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Chapter2: Risks and Value

2.1. Introduction: The present chapter deals with the discussion on concepts of risks, value, and its classification and measurement techniques. The objective of the chapter is to build basic knowledge of the concepts of risk and value. The concepts of risk and value will be clear when the classification of the same is done step by step. So before going through risk-value relationship a discussion is required on the concepts and classification of risk and value and its measurement techniques.

2.2. Concept of Risks and its Classification:

In our dynamic environment, every field of our life is ful of uncertainty. In each business activity or other personal activity, every person himself or herself faces risk. 'Risk' means the possibility of undesired happening. In our business activity risks have been becoming a part and parcel, but primitive peoples had not given much importance to it. For a long time accidental undesired happening with negative impact was attributed to the supernatural power. So to protect themselves from this negative event people pray for and sacrifice some object (often of innocents) beforehand in front of God but when nothing happened in favor of them they left the matter in the hand of their fate. We have been thinking or assuming from the primitive day till the day that if God supported us, we got a positive result but if he did not, we will suffer. The assumption from the pre-historic age to recent days are that if we sacrifice something beforehand, the bad outcomes will go. So in the primitive day, no measure of risk was popular as maximum people think that everything which will happen was pre-determined and driven by the force outside of their control. But this doesn't mean that all ancient civilizations were

completely unaware of the probabilities and the quantification of risk. The games of chance were also played at that time and some players of those games must have some knowledge that there was an order to the certainty and uncertainty. But those concepts of knowledge didn't get to systemize due to its non-utility. Peter Bernstein notes in his renowned book "History of Risk", "It is a mystery why the Greeks having their considerable skills at mathematics, never seriously attempted to measure the likelihood of uncertain events whether they are natural calamity or occurrence of a bad event, instead to go to a fortune-teller". In the year 1494, it was first, an Italian monk who tried to discuss risk measures by using a puzzle in spite of the given focus on fate and God. The explanation of his puzzle and subsequent developments laid the basis for the modern risk measures techniques. The Luca Pacioli, who was the man of many talents, is credited with inventing double-entry book-keeping and teaching Leonardo Da Vinci mathematics. In his renowned book 'Summa De Arithmetica' he presented a puzzle. The solution of the puzzle leads to a new horizon to the conceptual field of risk measurement techniques. Researchers defined the concept of risk in different ways. Some of them are given below:

Some researcher such as Warwick (2003) thinks that the potential loss of funds between the beginning and the end of the investment period is considered as a risk. Hester & Harrison (1998) in his work define risk as a collection of unwanted events. Gregoriou (2006) defines the risk of business as a decline in an organization's total income. Horcher (2005) defines risk as a possibility of loss. Molak (1997) views risk as to the possibility of failure of part or all of the system leading to undesirable results. The uncertainty of achieving desired results is defined as a risk by Keegan (2004). According to Chamban (2003), a risk is an event or circumstance that, if occurred, would affect the achievement of the project objectives. Condamin et al. (2006) consider risk as an

unexpected loss. Markowitz (1952) conceptualized risk in another way. According to him, risk means variance of return and he found in his work that investor likes to balance risk and return in constructing portfolios. He also said that variance of return is an undesirable thing and expected return achievement is a desirable thing to the investor. He thinks variance of return may be used by investors as a proxy of risk to their investment appraisal.

From the above discussion, it is clear that there have many views of risk. No precise definition is fundamentally available. So many writers (Crouhy et al., 2006; Kahkonen et al., 2014; Levainen, 2013; Hintikka, 1999) recommended dynamic tools use that is as wider as possible so that large variety of different risks can be identified and control. But instead of the advances over the last few centuries and the shift to more modern, sophisticated ways of analyzing uncertainty, the belief that powerful forces have an impact on our activity remains present till now in our minds. Therefore more or less each trader and person who uses sophisticated computer models to measure risk, still consult their astrological charts and rediscover religion when confronted with the possibility of large losses or put down their heads before God for starting the new project or job.

 The above discussion gives us the clear idea that risk and uncertainty are not the same things and to understand the uses of risks for our right decision, categorization is required. Different literature has given several different categorizations depending on the context for which they have been created. This highlights a notion that all risks are not necessarily important in all contexts, and the significance of different risks can vary from one context to another. The objective of this section is to describe some possible categorizations for different risks depending on their characteristics and sources to pave

the foundation for the discussion on the risk value relationship. Kaplan & Mikes (2012) opine that an effective and efficient risk-management system develops when corporates have a clear idea of qualitative distinctions among the types of risks. Campbell (2008) classified risk in four categories depending on its effect type which are financial risk, operational risk, strategic risk, and hazard risk. Malevergne and Sornette (2005) divide risk in two-part one is measurable and the other is random events. Williams et al (2006) classified risk as measurable risk and non-measurable risk. Though there have differences in the risk classification, researchers opine that risk classification helps the company to understand and analyze risks and contributes to the design and implementation of preventive and remedial plans. According to Hintikka (1999) risk are two types one is static risks and other is dynamic risks. The risk that impacts trends is similar to the previous one and predictable is known as static risks. On the other hand, risk whose effect is less predictable and not similar to the previous experience is known as dynamic risks. Impact of heavy rainfall is the example of static risk and changes in economic situation are the example of dynamic risks. Another fundamental type of risk classification was given by Kahkonen et al. (2014); Hintikka (1999); and Rouhento (2007) are speculative risks and pure risks. When some risks include both negative and positive outcome is called speculative risks. In these types of risks, some party loses money and some people gain from its impact. On the other hand, the possibility of a negative outcome is known as pure risks. Pure risk is considered unpredictable and events expected to occur as scarce as possible.

Another well-known categorization of risk is the systematic risk and unsystematic risk of the firm. It was introduced by portfolio theory and CAPM study. In the portfolio theory, variance is considered as a measure of risk. Markowitz developed a model to maximize

portfolio expected return for a given level of portfolio risk. Markowitz (1952) model looks for a reduction of the total variance of the portfolio return, by combining different assets whose returns are not perfectly positively correlated. In financial theory this risk is broadly classified into two categories one is a systematic risk that drives due to market fluctuation and the other is an unsystematic risk that emanates from the fluctuation of firm-specific activity.

2.2.1. Systematic Risk: The unique definition of systematic risk is too rare. Different writers write their definitions differently. Galati and Moessner (2010) reviewer of systemic risk concluded that systemic risks have no unique definition. Dow (2000) in his studies found out moral hazard plays a significant role in disordering the objective of financial intuitions. He found out for short term profit making excessively risky activities of the firm or group of businessmen create systemic risk. Reviews by Bisias et al. (2012) and by Osterloo and Haan (2003) concluded that different aspects of the economy are focus on the definitions of systematic risk. Due to dissimilarity in the literature of systematic risk and the complex nature of its authors felt the urge for various principles and measures to measure the systematic risk of the firms. Eijffinger (2012) said that systemic risk means increased uncertainty about the financial system and its part. The concept of systemic risk lies in the negative impact on the real economy. (Szpunar, 2012) said that the source of Systemic risk is inside or outside the financial system with which it has interconnectedness and the exposure of particular financial institutions and markets with the real economy. According to Zigrand (2014), systemic risks include the risk to the improper functioning of the system and risk created by the system. Allen and Carletti (2011) found six types of systemic risk, which are: (1) common exposure to asset price bubbles, (2) panics and multiple equilibrium, (3) contagion, (4) banking system currency

