *et al.* (2003) by inductive approach, you collect data and develop theory as a result of your data analysis. Quantitative research is described as a research strategy that deals with quantification in the collection and analysis of data that incorporates deductive approach to the relationship between theory and research.

For the purpose of this study, we have chosen exploratory and quantitative research because it fits into our model in this paper which is to gain an in-depth knowledge into capital investment assessment and decision-making in FEMYSO. In our research, a semi structured interview approach has been used in order to get a broad picture of the situation in the organization from various perspectives and to collect in-depth information on the issues rose in this research. This interview was conducted with the President of FEMYSO, Mr Mohammad Fateh Atia here in Stockholm. The information collected was used to investigate investment decision-making in FEMYSO. These are to ensure that important aspects are covered in decision-making.

4.5 Data Analysis

Our analysis is based on theoretical framework of existing investment theories. We have used the theories to assess investment opportunity for FEMYSO and other organizations. The role of Mintzberg *et al.* Rational model of decision-making in investments was analyzed. This research paper went further to provide deeper insights into capital investment process by evaluating the net present value of an investment and determining the risk associated with investments (interest rates).

5. EMPIRICAL STUDY AND ANALYSIS

This part of study deals with the empirical data collected and analysis, which provide some answers to the problem statement. These results were achieved after interview, telephone discussions and Emails replies received from Mr. Mohammad Fateh Atia here in Stockholm. We also browse through the organization's homepage.

The cost of the investment is 20 million dollars

Interest rates are fixed at 7%

Tax on capital building is 12%

Interest rates (cost of debt funds) are tax deductible.

5.1 Time Value of Money

This is the procedure for accounting for the delay in receiving funds or the income given up is to discount future cash flows. The longer you must wait to receive them, the more heavily you must discount them. This discounting procedure converts the cash flows that occur over a period of future years into a single current value so that the alternative investment can be compared on the basis of the single value. This procedure takes opportunity cost into account, Boehlje and Eidman (1983:pp. 331)

Let assume that FEMYSO will earn 7% annual return on funds invested in a Building Asset.

Table 2 *Time value of money computations*

Year	Value beginning Of year in Millions \$		Interest rates	Annual Interest \$	Amount at end of year
1	\$20000000	*	7%	= \$ 1400000	\$21400000
2	\$21400000	*	7%	= \$ 1498000	\$22898000
3	\$22898000	*	7%	= \$ 1602860	\$24500860
4	\$24500860	*	7%	= \$ 1715060	\$26215920
5	\$26215920	*	7%	= \$ 1835114	\$28051035

To adjust money for its future value, you use compounding to obtain the future value of a current sum as described in figure 4. It is important to add an amount to the money you already have based on the rate of return you already earn.

5.2 Net present Value Evaluation.

To calculate net present value or discounted future earnings to the present-Assume FEMYSO is earning 7% on her capital will receive \$28051035.00 at the end of each year for the next

five years. The discount factor for money received at the end of the first year assuming a 7% rate is .9346(the point where year 1 and 7% meet).
 i.e. $\$26216497 = (28051035 * 0.9346)$

Let us compute from discount rate to present value and see the difference.

Table 3 Computations to discount to present value

Year	Cash flow		Discount Factor		Present Value
1	\$ 28051035	*	0.9346	=	\$26216497
2	\$ 28051035	*	0.8734	=	\$24499774
3	\$ 28051035	*	0.8163	=	\$22898060
4	\$ 28051035	*	0.7629	=	\$21400134
5	\$ 28051035	*	0.7130	=	<u>\$20000388</u>
Total				=	\$115014852

We have shown how to calculate the net present value, \$28051035 received at the end of year two to years five by using the appropriate discount factors from the appendix of this report. We have determined the net present value of the flow as the sum of annual present values. The present value of an annual flow of \$28051035 for each of the five years assuming a 7% discount is only \$115014852

As for FEMYSO, they will be equally well off if they were to receive a current payment of \$115014852 or annual payment of \$28051035.

There are six steps involved in the net present value analysis procedure

1. Choose the appropriate discount rate to reflect the time value of money.
2. Calculate the present value of the cash outlay required to purchase the capital asset.
3. Calculate the benefits or annual net cash flow for each year from the investment over its useful life.
4. Calculate the net present value of the annual net cash flows.
5. Compute the net present value.
6. Accept or reject the investment.

