

## Review of Capital Investment and Returns

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### Abstract

This paper aims to evaluate the relationship between capital investment effects to firm liquidity, stock value and Economic welfare. Previous studies have already established the correlation between capital investments and stock prices which will also be presented in this paper. Capital Investment decision, budgeting, and procedures are also crucial factors to be considered by a firm. Capital investment decision takes into consideration the long-run profitability of the firm as well as the impact of the investment on the economy's growth.

**Keywords:** Capital investment; Stock Value; Total equity; Economy's growth.

### I. Introduction

Capital investment, as defined by Capital-investment.co.uk (n.d.), refers to any asset, both tangible and intangible, acquired by the firm that has no effects or linkages to the day-to-day operation of the firm but is assumed to generate additional income. Common misconception is that a project or asset needs to be worth a million dollars to be considered as a capital investment. The current value of a product is not a determining factor whether it would be considered as a capital investment or not; as long as it would earn future returns, it is considered as an investment.

As mentioned earlier, there are two types of investments: tangible and intangible. Samples of tangible assets are land, equipment, building, and manpower while intangible assets come in the form of government bonds, stocks, and securities. Companies invest in capital acquisition to acquire income, growth and safety. Safety is one of the factors that investors consider in terms of deciding on what type of capital will be acquired. Most investments have uncertainties and risks attached to it like acquiring a negative ROI (Returns on Investment). The return on investment, as defined by Investopedia (2013), measures how well the business channels its funds to acquire profitable investments. ROI can be acquired by dividing the difference between net income and dividends released by total capital. Though most capital investment has irresolute ROI, there are also assets that generate fix ROI's with minimum or no risks at all. Some of these assets are government securities, treasury bills and government bonds; which offers the safest choice as an investment. Though we must always consider the fact that risks and returns have a positive relationship; thus, the lower the risk the lower the returns and the higher the risk the higher the returns. Though, risks can also be minimized in a high yielding investment if thorough analysis and planning was placed prior engagement.

Capital growth on the other hand can be acquired through capital gains. Assume that stocks were bought \$1 per share and sold at \$1.50, thus the company earns a capital gain of \$0.50 per share. Capital gains can be accumulated over the year for long-term investment as long as the selling price is higher than the purchase price. Capital losses may also be accrued when the selling price is lower than the acquisition price.

FAO Corporate Document Repository (1997) classified the types of capital investment according to the type of benefits it produces for the firm, its degree of statistical dependence, its degree of statistical dependence, and by its type effect on the cash flow. Benefits of capital investment to the firm can be in a form of increase or decrease in cash flow and at some points it has indirect effects to the cash flow by terms of its effects to the employees. The degree of statistical dependence of an investment can be mutually exclusive, complementary or substitute to some other projects or investment of the company. Aside from the earlier mentioned effects of investment to cash flow, there are two categories of effects of investment to cash flow: conventional and non-conventional. Conventional capital investment results only in one cash flow sign, say positive (+). While non-conventional capital investment has various cash flow signs, meaning there are increase and decrease on cash flow (+/-).

### 2. Capital Investment Decision and Analysis

Capital investment decision making is very crucial especially for capital-intensive and long term investment. To ensure that the company channels its funds to profitable capital investments, optimal decision-making tools must be used to analyze future ventures of the firm. Capital investments would be analyzed in terms of its economic profitability and financial feasibility. Ability of the investment to generate liquid funds to pay for principal amount borrowed and interest earned would fall under the measurement of the financial feasibility of the capital investment.

Capital investment decision-making is crucial for every firm as it determines the future operation of the organization making the investment and the effects it could create to the economy of the nation as a whole. Furthermore, capital investment have relationship with capital budgeting. Capital budgeting allows the firm to

select what type of capital investment, long-term or short-term, it wants to employ as well as the source of funding for the investment. The returns on an investment as well as its maturity date are some of the aspects that are taken into consideration in making an investment decision. In a capital budgeting, firms place limits on their internal and external sources of funds. Internal limits or budget restrictions are called soft capital rationing and budget restrictions placed on external funds (borrowed money) are called hard capital rationing. The analysis of the effect of the investment to the firm's cash flow is also taken into consideration in capital budgeting. But not the entire cash flow would be considered, only the cash flow that would occur with the implementation of the investment, and this is referred to as the incremental cash flow. The firm can analyze the performance of the investment alone by focusing on the incremental cash flow using the stand alone principle. "The stand-alone principle allows us to analyze each project in isolation from the firm simply by focusing on incremental cash flows." (Jordan, R.W., 2010).

