

Risk and net present value essay sample

[Finance](#), [Investment](#)



1. 1 Introduction

Characteristically, a decision to invest in a capital project involves a largely irreversible commitment of resources that is generally subject to a significant degree of risk. Such decisions have far-reaching effects on a company's profitability and flexibility over the long term, thus requiring that they be part of a carefully developed strategy that is based on reliable appraisal and forecasting procedures.

In order to handle these decisions, firms have to make an assessment of the size of the outflows and inflows of funds, the life span of the investment, the degree of risk attached and the cost of obtaining funds.

One of the most important steps in the capital budgeting cycle is working out if the benefits of investing large capital sums outweigh the costs of these investments. The range of methods that business organisations use can be categorised in one of two ways: traditional and discounted cash flow techniques. Traditional methods include the Average Rate of Return and Payback; discounted cash flow (DCF) methods using Net Present Value and Internal Rate of Return.

1. 2 NET PRESENT VALUE (NPV)

Net present value is a way of comparing the value of money now with the value of money in the future. A euro today is worth more than a euro in the future, because inflation erodes the buying power of the future money, while money available today can be invested and so grow.

The technique is a three-stage process:

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“ to calculate the present value of each element of cash expenditure in a proposal and then, to add these individual present values together to provide a total present value of the expenditures;

to similarly calculate the present value of each element of cash income in a proposal and, then, to add these individual present values together to provide a total present value of the incomes;

to deduct the total present value of expenditures from the total present value of the incomes, in order to determine the net present value”; Tinic, S. M., and West, R. R. (1986)

If this calculation produces an NPV that is positive, the signal is to accept the proposal. If, however the NVP is negative, the signal is to reject the proposal

1. 3 ADVANTAGES OF NPV

There are two major advantages of NPV as a capital expenditure appraisal technique

it accurately recognises the “ time value of money” for all expenditures or receipts – irrespective of the exact time at which they are made or received

it enables alternative proposals to be ranked in order of attractiveness

It recognises the “ time value of money” by converting future expenditures and receipts to their corresponding present value on investment criteria, taking account of the exact date on which they are expected to be made or received

Alternative proposals can be ranked in order of attractiveness. This is important when considering either “ mutually exclusive” proposals or “ capital rationing”

1. 4 DISADVANTAGES OF NPV

There are two major disadvantages of NPV as a method of appraising capital expenditure proposals:

the net present value requires the organisation to calculate an interest rate to use for appraising capital investment proposals

the net present value calculation is only valid for the interest rate that has been used

1. 5 PAYBACK

The payback period is the most widely used technique and is literally the amount of time required for the cash inflows from a capital investment project to equal the cash outflows. The usual way that firms deal with deciding between two or more competing projects is to accept the project that has the shortest payback period. Payback is often used as an initial screening method.

Firstly, it is popular because of its simplicity. Research over the years has shown that firms favour it and perhaps this is understandable given how easy it is to calculate.

Secondly, in a business environment of rapid technological change, new plant and machinery may need to be replaced sooner than in the past, so a quick payback on

investment is essential.

Thirdly, the investment climate demands that investors are rewarded with fast returns. Many profitable opportunities for long-term investment are overlooked because they involve a longer wait for revenues to flow.

1. 6 Arguments against payback

It lacks objectivity. Who decides the length of the optimal payback time? No one does – it is decided by pitting one investment opportunity against another.

Cash flows are regarded as either pre-payback or post-payback, but the latter tend to be ignored.

Payback takes no account of the effect on business profitability. Its sole concern is cash flow.

1. 7 Debt vs Equity

There are two types of financing: equity and debt financing. When looking for money, you must consider your company's financial strength. The more money owners have invested in their business, the easier it is to attract financing. If your firm has a high ratio of equity to debt, you should probably seek debt financing. However, if your company has a high proportion of debt

to equity, experts advise that you should increase your ownership capital (equity investment) for additional funds. That way you won't be over-leveraged to the point of jeopardizing your company's survival.

1. 8 Equity equals Ownership (Share Profits and Control)

Most small or growth-stage businesses use limited equity financing. As with debt financing, additional equity often comes from non-professional investors such as friends, relatives, employees, customers, or industry colleagues. However, the most common source of professional equity funding comes from venture capitalists.

