EVALUATING THE EFFECTIVENESS OF RISK PARITY: A CASE STUDY OF AHEX PVT LTD

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ABSTRACT

This analysis examined the historical risk-return relationship between AHEX and ITC stocks. While a moderate positive correlation suggests some tendency for their returns to move together, the limited data timeframe necessitates caution in interpreting this relationship. Individual stock characteristics reveal moderate volatility in AHEX and higher return fluctuations in ITC. Both stocks exhibit a strong positive correlation between beginning price and dividends. Overall, this analysis offers a preliminary assessment, highlighting the need for a more comprehensive evaluation to inform sound investment decisions.

Keywords: Moderate Positive Correlation, Price-Dividend Correlation, Preliminary Assessment, Investment Risk, Stock Performance,

1. INTRODUCTION

Risk-Return Analysis opens the door to a groundbreaking four-book series giving readers a privileged look at the personal reflections and current strategies of a luminary in finance. This first volume, authored by Nobel laureate Harry Markowitz, responds to what he terms the "Great Confusion" that gripped investors during the 2008 financial crisis. Markowitz elucidates why Modern Portfolio Theory (MPT) did not lose its efficacy during the crisis and emphasizes how its principles remain vital for achieving sustainable investment returns.In this comprehensive work, Markowitz delves into the enduring relevance of MPT, showcasing how managed diversification continues to offer significant benefits in contemporary financial landscapes. He combines rigorous theoretical insights with empirical evidence from decades of financial data, providing economists and financial advisors alike with invaluable tools to enhance decision-making processes.

Through detailed examinations of mean-variance analysis and its applications, Markowitz guides readers through strategies that optimize risk-adjusted returns, even in volatile markets.This volume not only clarifies misconceptions surrounding MPT but also equips practitioners with actionable insights to navigate complexities in portfolio management. Markowitz's lucid prose and analytical rigor make Risk-Return Analysis an indispensable resource for anyone seeking to deepen their understanding of portfolio theory and its practical applications. By integrating historical perspectives with forward-looking strategies, Markowitz underscores the enduring relevance of MPT as a cornerstone of modern finance.Future volumes in the series promise to further illuminate Markowitz's contributions to financial theory and practice, making Risk-Return Analysis essential reading for those committed to mastering the complexities of investment management in an ever-changing global economy.

Relationship between risk and return

Investors are risk averse; i.e., given the same expected return, they will choose the investment for which that return is more certain. Therefore, investors demand a higher expected return for riskier assets. Note that a higher expected return does not guarantee a higher realized return. Because by definition returns on risky assets are uncertain, an investment may not earn its expected return.

A portfolio is a collection of assets. The assets may be physical or financial like Shares, Bonds, Debentures, Preference Shares, etc,.The individual investor or a fund manager would not like to put all his money in the shares of one company that would amount to great risk. He would therefore, follow the age old maxim that one should not put all the eggs into one basket. By doing so, he can achieve objective to maximize portfolio return and at the same time minimizing the portfolio risk by diversification.

Functions of Risk and Return

- To frame the investment strategy and select an investment mix to achieve the desired investment objectives
- To provide a balanced portfolio which not only can hedge against the inflation but can also optimize returns with the associated degree of risk
- To make timely buying and selling of securities
- To maximize the after-tax return by investing in various taxes saving investment instruments.

The study on risk and return analysis of AHEX Pvt Ltd.'s selected securities is crucial for providing actionable insights to investors and stakeholders. By focusing on the financial performance and market dynamics of AHEX Pvt Ltd, the study aims to enhance decision-making processes by analysing the risk and return profiles of its securities. It will examine factors such as volatility, profitability, and market competitiveness, thereby enabling stakeholders to make informed investment choices. Moreover, the study will evaluate AHEX Pvt Ltd.'s ability to deliver sustainable returns amidst market fluctuations and economic uncertainties, offering valuable insights for optimizing portfolio allocations and enhancing overall investment strategies tailored to the specific dynamics of the company's securities market.

2. REVIEW OF LITERATURE

Joghee, M. V. (2021): This study helps investors to understand from the Previous Behaviour Of Selected data., to make the best decision through market volatility, the primary objective of this study is to analyse the risk and return of selected banking securities.Banking sector equity market has volatility and less returns on investment in some of the banks and some of the banks have more volatility in investment also. The investors identify the minimum risk and maximum return on investment decisions through portfolio analysis. Hence, understanding the risk involved in the investment helps to maximize returns.