### 2.1 Economic Valuation of Capital Investment Proposals

As earlier discussed, a thorough study and analysis of an investment proposal must be taken into place to know if proposals are to be accepted or rejected by the firm. This part of the discussion paper shows actual tools to be used in deciding on the economic profitability of the proposal. Prior computation of the feasibility of a certain proposal, an acceptance criteria or bench-mark for future returns must already be pre-determined. Economic profitability analysis generates conclusion as to whether certain investment proposal would contribute to the long-run profitability of the business or not.

#### Time Value of Money

One of the most common tools used in economic profitability analysis is the computation of Futures Value (FV), value that an asset would earn at a certain time in the future. The future value of a single amount investment can be derived using the formula presented by FAO Corporate Document Repository (1997):

$$FN_n = PV(1 + i)^n$$

Wherein:

$PV$  = present value

$i$  = interest rate

$n$  = number of years that the investment would receive interest

The present value is the discounted amount today of a future payment. Via formula manipulation, we could derive at the formula for acquiring the present value (PV) by:

$$PV = FV\{1/(1 + i)^n\}$$

The formulas presented above are for computation of FV and PV for single amount or entry investments. There are also investments that are composed of a series of payments at a specific time interval. These are called annuities and have a different way for computing their PVs and FVs. There are also two types of annuities: Ordinary and Annuity Due. Future value of an ordinary annuity is the value of growth that a series of scheduled payments is going to accrue after a period of time. Ordinary annuity and annuity due are both scheduled payments at specific time intervals, but the difference between the two is that ordinary annuities are paid at the beginning of a payment schedule while an annuity due is paid at the end of the payment period. The formula for acquiring the FV for ordinary annuities and annuity due, as formulated by Get Objects (2002), are presented below respectively:

$$PV_{oa} = PMT\{((1 + i)^n - 1)/i\}$$

and

$$FV_{ad} = FV_{oa}(1 + i)$$

Wherein:

$FV_{oa}$  = Future Value of an Ordinary Annuity

$FV_{ad}$  = Future Value of an Annuity Due

$PMT$  = amount of payment released per period

$i$  = interest rate for the period

$n$  = number of periods

Determining the future values of investment is one of the possible tools to be used by a firm in deciding among investment proposals. As mentioned earlier, the company should set a bench-mark in terms of accepting investment proposals. A company must have already set minimum acceptable returns to investment measured by future values and any proposals that generate higher FVs or PVs than the set values shall be undertaken by the company. A general rule is also applied when it comes to using the NPV as a decision tool. If the NPV is positive, then the firm should undertake the proposal and a negative NPV shows that the company should reject the investment proposal.

Net Present Value (NPV) shows the, Time Value of Money (TVM). The time value of money can be analyzed from the concept of interest. A certain amount of money today can earn additional money in the future due to interest accrued over year. Interests may be classified as simple and compounding. Net present value (NPV), as defined by Boehlje, M. and Ehmke, C. (n.d), is the sum of the annual cash flows discounted for any delay in receiving them, minus the investment outlay. In a mathematical formula, the net present value can be computed as (Boehlje, M. and Ekhe, C., n.d.):

$$NPV = \sum_{n=1}^k \frac{I_n}{(1+d)^n} - O$$

Where:

n = time period

K= last period that would earn interest or inflow

$I_n$  = net cash income for period n

d = discount rate

O = cash outlay needed for the purchase of the capital

### Discount Rate of Money

“The discount rate you choose essentially indicates the minimum acceptable rate of return for an investment; it represents the “cutoff criterion” in judging whether or not an investment returns at least the cost of debt and equity funds that must be committed or acquired by the business to obtain the asset.” (FAO Corporate Document Repository, 1997) Usual minimum acceptable return must be enough to pay for the interests accrued, if applicable, with the acquisition of the capital. The discount rate is the form of interest rate used by the firm in discounted cash flow analysis to derive the present value (PV) of the company’s future cash flow.

The cost of capital investments may be from borrowed fund and equity from the existing business. Therefore this cost of capital of a certain investment, shall be analyzed accordingly with the optimal capital structure set for the business in the long-run. Capital structure is the combination of equities and level of debt that is acceptable to the firm. And to compute for the long-run cost of capital, the long-run cost of debt and long run cost of equities (equities used in the capital investment) will be weighted. The resulting cost of capital is the discount rate. Mathematically expressing the function of the discount rate, as formulated by FAO Corporate Document Repository (1997):

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

Wherein:

d = discount rate

$K_e$  = cost of equities used

$W_e$  = proportion of equities used in the business

$K_d$  = cost of debt used

$W_d$  = proportion of equities used in the business

The discount rate is used to obtain the long-run cost of debt used in the capital investment and the opportunity cost of the employed equity of the firm. This can be compared with the returns on investment and can be used as a toll for decision making. If the discount rate or cost of capital is greater than the returns, then it wouldn’t be feasible to the business to forego with the capital investment proposal.