Equity financing requires that you sell an ownership interest in the business in exchange for capital. The most basic hurdle to equity financing is finding investors who are willing to buy into your business; however, the amount of equity financing that you undertake may depend more upon your willingness to share management control than upon the investor appeal of the business. By selling equity interests in your business, you sacrifice some of your autonomy and management rights. Harris, Milton, and Arthur Raviv (1990).

The effect of selling a large percentage of the ownership interest in your business may mean that your own investment will be short-term, unless you retain a majority interest in the business and control over future sale of the business. Of course, many small business operators are not necessarily interested in maintaining their business indefinitely, and your personal motives for pursuing a small business will determine the value you place upon business ownership. Sometimes the bottom line is whether you would

rather operate a successful business for several years and then sell your interests for a fair profit, or be repeatedly frustrated in attempts at financing a business that cannot achieve its potential because of insufficient capital.

1. 9 Debt: Money You Owe (Profits and Control are maintained)

There are many sources for debt financing: banks, savings and loans, commercial finance companies, and the Government are the most common. State and local governments have developed many programs in recent years to encourage the growth of small businesses in recognition of their positive effects on the economy. Family members, friends, and former associates are all potential sources, especially when capital requirements are smaller.

Debt financing refers to what we normally think of as a loan. A creditor agrees to lend money to a debtor in exchange for repayment, with accumulated interest, at some future date. The creditor does not obtain any ownership claim in the debtor's business. Debt financing is attractive because you do not have to sacrifice any ownership interests in your business, interest on the loan is deductible, and the financing cost is a relatively fixed expense.

2. 0 ADVANTAGES OF DEBT COMPARED TO EQUITY

Because the lender does not have a claim to equity in the business, debt does not dilute the owner's ownership interest in the company.

A lender is entitled only to repayment of the agreed-upon principal of the loan plus interest, and has no direct claim on future profits of the

business. If the company is successful, the owners reap a larger portion of the rewards than they would if they had sold stock in the company to investors in order to finance the growth.

Except in the case of variable rate loans, principal and interest obligations are known amounts which can be forecasted and planned for.

Interest on the debt can be deducted on the company's tax return, lowering the actual cost of the loan to the company.

Raising debt capital is less complicated because the company is not required to comply with state and federal securities laws and regulations.

“ The company is not required to send periodic mailings to large numbers of investors, hold periodic meetings of shareholders, and seek the vote of shareholders before taking certain actions”. McConnell, John J., and Henri Servaes (1995)

2. 1 DISADVANTAGES OF DEBT COMPARED TO EQUITY

Unlike equity, debt must at some point be repaid.

Interest is a fixed cost which raises the company's break-even point. High interest costs during difficult financial periods can increase the risk of insolvency. Companies that are too highly leveraged (that have large amounts of debt as compared to equity) often find it difficult to grow because of the high cost of servicing the debt.

Cash flow is required for both principal and interest payments and must be budgeted for. Most loans are not repayable in varying amounts over time based on the business cycles of the company.

Debt instruments often contain restrictions on the company's activities, preventing management from pursuing alternative financing options and non-core business opportunities.

The larger a company's debt-equity ratio, the more risky the company is considered by lenders and investors. Accordingly, a business is limited as to the amount of debt it can carry.

The company is usually required to pledge assets of the company to the lender as collateral, and owners of the company are in some cases required to personally guarantee repayment of the loan.

2. 2 Managerial Ownership and Agency Costs

Managerial ownership has considered non-linear forms (Morck, 1988; McConnell, 1995; Krole, 1995). Jensen (1993) "convergence of interest" hypothesis suggests that managerial shareholdings help align the interests of shareholders and managers, and as the proportion of managerial equity ownership increases, so does corporate performance. In contrast, Morck et al (1988) argued that high level of managerial ownership could lead to 'entrenchment', as external shareholders find the actions of such managers difficult. Krole's (1995) argument suggests that managerial ownership may impact large and small firms differently with respect to value. And examined

the relationship between agency costs and managerial ownership for small firms, and Singh et al tested same work on the relationship for large firms.

2. 3 Concentrated Ownership and Agency Costs

An important line of agency costs literature relates to concentrated ownership. Stiglitz (1985) has argued that one of the most important ways of value maximization by firms is through concentrated ownership of the firm's shares. Shome and Singh (1995) replicate this result and provide evidence that the large shareholder's presence improves accounting performance. Large shareholders thus address the agency problem as that they both have a general interest in profit maximisation, and enough control over the assets of the firm to have their interests respected. Many scholars argued that outside large shareholders reduce managerial entrenchment (Shleifer, 1986; Kang, 1995; Yosha, 1996; Porta, 1998, 1999; Park, 1995; Denis, 1996).