5.3 Choosing appropriate discount rate to reflect the time value of money

Using discount rate to adjust future flows of income back to their present value. The discount rate chosen essentially indicate the minimum accepted rate of return for an investment. It represents the criterion mentioned earlier in our model of Mintzberg et.al 1976 decision –

making in judging whether or not an investment returns at least the cost of the equity fund that must be committed or acquired by the business to obtain the asset.

The cost of capital should be based on the combination of debt and equity capital used in the long run to finance the operation not the specific combination of debt and equity that you may use to finance a particular purchase.

This is summarized in the following formula as the weighted cost of capital.

$$d = K_e W_e (1 - t) + K_d W_d (1 - t)$$

Where d = discount rate

K_e = cost of equity fund (rate of return on equity capital)

W_e = is the proportion of equity funds used in your business

K_d = is the cost of debt funds (Interest)

t = Marginal tax rate

W_d = proportion of debt fund in your business

The purpose of using this formula is to obtain a discount rate that accurately reflects the long-run direct cost of debt funds and the opportunity cost of equity funds along with the long-run proportions of debt and equity that will be used in the organization.

The cost of equity funds represents the opportunity cost (income forgone) of committing equity to this particular investment compared to other investment. The annual capital gain is determined by comparing the market value asset of the organization (FEMYSO) this year to the value last year, which can be obtained from the balance sheet. The true cost of debt is the rate of interest on debt funds minus the tax savings.

By using this cost of capital as the estimate of the discount rate in the NPV calculation, FEMYSO is evaluating the returns for a particular investment. That is to say that an investment is acceptable if only it will return more income than the payables (expenses) that will be incurred to finance its purchase. We will recommend obtaining more information as a basis for decision-making when the information is available and the expected value of the information exceeds the cost of obtaining it.

5.4 Internal Rate of Return Vs Net Present Value

$$IRR = \sum_{n=1}^k \frac{1}{(1+r)^n} - 0 \qquad N = \sum_{n=1}^k \frac{1}{(1+d)^n} - 0$$

Where N denotes net present value

- n Denotes the time period
- k Denotes the last period an inflow is expected
- \sum Denotes the summation of all n periods
- i_n Denotes the net cash inflow in period n
- d Denotes the Rate of Discount
- 0 Denotes the cash outlay required purchasing the capital asset.
- r Denotes the Internal Rate of Return

According to Boehlje and Eidman (1983:pp331) This internal rate of return can be compared to alternative rates on the investments to determine if a particular investment is desirable and if r exceeds the rates on the other investments or the minimum acceptable rate (usually specified as the cost of capital); the project is accepted; Those with lower rates are rejected. The net present value and the IRR criteria use similar data and calculation procedures and will yield the same results in most practical cases.

Internal rate of return is that rate of discount, which results in a net present value of zero. Boehlje and Eidman (1983:pp331-332) if the internal rate of return for a project exceeds the minimum acceptable rate of return and this minimum acceptable rate is the cost of capital used to discount the annual cash flows using the net present value of the procedure, then the net present value of the project will be positive i.e. would be accepted. Similarly, if the IRR is less than the minimum acceptable rate, the net present value will be negative and the project will be rejected with both criteria.

As for decision-making, the only way to guarantee good decision in capital investment after the fact is to have knowledge of the outcome for each alternative, the decision-maker has available to him/her. In most decisions it is impractical, if not impossible to obtain perfect knowledge. FEMYSO must be ready to take decisions with less than perfect knowledge.

6. CONCLUSIONS

Even though the net present value is the most accepted method, it is still been affected by interest rates, which are the real determinant of investments. Discounting factors have shown that money earned in the far future are been penalized heavily due to the fact that you don't have it now, but have to wait to get it and consequently give up any earnings you could obtain if you had it today (opportunity cost). Uncertainty (probability risks) of investment evaluation might lead to wrong decision making in organizations like FEMYSO due unskilled workers.

Using discount rates have shown that managerial time has been neglected by several organizations like FEMYSO which in turn leads to poor management in the organization hence there is no incentive for good project performance.