mismatches, (5) mispricing of assets and liquidity provision; (6) sovereign default. Nier (2009) indicates that when the financial system becomes exposed to aggregate risk (generated from the growth of correlated exposures) macro-systemic risk arises. Micro-systemic risk also arises when the failure of an individual organization has a negative impact on the financial system as a whole. Bandt and Hartmann (2000) classified systemic risk between a horizontal and vertical concept. In the horizontal concept, only financial sector events are kept and in a vertical view, the impact of a systemic event on output is taken. According to Brealey et al. (2011) market risk or systematic risk arises from the economic system and cannot be eliminated through diversifying. It is based on the concepts that there are economy-wide factors that impact all the businesses simultaneously. From the above literature, it is clear that the term 'systematic risk', mean variation in the returns of the corporate that originated due to macroeconomic variability of the business environment such as social, political or economic factors. It affects the operating activities of all the corporate presence in the economy. For example, a significant change in tax policy could affect several corporate in our economy. No organization in the economy can prevent them against this type of risk. The entire market business organization is affected by such fluctuation and all organization returns have fluctuated with such change. Systematic risk is also caused by the changes in government rule and regulation, the act of nature such as natural calamity, changes in the nation's economic policy, international economic policy, etc. The investment value may be affected over a period due to this risk. As the systematic risk is inherent to the entire market place it is also known as non-diversifiable risk or Market risk. Market risk affects the overall economy and not just a particular company, industry, assets or projects. This type of risk is uncertain and impossible to completely ignore. It cannot be mitigated through investment diversification or through hedging or by using the right asset

allocation policy. For example, putting some assets in fixed incomes originating source and other assets in variable income creating media can alleviate systematic risk because an interest rate change that makes bonds worthless will tend to make stocks more valuable, and vice versa, thus keep down the overall change in the portfolio's value from systematic risk. Interest rate shifts, inflation, recessions, and wars all represent sources of systematic risk because they affect the entire market. Systematic risk generates all other companies' risks. The Great Recession is a current example of systematic risk. Anyone who invested money in the equity market in 2008 saw the values of their investments decreases because of this market-wide economic recession, regardless of what types of securities they held. The Great Recession influences different asset classes in different ways; however, investors with large asset allocations were affected less than those who hold only shares. If we want to know how much systematic risk present in a particular security, fund or portfolios have, we can look at its beta, which measures how unstable that investment is compared to the overall market. A beta of greater than 1 means the investment has more systematic risk than the market, less than 1 means less systematic risk than the market, and equal to one means the same systematic risk as to the market. The classification of Systematic risk is Interest risk, market risk, purchasing power risk, and foreign exchange risk.

Interest Risk: The interest rate risk arises when the movement of the interest rate occurred. The volatility of interest rates affects earning the possibility of an investment like bond and other interest-bearing security which affect its investment's value of an investor. Bond value is directly influenced by interest rate risk than equity shares. As interest rates rise, a bond price falls, and vice versa.

Inflation Risk/Purchasing Power Risk: The inflation risk also known as purchasing power risk. It adversely affects the purchasing power of each and every one. Such risk comes from a rise in the cost of production, the rise in wages, etc. The value of assets or income will decrease when inflation decreases the purchasing power of money. During Inflation purchasing power of money is decreased.

Market Risk: The market risk is the possible losses for a company or investor due to factors that affect the overall performance of the financial markets in which the company operated. Market risk, also part of "systematic risk," cannot be minimizable through diversification. The recessions, terrorist attacks, political turmoil, changes in interest rates, and natural disasters, create Market risk. Market risk exists because of price changes.

2.2.2. Unsystematic Risk: Besides the systematic risk of a firm, unsystematic risk plays an important role in investment decisions in a particular business or a particular project. When portfolio investment decisions are done unsystematic risk plays no role as diversification of investment helps to minimize the unsystematic risk of a single project or investment in the portfolio. But when we evaluate a single business firm or a single project then unsystematic risk also plays an important role. If we want to use unsystematic risk for our decision making purpose or for evaluating some projects, its assessment is required first. There have many approaches to assess the unsystematic risk of an organization such as the Black/Green approach (Karamehmedovic, 2012; Robert, 2010), Gary Trugman's approach and Warren Miller's approach. To determining the factors of unsystematic risk level, Robert Green and Parnell Black suggested six categories factor for evaluation and choice of unsystematic risk which are competition,

professionalism in management, financial stability, return and stability of investments, local economic effects and national economic effects (Karamehmedovic, 2012). According to Gary Trugman (2012), there have three main factors of unsystematic risk. He divides them into three main categories. The first category includes risk factors: commodity, economic, operational, legal risks, market, assessment, financial, regulatory business, and technological. In the second category, all non-financial factors such as economic environment, barriers to market entry, business location, competition, professionalism in management, production conditions, and management quality were considered. In the third category a particular company's economic conditions, management efficiency, and professionalism, business location, market entry barriers, competition, production conditions, management quality are included. Warren Miller mentioned the structure of competitive advantages in combination with strategic analysis. Thereby, he exposed that by arranging the factors into three main categories and connecting them with SWOT analysis, assessment of the unsystematic is done. Warren Miller said that the unsystematic risk analysis should be directed downwards and start at the macroeconomic level and go down to the industry level and then to the level of a particular organization (Miller, 2010). Economic, political, demographic, international, technological and cultural and social factors were considered as a macroeconomic category. Market environments, the factors determining the development of industry, market competition were attributed to the industry category. The factors affecting a particular business of a particular company are considered to the company category. Robert (2010) in his work said that unsystematic risk assessment is more effective if Warren Miller's methodology of connecting factors influencing the investment risks in alliance with the SWOT analysis is used. From the above discussion of unsystematic risk assessment, it is clear that these factors are company internal

factors. The fluctuations of these factors also affect the return of a company. Therefore the risk arising due to the fluctuations in returns of a firm due to the micro-economic factors, i.e. factors inherent in the company is known as unsystematic risk. The factors that cause such risk relates to a particular corporate. The risk can be minimizable by the organization if necessary actions are taken in this regard. Unsystematic risk is also known as "Internal Risk" or "company-specific risk". This kind of risk affects only one company earning or value of share price. It is a Company- or industry-specific hazard that is inherent in each firm. Unsystematic risk has many alternative names such as "non-systematic risk", "specific risk", "diversifiable risk" or "residual risk", etc. This risk can be reduced through diversification of investment and by taking the strategic trick. An investor who owes different company investments or different industry investments or different types of investment will be less affected by the unsystematic risk of a firm than who only owes one company investment or one type's investment in his portfolio. However, a company or business cannot able to diversify its unsystematic risk completely as more or less in each business unsystematic risk is inherent to its operating activity and its capital structure configuration. Investors may be aware of some potential sources of unsystematic risk, but it is impossible to be aware of all of them or to know whether or when they might occur. In portfolios theory diversification is the only way to protect ourselves from the unsystematic risk but in case of a single business, diversification of unsystematic risk completely is next to impossible as without taking the risk no firm can able to earn profit for its stakeholder. It is well-known proverbs that no risk no gain. So the unsystematic risk is also part and parcel of a business organization.