2. 4 Debt and Agency Costs

Another strand of the agency literature has focused on the role of debt as a means of disciplining managers. Grosseman and Hart (1982) were the first to argue that managers could pre-commit to work hard by using debt rather than equity. Similarly, Jensen's (1986) free cash flow theory considers additional debt beneficial since the firm attempts to improve the productivity of its assets as a result of additional debt acquired. Debt not only reduces the free cash flow but also provides discipline to management through the debt market. Debt monitoring hypothesis is formalised by Harris and Raviv (1990) and Stulz (1990) and empirically demonstrated by Maloney et al.

(1993). Shleifer and Vishny (1997) provided extensive survey about the role for debt in reducing the conflict of interests between managers and shareholders.

On the other hand, increased leverage also has costs. As leverage increases, the usual agency costs of debt rise, including bankruptcy cost (Jensen 1986). Myers (1977) pointed to the debt overhang problem where firms may forego good projects if they have significant debt outstanding. The reason is that for a firm facing financial distress, a large part of the returns to a good project go to bondholders. Therefore, in choosing their debt-equity level, firms should trade off between the agency costs of debt and the agency costs of equity. By appropriately allocating refinance between equity and debt, capital structure can balance the conflicts between investors and management as well as that between management and creditors.

2. 5 PECKING ORDER THEORY OVERVIEW

Pecking order theory of capital structure states that firms have a preferred hierarchy for financing decisions. The highest preference is to use internal financing (retained earnings and the effects of depreciation) before resorting to any form of external funds. Internal funds incur no flotation costs and require no additional disclosure of proprietary financial information that could lead to more severe market discipline and a possible loss of competitive advantage. If a firm must use external funds, the preference is to use the following order of financing sources: debt, convertible securities, preferred stock, and common stock. (Myers, 1984) This order reflects the motivations of the financial manager to retain control of the firm (since only

common stock has a “ voice” in management), reduce the agency costs of equity, and avoid the seemingly inevitable negative market reaction to an announcement of a new equity issue. (Hawawini & Viallet, 1999)

Implicit in pecking order theory are two key assumptions about financial managers. The first of these is asymmetric information, or the likelihood that a firm’s managers know more about the company’s current earnings and future growth opportunities than do outside investors. There is a strong desire to keep such information proprietary. The use of internal funds precludes managers from having to make public disclosures about the company’s investment opportunities and potential profits to be realized from investing in them. The second assumption is that managers will act in the best interests of the company’s existing shareholders. The managers may even forgo a positive-NPV project if it would require the issue of new equity, since this would give much of the project’s value to new shareholders at the expense of the old. (Myers & Majluf, 1984)

2. 6 CAPITAL MARKET TREATMENT OF NEW SECURITY ISSUES

The two assumptions noted above help to explain some of the observed behavior of financial managers. More insight is gained by looking at how the capital markets treat the announcement of new security issues.

Announcements of new debt generally are treated as a positive signal that the issuing firm feels strongly about its ability to service the debt into the future. Announcements of new common stock are generally treated as a negative signal that the firm’s managers feel the company’s stock is overvalued (i. e. earnings are likely to decline in the future) and they wish to

take advantage of a market opportunity. So it is easy to see why financial managers use new common stock as a last resort in capital structure decisions. Just the announcement of a new stock issue will cause the price of the firm's stock to fall as the market participants try to sort out the implications of the firm choosing to issue a new equity issue.

2. 7 HOW PECKING ORDER IS SUPERIOR TO THE TRADE-OFF MODEL

While the trade-off model implies a static approach to financing decisions based upon a target capital structure, pecking order theory allows for the dynamics of the firm to dictate an optimal capital structure for a given firm at any particular point in time. (Copeland & Weston, 1988) A firm's capital structure is a function of its internal cash flows and the amount of positive-NPV investment opportunities available. A firm that has been very profitable in an industry with relatively slow growth (i. e. few investment opportunities) will have no incentive to issue debt and will likely have a low debt-to-equity ratio. A less profitable firm in the same industry will likely have a high debt-to-equity ratio. The more profitable a firm, the more financial slack it can build up.