### 3. Effects of Capital Investment to Firm’s Liquidity

It has been a trend for some companies to hold large amounts of cash than to channel their funds towards capital investment expenditure. Since we thrive in an economy with market imperfections, money has a net present value (NPV). Some companies opt not to invest in capital expenditure and disregard the net present value lost, due to some liquidity issues and restraints. A company must always maintain a level of liquidity that can be used for emergency cases.

Firms with less access to external funding cannot borrow large sums of money on short notice. These types of firms choose to have cash buffers available in cases there would be shortfalls on their cash flow. Firms falling in this category and those that are experiencing financial frictions have less spare funds to channel to Research and Development (R&D) and capital investment expenditure as seen in the study of Baum, F.C., Caglayan, M., and Talavera, O. (2009). With this, we can establish that cash flow affects the capital investment decision of the firm. Capital investment expenditure also has effects on the liquidity, cash flow and cash holdings of the firm. For this case, we shall compare the effects of tangible (physical) capital investment and R&D (intangible capital investment) to the firm’s overall liquidity. Firms investing in physical capital investment are likely to achieve a liquid cash flow coming from external sources rather than R&D. This conclusion came from a basic assumption that physical capital investments can be used as collateral while R&D cannot; thus the former has likely more

chance of receiving external funding than the latter. This shows the effects of R&D and physical capital to cash flow liquidity via external funding.

R&D and physical investment also has an impact on cash flow liquidity via internal funding. As stated earlier that R&D has less chances of gathering external funding, a firm would augment its cash flow in preparation to future R&D investments. Thus in this case R&D increases the firm's liquidity through internal funding.

#### **4. Effects of Capital Investment Expenditure to Stock Value**

The value of a firm is equal to the discounted net future earnings of the firm as well as the discounted net present value (NPV) of available future investments of the firm. As discussed earlier in this paper, capital investments can be measured by its NPV. There are 3 viewed effects of capital investment to stock value and the stock market as a whole: shareholder value maximization, institutional investor analysis, and rational expectations hypothesis. When a certain company invested in projects that are perceived to have a positive return to the company, the perceived value of the firm would increase as well as its stock value. The shareholder value maximization hypothesis, as discussed by Yew Hua, L.L. and Shaikh, J.M. (2011), predicts that the stock market will react positively to corporate investment announcements when they perceive the investment decisions are able to generate positive future cash flows. It is perceived that shareholders have confidence on the management's decision that this certain capital investment would lead to positive gains. Yew Hua, L.L. and Shaikh, J.M. (2011) have shown that investment expenditure announcements cause positive response on the market and investment contractions results to negative responses. A research made on US market and investment announcement shows that the positive response on the market was generated when long-term investments were placed.

#### **5. Effects of Capital Investment Expenditure to Economic Welfare**

We have previously discussed the effects of capital investment to the cash flow, stock value, and liquidity of the firm. Capital investment also has a large scope of effects other than its direct effect to the firm implementing it. It can have effects on employment, GDP, government finances and many more effects resulting to increase in social welfare as discussed by Oxford Economics (2012). Assume that a company's capital investment expenditure is through building a new department or branch of the company. With this, the company would have an increase in labor requirement and employ human capital. For a multibillion company, this form of expansion would have a substantial impact on the employment level of the nation as a whole.

"Businesses often invest in new capital goods to exploit economies of large scale production. This, together with technological advances is vital to improving competitiveness and to causing a shift in the production possibility frontier." (Riley, G., 2012) Private capital investment also increases the aggregate demand of the economy since investment is a variable for the computation of aggregate demand:

$$AD = C+I+G+X-M.$$

Investments could also cause optimal social returns to the environment. If a part of the capital investment of the company requires enhancement of existing technologies (i.e. production equipments), then such capital investments would create positive effects on the environment. This is due to the fact that new technologies are more focused on lessening emissions or pollutants released.

#### **Conclusion**

Not all capital investment proposals are deemed to create positive returns. It is on the company's decision makers' ability to determine the profitability of an investment proposal. This paper shows the tools to be used in analyzing investment proposals. Capital investments have effects on the cash flow and liquidity of the firm and the buffer cash availability of the firm also affects the capital investment decision making. CI can have effect on the stock value of the firm through perception of or confidence of the stockholders in the company-management's ability to channel funds in profit-generating investments. And lastly, capital expenditures do not only provide gains to the company but to the economy as a whole as well.

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