From a theoretical point of view, three issues are worth mentioning in closing. First, our analysis, interest rate will always rise or fall, which will determine the discount rates for capital investment procedure for FEMYSO, is an important caveat to our analysis. The question of if the interest rates will go up or down will be determined by the government and the economy respectively. One could incorporate a fall in interest rate in our analysis, which would increase the benefits of leverage to FEMYSO.

Secondly, an important aspect to our analysis is that we have focused exclusively on interest rate risk and profitability in capital investment procedure for FEMYSO and other related organizations. It will concern us to attribute poor project shortcomings to poor managerial decision. Should non-profit organization buy managerial time? This will be open for further discussions in the near future.

Finally, we have provided an investment procedure to aid FEMYSO with capital investment appraisal. The tools used in our study provides the basic investment guidelines for FEMYSO. By using the procedures described in this study, an optimal investment will be attained and profits can be maximized with respect to the cost of the investment. This will enable FEMYSO achieve its aim of sourcing for capital investment.

7. RECOMMENDATIONS

FEMYSO should create a separate department for treasury and finance. This department will be responsible to advice the general assembly on the implication for investments to ensure that appropriate policies and processes are in place to assist FEMYSO in managing their capital investment.

They should also train members and create incentive for performance evaluation because this will enable the organization to use its resources efficiently towards the goal of the investment in the organization. Also they should employ qualified personnel in the finance and treasury department in order for them to match the provision of resources relevant to perform their duties professionally.

Butler *et al* (1993) four stage decision-making process in 2.4 can be used to evaluate the decision making procedure and to help FEMYSO identify ways of continued improvement during the project phases.

The focus of this study has been on finance aspects of FEMYSO, however many of the principles can be adopted and applied to any ideal organization.

Using appropriate tools like NVP, IRR to appraise proposed capital investment will aid in quantification of alternative investment.

Increase membership fees to enhance the treasury department. This incremental process should be done in such a manner that members would see greater benefits of the increment.

References:

Textbooks

Alistair McKinnon, 2003, *Decision-Making in Organisations*

Boehlje, M.D and V.R. Eidman, 1983, *Farm Management*, Wiley.

Bryman, A. 2004, *Social Research Methods 2ed*, Oxford University Press, New York.

Butler, Davies, Pike & Sharp 1993, *Strategic Investment Decisions, first ed.*, Routedge.

Demery and Duck, 1978, *The Behaviour of Nominal Interest Rates in the United Kingdom, 1961-1973, Economica, Vol. 45, Issue 177*, pp.23-37.

Ghauri, P.N.K. Gronhaug, and I. Kristianslund, 1995, *Research methods in Business Studies: a practice guide*, Prentice-Hall, New York.

Husted and Melvin, 2007, *International Economics, 7th ed.*, Pearson Addison Wesley.

Oldcorn & Parker, 1996, *Strategic Investment Decisions, first ed.*, Prentice Hall FT.

Pike, Richard and Neale, Bill 2003, *Corporate Finance and Investment, 4th ed.*, Prentice Hall

Ross, Westerfield & Jaffe, 2005, *Corporate finance 7th edition*, McGraw Hill.

Saunders, M.N.K., P.Lewis, and A.Thornhill. 2000. *Research methods for business students 2ed*, Financial Times and Prentice Hall, Harlow.

Articles

Capital Investment and productivity 12ed: The Times 100 accessed 2008-04-24
(www.times100.co.uk)

Purdue Extension, *Capital investment Analysis and Project Assessment, AICC EC-731* pp 1-11.