Company Internal Risk and Its Classification: The three main factors which create corporate internal risk are Economy-specific factors, company-specific factors, and industry-specific factors. When some factors affect all sectors of the economy it is known as Economy-specific factors, such as foreign exchange fluctuations, competition, inflation, import restrictive regulations, etc. The Company related factors which are related to Industry to which the company is related is known as an industry-specific factor. For example, Special advantage enjoyed by the industry, growth prospects of the industry, etc. are included in this category. Firm-specific factors that are related to the specific company only are known as Firm-specific factors. Some example of company-specific factor is human resource management of the company, liquidity of the firm, project management quality, management of intellectual property, the cost structure of the company, the culture of the firm, values of the firm, etc. Corporate risks arising out of the company-specific, economy- specific and industry-specific factors are known as company risk, economic risk, and industry risk respectively. The genesis of company internal risk, in fact, lies in the company's cost structure, sales revenue, liquidity and capital structure of the firm, (Ghosh, 1997). The inherent weaknesses in these factors lead to cost structure risk, capital productivity risk and liquidity risk of firms. Financial risk emanates from the capital structure of the company. It arises when the possibility of failing to meet contractual obligations and the possibility of fluctuation in net income available to owners' equity increases. So the corporate capital structure is the source of financial risk of that organization. When the company continues to lever itself but all other things remain the same, the probability that the company will be unable to meet its contractual obligation. It results in an increase in the degree of financial risk associated with the company. The company's internal risk factors have some importance to the stakeholder to evaluate corporate performance. After a recent big corporate failure, it is

clear that internal business factors are also liable for corporate valuation. During corporate valuation, not only systematic risk but also company-specific risks play an important role in evaluating its share price. For example, investors dislike the purchasing unit of a firm whose business or operating risk and financial risk are higher than another firm. In our economy, there may have some companies whose company-specific risks may be far more impotent than the systematic risk of that company. It is so because part of the systematic risk (beta) ultimately generated from the unsystematic risk of a firm, Mandelker and Rhee (1984), Huffman (1989). As per the above discussion Internal total risks to which a company runs can be broadly classified into the three parts one is an operational or business risk, liquidity risk and the financial risk of the corporate. Total internal risk generated from the business operations of the firm. It is visible in the volatility of the expected earning to its owner. As per the previous literature discussion, external forces are involved in creating systematic risk, and internal factors are responsible for company-specific internal total risk. Since unsystematic risk or internal total risk is born by internal factors, Borde *et al.* (1994), Chen *et al.* (2006) so it can be controllable and avoidable in case of portfolios investment but exclusion of total unsystematic risk completely is next to impossible to a corporate as without risk-taking no firm can able to earn return for its owner. The total unsystematic risks to which a company works are of two types. One is business or operating risk and the other is a financial risk. There have many types of unsystematic risks in our internal business environment but only measurable internal unsystematic risks are discussed here.

Business/Operating Risk: According to Bocker (2008) "Business risk can be defined as the potential loss in the company's earnings due to adverse, unexpected changes in business volume, margins, or both. Such losses can result above all from a serious

deterioration of the market environment, customer shift, changes in the competitive situation, or internal restructuring". Business risk is one part of the total specific risk that determines a corporate future return on equity. Firm's shareholders face Business risk if the organization has fixed costs. The firm's operating activities determine the business risk of that firm. It rises when economic uncertainty affects the operating revenue of the firm and margin of operating profit adversely. Business risk increases if product demand adversely moves. For example, if customers don't like to buy one company's products or if the demand for specific goods or service decreases then returns to the owners of the company become uncertain. Most business firms also have variability in product sales prices and input costs. Corporate that are not able to bring new qualitative services or products with reasonable competitive price to its customer, face more business risk. Think of the Sony Company one of the market leaders has been facing business risk due to its price band. If a business firm has high fixed costs and their costs do not decline as demand declines, then the firm high operating leverage creates high business risk. Business Risk is the capacity of using fixed operating costs to magnify the effect of change in sales on earning available to the owner. In other words, the possibility of nonavailability of return to owner arising due to non-meeting of fixed operating costs through the sales or revenue is called business risk. Business Risk inherent to the firm emanates from the company's fluctuating performance. Business risk generated when a company performs is below the industry average. There are so many factors that create business risks like change in consumer preferences, changes in government policies, increasing competition, the arrival of substitute products, technological development, etc.

Financial Risk: It is the capacity of using financial fixed cost such as interest on loan and preference dividends to magnify the effect of change in operating earnings on earning variable to shareholders. Financial risks alternatively known as leveraged risk emanate from the capital structure of the firm. When there is a change in the capital structure of the company, it affects the financial risk of a firm. Financial risk generated from the possibility of failure charges of fixed interest-bearing capital of the firm. When in the capital structure there has fixed interest-bearing capital financial risk present to some extent. The debt-equity ratio is the expression of such a risk. When a firm becomes insolvent its debt financing is repaid before its shareholders that generate the financial risk of its owner. Financial risk also refers to the possibility of a corporation defaulting on its bonds, which would cause those bondholders to lose money. A particular usage of fixed charge bearing capital in financing the corporate assets or activities creates the financial risk of corporate. Financial risk is directly associated with corporate financial leverage (Luoma and Spiller, 2002). Financial risk can be avoidable as it generated from the risk of insolvency of the common stock shareholders as well as variation in earnings per share due to the use of debt capital (Horne & Wachowicz, 2005). Moreover, financial risk is associated with the consequences of the uncertainty of the firm's financial policy regarding the debt-equity mix and the fixed interest charge related to debt (Hill & Stone, 1980). Luoma and Spiller (2002) said that debts or preferred stock increase the financial risk of the corporate. Loudon (2004) states that changes in economic conditions and changes in revenues, operating and financial expenses are several factors behind the uncertainty of future cash flows. Levy and Sarnat (1994) said that the variability of earnings per share was intensified when the debt capital was introduced into the corporate capital structure. In other words, the additional variance of earnings per share is due to the use of debt capital is called financial risk.

Yoon and Jang (2005) investigated the effect of financial leverage on financial performance and risk of sixty-two restaurant corporate in the United States for the period 1998 to 2003. They hypothesized that restaurant firms having a higher level of financial leverage are riskier than those having a lower level of financial leverage. Chandra Kumar Mangalam and Govindasamy (2010) found that leverage is positively related to profitability and shareholder's wealth is maximized when firms are able to employ more debt. Berkovitch and Israel (1996) in their work found out that there presents a positive relationship between debt level and value of firm when shareholders have full control over the firm's activities and a negative relation when creditors have higher control over the firm's business activity. Hence, the effect of debt on corporate value is a function of fund supplier power within a firm. In a situation where debt fund suppliers have more power, an adverse impact of financial risk falls on corporate valuation.

Business Risk and Financial Risk: It is the well-accepted theory that the corporate business risk is largely uncontrollable while the financial risk of a corporate is well within its control (Chakraborty, 1981). As there is minimum scope to exercise higher control in respect of the business risk of a firm, the attempt can be made to control the total internal risk of a firm by controlling the degree of financial risk of a firm. So it is expected that if a firm like to keep its total internal risk within a reasonable level should control the financial risk of a firm viewing the business risk of the corporate. Therefore, theoretically, there presents a negative association between business risk and financial risk of a firm. However, many studies reflect an opposite situation that fails to go with to the theoretical argument (Sur, 2007). It is expected that high-risk bearing companies always like to earn high returns. No corporate can bear a high-risk and low-profit area in

the long run (Ghosh, 1997). But there has also a controversy with the said issue. Even if the findings of the empirical studies so far made are opposite in nature. Some researcher argues that return and risk are shown to be influenced by various industry conditions and business strategies but not by each other (Oviatt and Bauerschmidt, 1991). Moreover, they also opine that there may a negative relationship between risk and return (Betlis and Mahajan,1985; Singh, 1986). The other school of thought found out a positive association between risk and return (Cootner and Holland, 1970). According to Chen and Strange (2005) capital structure of a firm depend on the business risk of the project or firms. But no such unique empirical or theoretical research there is in consensus that business risk is increased or decreases depending on leverage. Empirical works (Wiwattanakantang, 1999 and Deesomsak, *et al.* 2004) were found in favor of both. On the other side, some empirical studies found that no relationship presents between the two variables. Booth *et al.* (2001) said that the relationship between leverage and business risk is different for different countries. Jong *et al.* (2008) and Deesomsak et al. (2004) found the same result supporting Booth *et al.* (2001) theory. From a business perspective, the risk is often associated with a potentially negative impact on the firm's value, and most textbooks of finance and empirical research work predicted an inverse relationship between financial risk and business risk of corporate. Negative relationship means when corporate business risk increase generally financial leverage decreases results in a decrease in the financial risk of a firm. The basis for this activity is that when debt is used in the capital structure it increases the probability of financial distress when there has high business risk. By using more debt, the net cash flows to the owner of the organization become less stable because of the firm's larger interest burden. Baral (2004) in his work on bankruptcy theory found out a negative relation between business risk and financial risk. Other empirical studies which found out the negative relationship are