Financial slack is defined as a firm's highly liquid assets (cash and marketable securities) plus any unused debt capacity. (Moyer, McGuigan, and Kretlow, 2001) Firms with sufficient financial slack will be able to fund most, if not all, of their investment opportunities internally and will not have to issue debt or equity securities. Not having to issue new securities allows the firm to avoid both the flotation costs associated with external funding

and the monitoring and market discipline that occurs when accessing capital markets.

Prudent financial managers will attempt to maintain financial flexibility while ensuring the long-term survivability of their firms. When profitable firms retain their earnings as equity and build up cash reserves, they create the financial slack that allows financial flexibility and, ultimately long-term survival.

Pecking order theory explains these observed and reported managerial actions while the trade-off model cannot. It also explains stock market reactions to leverage-increasing and leverage-decreasing event, which the trade-off model cannot.

2. 8 LIMITATIONS OF PECKING ORDER THEORY

Pecking order theory, however, does not explain the influence of taxes, financial distress, security issuance costs, agency costs, or the set of investment opportunities available to a firm upon that firm's actual capital structure. It also ignores the problems that can arise when a firm's managers accumulate so much financial slack that they become immune to market discipline. In such a case it would be possible for a firm's management to preclude ever being penalized via a low security price and, if augmented with non-financial takeover defenses, immune to being removed in a hostile acquisition. For these reasons pecking order theory is offered as a complement to, rather than a substitution for, the traditional trade-off model.

2. 9 Hedging

Hedging in commerce is a method by which traders use two counterbalancing investment strategies so as to minimize any losses caused by price fluctuations. It is generally used by traders on the commodities market. Typically, hedging involves a trader contracting to buy or sell one particular good at the time of the contract and also to buy or sell the same (or similar) commodity at a later date. In a simple example, a miller may buy wheat that is to be converted into flour. At the same time, the miller will contract to sell an equal amount of wheat, which the miller does not presently own, to another trader. The miller agrees to deliver the second lot of wheat at the time the flour is ready for market and at the price current at the time of the agreement. If the price of wheat declines during the period between the miller's purchase of the grain and the flour's entrance onto the market, there will also be a resulting drop in the price of flour. That loss must be sustained by the miller. However, since the miller has a contract to sell wheat at the older, higher price, the miller makes up for this loss on the flour sale by the gain on the wheat sale. Hedging is also employed by stock and bond traders, export-import traders, and some manufacturers.

3. 0 The Hedging Problem

The core problem when deciding upon a hedging policy is to strike a balance between uncertainty and the risk of opportunity loss. It is in the establishment of balance that we must consider the risk aversion, the preferences, of the shareholders. Make no mistake about it. Setting hedging policy is a strategic decision, the success or failure of which can make or break a firm.

3. 1 Hedging Objectives

The final part of this article will introduce briefly the notion of hedging objectives..

Earlier, we noted that a hedge is a financial instrument whose sensitivity to a particular financial price offsets the sensitivity of the firm's core business to that price. Straightaway, we can see that there are a number of issues that present themselves.

First, what is the hedging objective of the firm?

Some of the best-articulated hedging programs in the corporate world will choose the reduction in the variability of corporate income as an appropriate target. This is consistent with the notion that an investor purchases the stock of the company in order to take advantage of their core business expertise.

Other companies just believe that engaging in a forward outright transaction to hedge each of their cross-border cash flows in foreign exchange is sufficient to deem themselves hedged. Yet, they are exposing their companies to untold potential opportunity losses. And this could impact their relative performance pejoratively.

Second, what is the firm's exposure to financial price risk?

It is important to measure and to have on a daily basis some notion of the firm's potential liability from financial price risk. Financial institutions whose core business is the management and acceptance of financial price risk have whole departments devoted to the independent measurement and

quantification of their exposures. It is no less critical for a company with billions of dollars of internationally driven revenue to do so.

There are three types of risk for every particular financial price to which the firm is exposed.

Transactional risks reflect the pejorative impact of fluctuations in financial prices on the cash flows that come from purchases or sales. This is the kind of risk we described in our example of the pulp-and-paper company concerned about their US\$10 million contract. Or, we could describe the funding problem of the company as a transactional risk. How do they borrow money? How do they hedge the value of a loan they have taken once it is on the books?

Translation risks describe the changes in the value of a foreign asset due to changes in financial prices, such as the foreign exchange rate.