Appendix 1

Appendix: Present Value of \$1. Formula: $\$1/(1 + i)^n$

Period	3.0%	3.5%	4.0%	4.5%	5.0%	5.5%	6.0%	6.5%	7.0%	7.5%	8.0%
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1	.9709	.9662	.9615	.9569	.9524	.9479	.9434	.9390	.9346	.9302	.9259
2	.9426	.9335	.9246	.9157	.9070	.8985	.8900	.8817	.8734	.8653	.8573
3	.9151	.9019	.8890	.8763	.8638	.8516	.8396	.8278	.8163	.8050	.7938
4	.8885	.8714	.8548	.8386	.8227	.8072	.7921	.7773	.7629	.7488	.7350
5	.8626	.8420	.8219	.8025	.7835	.7651	.7473	.7299	.7130	.6966	.6806
6	.8375	.8135	.7903	.7679	.7462	.7252	.7050	.6853	.6663	.6480	.6302
7	.8131	.7860	.7599	.7348	.7107	.6874	.6651	.6435	.6227	.6028	.5835
8	.7894	.7594	.7307	.7032	.6768	.6516	.6274	.6042	.5820	.5607	.5403
9	.7664	.7337	.7026	.6729	.6446	.6176	.5919	.5674	.5439	.5216	.5002
10	.7441	.7089	.6756	.6439	.6139	.5854	.5584	.5327	.5083	.4852	.4632
11	.7224	.6849	.6496	.6162	.5847	.5549	.5268	.5002	.4751	.4513	.4289
12	.7014	.6618	.6246	.5897	.5568	.5260	.4970	.4697	.4440	.4199	.3971
13	.6810	.6394	.6006	.5643	.5303	.4986	.4688	.4410	.4150	.3906	.3677
14	.6611	.6178	.5775	.5400	.5051	.4726	.4423	.4141	.3878	.3633	.3405
15	.6419	.5969	.5553	.5167	.4810	.4479	.4173	.3888	.3624	.3380	.3152
16	.6232	.5767	.5339	.4945	.4581	.4246	.3936	.3651	.3387	.3144	.2919
17	.6050	.5572	.5134	.4732	.4363	.4024	.3714	.3428	.3166	.2925	.2703
18	.5874	.5384	.4936	.4528	.4155	.3815	.3503	.3219	.2959	.2720	.2502
19	.5703	.5202	.4746	.4333	.3957	.3616	.3305	.3022	.2765	.2531	.2317
20	.5537	.5026	.4564	.4146	.3769	.3427	.3118	.2838	.2584	.2354	.2145
21	.5375	.4856	.4388	.3968	.3589	.3249	.2942	.2665	.2415	.2190	.1987
22	.5219	.4692	.4220	.3797	.3418	.3079	.2775	.2502	.2257	.2037	.1839
23	.5067	.4533	.4057	.3634	.3256	.2919	.2618	.2349	.2109	.1895	.1703
24	.4919	.4380	.3901	.3477	.3101	.2767	.2470	.2206	.1971	.1763	.1577
25	.4776	.4231	.3751	.3327	.2953	.2622	.2330	.2071	.1842	.1640	.1460
30	.4120	.3563	.3083	.2670	.2314	.2006	.1741	.1512	.1314	.1142	.0994
40	.3066	.2526	.2083	.1719	.1420	.1175	.0972	.0805	.0668	.0554	.0460
60	.1697	.1269	.0951	.0713	.0535	.0403	.0303	.0229	.0173	.0130	.0099

(Purdue extension, *Capital Investment Analysis and Project Assessment*, AICC EC-731pp 9-11)

