

Internship Report

Performance Analysis of Banks

Course Code:

BUS 400

Submitted to:

FAIRUZ CHOWDHURY

FACULTY, BBS

BRAC UNIVERSITY

Submitted by:

REDANUR RAHMAN

#12104060

Date of Submission:

January 24th, 2015

TABLE OF CONTENTS

TABLE OF CONTENTS.....	2
INTRODUCTION.....	3
OBJECTIVES	4
RESEARCH METHODOLOGY	5
LITERATURE REVIEW	5
Jensen’s Alpha.....	6
R-square	7
Beta	8
FINDINGS.....	8
Sharp Ratio and Treynor’s Ratio	10
CONCLUSION & RECOMMENDATIONS	10
REFERENCES.....	12

INTRODUCTION

The stock price of a company is an important determinant for state of affairs of the company. It is also important for not just the company itself but for its shareholders, investment bank, corporations and the government at large. A good prediction methodology for how stock prices can hence be extremely beneficial. Another important determinant of the company's progress over its lifetime are the Security market line which we have done for two years. Here, the expected returns, the standard deviations of the stocks and the Security Market Line has been calculated and illustrated. Each explains the difference in the performances of the banks' stocks. How good or poor they are performing in the market.

Therefore, to calculate the Security Line, we have summed up:

- R_e less R_f
- R_m less R_f

Then, we are going to find the Jensen's Alpha and R-Squared which gives an indicator that applies the concept of Jensen's alpha to individual bank's performance and measure how close the data are to the fitted regression line respectively. This allows us to quickly rank and search for stocks that are currently generating positive or negative alpha.

Sharpe Ratio

Sharpe ratio is calculated by market risk premium divided by the market risk. Market risk return is calculated by finding the difference between average individual market return and the risk free monthly market return. To find the Sharpe ratio, we need to estimate the monthly risk free rate. This, we calculated by taking the annual returns for the last 5 years and convert them to monthly returns.

Risk-free return: Annual Return = $(1 + \text{Monthly return})^{12-1}$

Treynor Ratio:

Treynor ratio is a risk adjusted measure of return based on systematic risk. But it is different from Sharpe Ratio, because it uses beta instead of the standard deviation. This ratio relies on beta which measures an investment's sensitivity to market movements and risk. Treynor Ratio is also

known as the “reward to volatility ratio”. A good investment always yields a higher Treynor Ratio which says that it will generate the best risk adjusted return.

Treynor Ratio = (Average Individual market return – risk free monthly market return) / Beta of individual stock)

OBJECTIVES

In this report, we have looked into the average return, standard deviation of the banks and found out the Beta, also found out the Sharp ratio and Treynors ratio to see the similarities and dissimilarities in the results between these two ratios. Another important area was to see that implying the ratios in which banks we could invest and which has the minimum risk with greater return.

RESEARCH METHODOLOGY

First, we have chosen six banks to see the performance standard between these banks and also to see which one gives more return when the market is good and which one to invest when the market is poor. The banks we have chosen are the most popular banks in Bangladesh. We have selected the Eastern bank, BRAC bank, city bank, Dutch Bangla LTD, AB bank and Jamuna bank. Then we have find out the historical returns of four years of these banks. Then From the four years data we got the average return which is the expected return. We also got the information of the risk free rate from the website of Bangladesh Bank. Furthermore, we have also calculated the market return of four years. We collected the monthly index and from there we have used a formula to find out the return and the formula is $\{(recent\ months\ closing\ price - previous\ months\ closing\ price) / previous\ months\ closing\ price\}$ Now, we wanted to see the graph results by placing the (expected return – risk free rate) on the vertical axis and by placing the market risk premium (market return – risk free rate) on the horizontal axis. We actually did this with the help of excel and later we get the graphs from where we have found out the equation and the value of R square. Interestingly the result we got from the equations gives us the negative result for jens alpha.