Graham and Harvey (2001), Singh *et al.* (2003) and Deesomsak *et al.* (2004). Baral (2004) has also pointed out in his work that with a high business risk but with lower agency costs environment firm uses higher debt. It leads to a positive relationship between business risk and financial leverage of a firm. Gaud *et al*. (2003) in their cross country study have found out that in several countries, corporate with a larger variance in profit, use more loan funds. It means in higher business risk firms also had higher financial risk which is contradictory to the conventional concepts. The empirical work is done by Chen and Strange (2005) also supports the positive association between business risk and financial risk of the corporate. The Empirical studies done by various researchers, such as Wiwattanakantang (1999) and Deesomsak *et al.* (2004), found out that there is no relationship between business risk and leverage since the coefficients between the two variables are insignificant. Therefore no consensus unique relationship between business risk and financial leverage is generally present all over in the world.

2.3. Unsystematic Risk (Business Risk and Financial Risk) Measuring Techniques:

Risk assessment and measurement are formulated on the linkage between historical data and forecasting tools to formulate possible scenario that might cause an adverse impact on the organization. There are several quantitative and qualitative tools for measuring and assessing risk (Banks & Dunn, 2003) by which business risk and financial risk can be measurable. Some of them are discussed below. In this section, no systematic risk analysis is done here as my only objective is to know whether the unsystematic risk has any effect on the value of the corporate or not. This part brings light upon the commonly used tools that help to measure the internal risk of a business enterprise. The methods are

(1) Probability Distribution (2) Standard Deviation (3) Coefficient of Variation as a relative measure of risk (4) Leverage and Ratios. Among these four techniques, the first three are statistical methods and the last one is the accounting base measure of risk. All these risk measurement tools usage historical accounting data of the corporate. Though the risk measures have been becoming more and more complex over the years and dependency on sophisticated techniques, advanced statistical techniques and data analysis are increased too much but the foundations still lie in the work done by Graunt and Halley. Using their methods of historical data, insurer estimates the likelihood of events occurring in the future and the consequent losses. The most prominent methods used include statistical distribution of risk, probability, and standard deviation. Many organizations rely on standard deviation from average past results as a measure of risk (Khan and Jamal, 2000 and Guikema, 2008). Statistical standards used to assess the value of risk in the future period or periods depend on the statistical distribution of the historical events and the degree of confidence, which is usually 95% to 99%. To apply these techniques, a reliable database should be chosen to identify the points of danger. This database requires a system to record and monitor the risk by comparing a statistical distribution of historical events and the extent of the deviation (plus or minus).

Generally speaking, there have no generally accepted risk measurement techniques but some measures are taken as a proxy of risk measurement techniques. The said techniques which are commonly used in finance are discussed below

2.3.1. Probability Distribution: As stated above, a risky proposition in a business enterprise is presumed to be with a wide range of possible outcomes for each flow in the year arranged in the form of a frequency distribution. It is known as a probability distribution. The probability that a particular event will occur is a measure of its

likelihood of occurrence. The Probabilities are normally expressed in decimal fractions but sometimes depending on the requirement they can also be expressed in percentage form. In finance, we are forecast the likelihood of future events that will affect different proposals or our business activity. To do this, we make use of subjective probabilities. In contrast, the objective probability is based on prior experience and the laws of chance and on which there is a general agreement. Examples of objective probability are probabilities associated with the roll of a dice or the flip of a coin. In capital budgeting decisions we usually forecast of net cash flow in one single figure. But the problem is that arises in this connection is how much we are confident about that outcome. Are we very certain, very uncertain or somewhere in between? This degree of uncertainty can be defined and measured in terms of the probability distribution. Thus, a probability distribution consists of just a few potential outcomes, viz., an optimistic estimate, a pessimistic estimate, and a most likely estimate or alternately one could make high, low and best guess estimates. An analysis is not limited to these three alternatives. Any number may be used to express the future conditions applicable to the project. Normally, the most likely estimate represents the expected value of the variable. This is in the middle of other possibilities and has the highest probability of occurrence. Weighted arithmetic mean provides expected value.

The following equation is normally used to compute the expected value of an event:

$$\text{Expected value} = R = \sum_{t=1}^{n} (Rt. Pt) \qquad \text{Where,}$$

R_t = the return associated with each outcome, Pt = the probability of occurrence of cash outcome, R=the expected value.

2.3.2. Standard Deviation(SD) as a Measure of Risk: In his first edition of Security Analysis in 1934, Ben Graham argued against measures of risk-based upon past prices (such as volatility), noting that price declines can be temporary and not reflective of a company's true value. During the year 1950, past prices and accounting information were used by investors of financial markets to judge the level of risk of their investment. Beside it, they also use issuer reputation and security types as an indicator of risk measure. There was, however, no consensus on how best to measure risk and the exact relationship between risk and expected return. Traders and analysts use a number of methods to assess the volatility and relative risk of potential investments, but the most common methods is a standard deviation. Standard deviation as a basic mathematical concept carries a lot of weight in the different risk-related decision-making process. Simply put, the standard deviation measures the average amount by which individual data points differ from the mean. SD is calculated by first subtracting each data from the mean, and then squaring, summing and averaging the differences to produce the variance. To measure the dispersion of the probability distribution the most commonly used statistical technique is a standard deviation. It is assumed that higher the SD higher will be a risk with the organization and vice versa.

The following steps are involved in computing standard deviation:

 (i) Calculate the mean of the expected value of the distribution.

(ii) Calculate the deviation from each possible outcome.

(iii) Square each deviation.

(iv) Multiply the squared deviations by the probability of occurrence for its related outcome.

(v) Sum all the products. This is called a variance.

$$\text{Variance} = SD^2 \sum_{i=1}^{n} (R_i, \overline{R_i})^2 * P_i$$

The standard deviation is determined by taking the square root of the variance

$$SD = \sqrt{\sum_{i=1}^{n} (R_j - \overline{R_i})^2 * P_i}$$

The smaller the standard deviation, the higher the probability of gating expected outcome and that makes the lower risk of a project.

2.3.3. Coefficient of Variation as a Relative Measure of Risk: The size difficulty can be eliminated by developing a third measure, the coefficient of variation. It measures the relative variability of returns. It calls for nothing more difficult than dividing the standard deviation from an investment by the expected value: Coefficient of variation $= \frac{SD}{mean}$. Generally, the smaller the coefficient of variation, the lesser is the risk with the object.

