BUSINESS FINANCE ASSIGNMENT

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Introduction:

In the high competitive word, the main aim of many companies is to maximize their return and minimize the risk of the investment. As per the report of Online Sales Industry Outlook (2015) by Criteo, the global e-commerce saw an impressive growth in 2014 with goods and services worth $1.5 billion. The advertiser's increases spending on the proportion of their marketing budgets on internet advertising. It is essential to decide the amount of risk the company can take while remaining comfortable with the investments.

The higher the risk, the higher return is the general understanding of many businesses. However, it is not a necessity because the risk means higher potential return as well as higher potential of the losses. In the essay the learner analyses the risk and return relationship of various online sales company considering the CAPM model. For analysis total ten companies were selected- NASDAQ, Amazon, Amer.woodmark, 1-800- Flower.Com 'A', Book-A- Million, Costo Wholesale, EBay, Stamps.Com, United Online, Livedeal And Panera Bread 'A' which deals in online sales business. The main issues of the study relates to the criticism of the CAPM model. The Beta value preferred generally by the companies is based on proxy and this made the assessment of actual risk related to investment difficult.

Literature Review:

The literature review describes the concept of risk and relationship of the risk and return explaining the concept of the models. Many historical philosophers and management professional have enlightened the concept of risk and return relationship. The risk return relationship enables the business to assess the potential of the company by considering the assessment of their investment projects. The study considers the CAPM model besides Single Index Model. As stated by Alquier & Biau (2013 the CAPM model is evolved from the criticism of the single index model.

Single Index Model

The single index model is a simple asset pricing model that is used to measure the risk and return of a stock and commonly used in the finance industry.

Lopez (2009) stated the main assumption of this model is that most stocks have a positive covariance because they all respond similarly to macroeconomic factors. However, some firms are more sensitive to these factors and the firm-specific variances is typically denoted by its beta β which measure its variance compared to the market or one or more economic factors.

CAPM model

According to Gaiffas & Lecue (2010), the Capital asset pricing model (CAPM) describes the relationship between the expected risk and expected return. This model is also used in the pricing of risky stocks and securities.

The various assumption and implications of Capital Asset Pricing model stated that:

- Security markets are perfectly competitive: there are many small investors and all the investors are price takers.
- Markets are frictionless means there are no taxes or transaction costs
- The investors are myopic means all investors have only one and same holding period.
- The investments are limited to publicly traded assets with unlimited borrowing and lending at fixed rate: asset excludes human capital is not the part of investment opportunity set.
- The investors are all rational mean-variance optimizers referring that everyone uses the Markowitz portfolio method.
- They markets are served with perfect information that means all the investors have the same access to information and all the investors analyzes the information in a similar manner.
- Everyone in the market has quadratic utility or has homogenous beliefs concerning the distribution of security returns that means everyone uses the same estimates of expected return and the same variance covariance matrix (Khan *et al*. 2012).

In addition to the above assumptions there is no transaction cost, no personal income taxes and no inflation in the economy.

The derivation of the capital asset pricing model is represented as follows

$$E(r_i) = rf + \beta(rf - rm)$$

Where E (ri) = return required on financial asset, rf= risk-free rate of return β = beta value for the financial asset i and E (rm)= average return on the capital market.

For the analysis purpose β value is calculated through regression analysis. In the regression analysis, the slope of the intercept gives the β value.

However, there are various criticism of the CAPM model which includes

- The commonly accepted rate used for the rf is yield the short term government securities causing changes in the stock price.
  For instance if the stock price of any organisation is low and the return on short term government securities is also low investors may not invest in the particular corporation considering it as low profile for actual yield.
- The return on market is influenced by the capital gains and dividends of the market and the return are backward-looking and may not be representative of future market return.
- The model is based on the assumption that strongly pictures the unrealistic real world.
- The beta value used in CAPM model is generally proxy based and does not assess the risk related to the projects

Background of the industry

In the Retail Industry according to Hanif & Bhatti (2010), the overall online retail shopping values at $171. 12 billion in the financial year ended 2010. The results shows that consumer are seeking greater value in their purchase, greater variety voices of goods, widespread usage of online products and services, increasing level of sophistication and comfort amongst consumers' across all age groups. Hui & Christopher (2008) stated that in terms of economy. In the words of Eatzaz & Attiya, (2008), with the expansion of the increase in demand of products and services the main aim of the industry is to deliver the products and services timely to the customers or consumers across the country.