ADRIANO A.RAMPINI(17 OCT 2017),this study risk return analysis in financial institutions using data on hedging of interest rate and foreign exchange risk. he find strong evidence that better capitalized institutions hedge more both in the cross-section and within institutions over time for identification, we exploit net worth shocks resulting from loan losses due to drops in house prices institutions that sustain such losses reduce hedging substantially relative to otherwise similar institutions. The evidence is consistent with the theory that financial constraints impede both financing and hedging. We find no evidence that risk shifting, changes in interest rate risk exposures, or regulatory capital explain hedging behaviour.

De Jong, A., Rosenthal, L., & Van Dijk, M. A. (2009): This study evaluates investment strategies that exploit the deviations from theoretical price parity in a sample of 12 dual-listed companies (DLCs) in the period 1980–2002. We show that simple trading rules produce abnormal returns of up to almost 10% per annum adjusted for systematic risk, transaction costs, and margin requirements. However, arbitrageurs face uncertainty about the horizon at which prices will converge and deviations from parity are very volatile.

As a result, DLC arbitrage is characterized by substantial idiosyncratic return volatility and a high incidence of large negative returns, which are likely to impede arbitrage.

Gorter and Bloem (2002), fixed assets management are mainly caused by an inevitable number of wrong economic decisions by individuals and plain bad luck (inclement weather, unexpected price changes for certain products, etc.). Under such circumstances, the holders of loans can make an allowance for a normal share of non-performance in the form of bad loan provisions, or they may spread the risk by taking out insurance.

PetyaKoeva (2003),his study on the Performance of Indian Banks. During Financial Liberalization states that new empirical evidence on the impact of financial liberalization on the performance of Indian commercial banks. The analysis focuses on examining the behaviour and determinants of bank intermediation costs and profitability during the liberalization period.

The empirical results suggest that ownership type has a significant effect on some performance indicators and that the observed increase in competition during financial liberalization has been associated with lower intermediation costs and profitability of the Indian banks.

Research methodology:

Objective of the study

1.   To analyse the risks and returns of selected securities based on the historical financial performance of AHEAX Company.

Following data collection, a rigorous analysis phase commences to prepare the final report. This stage employs quantitative tools like standard deviation for risk assessment, return calculations based on price movements, and the coefficient of variation for a preliminary risk-return evaluation. While these formulas provide a foundation, a comprehensive analysis should incorporate forward-looking data and multi-factor risk models for more informed investment decisions.

Limitations:

Very few and randomly selected scripts / companies are analysed from BSE listings. Data collection was strictly confined to secondary source.

Data analysis and interpretation:

Calculation of return of AHEX

Year	Beginning price(Rs)	Ending price(Rs)	Dividend(Rs)
2018-2019	297.90	371.35	7.50
2019-2020	375.00	585.05	8.50
2020-2021	587.70	891.5	8.50
2021-2022	892.00	1438.7	10.00
2022-2023	1051.54	1558.55	11.20

- **Return=Dividend+(EndingPrice-Beginning price) /Beginning Price**

- Return (2019)

=(7.50+(371.35-297.90)/297.90)*100 = 27.19%

- Return (2020)

=(8.50+(585.05-375)/375)*100   =58.28%

- Return (2021)

=(8.50+(891.5-587.70)/587.70)*100 =53.15%

- Return (2022)

=(10.00+(1438.7-892)/892)*100   =39.98%

- Return (2023)

=(11.20+(1558.55-1051.54)/1451.54)*100   = 25.42%

Correlations		Year	Beginning, Price	Ending, Price	Dividend
Year	Pearson Correlation	$.^a$	$.^a$	$.^a$	$.^a$
	Sig. (2-tailed)		.	.	.
	N	0	0	0	0
Beginning, Price	Pearson Correlation	$.^a$	1	$.994^{**}$	$.965^{**}$
	Sig. (2-tailed)	.		.001	.008
	N	0	5	5	5
Ending, Price	Pearson Correlation	$.^a$	$.994^{**}$	1	$.956^{*}$
	Sig. (2-tailed)	.	.001		.011
	N	0	5	5	5
Dividend	Pearson Correlation	$.^a$	$.965^{**}$	$.956^{*}$	1
	Sig. (2-tailed)	.	.008	.011	
	N	0	5	5	5
**. Correlation is significant at the 0.01 level (2-tailed).					
*. Correlation is significant at the 0.05 level (2-tailed).					
a. Cannot be computed because at least one of the variables is constant.					