2.3.4. Leverage: The concept of leverage in finance is derieved from science. The basic objective of leverage is to generate benefit by using some object. In finance, the concepts of leverage are widely used. Besides the above risk measure, corporate and prosperous investors use it to test the reliability of financial reports and to control the financial and operational activity of a firm. Recently the corporate are using risk measures based on accounting information. Ratios of profitability and leverage have been used as an accounting measure of risk. From 2019 many organizations such as Standard Statistics Bureau and Fitch and Moody's were using accounting data to attribute bond rating and

credit risk of the corporate. Similar measures were used to evaluate for equities but stock rating by using only accounting data which could not able to bring consensus measures of risk. Therefore during risk measure of stock both price volatility and accounting information were stated to use. Leverage is generally defined as the ratio of the percentage change in profits to the percentage change in sales. In simple words, leverage shows the multiplying effect of fixed costs on profits when there is variance in sales. As revenue increases or decreases, it is only the variable costs that change simultaneously, fixed costs remain constant. Therefore the change in profit rate is faster than the rate of change in sales. If the corporate had no fixed costs at its cost structure but all of its costs were variable no leverage would have been arising and the rate of change in sales would have been the equal as the rate of change in profits. It is fixed operating and financial costs that generate operating and financial leverage into the firm and higher the fixed operating and financial cost, higher is the operating and financial leverage of the corporate. In the work of Elgonemy (2002) it was found that cost advantage associated with loan capital tends to erase the benefits when the leverage increases beyond the limit of an optimal level and then it reduces the overall value of the firm. Therefore, sometimes debt capital affects the firm's value adversely in the manner that the firm uses debt capital. In finance, leverage is bifurcated into two categories. One is operating leverage and the other is financial leverage.

Operating Leverage: According to Wikipedia "Operating leverage is a measure of how revenue growth translates into growth in operating income. It is a measure of leverage and of how risky, or volatile, a company's operating income is". There are many measures of operating leverage but the basic outcome is the same. The cost structure of a firm is the source of operating leverage. The general firm has two types of costs in the

firm's cost structure. One is a fixed cost and the other is a variable cost. Operating leverage emerges from the percentage of fixed operating costs that a corporation has in the total cost of a firm. The ratio of fixed costs to variable costs also helps to explain the operating leverage of a corporate. If an organization has a large amount of fixed operating costs as compared to its variable costs then it is said that the said organization has high operating leverage. A capital intensive corporate use a lot of fixed costs in their business operation generates high operating risk due to operating leverage. An automobile manufacturing firm is a good example of a capital intensive industry. They have a large amount of machinery that is necessary to manufacture their goods and services - automobiles. When the economy slows down and demands for cars goes down the said organization still has to pay their fixed operating expenses such as overhead on the plants and, depreciation and amortization on the equipment, and other fixed costs related to a capital intensive firm. An economic downtrend affects a capital intensive organization much more than a company is not so capital intensive. An organization with high operating leverage is very sensitive to changes in sales and it affects its EBIT and returns on investment quickly. Operating leverage is the leverage effect on account of all fixed costs other than interest and another financial cost. Different measures of operating leverage are the percentage change in PBIT divide percentage change in sales, contribution divide PBIT, etc.

Financial Leverage: The capital structure of a firm is the genesis of financial risk cum leverage. If a firm has fixed charge bearing capital in its capital structure the financial leverage arises. In operating, the leverage assets side (the plant and equipment) of the balance sheet is considered but in the financial leverage, the liability side of the balance sheet is considered. The organization's return on equity and earnings per share can be

improved if the fixed charge bearing capital is used in the capital structure. Too much debt in the capital structure of a firm, however, can lead to an increase in the financial risk (default and bankruptcy) of the organization. The debt-equity ratio helps to measure the financial leverage of an organization. Other measures of financial leverage are the percentage change in PBT divide percentage change in PBIT, PBIT divide PBT, etc.

Combined Leverage: If corporate uses a high level of both operating and financial leverage, a large fluctuation in PBT will occur even small changes in the level of sales. Combined, leverage help to measure the total risk facing a business organization. Operating leverage magnifies the returns from our operating fixed expenses and financial leverage magnifies the returns from our financial expenses. Combined leverage is the joint effect of these two types of leverage to the magnification of returns of the owner. The product is called the combined leverage factor or total risk of a firm. The measures of combined leverage are contribution divide PBT, the percentage change in PBT divide percentage change in sales, etc.

2.3.5. Ratios: Ratios are nothing but a measure of the relation between two related items. It helps to take a much important financial decision for a business organization. Among different ratios, some ratios help to measure the financial consistency or financial risk of a firm. Debt equity ratio, interest coverage ratio, liquidity ratio are discussed under. Different risk ratios are basically used to assess a corporate capital structure and liquidity risk of a corporate. A corporate financial and operational soundness depend on the management ability of a corporate outstanding Debt. Debt management and its level significantly affect the owner's profitability.

Debt-to-Capital Ratio or Debt/Equity Ratio: The debt to equity is a simple ratio that shows the relation between two related items in the company balance sheet. It is also used to shows the relative relation of debt and owner equity used to finance a firm's assets (Peterson, Pamela (1999)). It is used to measure the proportion of debt in the capital structure of a firm. Many times said the ratio is used to measure the financial leverage factor and financial risk factor of a company. Debt to capital ratio is a measure of capital structure configuration which shows the proportion of debt in the capital of a firm. Debt-to-Capital Ratio or Debt/Equity Ratio has been using regularly by outside investors as a measure of firm financial solvency. In financial statement analysis, it is used commonly. Bhandari (1988) in his work found out a firm with a high DE ratio also had high returns. The renowned CAPM shows that a high debt-equity ratio generates a higher financial risk of a firm and that risk-adjusted by the higher expected return of a firm. There was much more research work such as Khan (2012), San & Heng (2011), Weill (2008), Ebaid (2009), Deesomsak et al. (2004), etc. who shows the significant impact of debt-equity on the firm performance. Therefore it is clear that the DE ratio has some impact on the return of a firm. My work interest is to found whether the DE ratio has any impact on the value of a firm or not.

2.4. Meaning of Value and Valuation: The value and valuation are the two important aspects of every business organization. If they do not properly use the stakeholder or prosperous investor or management can not able to takes important decisions. In the below paragraph they are discussed compactly so that it will be useful to the present work.

2.4.1. Meaning of Value: In our commerce and finance, perspective Cost Accounting association (ICWAI) define value as a worth of tangible or intangible thing from which

benefits are expected to arise. They also define value as the purchasing power of an object and desirability and utility of a thing which can be saleable in the market. Whatever the types of definition may be given by different authors from a different perspective one thing is common that the subjects which have value have weight to fulfill the want of people and people can live comfortably if he has enough valuable objects. The value can be definable in many perspectives but we only concentrated the discussion on the business and finance perspective. In a business, perspective value means an economic measure reflecting the value of a business is known as firm value. There have many types of firm value such as the market value of the firm, the book value of the firm and the relative value of the firm. In general, it is a sum of claims by all claimants such as creditors (secured and unsecured) and shareholders (preferred and common). Enterprise value is one of the fundamental subjects used in business valuation, risk analysis, financial modeling, portfolio analysis, and accounting. There have many methods that determine the firm value. For example Firm value determined by the investor's perception toward the value of the success of the firm related to its stock price (Sujoko and Soebiantoro, 2007) helps to determine firm value. The stock price indicates or measures the firm value. The stock price is generally determined when it traded in the market (Fakhruddin and Hadianto, 2001). The firm value can be measured by price to book value (PBV) ratio. It is a relative valuation method. It is the comparison between the book value per share and stock price (Brigham and Gapenski, 2006). It helps to compare the price of the stock market and the price to book value. The larger PBV will increase the market trust of the investor. It also helps to understand how the prospect of the firm and the prosperity of the shareholder (Soliha and Taswan, 2002). PBV also helps to understand whether the stock traded in the market is overvalued or undervalued (Fakhruddin and Hadianto, 2001).