LITERATURE REVIEW

Risk-free rate

The CAPM assumes that a zero risk investment exists, although virtually every investment is exposed to inflation risk. Models have been developed that match short sales with long positions in such a way as to provide positive returns with zero risk. However, the 1998 insolvency of Long Term Capital Management, whose partners included some of the most prestigious professors of finance, dampened academic and practitioner appetites for the effort to achieve returns with zero risk. Consequently, the Treasury bond rate continues to be used most widely as a proxy for the zero risk investment. (“Financial Statement Analysis and Business Valuation for the Practical Lawyer - Robert B. Dickie - Google Books,” n.d.)

Capital Asset Pricing Model (CAPM)

One of the basic tenets of finance is that riskier assets should have a higher expected return, as investors would not be willing to take on the additional risk unless they were rewarded

appropriately. A common goal of many investors or traders is to generate as high a return as possible with the least amount of risk taken. Many different measures can be used to determine a portfolio's risk-adjusted performance, including Jensen's alpha, the Sharpe Ratio, and the Treynor Measure. Jensen's alpha, or ex-post alpha, is determined by taking the current portfolio return and subtracting the expected return according to the Capital Asset Pricing Model (CAPM).

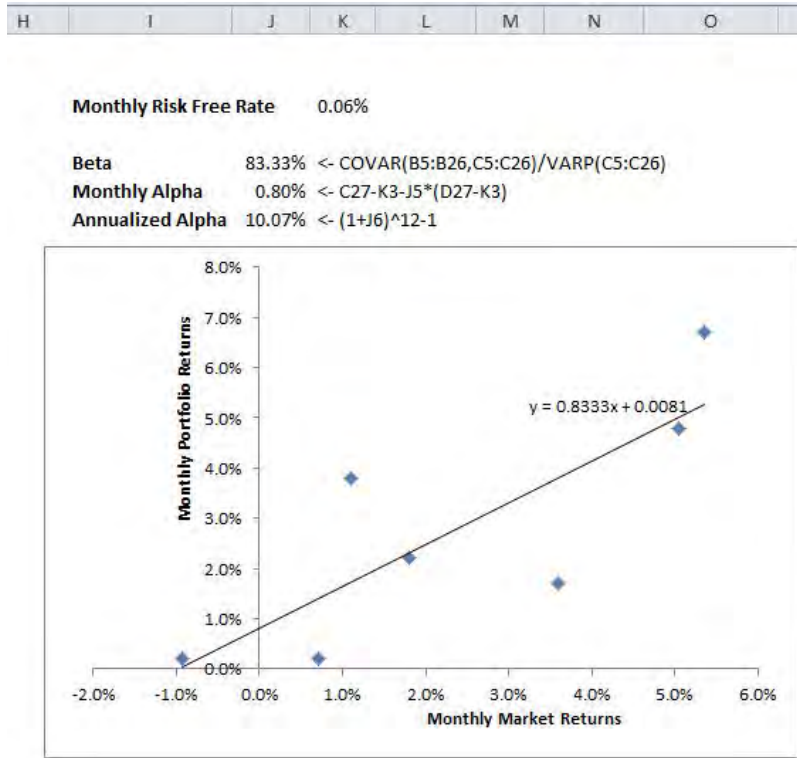
In this Trade Station Labs Analysis Concepts paper, we will introduce an indicator that applies the concept of Jensen's alpha to individual equity securities. This allows you to quickly rank and search for stocks that are currently generating positive or negative alpha. ("Jensen's Alpha | Analysis Concepts | TradeStation Labs," n.d.)