Economic exposure refers to the impact of fluctuations in financial prices on the core business of the firm. If developing markets economies devalue sharply while retaining their high technology manufacturing infrastructure, what effect will this have on an Ottawa-based chip manufacturer that only has sales in Canada? If it means that these countries will flood the market with cheap chips in a desperate effort to obtain hard currency, it could mean that the domestic manufacturer is in serious jeopardy.

Third, what are the various hedging instruments available to the corporate Treasurer and how do they behave in different pricing environments?

When is it best to use which instrument is the question the corporate Treasurer must answer. The difference between a mediocre corporate Treasury and an excellent one is their ability to operate within the context of their shareholder-delineated limits and choose the optimal hedging structure for a particular exposure and economic environment. Not every structure will work well in every environment. The corporate Treasury should be able to tailor the exposure using derivatives so that it fits the preferences and the view of the senior management and the board of directors brief overview of the different ways in which firms approach this.

3. 2 Risk Engineering

Risk engineering seeks to apply engineering to eliminate and reduce hazards and relies firstly on the conduct of a thorough risk assessment to identify potential hazards. A detailed risk assessment would involve the quantitative analysis of uncertainties in planning, design, operation and maintenance, in the context of engineering applications and projects. However, quantitative data is often not available to support risk assessments, in which case qualitative assessments are performed as an alternative. Risk assessments can be simple or can be very complex using a number of powerful techniques.

Risk engineering utilises the logical/methodical approach to identify risks, and attempts to resolve the root cause so that some degree of mitigation can be applied to reduce the risks to acceptable levels. There are many techniques that can be used for risk engineering including:

- a. Block diagrams.
- b. Fault and success trees.
- c. Event trees.
- d. Cause-consequence diagrams.
- e. Failure modes and effects analysis.
- f Failure modes, effects and criticality analysis.
- g. Hazard and operability study.

The ability to effectively apply these techniques requires appropriate training. These

modelling techniques are used to identify potential points of failure and what could lead to the failure. The results of the modelling enable the control of risk to be addressed.

3. 3 Controlling the risk

The objective of the risk management process is the elimination of all risk. Elimination is often impossible or impracticable and instead the risk must be controlled. The level of risk acceptance determines the degree of risk control.

There are three general categories for risk control with differing effectiveness in reducing risk as follows:

(a). elimination and/or design or physical control (engineering control) (90% +

effectiveness);

(b). administrative control (procedural control) (50% effectiveness); and

©. training or work method controls (personnel control) (30% effectiveness).

Risk control options, which are not mutually exclusive, are listed below in precedence of effectiveness

a. design out the risk,

b. do not proceed with the activity that is likely to generate the risk,

c. reduce the likelihood of the occurrence,

d. reduce the consequences of the occurrence,

e. transfer the risk, and

f. retain the risk

3. 4 Profit after tax (PAIT)

PAT can be fully retained by a company to be used in the business. However dividend is paid to the share holders from this residue.

A dividend is the distribution of profits to a company's shareholders.

The primary purpose of any business is to create profit for its owners, and the dividend is the most important way the business fulfills this mission.

When a company earns a profit, some of this money is typically reinvested in the business and called retained earnings, and some of it can be paid to its shareholders as a dividend. Paying dividends reduces the amount of cash available to the business, but the distribution of profit to the owners is, after all, the purpose of the business.

Some companies pay “ stock dividends” rather than cash dividends, in which case shareholders receive additional stock shares.

The amount of the dividend is determined every year at the company’s annual general meeting, and declared as either a cash amount or a percentage of the company’s profit; see The dividend decision. The dividend is the same for all shares of a given class (that is, preferred shares or common stock shares). Once declared, a dividend becomes a liability of the firm.

When a share is sold shortly before the dividend is to be paid, the seller rather than the buyer is entitled to the dividend. At the point at which the buyer is not entitled to the dividend if the share is sold, the share is said to go ex-dividend. This is usually two business days before the dividend is to be paid, depending on the rules of the stock exchange. When a share goes ex-dividend, its price will generally fall by the amount of the dividend.

The dividend is calculated mainly on the basis of the company’s unappropriated profit and its business prospects for the coming year. It is

then proposed by the Executive Board and the Supervisory Board to the annual general meeting. At most companies, however, the amount of the dividend remains constant. This helps to reassure investors, especially during phases when earnings are low, and sends the message that the company is optimistic with respect to its future performance.