2.4.2. Meaning of 'Valuation': The valuation processes first developed in advance country. According to Morgan's study (1998) by the year 1868, England was the pioneer country wherefrom valuation processes were started but Miller and Markosyan (2003) found in the USA from 1902 the valuation appraisal professional start working on valuation of the asset for real estate appraisal. The USA proposed this year as a birth year of the valuation processes. During the early 20th-century other country valuation bodies also develop and it accelerated economic growth of that time. Valuation is a complex method of determining the price of an asset or company. Changes in economic, business and environmental factors are inducing to develop valuation processes continuously (Wyman *et al*., 2011). So many methods of valuation process were developed during the last decades. But the applicability of the said methods depends on the perspective for which it would be applicable. Baum & Crosby (2008) had said understanding of the business valuation methods would be critical if we don't understand the methods when to evolve and what context within which these changes took place. In our present globalization era, the task of valuation becoming a more complex and important job for good corporate reporting purposes. This leads to formats international valuation sander committee whose functions are to create standard valuation methods and to formalize the valuation terminology and methodology. According to the Indian accounting body (ICWAI), Valuation means the estimation of a thing worth or price set on a thing. There are many techniques used to determine the value of a business organization. A business analyst placing the value of a company looks at the firm's management, the pattern of its capital structure, the prospect of future return and the market value of its assets. Company valuation is a process used to estimate the economic value of an owner's interest in a business organization. Valuation is used by a seller or purchaser to determine the price they are willing to pay or receive to the sale of an object. There are

many business valuation methods that are broadly grouped into three categories. Depending upon the situation any one of these three approaches is used for business valuation. Each approach serves as a basis for a group of methods to determine the business value. The three approaches are Income approach, market approach, and the Asset approach. According to Fernandez (2013) and Damodaran (2005) there are five valuation approaches present, all of them with many valuation methods which are, a) Discounted cash flow (DCF) valuation, b) Accounting and Liquidation valuation, c) Relative valuation, d) Contingent claim valuation (real options) and e) Goodwill valuation. A comprehensive business valuation technique should include a choice of several models under the above approaches.

2.5. Business Valuation based on Three Approaches:

2.5.1. The Income Approach to Business Valuation: The income approach built upon the economic principle of expectation: the value of a company is based on the expected economic income and level of risk associated with the firm's assets. Income-based valuation techniques determine fair market value by dividing the discount or capitalization rate to the benefit stream generated by the assets or target firms. The discount or capitalization rate converts the stream of benefits into present value. There are several different income models that help to do this such as capitalization of earnings or cash flows, the excess earnings method (which is a hybrid of asset and income approaches), and discounted future cash flows ("DCF") method. Miller and Modigliani (1961) said that although different methods of capitalization can be applied for this purpose, all give the same result if markets are perfect, people are rational, and when the future is known perfectly certain. The income approach valuation methods can be used to determine the value of several company assets as long as an income source can be

attributed to it. For example, a supportable royalty structure helps to an established value of a licensable intellectual property. The Income base approach determines the value of a company or project based on its economic earning for its owners. The key objective of the income-based approach is to determine corporate value as a function of economic earning. The economic benefit such as the cash flow or net cash flow is capitalized, discounted or multiplied to achieve at the value of any assets or investment. The key factor of the income-based company or firm's valuation techniques is the proper measurement or selection of the discount rate and valuation multiples. International Glossary of Business Valuation Terms defines the income approach of valuation as, "A general way of determining a value indication of a business, business ownership interest, security, or intangible asset using one or more methods that convert anticipated economic benefits into a present single amount". The well-known methods under the income approach are: (i) Discounting cash flow method (ii) capitalization of earnings method (iii) Multiple of discretionary earnings method.

(i) Discounted Cashflow Valuation (DCF): DCF method is one of the renowned methods which has been using by various valuation purpose since post-1960. It is the most suitable method which considers inflation over project life (Enever & Isaac, 2002). Reilly and Brown (2012) showed the usefulness of the DCF method in the valuation of financial assets. Pratt (1998) in his work showed that DCF base valuation is better valuation techniques as it considers the risk of investment in the discounting rate. The evaluation of DCF methods as stated in ancient times when money was given in lone at a certain interest rate. According to the demand of Babylonian and Egyptian mathematicians, they used first similar techniques to discounting the project cash flows.

This asset valuation method differentiated the value of an asset from its historical accounting book value. This method had gained its popularity in advance countries in valuating stock after the stock market crash (1929). DCF method was first formalized in our modern finance after the publication of the book written by Irving Fisher 1930 "The Theory of Interest" and John Burr Williams's 1938 "The Theory of Investment Value". The other commonly used terms of DCF is discounting earning method which proposes only operating earning flow for valuation purpose. But there have some differences between the two. In discounting earnings method earning from the assets are consider whereas in DCF only cash earning are consider. Actually Discounting earning method is a generalized method of DCF methods. Whatever may be the input but the basic motive of the approach is to determine the value of assets on the basis of the present value of future earnings, plus the present value of the terminal value of the assets. An appropriate discounting rate is used to discount the said earning and terminal value. In DCF methods future cash flows are considered whereas other valuation methods past cash flows are considered during valuation posses. DCF methods were suggested by many researchers as the most accurate and flexible valuation method (Fernandez, 2013; Koller et al., 2005). Damodaran (2005) in his work said the value of an asset is the present value of the future flows discounted with risk-adjusted rate. In his work with the help of DCF, he shows how present value and future value are related to each other. Money, time and risk are the three main elements of the DCF method. There have several methods in the DCF approach, with differences in the discount rate and cash flows. Fernandez (2007) in his work used four methods in the DCF approach which are economic value-added, equity cash flow, adjusted net profit, and free cash flow.

With the help of the following formulas, the value of assets is determined in DCF methods.

$DPV = \frac{FV}{(1+r)^n}$ where DPV means discounted present value, FV means a future value of cash flow, r is the discounted rate and n is the year of cash flow. If multiple years cash flows occurred then the above formula will be $DPV = \sum_{t=0}^{N} \frac{FVt}{(1+r)^t}$ .Here the future value of cash flows is converted in present value by discounting the reasonable rate. Inequity valuation model DCF methods use expected cash flow of equity in period n as an inflow of income and the cost of equity is used as a discounting rate.

Value of Equity $= \frac{\sum_{n=x}^{n=4} \text{Expected Cashflow to Equity in period n}}{(1+\text{Cost of Equity})^n}$

Sometimes in case of publicly-traded company equity is valued by dividend discounting model but the said concepts are the narrowest view of equity valuation. In broader concepts, free cash flow to owner means net cash flow left to equity after deducting capital expenditure, working capital and debt payment to an outsider. The value of the entire firm is determined by discounting the cash flows arise to equity and debt holder. The cost of capital is used there as a discounting rate.

Value of Firm $= \frac{\sum_{n=x}^{n=4} \text{Expected net Cashflow to business(NCFB) in period n}}{(1+\text{Cost of capital})^n} + \frac{\text{Terminal value of firm}}{(1+\text{Cost of capital})^t}$

Under the Gordon growth model present value of a firm or assets is calculated based on the assumption that the inflow of cash will grow at a fixed rate in year Y. Under this model the present value $= \frac{CFo\,(1+g)}{k-g}$. Here k and g is the cost of capital and g Expected long-term growth rate. CF_0 is cash flow in period zero.

(ii) Capitalization of Earnings Method: Capitalization of earnings method is one of the popular valuation approaches among the various income orientation approach of valuation. Under this approach, it assumes the value of a business or assets depends on the amount of future benefit arises from it. In this method, future cash flows or earnings

are capitalized with appropriate capitalized rates to arrive value of a firm. In this method, cash flows from the business are considered assuming all of the tangible and intangible assets are the key unit of a business. Under these methods only operating income and operating expenses are considered during measuring net earnings to the firm.