INTERPRETATION: This excerpt offers a detailed analysis of AHEX's return and relevant variable correlations. The table presents annual returns from 2018 to 2023, calculated using a standard formula that incorporates dividends and price changes. These returns exhibit a decreasing trend over the period (27.19% in 2019 to 25.42% in 2023). The correlation matrix, though not directly tied to return calculations, reveals significant positive correlations between beginning and ending stock prices (0.994) and between both prices and dividends (0.965 & 0.956). This suggests a potential association between higher stock prices and higher dividend payouts during the analyzed timeframe. However, it's crucial to acknowledge that historical performance doesn't guarantee future results, and a comprehensive investment strategy would necessitate a broader analysis beyond historical data.

Calculation of return of ITC

Year	Beginning price(Rs)	Ending price(Rs)	Dividend(Rs)
2018-2019	990	1510.75	20
2019-2020	1518.95	162.1	31.80
2020-2021	162	196.1	2.65
2021-2022	196.5	209.45	3.10
2022-2023	178.96	225.87	3.70

- **Return=((Dividend+(Ending Price-Beginningprice))/BeginningPrice)*100**
- Return(2019)=((20+(1510.75-990)) / 990)*100 =34.4%
- Return(2020)=((31+(162.1-1518.95) / 1518.95)*100 = 86.87%
- Return(2021) =((2.65+(196.1-162)) / 162)*100 = 25.8%
- Return(2022)=((3.10+(209.45-196.5)) / 196.5)*100 = 20.45%
- Return(2023)=((3.70+(225.87-178.96)) / 178.96)*100 = 44.41%

Correlations		Begining_Price	Ending_Price	Dividend
Begining_Price	Pearson Correlation	1	.249	1.000**
	Sig. (2-tailed)		.751	.000
	N	4	4	4
Ending_Price	Pearson Correlation	.249	1	.237
	Sig. (2-tailed)	.751		.763
	N	4	4	4
Dividend	Pearson Correlation	1.000**	.237	1
	Sig. (2-tailed)	.000	.763	
	N	4	4	4
**. Correlation is significant at the 0.01 level (2-tailed).				

This analysis examines ITC's historical returns and variable correlations. While returns fluctuate (34.4% to 86.87%), a strong positive correlation exists between beginning price and dividends (1.000). This suggests dividends tend to move in the same direction as the starting stock price. However, the weak correlations between price points (0.249) and price-dividend (0.237) limit conclusions about price relationships, and the analysis is based on a limited timeframe (4 years). A larger dataset and investigation of the unusually high 2020 return would be valuable for a more comprehensive understanding.

Calculation of standard deviation of AHEX:

Year	Return (R)	R_1	$R-R_1$	$(R-R_1)^2$
2018-2019	27.19	40.76	-15.59	184.688
2019-2020	58.28	40.76	19.52	306.95
2020-2021	53.15	40.76	14.37	173.019
2021-2022	39.98	40.76	-0.78	0.6084
2022-2023	25.42	40.76	-17.34	235.318
	203.98			880.5794

Average (R) = $\sum(R/N)$ = 203.98 / 5

= 40.76

Variance = $1/(N-1)$ $(\sum(R-R)^2)$

Standard Deviation = $\sqrt{Variance}$

= (1/(5-1)) 880.57

= 14.83

Correlations		Begining_Price	Ending_Price	Dividend
Begining_Price	Pearson Correlation	1	.249	1.000**
	Sig. (2-tailed)		.751	.000
	N	4	4	4
Ending_Price	Pearson Correlation	.249	1	.237
	Sig. (2-tailed)	.751		.763
	N	4	4	4
Dividend	Pearson Correlation	1.000**	.237	1
	Sig. (2-tailed)	.000	.763	
	N	4	4	4
**. Correlation is significant at the 0.01 level (2-tailed).				