The report also declared that during the period of recession the retail industry of UK was affected severely. The factors which affect sales are people's purchasing ability and willingness to spend. During recession due to the downfall in the disposal income and customer spending the retail sales was declined to 3 percent in year 2009. This resulted in the decline of profitability for many retailers as the promotional expenses were huge. However with the optimism as the strategy the industry is planning to recover with several ways.

The various segments of the retail industry include mega mall retail stores, wholesale business owners and small distributors. In recent years, the retail industry also added a new segment, the online sale market. The online sale market general deals with tangible goods rather than intangible services. The goods are delivered to the customers at their door step. This market made the use of internet technology and deals with customer via computer, laptops and mobile phones. Leung & Arnt (2015) stated that e Commerce in the boon in the retail industry and has consistently outperformed because most consumer are valuing low and transparent prices for the good and services.

Results from the Analysis:

The beta analysis of a stock determines the riskiness of the individual stock. Beta can be calculated either through regression analysis or through the method of covariance.

In the regression analysis the market returns and the expected returns of the individual stock. The intercept determines the beta value. Beta is considered to be the measure of volatility of a particular stock. The market beta value is 1 and the deviation of the individual stock from the market beta value determines the movement of the stocks in the market. If the beta value is found to be more than one then the stock is more deviated from the market. On the other hand, if the beta value of the individual stocks is less than one then this imply that the stock moves lesser than the market.

Higher beta value implies that the riskiness of the stock is very high and lower beta values imply that the stocks have low risk. However, since there exist a linear relationship between the risk and the return of the stock, higher return is expected with higher beta values. In other words, the higher the risk involved in the individual stock higher will be the market return.

In this assignment, learner has calculated the beta values of **10** companies from the **online sales** sector. The **historical prices** of the 10 companies listed in the **NASDAQ** stock exchange has been considered from the period **1ˢᵗ January 2001** to **31ˢᵗ December 2013**. The time period has been divided into three parts:

- 1ˢᵗ January 2001 to 30ᵗʰ June 2007
- 1ˢᵗ July 2007 to 31ˢᵗ December 2009 and
- 1ˢᵗ January 2010 to 31ˢᵗ December 2013

The expected return and beta of the individual stocks have been calculated for the three time periods. The learner considered the monthly data of the individual stock prices and calculate beta with the help of regression analysis.

The analysis of the beta for the individual stocks is given as follows:

Companies	Beta 1	Expected returns
Amazon	-0.002595296	0.0236
Amer.woodmark	-0.00303054	-0.00164
1-800-FLOWERS.COM 'A'	-0.004847617	0.01249
BOOKS-A-MILLION	-0.005549447	0.0063
COSTCO WHOLESALE	-0.006066546	0.037
EBAY	-0.006066546	0.00475
SENECA FOODS	-0.006345959	0.0252
STAMPS.COM	-0.006812782	0.0213
UNITED ONLINE	-0.00683586	0.0086
LIVEDEAL	-0.008145046	0.0273
PANERA BREAD 'A'	-0.017448614	0.0218

Table 1: for highest beta and corresponding returns

The table 1 shows the beta value and the corresponding expected returns of the 10 companies chosen from the online sales sector considering the period 1ˢᵗ January 2001 to 30ᵗʰ June 2007. The companies having highest beta values are on the top. Thus, the beta values declines as one goes from top to bottom of the above table. It is clearly observed that the **Amazon** has the

highest beta value, though it is lower than the market beta value which depicts that Amazon's stock proves show lower deviation from the market. The corresponding return of Amazon is 0.0236. Thus, with highest risk, the market return of the stock is higher. However, Livedeal has the second lowest beta value but it has the highest expected market return. Thus, in this period, even though investing in the Amazon stock prices were highly risky with more than moderate return, the investment in the Livedeal stocks prove be the best investing option as it has lower risk and highest return. Thus the risk averse individual would be highly benefitted by investing in the Livedeal stocks.