Continued

Period	8.5%	9.0%	9.5%	10.0%	10.5%	11.0%	11.5%	12.0%	12.5%	13.0%	13.5%
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1	.9217	.9174	.9132	.9091	.9050	.9009	.8969	.8929	.8889	.8850	.8811
2	.8495	.8417	.8340	.8264	.8190	.8116	.8044	.7972	.7901	.7831	.7763
3	.7829	.7722	.7617	.7513	.7412	.7312	.7214	.7118	.7023	.6931	.6839
4	.7216	.7084	.6956	.6830	.6707	.6587	.6470	.6355	.6243	.6133	.6026
5	.6650	.6499	.6352	.6209	.6070	.5935	.5803	.5674	.5549	.5428	.5309
6	.6129	.5963	.5801	.5645	.5493	.5346	.5204	.5066	.4933	.4803	.4678
7	.5649	.5470	.5298	.5132	.4971	.4817	.4667	.4523	.4385	.4251	.4121
8	.5207	.5019	.4838	.4665	.4499	.4339	.4186	.4039	.3897	.3762	.3631
9	.4799	.4604	.4418	.4241	.4071	.3909	.3754	.3606	.3464	.3329	.3199
10	.4423	.4224	.4035	.3855	.3684	.3522	.3367	.3220	.3079	.2946	.2819
11	.4076	.3875	.3685	.3505	.3334	.3173	.3020	.2875	.2737	.2607	.2483
12	.3757	.3555	.3365	.3186	.3018	.2858	.2708	.2567	.2433	.2307	.2188
13	.3463	.3262	.3073	.2897	.2731	.2575	.2429	.2292	.2163	.2042	.1928
14	.3191	.2992	.2807	.2633	.2471	.2320	.2178	.2046	.1922	.1807	.1698
15	.2941	.2745	.2563	.2394	.2236	.2090	.1954	.1827	.1709	.1599	.1496
16	.2711	.2519	.2341	.2176	.2024	.1883	.1752	.1631	.1519	.1415	.1318
17	.2499	.2311	.2138	.1978	.1832	.1696	.1572	.1456	.1350	.1252	.1162
18	.2303	.2120	.1952	.1799	.1658	.1528	.1409	.1300	.1200	.1108	.1023
19	.2122	.1945	.1783	.1635	.1500	.1377	.1264	.1161	.1067	.0981	.0902
20	.1956	.1784	.1628	.1486	.1358	.1240	.1134	.1037	.0948	.0868	.0794
21	.1803	.1637	.1487	.1351	.1229	.1117	.1017	.0926	.0843	.0768	.0700
22	.1662	.1502	.1358	.1228	.1112	.1007	.0912	.0826	.0749	.0680	.0617
23	.1531	.1378	.1240	.1117	.1006	.0907	.0818	.0738	.0666	.0601	.0543
24	.1412	.1264	.1133	.1015	.0911	.0817	.0734	.0659	.0592	.0532	.0479
25	.1301	.1160	.1034	.0923	.0824	.0736	.0658	.0588	.0526	.0471	.0422
30	.0865	.0754	.0657	.0573	.0500	.0437	.0382	.0334	.0292	.0256	.0224
40	.0383	.0318	.0265	.0221	.0184	.0154	.0129	.0107	.0090	.0075	.0063
60	.0075	.0057	.0043	.0033	.0025	.0019	.0015	.0011	.0009	.0007	.0005

Continued

Period	14.0%	14.5%	15.0%	15.5%	16.0%	16.5%	17.0%	17.5%	18.0%	18.5%
0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1	.8772	.8734	.8696	.8658	.8621	.8584	.8547	.8511	.8475	.8439
2	.7695	.7628	.7561	.7496	.7432	.7368	.7305	.7243	.7182	.7121
3	.6750	.6662	.6575	.6490	.6407	.6324	.6244	.6164	.6086	.6010
4	.5921	.5818	.5718	.5619	.5523	.5429	.5337	.5246	.5158	.5071
5	.5194	.5081	.4972	.4865	.4761	.4660	.4561	.4465	.4371	.4280
6	.4556	.4438	.4323	.4212	.4104	.4000	.3898	.3800	.3704	.3612
7	.3996	.3876	.3759	.3647	.3538	.3433	.3332	.3234	.3139	.3048
8	.3506	.3385	.3269	.3158	.3050	.2947	.2848	.2752	.2660	.2572
9	.3075	.2956	.2843	.2734	.2630	.2530	.2434	.2342	.2255	.2170
10	.2697	.2582	.2472	.2367	.2267	.2171	.2080	.1994	.1911	.1832
11	.2366	.2255	.2149	.2049	.1954	.1864	.1778	.1697	.1619	.1546
12	.2076	.1969	.1869	.1774	.1685	.1600	.1520	.1444	.1372	.1304
13	.1821	.1720	.1625	.1536	.1452	.1373	.1299	.1229	.1163	.1101
14	.1597	.1502	.1413	.1330	.1252	.1179	.1110	.1046	.0985	.0929
15	.1401	.1312	.1229	.1152	.1079	.1012	.0949	.0890	.0835	.0784
16	.1229	.1146	.1069	.0997	.0930	.0869	.0811	.0758	.0708	.0661
17	.1078	.1001	.0929	.0863	.0802	.0746	.0693	.0645	.0600	.0558
18	.0946	.0874	.0808	.0747	.0691	.0640	.0592	.0549	.0508	.0471
19	.0829	.0763	.0703	.0647	.0596	.0549	.0506	.0467	.0431	.0398
20	.0728	.0667	.0611	.0560	.0514	.0471	.0433	.0397	.0365	.0335
21	.0638	.0582	.0531	.0485	.0443	.0405	.0370	.0338	.0309	.0283
22	.0560	.0508	.0462	.0420	.0382	.0347	.0316	.0288	.0262	.0239
23	.0491	.0444	.0402	.0364	.0329	.0298	.0270	.0245	.0222	.0202
24	.0431	.0388	.0349	.0315	.0284	.0256	.0231	.0208	.0188	.0170
25	.0378	.0339	.0304	.0273	.0245	.0220	.0197	.0177	.0160	.0144
30	.0196	.0172	.0151	.0133	.0116	.0102	.0090	.0079	.0070	.0061
40	.0053	.0044	.0037	.0031	.0026	.0022	.0019	.0016	.0013	.0011
60	.0004	.0003	.0002	.0002	.0001	.0001	.0001	.0001	.0000	.0000