Some companies have dividend-reinvestment plans. These plans allow shareholders to use dividends to systematically buy small amounts of stock often at no commission. Dividends are not yet paid in gold certificates although this idea has been discussed by mining companies such as Goldcorp.

Companies have often avoided paying dividends for several reasons:

1. Company management and the board believe that it is important for the company to take advantage of opportunities before it, and reinvest its recent profits in order to grow, which will ultimately benefit investors more than a dividend payout at present. This reasoning is sometimes right, but is often wrong, and opponents of this reasoning (such as Benjamin Graham and David Dodd, who complained about the practice in the classic 1934 reference Security Analysis) usually note that this comprises company management dictating to the business's owners how to invest their own money (i. e. the profit of the business).

2. When dividends are paid, shareholders in many countries, including the United States, suffer from double taxation of those dividends: the company pays income tax to the government when it earns any income, and then

when the dividend is paid, the individual shareholder pays income tax to the government on the dividend payment. This is often used as justification for retaining earnings, or for performing a stock buyback, in which the company buys back stock, thereby increasing the value of the stock left outstanding. The shareholder pays no income tax on this transaction.

Microsoft is an example of a company who has historically been a proponent of retaining earnings; it did so from its IPO in 1986 until 2003, when it declared it would start paying dividends. By this point Microsoft had accumulated over \$43 billion in cash, and there had been increasing irritation from stockholders who believed this large pile of cash should lie in their hands and not in the company's. Originally, the official reason to amass this large sum was to create a reserve for Microsoft's legal battles; since then, Microsoft appears to have changed tactics such that the reserve is not as necessary.

In the United States, credit unions generally use the term “dividends” to refer to interest payments they make to depositors. These are not dividends in the normal sense and are not taxed as such; they are just interest payments. Credit unions call them dividends because, technically, credit unions are owned by their members, and the interest payments are therefore payments to owners.

3. 5 Diversification

This refers to an investment strategy that involves the spreading of investments among a number of different securities in order to reduce the risks inherent in investing.

Diversification means investing in a wide variety of asset classes and security types to reduce your risk exposure while striving for the best possible returns. You want your investments to be different enough so that if one is doing poorly, another might be doing well. You can diversify by a mixture of stock, bonds and cash. Also you can diversify within a group, such as stocks (large cap, small cap, international).

3. 6 Beta

Beta is a measure of a stock's volatility in relation to the market. By definition, the market has a beta of 1. 0, and individual stocks are ranked according to how much they deviate from the market. A stock that swings more than the market over time has a beta above 1. 0. If a stock moves less than the market, the stock's beta is less than 1. 0. High-beta stocks are supposed to be riskier but provide a potential for higher returns; low-beta stocks pose less risk but also lower returns.

Beta is a key component for the ' capital asset pricing model' (CAPM), which is used to calculate cost of equity. Recall that the cost of capital represents the discount rate used to arrive at the present value of a company's future cash flows. All things being equal, the higher a company's beta is, the higher its cost of capital discount rate. The higher the discount rate, the lower the

present value placed on the company's future cash flows. In short, beta can impact a company's share valuation. (Kole, Stacey R. 1995)

3. 7 Advantages of Beta

To followers of CAPM, beta is a useful measure. A stock's price variability is important to consider when assessing risk. Indeed, if you think about risk as the possibility of a stock losing its value, beta has appeal as a proxy for risk.

Intuitively, it makes plenty of sense. Think of an early-stage technology stock with a price that bounces up and down more than the market. It's hard not to think that stock will be riskier than, say, a safe-haven utility industry stock with a low beta.

Besides, beta offers a clear, quantifiable measure, which makes it easy to work with. Sure, there are variations on beta depending on things such as the market index used and the time period measured, but broadly speaking, the notion of beta is fairly straightforward to understand. It's a convenient measure that can be used to calculate the costs of equity used in a valuation method that discounts cash flows.

3. 8 Disadvantages of Beta

However, if you are investing in a stock's fundamentals, beta has plenty of shortcomings.

For starters, beta doesn't incorporate new information. Consider the electrical utility company American Electric Power (AEP). Historically, AEP has been considered a defensive stock with a low beta. But when it entered

the merchant energy business and assumed high debt levels, AEP's historic beta no longer captured the substantial risks the company took on. At the same time, many technology stocks, such as Google, are so new to the market they have insufficient price history to establish a reliable beta.

Another troubling factor is that past price movements are very poor predictors of the future. Betas are merely rear-view mirrors, reflecting very little of what lies ahead.