The second tables show the relative risk and the expected return of the same companies in the time period 1st July 2007 to 31st December 2009. The analysis of the risk return trade off between the companies is done as follows:

Companies	beta 2	Expected return
PANERA BREAD 'A'	0.01153469	-0.05105
BOOKS-A-MILLION	0.00554343	0.0193
SENECA FOODS	0.00497618	0.00049
STAMPS.COM	0.00473988	-0.00065
Amazon	0.00473834	0.0197
Amer.woodmark	0.00471288	0.0369
EBAY	0.0043434	0.0079
LIVEDEAL	0.00062561	-0.012
UNITED ONLINE	0.00032875	0.03013
COSTCO WHOLESALE	-0.0007955	0.00202
1-800-FLOWERS.COM 'A'	-0.0096368	0.0143

Table 2: for highest beta and corresponding returns

From the above table it is evident that PANERA BREAD A has the highest risk of 0.0115, which is lower than the market value of beta. This implies that the stock has been deviating less with the market trend. The previous period dealt with Amazon being the riskiest stock. But in this period Amazon's risk is decreased but not to a very high extent. The corresponding expected

return of the riskiest stock that is of the PANERA BREAD is the lowest. Thus, investing in the PANERA BREAD stocks would give the lowest return. Amazon, on the other hand, has moderately high risk and moderately high return. The highest return is attained by investing in the stocks of Amer.woodmark. However, the riskiness of the company is moderately higher but lower than that of Amazon. Thus the risk lover would invest in the Amer.Woodmark to attain higher return.

The third table show the relative risk and the expected return of the same companies in the time period 1st January 2010 to 31st December 2013. The analysis of the risk return trade off between the companies is done as follows:

Companies	beta 3	Expected returns
PANERA BREAD 'A'	0.016448	0.004554
BOOKS-A-MILLION	0.012966	0.0262
SENECA FOODS	0.011275	0.0279
STAMPS.COM	0.00992	0.0156
Amazon	0.009236	0.0205
Amer.woodmark	0.009137	0.0093
EBAY	0.007285	0.012
LIVEDEAL	0.006664	0.013
UNITED ONLINE	0.005967	0.0222
COSTCO WHOLESALE	0.003641	0.012
1-800-FLOWERS.COM 'A'	0.003558	0.0347

Table 3: for highest beta and corresponding returns

In this period, the PANERA BREAD continues to be the riskiest stock with relatively higher return as compared to the previous period. However, the riskiness of Amazon has declined sharply yielding moderate return from its stock prices. The 1800-Flower.com remains to be the lowest risky stock yielding highest return. Thus risk averse individuals will be highly benefitted by investing in this stock.

The next set of observation depicts the stocks yielding highest return with its corresponding associated risk. The following table shows the return and risk in the first period.

Companies	Beta 1	Expected returns
COSTCO WHOLESALE	-0.00607	0.037
LIVEDEAL	-0.00815	0.0273
SENECA FOODS	-0.00635	0.0252
Amazon	-0.0026	0.0236
PANERA BREAD 'A'	-0.01745	0.0218
STAMPS.COM	-0.00681	0.0213
1-800-FLOWERS.COM 'A'	-0.00485	0.01249
UNITED ONLINE	-0.00684	0.0086
BOOKS-A-MILLION	-0.00555	0.0063
EBAY	-0.00607	0.00475
Amer.woodmark	-0.00303	-0.00164

Table 4: for highest return and corresponding beta

The above analysis depicts that COSTCO WHOLESALE yields the highest return with highest risk involved in it. The risk averse investors would choose to invest in this security because it has the highest return with lower risk. The Amer.Woodmark would yield a very low return with very low risk. Amazon will yield moderate return with moderate risk. The risk lovers will invest in the risky securities that in this case in PANERA BREAD A which yields moderate return.

The next table shows the data relating to the expected return and the risk in the next period.