Jensen's Alpha

Jensen's Alpha is also known as the Jensen's Performance Index. It was first used in the 1970s by Michael Jensen to evaluate the performance of fund managers. Specifically, it is measuring the difference between the actual returns of a portfolio during a period and the expected returns of the portfolio using the Capital Asset Pricing Model (CAPM). The formula for Jensen's Alpha is as shown below:

$$\text{Jensen's alpha} = \text{Portfolio Return} - (\text{Risk Free Rate} + \text{Portfolio Beta} * (\text{Market Return} - \text{Risk Free Rate}))$$

This performance index is now widely used by the public for measuring the performance of investment or fund manager. The formula can be thought of as calculating the excess returns a fund manager has made over the broader market. An example of a broader market is the S&P 500 composite. A positive value indicates good securities picking skills of a fund manager. If you are comparing the Jensen's Alpha of similar portfolios by different fund managers, then the bigger the Jensen's Alpha indicates a better performance of the fund. ("Free Jensen Alpha," n.d.)



(“Jensen’s Alpha Spreadsheet | The Systematic Trader,” n.d.)

R-square

R-square measures the relationship between a portfolio and its benchmark. It can be thought of as a percentage from 1 to 100. An R-squared of 100 indicates that all movements of a portfolio can be explained by movements in the benchmark. Thus, index funds that invest only in S&P 500 stocks will have an R-squared very close to 100. Conversely, a low R-squared indicates that very few of the portfolio's movements can be explained by movements in its benchmark index. An R-squared measure of 35, for example, means that only 35% of the portfolio's movements can be explained by movements in the benchmark index.

R-squared can be used to ascertain the significance of a particular beta or alpha. Generally, a higher R-squared will indicate a more useful beta figure. If the R-squared is lower, then the beta is less relevant to the fund's performance. (“R-squared,” n.d.)

Beta

Beta is a numeric value that measures the fluctuations of a stock to changes in the overall stock market. **For example**, if a stock's beta value is 1.3, it means, theoretically this stock is 30% more volatile than the market. Beta calculation is done by regression analysis which shows security's response with that of the market. (“Beta Definition | Beta Meaning - The Economic Times,” n.d.)

FINDINGS

Eastern Bank: Equation: $y = .4895x - .0317$, R square = .06

For eastern bank we have found out that Beta is .4895 and that tells us that the stock of this company is less volatile than the market. We can also see that the value of Jens alpha is negative which tells us that the stock is performing poorer than the market. The value of R square is very low which tells is that the model does not fits the data better.

The City Bank: Equation $y = 1.1656x - .0362$, R square = .2976

For City bank we have found out that Beta is 1.1656 and that tells us that the stock of this company is more volatile than the market. We can also see that the value of jens alpha is negative which tells us that the stock is performing poorer than the market. The value of R square is very low which tells is that the model does not fits the data better.

Dutch Bangla Bank LTD: Equation $y = .9027x - .0319$, R square = .2436

For Dutch Bangla bank LTD we have found out that Beta is 0.9027 and that tells us that the stock of this company has less or similar volatility than the market. We can also see that the

BRAC Bank LTD: $y = .7041x - .0341$, R square = .1607

value of jens alpha is negative which tells us that the stock is performing poorer than the market. The value of R square is very low which tells is that the model does not fits the data better.

For BRAC bank we have found out that Beta is .7041 and that tells us that the stock of this company has less volatility than the market. We can also see that the value of jens alpha is negative which tells us that the stock is performing poorer than the market. The value of R square is very low which tells is that the model does not fits the data better.

AB Bank LTD: $y = .8533x - .0471$, R square = .2203

For AB bank LTD we have found out that Beta is .8533 and that tells us that the stock of this company has less volatility than the market. We can also see that the value of jens alpha is negative which tells us that the stock is performing poorer than the market. The value of R square is very low which tells is that the model does not fits the data better.

Jamuna Bank LTD: $y = .5932x - .0438$, R Square = .1095

For Jamuna bank LTD we have found out that Beta is .5932 and that tells us that the stock of this company has less volatility than the market. We can also see that the value of jens alpha is negative which tells us that the stock is performing poorer than the market. The value of R square is very low which tells is that the model does not fits the data better.