Furthermore, the beta measure on a single stock tends to flip around over time, which makes it unreliable. Granted, for traders looking to buy and sell stocks within short time periods, beta is a fairly good risk metric. But for investors with long-term horizons, it's less useful.

3. 9 Re-Assessing Risk

The well-worn definition of risk is the possibility of suffering a loss. Of course, when investors consider risk, they are thinking about the chance that the stock they buy will decrease in value. The trouble is that beta, as a proxy for risk, doesn't distinguish between upside and downside price movements. For most investors, downside movements are risk while upside ones mean opportunity. Beta doesn't help investors tell the difference. For most investors, that doesn't make much sense.

4. 0 Bonds and Debentures

Bonds and debentures are classified as fixed income instruments. They provide regular, fixed income to holders through payment of interest on the principal purchase.

Bonds and debentures are debt instruments with different types of exposure. With the exception of Government of Canada savings bonds, bondholders are secured by access to the underlying asset in case of default by the issuer. Debentures, on the other hand, are unsecured, and debenture holders do not have recourse to assets in the case of default by the debenture issuer.

Holders of Government of Canada bonds receive a promise of regular interest payments and repayment of principal at maturity, but no rights to a claim on the underlying. Canada Savings Bonds are technically debentures, but they represent the highest domestic credit quality and are classified as bonds for investment purposes.

Bonds and debentures are similar in terms of pricing and yield to maturity calculations. Fixed income prices and yields move in opposite directions. The overall yield of a bond or debenture issue is comprised of coupon interest and return of principal. Thus, when the price of a bond or debenture rises, the yield available to a potential investor falls, and when the price of a bond or debenture falls, the yield rises. In either case the investor receives full par value at maturity, but uses less capital to purchase the cheaper bond.

Bond prices are based on two major factors:

4. 1 Interest Rates.

Bond prices are a reflection of current interest rates, which are constantly fluctuating. In addition, the relationship between long-term and short-term interest rates is also changing. This relationship is represented by the yield curve. Bond prices are also affected by the perception or expectation of the future rate of inflation. When inflation rises, the value of a stream of fixed income coupons declines.

4. 2 Supply and Demand.

Secondly, bond prices are reflective of supply and demand. When investors value a certain bond issue, they will bid up its price, driving down the effective yield for future buyers. Similarly, when a bond issue is out of favour, which could occur for a number of reasons, investors will be less likely to pay a high price for it. Its price will drop and the yield to investors will rise.

Bond prices are expressed as a percent of 100 or par value. Prices may be higher or lower than par. Since interest rates are constantly changing, it is unlikely that the rates at any given point in the life of a bond are exactly what they were when the bond was issued. Since rates affect bond prices, it is therefore unlikely that a bond will trade at exactly its par value. Bonds trading at prices below par are said to be trading at a discount, while bonds trading at prices above par are said to be trading at a premium.

Yield to maturity is a calculation to measure the return to an investor based on the purchase of a bond at the current price. Bond issuers agree to pay the holder a fixed rate of interest over the life of the bond, but there might be a

considerable change in rates over this period. A bond with a high coupon rate of interest will be worth more than one with a lower coupon rate, all other things being equal. A bond purchased at a discount will return a higher total return than the coupon rate since the bondholder will receive full par value at maturity, the difference between the discount rate and the face value, plus all coupon payments in the interim. Therefore, yield to maturity is a function of the price paid for the bond (premium or discount) plus the coupon interest during its life. If an investor buys the bond at the current price and holds it to maturity, the investor will realize the “ yield to maturity.”

4. 3 Preference Shareholders

Preference shareholders have a preferred right to dividend entitlements and capital repayments in the event of the business being wound up and therefore have the second lowest level of security. Shareholders rights are subordinated to note-holders. In the event of a winding up of the business the shareholders would need to lose all of their capital before the note-holders lost part or all of their investment.

Likewise the shareholder would need to lose all of their capital before the note-holders lost part or all of their investment.

Likewise the preference shareholder would be paid out before the Ordinary shareholders but only after the unsecured note-holders had been satisfied. Preference shares that have a dividend entitlement might be convertible or converting. Converting implies that the shares will be

mandatorily converted to ordinary shares on the conversion date, while convertible implies that one party, normally the holder, has the right to have them redeemed for cash or converted to ordinary shares in accordance with the terms and conditions applicable to the conversion. The two expressions are not always used in accordance with the above conditions and a prospective purchaser must satisfy themselves as to the terms and conditions of redemption.