(iii) Multiple of Discretionary Earnings Method as a Relative Valuation Models: Business value estimation as multiple of discretionary earnings: In theory, the valuation of an organization, firm or a project is a straightforward matter done via the DCF method. But accurate estimation of a company or project's future cash flows and selection of discounted rates are too extremely difficult and critical in real practice. So many persons like to use valuation multiples for business or investment valuation purposes. Depending on the nature of company multiples are used to calculate the corporate value. Each and every multiple is not appropriate for all company Valuation. Although many studies use benchmark multiples for valuation an organization no multiple is uniformly accepted as the one on which to base valuation perpetually. Valuation multiples are club into the Multiple of Discretionary Earnings income-based business valuation method. The multiples which are calculated based on the financial and operational earning is known as earnings multiples. Tasker (1998) in her study found that industry-specific valuation multiples that are consistent with other multiples are more reliable in different industries' valuation work. Beatty, *et al*. (1999) in their work found that harmonic means of earnings multiples able to bring the best performance in the comparative valuation of firms. Baker and Ruback (1999) in his work found out relative valuation multiples are far better than absolute valuation techniques. He shows estimated valuation error is minimum in relative valuation multiple. Kim and Ritter (1999) in their

investigation found out that forward P/E multiples dominate all other multiples in valuation accurately. Hotchkiss and Mooradian (1998) in their work use enterprise value to sales multiple to evaluate value creation in acquisitions of bankrupt companies relative to non-bankrupt companies. In their work, they found a significant impact of the used multiple in the valuation work. In common there have some popular multiples used in business valuation is Price to Gross Revenue multiple, Selling price divided by business gross revenue, Selling price divided by business net sales, Selling price divided by cash flow, Selling price divided by gross profit, Selling price divided by the book value of business assets, Selling price divided by the market value of total business assets or fixed assets such as Furniture, Fixtures, and Equipment, Selling price divided by the value of owners' equity, Selling price divided by EBITDA, EBIT or net income (Kaplan and Ruback, 1989), etc.

Relative Valuation Models: For better or worse, most valuations are relative valuations, where a stock is valued based upon how similar companies are priced by the market? In practice, relative valuations take the form of multiple and comparable firms; a firm is viewed as cheap if it trades at 10 times earnings when comparable companies trade at 15 times earnings. While the logic of this approach seems unassailable, the problem lies in the definition of comparable firms and how analysts deal with the inevitable differences across these comparable firms. Da and Schaumburg (2008) found out within-industry, relative valuations implicit in analyst target prices do provide investors with valuable information; although, the implied absolute valuations themselves are much less informative. Liu, Nissim, and Thomas (2002) in their work examine which multiple explains the stock prices better. The study found out that forward earnings multiples are best and historical database multiples and cash flow base

multiples are poor. Liu *et al.* (2002) investigate their previous study over different countries. In this works, they examine the power of industry multiples to estimate observed share prices in ten countries. They found multiples which are based on earnings perform the best than those based on sales, dividends, and cash flow multiples. They also found after 1997 due to an increase within-industry heterogeneity in market valuations, the performance of multiples decline in estimating the stock price. Liu *et al*. (2007) try to investigate whether valuations based on earnings multiple are poorer than cash flow multiples. The sampling techniques and methodology were similar to those of their previous studies. They observe that share price is poorly explained by reported operating cash flows whereas reported earnings explained it better way. In India Sehgal and Pandey (2009) explore the behavior of price multiples from 1990 to 2007. They observe that the distributions of price-multiple tend to be normal during their study period. In their study, a very weak relationship was found between price multiples and their primary determinants. The study also found out that price multiples seem to be sensitive to market conditions and, therefore, it is generally higher in upturns with the exception of infrastructure-related sectors. There are many multiples that are used by value and analysis but if we want to use it properly then classification and categorization of the said are required. In general, broadly there have four types of multiples use to evaluate a business organization which are multiples of earning, multiples of book value, Multiples of revenues and Multiples of sector-specific variables. In the following paragraph, a brief discussion was done.

Multiples of Earnings: Price to Earnings (P/E): A lot of discussing on price-earnings ratio was done in the textbooks and literature (e.g., Palepu, Healey, and Bernard (2000), Damodaran (1996) and Copeland, *et al*. (1994)) but one interesting thing is that there are

too few research works done on this subject. While foreign works were done on all multiples, Indian work has been limited to P/E multiple only. Presently Historical earnings and cash flows earning base valuation have become most of the value estimation device. Boatsman and Baskin (1981) in their work found out that P/E multiples work accurately as value measuring tools when two comparable firms are selected from the same industry. They also pointed out that valuation mistakes increase when the corporates are chosen randomly and minimized when the corporates are selected depending on similarity. Alford (1992) examined the impact of P/E on the valuation of the company share price. He found out that over and undervaluation of P/E multiples decreases if corporate classification is done properly. Penman (1997) in his work used some earning valuation multiples which consider book value and earning simultaneously. Huang *et al.* (2007) in their work of the P/E anomaly segregate P/E multiple into fundamental component and residual component to find which part of P/E multiple helps to measure value batter. They pointed out that both macroeconomic factors and firm-specific internal factors determine P/E multiples. Irina *et al*. (2007) found out the uselessness of P/E multiple as value measuring techniques. They said in case of cross border valuations P/E should be restated as the nature of cross border economy are different. Gill (2003) in her study found that the historical P/E ratio, not a good measure always rather industry-wise average P/E ratio with some acceptable range are good for investment strategy. She also recommended using the EPS growth rate in the P/E ratio calculation for batter valuation processes. Dhankar and Kumar (2007) in their work use P/E of stock to valuate some portfolios where they found portfolio return had no consistency with P/E multiple. It was also observed that share price did not affect instantly with yield information of the corporate. Whatever the processes me be but in current practice, the P/E ratio helps to understand investors how expensive a share price

is relative to the earnings yield per share. P/E ratio is used as the fundamental valuation ratio which is used by an investor to rationalize stock prices. The P/E based valuation is an accounting-based historic measure of stock valuation. This form of valuation helps to evaluate long-term stock prices. In the present day, the analyst uses several types of EPS figures such as historic and forecasts to calculate the P/E ratio. To compute this P/E ratio annual EPS is divided by Stock price. Forward P/Es ratio is also used to evaluate a company value as the forward P/E ratio reflects the future growth of a company.

Multiples of Book Value: Price to book value (P/B) is one of the important valuation ratios which show the relationship between the market price of share and book value of a share. To arrive at P/B multiple, the market value of shares is divided by the book value of shares. This multiple or ratio is commonly known as the price to book value ratio. Chan and Chen (1991) in their work said that the P/B ratio helps to measure the production ability of a corporate. Ohlson (1988, 1995) in his work built the relationship between the accounting rate-of-return and P/B ratio and showed that company P/B ratio help to determine excess return of corporate. Feltham and Ohlson (1995) found out current and anticipated operating profitability is one of the determinants of goodwill as it is the difference between market and book value of a corporate. Bernard (1994) argues that the fluctuation in P/B ratios helps to determine future rates of profitability, but, he founds that there was no significant relationship between subsequent rates of profitability and the P/B multiple if profitability is controlled. In their work Farma and French (1992) found out that the P/B multiple can explain the deviation of corporate returns as like market beta does which implies that there was a correlation between the P/B multiple and risk. They also suggested that the profitability of corporate is highly correlated with

the firm's P/B ratio. Penman (1996) in his study showed that anticipated future return on equity can be measurable by P/B multiple.