Sharp Ratio and Treynor's Ratio

Name of the Banks	Sharp Ratio	Treynors Ratio
EBL	-17.02%	-4.18%
City bank	-19.00%	-5.00%
Dutch Bangla bank	-19.25%	-4.32%
BRAC bank	-21.09%	-4.55%
AB bank	-27.93%	-6.25%
Jamuna bank	-26.09%	-5.75%

Here we can see that among these six banks EBL has the highest sharp ratio which is -17.02% that means EBL is less risky than the other banks and if someone wants to invest among these six banks they can avoid risk by investing in EBL than the other banks. Interestingly we can also see that the treynors ratio is also suggesting the same as the Sharp ratio. EBL has the highest treynors ratio -4.18%, Signifies that it has a better risk adjusted return than that of the other five banks who are endowed with low Treynor ratios.

CONCLUSION & RECOMMENDATIONS

In this report, we talked of our methodology of data collection, which is clearly the most critical step for our findings to make sense. We then describe, our Literature Review to support what the researchers said about SML and other valuable mediums to find Returns, Risk, etc. We found the Expected Returns, Risk and then calculated the Security Market Line (SML) and then found the

Jensen's Alpha along with R-Squared Value in the equation. All of our findings were able to conclude saying that the banks that we worked on were not up to par with the market and this happens to most of the bank's stocks. It is really hard to find a Bank with a positive Alpha and R-Squared value. Thereby, a few adjustments we can deliver in words to improve the situations of our current trades about these banks. The banks' managers should improve their thinking in choosing investments that will outperform the market in a given time period, and can be said to represent the returns generated by active-management techniques. The banks should pay good dividends so that their shareholders remain. Moreover, the banks should play out by improving their lacking in their dealings with the other banks and people in general so that people get the word of mouth at least of their good transactions and therefore buy their stocks thus increasing their market share price due to high demand. All in all, these banks have a lot to improve upon but the above recommendations can make them step up in the current market and it increase their returns gradually.

REFERENCES

Financial Statement Analysis and Business Valuation for the Practical Lawyer - Robert B. Dickie - Google Books. (n.d.). Retrieved August 16, 2015, from https://books.google.com.bd/books?id=HrJy_8uGboMC&pg=PA245&lp=PA245&dq=risk+free+rate+scholars&source=bl&ots=4U1HG0wDZ_&sig=_59P2IVgSTPGPP9iHLYblWI2ctw&hl=en&sa=X&ved=0CDMQ6AEwA2oVChMIs6Xx7q2uxwIVRgiOCh2tvvHY#v=onepage&q=risk%20free%20rate%20scholars&f=false

FreeJensenAlpha.(n.d.).RetrievedAugust9,2015,from http://spreadsheetml.com/finance/jensenalpha_performanceindex.shtml

Jensen's Alpha | Analysis Concepts | TradeStation Labs. (n.d.). Retrieved August 9, 2015, from <https://www.tradestation.com/education/labs/analysis-concepts/jensens-alpha>

Portfolio Performance: Measuring Portfolio Returns; Sharpe Ratio, Treynor Ratio, and Jensen Alpha.(n.d.). Retrieved August 9, 2015, from <http://thismatter.com/money/investments/portfolio-performance.htm>

Jensen's Alpha Spreadsheet | The Systematic Trader. (n.d.). Retrieved August 16, 2015, from <http://www.thesystematictrader.com/2013/05/19/jensens-alpha/>

Beta Definition | Beta Meaning - The Economic Times. (n.d.). Retrieved August 16, 2015, from <http://economictimes.indiatimes.com/definition/Beta>

Jensen Alpha. (n.d.). Retrieved August 16, 2015, from <http://www.gummy-stuff.org/Jensen-alpha.htm>

R-squared.(n.d.).RetrievedAugust16,2015,from http://www.morningstar.com/invGLOSSARY/r_squared_definition_what_is.aspx

The Capital Asset Pricing Model (CAPM) and the Security Market Line (SML) — Valuation Academy. (n.d.). Retrieved August 16, 2015, from <http://valuationacademy.com/capm-capital-asset-pricing-model-security-market-line-sml/>