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Understanding and Measuring Risk in Finance

Simanta Das

Assistant Professor, Kaziranga University, India

Abstract:

There are various uncertainties in Finance. All these uncertainties constitute risks. Risks are of various kinds and they are present in a financial system in different types and form. Risks can be classified into various categories based on their types. Measuring risk is also important from research point of view and hence this paper touches upon all aspects of risks.

1. Introduction

Usually in an investment no one knows the exact rate of return, the uncertainty of the rate of return is called risk. The uncertainty could either offer a large return on the investment or cause the loss of capital. Risk possesses both gaining and losing opportunity, so higher risk means either higher gain or higher loss.

Some peoples are risk-averse, they do not want to take any additional risks and others do take calculated risks. In finance investors look for an additional compensation in case they find the investment riskier (Lewis & Thomas, 1992:33-39). There are different kinds of risks for an investment business and financial risks are generally based on the investment. Other factors, such as the whole economic condition, environmental and industry situation, are general risks and almost all the investments have to suffer from it.

Frank (1989) presents a very interesting example of the different type of risks: An investor who has invested in a new company would be worried of the default risk, as many companies fail in their initial years. Similarly the fluctuation in the price is the worry of the investor investing in the stock market. Diversified investor is worried about the overall market risk. However, non-diversified investor possesses both market and other specified risks for that particular portfolio. Finally a security investor possesses exchange rate risks for their investment.

2. Measuring Risk

Risk is measured in terms of the total return, both income and capital gains. According to Lewis & Thomas (1992), while measuring the risk of an investment, the degree of uncertainty present in a given situation is measured. In this chapter some common techniques to measure risks across different classes of investments are discussed.

Computing standard deviation of a variable distribution of possible values is a widely used technique to measure risk. If the distribution is found to be widely dispersed then the standard deviation will be higher, which means that the chances of the variable being closer to the expected value would be faint. Therefore, the higher standard deviation means higher fluctuation in the expected value, thus higher risk. On the other hand if the distribution is not dispersed widely, the standard deviation would be lower. As the result value will not be fluctuating a lot from the expected value which insures lesser risk. (Timothy and Joseph, 2003:162-165).

As the size of the different companies cannot be exactly the same it will not be possible to compare their risks calculated by standard deviation. Therefore, another technique which measures the relative risk must be used. According to Timothy and Joseph (2003:168-169) the coefficient of variation (CV) is used to compute the relative risk by relating standard deviation with mean. The co-efficient of variation computes the standard deviations percentage of mean, which makes it possible to compare the risks of different entities regardless of their size.

3. Types of Risk

3.1. Business Risk

Business risk is the uncertainty a company possesses with its Earnings before Interest and Tax (EBIT) also known as operating income. The higher the uncertainty of a company's operating income, the higher the risk. Operating income is calculated by decreasing the operating expenses which include the cost of goods sold, depreciation and other operating expenses from the total revenue generated in the firm. As the business factors like sales, variable expenses and depreciation is not the same for the different accounting periods, business risk occurs. According to Frank (1989:455-458), as the volatility of the earning series over the time cannot guarantee a fixed future earning business risk arises in an entity. Calculation of business risk is done by taking the historical earning series and computing the coefficient of variation of the operating earnings done in the previous years.

According to Charles and Patricia (1983) sales volatility and operating leverage are the two factors that affect the business risk. Sales volatility is the major factor determining the operating earnings volatility. Sales is affected by the factors like advertising, pricing overall economy, consumers buying behavior and a lot of other factors, which is out of control of the management. Sales volatility can be calculated by the coefficient of variation of sales for a given specific time period.

Operating leverage is affected by unpredictable operating earnings of the company which is caused by the fixed cost. The fixed production cost mean the operating profit will vary more than the sales. In case of an economic boom, the percentage of profit is far higher than the percentage increase in sales. Similarly in bad economic situations profit will decline more than the sales do. This situation is because the fixed cost will be the same all the time.

3.2. Financial Risk

Earning before tax is the result of interest and/or amortization subtracted from the earnings before interest and tax. The additional uncertainty created by the debt obligations in a company is known as the financial risk. If a company does not have any debt obligations then they will not have any financial risk. Financial risk is calculated by subtracting the coefficient of interest expenses from the coefficient of operating earnings (Timothy and Joseph 2003:172).

3.3. Other Risks

Market risks, industry risks, overall economic situations are the other major risks which are far more unpredictable. No one knows exactly if there will be economic recession or economic boom in the future. Natural disasters or even a security threat can make a huge difference in the future market price. Similarly the whole industry could be affected by new technology or with new rules and regulations.

4. Economy

Economy and the stock market have a direct relationship. Looking at the current and future economic predictions the investors looks forward to invest their assets. According to Chordia, Sarkar & Subrahmanyam (2005), negative information usually shocks the stock market and as a result investors opt for safer assets. Investors are very sensitive towards any major events or news as a result fluctuation in the stock price can be seen immediately after any major events. Similarly, inflation is another factor that has one of the biggest impacts to change the future value. If investors see a booming situation then they invest most of their assets whereas an unpromising economy forces the investors to keep their assets in the safer side. For example Swaminathan & Chordia's article published in the Journal of Finance in the year 2000 demonstrates the auto-correlations between trading volume and the stock return. Likewise the basic economic rule of demand and supply also significantly influences the stock prices. If many investors prefer to buy a particular stock then the value increases on the other hand if many investors are willing to sell their stocks then the stock price falls.

5. Market Risk

The market factors affecting the future value of an investment bring market risk into play. Interest rate is one of the major market risks of an investment. For instance an announcement to decrease or increase the interest rate would make major changes in the future price of an investment. The currency market is another factor that comes under market risk. As most of the public companies trade worldwide and their products have foreign customers, it is obvious that they would also face the currency exchange risk which can be very costly for a company.

Unpredictability of the future price of the commodities like oil, steel, gold which has a direct correlation with the overall economy also adds to the market risk of an investment. For example Alam & Uddin (2009) explored empirical evidence between the relationship of interest rate and stock price and they found out: "*Changes of interest rates have negative relationship with changes of share price*".

6. Industry

Industry refers a group of companies working in the same field, having same or similar products and/or services. The industrial environment is a major risk for the outcome of the future value of an investment. All the industry has their unique risk factors; some of the industries have higher risk whereas others have lower risks. The difference in return rate, technologies used, research and development done in the industry, competitor industries are the major factors that affect industry risk. (Foster, 1978).

7. Relating Risk and Return

Ideally, an investor would be looking to make a balanced approach to the possible risks and the average rate of return on an investment. Different investors have different ways of dealing with risk and the gaining opportunity. Some investors are risk averse and as a result they get very low rate of return whereas others take risky investment decisions and end up gaining a higher rate of return.

It is the investors own choice to either look for an investment with higher rate of return or look for a safe one. Investors depending upon their resources can invest in domestic stocks or international stocks, worldwide bond market, emerging market, real state and several other possible investment opportunities.

One way of achieving a balance between risk and return could be a well-diversified portfolio. There are several models relating the risk and gain of an investment. Capital Asset Pricing Model (CAPM) is one of the famous models to access risk with gain. According to Timothy and Joseph (2003:181) CAPM is used to determine the required rate of return for assets if it would be added to a well-diversified portfolio, assuming the asset does not have a diversifiable risk.

8. References

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