The dividend payment on preference shares is normally dependent upon the entity having sufficient profit or retained profits to meet the obligation. When such shares are said to be cumulative, it means that in the event of an inability to meet the dividend obligation, such obligation will accrue (with or without interest) and be carried forward until such time that profits enable the obligation to be partially or wholly met. Non-cumulative means that the entities inability to meet its dividend obligation will not be redressed by the later availability of distributable profit. The fixed dividend rate on preference shares may be offered as un-franked or franked. Like the proposed dividend, franking credits will be dependent upon the availability of franking credits. Prospective purchasers therefore need to satisfy themselves as to the company's accumulated franking credits and or the prospect that there will be sufficient future franking credits to meet the obligation.

4. 4 Portfolio theory

Modern portfolio theory (MPT)-or portfolio theory-was introduced by Harry Markowitz with his paper “ Portfolio Selection,” which appeared in the 1952 Journal of Finance. Thirty-eight years later, he shared a Nobel Prize with

Merton Miller and William Sharpe for what has become a broad theory for portfolio selection.

Prior to Markowitz's work, investors focused on assessing the risks and rewards of individual securities in constructing their portfolios. Standard investment advice was to identify those securities that offered the best opportunities for gain with the least risk and then construct a portfolio from these. Following this advice, an investor might conclude that railroad stocks all offered good risk-reward characteristics and compile a portfolio entirely from these. Intuitively, this would be foolish. Markowitz formalized this intuition. Detailing a mathematics of diversification, he proposed that investors focus on selecting portfolios based on their overall risk-reward characteristics instead of merely compiling portfolios from securities that each individually have attractive risk-reward characteristics. In a nutshell, investors should select portfolios not individual securities.

If we treat single-period returns for various securities as random variables, we can assign them expected values, standard deviations and correlations. Based on these, we can calculate the expected return and volatility of any portfolio constructed with those securities. We may treat volatility and expected return as proxy's for risk and reward. Out of the entire universe of possible portfolios, certain ones will optimally balance risk and reward. These comprise what Markowitz called an efficient frontier of portfolios. An investor should select a portfolio that lies on the efficient frontier.

James Tobin (1958) expanded on Markowitz's work by adding a risk-free asset to the analysis. This made it possible to leverage or deleverage

portfolios on the efficient frontier. This led to the notions of a super-efficient portfolio and the capital market line. Through leverage, portfolios on the capital market line are able to outperform portfolio on the efficient frontier.

Sharpe (1964) formalized the capital asset pricing model (CAPM). This makes strong assumptions that lead to interesting conclusions. Not only does the market portfolio sit on the efficient frontier, but it is actually Tobin's super-efficient portfolio. According to CAPM, all investors should hold the market portfolio, leveraged or de-leveraged with positions in the risk-free asset. CAPM also introduced beta and relates a security's expected return to its beta.

Portfolio theory provides a broad context for understanding the interactions of systematic risk and reward. It has profoundly shaped how institutional portfolios are managed, and motivated the use of passive investment management techniques. The mathematics of portfolio theory is used extensively in financial risk management and was a theoretical precursor for today's value-at-risk measures.

4. 5 Options

Options on stocks were first traded on an organized exchange on 1973. Since then there has been a dramatic growth in options market. Options are now traded on many exchanges throughout the world. Huge volumes of options are also traded over the counter by banks and other financial institutions. The underlying assets include stocks, stock indices, foreign currencies, debt instruments, commodities, and future contracts

There are two basic types of options. A call option gives the holder the right to buy the underlying asset by a certain date for a certain price. A put option gives the holder the right to sell the underlying asset by a certain date for a certain price. The price in the contract is known as the exercise price or strike price; the date in the contract is known as the expiration date, exercise date or maturity. American options can be exercised at any time up to the expiration date. European options can be exercised only on the expiration date itself. Most of the options that are traded on exchanges are American. However, European options are generally easier to analyse than American options, and some of the properties of an American option are frequently deduced from those of its European counterpart.

It should be emphasised that an option gives the holder the right to do something. The holder does not have to exercise this right. This fact distinguishes options from forwards and futures, where the holder is obligated to buy or sell the underlying asset. Note that whereas it costs nothing to enter into a forward or futures contract, there is a cost to entering into an option contract.

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