Companies	beta 2	Expected returns
1-800-FLOWERS.COM 'A'	-0.00964	0.0369
PANERA BREAD 'A'	0.011535	0.03013
Amer.woodmark	0.004713	0.0197
BOOKS-A-MILLION	0.005543	0.0193
Amazon	0.004738	0.0143
EBAY	0.004343	0.0079
COSTCO WHOLESALE	-0.0008	0.002
UNITED ONLINE	0.000329	0.00049
LIVEDEAL	0.000626	-0.00065

SENECA FOODS	0.004976	-0.012
STAMPS.COM	0.00474	-0.05105

Table 5: for highest return and corresponding beta

The 1800-Flower.com yields highest return with very low risk investing in these securities would be the best as it yields highest return. However, the market returns in this period in 0.00154 which is much lower than the individual stock return of 0.037 in this period. PANERA BREAD has the highest risk associated with moderate return. Thus, this will benefit the risk lovers because the CAPM model states that the securities with higher risk will yield higher return.

The next table shows the highest return and the risk associated with the securities in the last period.

Companies	beta 3	Expected returns
PANERA BREAD 'A'	0.006664	0.0347
UNITED ONLINE	0.007285	0.0279
STAMPS.COM	0.012966	0.0262
1-800-FLOWERS.COM 'A'	0.003641	0.0222
BOOKS-A-MILLION	0.016448	0.0205
EBAY	0.005967	0.0166
COSTCO WHOLESALE	0.003558	0.0156
Amer.woodmark	0.009137	0.013
Amazon	0.00992	0.012
SENECA FOODS	0.009236	0.0093
LIVEDEAL	0.011275	0.004554

Table 6: for highest return and corresponding beta

The third period depict PANERA BREAD A yielding the highest return and LIVEDEAL yielding the lowest return. However, the stock return for the associated securities is higher than the market return. In the third period, the return from the Amazon shows a sharp decline. On the other hand, the riskiness of the Amazon securities is also observed to decline. Stamps.Com had least return in the previous period but it rose up to a level yielding the third highest expected return.

Discussion on the issue in connection with the literature:

The CAPM model is one of the best models to be considered while calculating the risk and the expected return of a security. The CAPM model helps in analysing the riskiness of the security in respect to the market risk. This analysis helps the investor in deciding upon the companies in which the investors wants to invest. The risk averse, the risk lovers and the risk neutrals consider different factors while investing in the securities. The CAPM model helps the investors in determining the risk and the associated returns.

However, Bugeja & Czernkowski & Moran (2010) is of the view that the CAPM model is based on certain assumptions which are considered to be unrealistic. The assumptions of the CAPM model is that the investors hold diversified portfolios. It means that the investors would require return on the systematic return but in practice the unsystematic risk is also considered while calculating the return from the securities. The unsystematic risk arises out of the inflation rate and sudden changes in the market.

Secondly, the other assumption is that the CAPM model calculates the risk and return of the securities in respect to a single period. However, the risk and return of a month cannot be compared to that of the whole period. This is because the market return and risk changes over time due to change in the markets trends. (Capital Asset Pricing Model, 2009)

Thirdly, Carlina & Mayerb (2009) is of the view that the CAPM model assumes a perfect capital market that is all the information regarding the securities are readily available to the investor. However, in practise, the data information is not readily available. Even if the information's are available, the data is filtered. That is the prices of the stock do not consider the taxes or the transaction costs. This information is not true and this creates a lot of difficulty in applying CAPM model in the calculation of the risk and return of the securities.

Fourthly, the assumption that there exists a risk free rate on interest is not true. The model also reveals that the investors hold market portfolio. However, it is in practical not possible for an individual to hold the whole market portfolio as it is very expensive and difficult as well to hold the whole market portfolio.

Conclusion:

The learner in this essay explained the concept of risk and return relationship stating that businesses make use of this concept to analyze the risk associated with the investment and the yield of the business. The literature review displays the models of risk return relationship- Single index model and Capital Asset Pricing Model (CAPM). The learner also stated the assumption and criticism of the models. The learner uses the CAPM deviation formula for ascertain the risk associated with the investment. While analysing, the learner critically evaluated the risk factor of ten companies using the beta value of the CAPM model. The issues also critically analyses the issues mentioned in the literature review.

With the help of analyses the learner presented the real scenario. The learner analyses that the securities with high risk yield higher return and vice versa. However, the application of the CAPM model in determining the risk and the return associated is difficult because of the assumptions of the CAPM model which is unrealistic in the practical world.

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