Multiples of Revenues: A revenue multiple helps to measures the corporate value or value of equity depending on the revenues that it generates. Like the other multiples, other things remaining the same, firms that are traded at low multiples of revenues are considered as cheap firms relative to the firms that are traded at high multiples of revenues. In recent years, the numbers of firms in the market with negative earnings (and even negative book value) have valued depending on the revenues multiples techniques valuation. Some of the multiples of revenues are the price to sales and corporate value to sales.

Multiples of Sector-Specific Variables: Some sector-specific multiples are also used to evaluate a corporate. For example, cable companies divide their market value by the number of subscribers to arrive at a valuation multiple, value to subscriber ratio and on the other hand a power company dividing the market value of corporate by the Kilowatt-hours of Power Produced. The said multiple is known as the value per kWh. In general, value and analysts use conventional practice to use some specific multiples to evaluate specific sector firms. For example, retail firms are evaluated by revenue multiples, heavy infrastructure companies are evaluated by enterprise value to EBITDA multiples, price to book value multiples uses for valuating financial service firms. Kaplan and Ruback (1995) analyze the valuation methods of the DCF approach for highly leveraged transactions that were reasonably well but EBITDA (earnings before

interest, tax, depreciation, and amortization) multiples also bring valuation of corporate accurately.

2.5.2. Market-Based Business Valuation: Market-based business valuation Market-based business valuation is a process of corporate valuation where the value of a firm or corporate is determined on the basis of marketable value of a similar business. Basically, there have two types of market-based business valuation processes which are comparative transaction method and guideline publicly traded company method. The market value of a corporation under a comparative transaction method is determined by what a buyer has paid to purchase a similar company assuming both parties enter the transaction willingly. When assets or corporate are traded on an exchange, the two parties (buyers and sellers) determine the market value of the said object.

2.5.3. The Asset Approach to Valuing a Business: The Asset approach of corporate valuation is a process where the value of firms is determined on the basis of the value of its assets. In this method, total liabilities are deducted from the fair market value of its assets (Damodaran, 2005; Fernandez, 2013). The asset-based approach was defined in the International Glossary of Business Valuation Terms as "a general way of determining a value indication of a business, business ownership interest, or security using one or more methods based on the value of the assets net of liabilities." An asset-based approach of valuation method an analysis considered the economic worth of corporate tangible and intangible assets, recorded and unrecorded assets in excess of its outstanding liabilities. This method is generally used for a weak performing corporate or for an insolvent company. In this method, both individual assets and companies are considered during valuation. There have two approaches under this valuation approach

which are the Book value method asset accumulation method and Adjusted net asset method.

(i) Book Value Method (Asset Accumulation Method): Under the book value method of valuation techniques owners' value of the fund is determined by the difference of the total book value of the company assets and external liabilities. In spite of these methods having limitations, the concept has been accepted among the business community. According to generally accepted accounting principles (GAAP), it is generally accepted the convention that most of the assets are recorded at historical cost by deducting accumulated depreciation and cumulative impairments. Similarly, most long-term liabilities are recorded in historical costs. Though in the present day accounting profession did not like to consider it as current values of an asset or liability. Moreover, GAAP does not give any procedure of measuring the value of internally generated assets such as trademark, goodwill, patents, etc. which create difficulty in measuring the value of equity or value of a business. So this method does not give a valid measure of company value. Despite this limitation, the measure is frequently used in the buy and sale agreement. In a nutshell, the book value of the corporate is the difference between the value of the total assets and liabilities. In other words, the book value is the shareholder's equity (capital and reserves) (Fernandez P., 2013). The value which is presented in the balance sheet is used in this method. Book value (shareholder's equity) = total assets - total liabilities.

(ii) Adjusted Net Asset Method: The adjusted net assets base valuation is a sound method for estimating the value of holding or investment companies. It is also a general use valuation approach for estimating the value of a corporation that continues to

generate losses or which will be liquidated in the near future. This method of valuation has three premises for valuating a corporate. The three premises are Replacement Cost Premise, Going Concern Premise and Liquidation Premise. This method is used to value a business based on the difference between the fair market value of the business assets and its liabilities. Depending on the underlying situation the said valuation method uses the replacement or liquidation value of the net assets (assets minus liability). Under this method, valuer adjusts the accounting value of the assets to its fair market value (generally measured as the liquidation or replacement value) and then book value of assets recorded and unrecorded liabilities are replace by the fair market value. This method of valuation can be used to calculate a total value for the corporate or for parts of the corporate. When corporate goes to liquidation these methods use "floor value" for determining corporate value. In going concern concepts value of assets is determined on the basis of controlling the owner who willing to take the company. This approach is applicable when the assets are underperforming and the value of the corporate would be more than the liquidation value but less than the adjusted net assets value. The negative aspect of this valuation method is that it does not consider the operating yield of the corporate. Therefore, the said method would be inappropriate to evaluate intangible assets, such as goodwill, copyrights, patents, etc. which is generally valued based on operating earnings (e.g., royalties). The replacement cost methodology may be utilized in determining the values of certain intangibles assets such as patents.

2.6. Risk and Value: The discussion of value and risk is a commonly known matter. In conventional valuation methods such as DCF and relative valuation method value of a firm, assets, or project is determined by considering the risk factor. In DCF method value of a project or assets or corporate is determined by discounting cash flow generated by it

whereas in relative valuation method value of an object are determined by viewing similar object market price. In the below discussion I will discuss how risks are considered during valuation processes.

Risk Adjustment in Discounted Cash-flow Models: The use of risk factors in finance becomes popular after the work of portfolio theory done by Harry Markowitz. After his work, risks factor become one of the determinant factors for any financial decision or valuation processes of a corporate or a project. In conventional DCF model Risk factors are used in discounting rate for valuation of any project or assets or corporate whereas in equity valuation model risk factor-beta is adjusted in costs of equity. In the firm's valuation model risk is adjusted in the overall cost of capital. In a firm valuation model debt-related financial risk is incorporated in the overall cost of capital of a company. For riskier firms cost of debt is higher than less risky firms. The debt-equity ratio will be a function of risk and the default risk of a firm will increase if debt-equity increases. In the case of equity valuation cost of equity increased by exposure to market risk but unaffected by the unsystematic risk of a firm.

2.7. Risk Management and Value:

In recent times risk management has been one of the interesting fields of research. The reason behind the interest is that the firm tries to maintain its business performance or value by managing risk with different risk management techniques. So the question arises among the researcher whether risk management can really helps the firm to manage its performance or value well. Based on the different literature (Campbell, 2008) risk management defined as a process of identifying, analyzing and assessing risks related to organizations' opportunities and threats. According to the work of Andersen (2008) risk management means the application of some specific techniques which help to

reduce the adverse effects of risks generated either from the macro environment or micro environment. Staveren (2006) defines risk management as a way that deals with the organization's risks and acts as a tool to the link between hard and soft systems. Rosta (2008) defines risk management as an effective operating activity that helps a corporate to avoid failure. Veysey (2008) said risk management is a set of models and principles which help the corporate to archives its goal. According to Molak (1997), risk management is a methodology that assesses the risk of negative effects due to physical and chemical factors, technological and industrial processes, and natural processes. Condamine *et al*. (2006), state that risk management is an ongoing process of decision-making that contributes to reducing the effects of risk to a level that preserves the corporate through documented external and internal controls. Clubbing the definitions above, risk management can be defined as an integrated approach containing a set of interrelated job designed to enable corporate to reduce or manage risk, and minimize its negative effects as much as possible.

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