Appendix 2

We conducted interviews via electronic mail and personal contact with the President of the organization (FEMYSO) Mr. Mohammad Fateh Atia; the following are the questions and responses obtained.

One-one-one interview questions:

1. Does your organization have a finance and treasury department?
2. Does your organization have any limit to leverage into to finance your capital investment?
3. How does the organization usually finance its yearly training trips to Egypt?
4. Would your organization accept to pay 3 employees in order to run the finance and treasury department efficiently and effectively?
5. Do you pay your employees?

Answers:

1. No, the president is in charge of the finance and treasury department
2. No, it has no limit to leverage
3. The yearly trip is financed by the members embarking on the trip and also through donations.
4. The president gave no specific answer to the question
5. Our employees are not paid

E-mail correspondence:

From: Mofid Al Jaafar
[mailto:mofid.aljaafar@hotmail.com]

Sent: Tuesday, April 01, 2008 10:59 AM

To: mohammad-fateh.atia@femyso.org; Longinus Duru; Francis oladele

Subject: Investment plan for FEMYSO

Assalamo aleykoug
brother. I hope everything is fine with you.

We've started with the project. Friday 28/3 was the first seminar where we presented the problem Formulation and the tutor said it was interesting and now we are working to present Pm 1 next week. There are some questions that we need answered as soon as possible:

1. How many employees do you have in the organization?
2. Organizational structure and financial structure of the organization.
3. We also need the power point slides you presented in our last visit.
4. 10 years historical fund received from EU.
5. 10 years statement of cash flows including profit, loss account and balance sheet.
6. Can we say that the organization is the biggest Muslim student and youth organization?
7. Is FEMYSO under the umbrella of EU? And what is the relationship to the EU?
8. Also the trip to Brussels: have you a plan on how we can make this trip?

I attach also what we've done so far so you know how it looks like.

Regards
Francis, Longinus and Mofid

Response:

From: Mohammad Fateh Atia
[Mailto: Mohammad.fateh.atia@ungamuslimer.nu]

Sent: Sunday, April 20, 2008 11:08 AM

To: 'mofid.aljaafar@hotmail.com'

Subject: Investment plan for FEMYSO

Assalamo alaikom/Hello guys,

How are you!? And how are things going?! I'm very glad to see that you already are posing questions, and I'm sorry for my late response, I've been

quite busy lately... anyhow, I'll answer most of your questions right ahead, but not all of them..

1. We have two employees in the organization, both part-time/50%
2. The FEMYSO comprises of Member organizations that form the highest authority, and the Executive Committee headed by the President, which is responsible for carrying out the work plan.

The General Assembly, comprising of all the Member Organisations, meets once every two years. At this meeting the Executive presents its bi-annual report and financial statements to the Member Organisations.

A new Executive and President are elected directly by the Member Organisations at the General Assembly.

3. I'll attach the FEMYSO PPT-Presentation
4. This question will be answered by the Office, but it might take some time to do that... they'll do their best to get it done a.s.a.p.
5. This question will be answered by the Office, but it might take some time to do that... they'll do their best to get it done a.s.a.p.
6. Yes, you might say that FEMYSO is the one and only representative voice of the European Muslim Youth and Students...
7. FEMYSO is an INGO(International None-Governmental Organisation), but we have a very strong relationship with the EC(European Commission), the CoE(Council of Europe), the EU(European Union), but also with the UN(United Nations) and many others, both governmental and none-governmental institutions in the European field, just to mention a couple; the EYCE(Ecumenical Youth Council of Europe), ENAR(European Network Against Racism)... so you could say, we are recognised under the European umbrella...
8. Now for the Brussels-trip, I'll see how we can arrange that in the best way... I'll let you know...