INTERPRETATION: This excerpt delves into AHEX's historical return volatility and revisits variable correlations. The standard deviation calculation reveals a moderate level of volatility (14.83%), indicating fluctuations in annual returns around the average (40.76%) by an average of 14.83 percentage points. The correlation matrix (previously presented) reinforces the strong positive correlation between beginning price and dividends (1.000), while weaker positive correlations exist between price points (0.249) and price-dividend (0.237). Overall, this analysis offers insights into historical volatility and potential price-dividend relationships, but future performance cannot be guaranteed. A more comprehensive understanding would necessitate further analysis beyond historical data.

Calculation of standard deviation of ITC

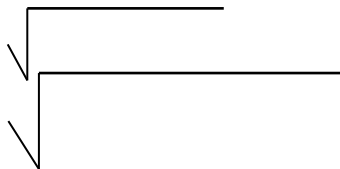| Year	Return (R)	R_1	$R-R_1$	$(R-R)^2$
2018-2019	34.4	7.628	26.77	718.73998
2019-2020	-86.87	7.628	-94.5	8929.872
2020-2021	25.8	7.628	18.19	330.22178
2021-2022	20.4	7.628	14.77	183.14398
2022-2023	44.41	7.628	36.78	1552.9175
Average	38.16			11692.873

Average (R) $= \sum(R/N)$ = 38.16 / 5 = 7.62

Variance $= (1/N-1)(\sum(R-R)^2)$

Standard Deviation = Variance

= $(1/(5-1))(11692.87)$

= 54.5

Correlation between ITC & AHEX

Year	DEVIATION OFAHEX($RA-RA_1$)	DEVIATION OF ITC($RB-RB_1$)	COMBINED DEVIATION ($RA-RA_1$)($RB-RB$)
2018-2019	26.66	56.048	1694.24
2019-2020	-34.64	-31.482	1090.5
2020-2021	2.89	-0.372	-1.075
2021-2022	-19.64	-5.522	97.41
2022-2023	22.73	-18.672	-424.4
			2256.675

Co-variance (COV AB) = (1/n)(∑(RA-RA) (RB-RB))

Co-variance (COV AB) = (1/5)(2256.675)

= 451.335

Pearson Correlation Coefficient (P_{AB})=(COV AB)

(σ. A) (σ. B)   =451.335

(24.88) (34.846)

= 0.5206

Correlations		Deviation_of_Ahex	Deviation_of_ITC	Combined_Deviation_ITC_AHEX
Deviation_of_Ahex	Pearson Correlation	1	.636	-.034
	Sig. (2-tailed)		.249	.956
	N	5	5	5
Deviation_of_ITC	Pearson Correlation	.636	1	.581
	Sig. (2-tailed)	.249		.305
	N	5	5	5
Combined_Deviation_ITC_AHEX	Pearson Correlation	-.034	.581	1
	Sig. (2-tailed)	.956	.305	
	N	5	5	6

Interpretation

This excerpt explores the correlation between historical return fluctuations of ITC and AHEX stocks. The analysis calculates a moderate positive Pearson correlation coefficient (0.5206) between their deviations from average returns. This suggests a tendency for both stocks' returns to deviate in the same direction (up or down) to some extent.

The correlation matrix reinforces this notion, with a moderate positive correlation between deviations of AHEX and ITC (0.636). However, the limited data (5 years) necessitates caution. A more comprehensive analysis with a larger dataset would be recommended to solidify the strength of the observed correlation.

3. CONCLUSION

This analysis examined the historical returns and correlations between two stocks: AHEX and ITC. The analysis identified a moderate positive correlation between their returns, suggesting some tendency for their returns to move in the same direction. In the case of perfectly correlated securities or stocks, the risk can be reduced to a minimum point through diversification.

However, this minimum point still includes the inherent market risk that cannot be eliminated, also known as systematic risk. When securities or stocks are perfectly negatively correlated, the overall portfolio risk can theoretically be reduced to zero, as the gains from one security would offset the losses from another.

This complete reduction, however, only applies to company-specific risk, also known as unsystematic risk. Despite this, the market risk, which affects all securities in the market, remains unchanged for the security or stock in the portfolio.

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