



VCBF - BCF

BACHELOR OF FINANCIAL TECHNOLOGY PROGRAM - INTAKE 62

TOPICS IN PORTFOLIO MANAGEMENT

Case Study of VCBF-BCF

Group 1

9/2023



Table of Content



Vietcombank Fund Management Company Limited (VCBF)

Brief introduction & subsidiary funds of VCBF



VCBF-BCF Fund

Some basic Information, Investment Strategy, Portfolio Allocation and Performance of VCBF-BCF.

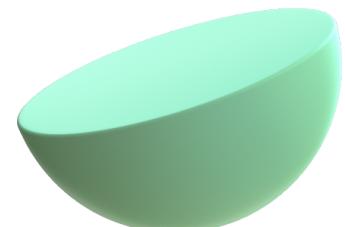


Portfolio Optimization and Comparision

Explanation on Markowitz's Portfolio Theory & The Capital Allocation Line and dive into Portfolio Performance Analysis



Conclusion





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Chapter 1

Vietcombank Fund Management Company Limited (VCBF)



Brief introduction & subsidiary funds of VCBF





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VCBF

Vietcombank Fund Management
Company Limited

Established on **Dec 2, 2005**, VCBF is a joint venture between **Vietcombank** and global investment group **Franklin Templeton Investments (FTI)**.

With 16 years in Vietnam, VCBF has managed assets for top Vietnamese and foreign conglomerates, overseeing assets of \$190.3M as of March 31, 2022.



Subsidiary Funds

VCBF has 4 open-ended funds



VCBF-TCF

50% of NAV in stocks and
50% in fixed-income assets
with good credit quality.



VCBF-BCF

100% of NAV in listed
stocks, mainly in stocks
with large market
capitalization and good
liquidity.



VCBF-MGF

100% in stocks of
companies with medium-
capitalization and high
growth potential



VCBF-FIF

100% of the Fund's assets
invested in bonds of good
credit quality



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Chapter 2



VCBF-BCF Fund

Some basic informations, Investment Strategy,
Portfolio Allocation and Performance of VCBF-BCF.





Basic Informations

VCBF-BCF Fund

• Date of establishment	22/08/2013
• Net asset value	406B VND
• Net asset value/ETF	30,372
• Highest net asset value/ETF (52 weeks)	30,655
• Lowest net asset value/ETF (52 weeks)	21,439
• Number of fund certificates in circulation	13M
• Total category	26 stocks





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VCBF Strategies

Aims for **long-term profits** via **principal growth** and **income generation**.

The Fund follows a blend of value and growth style of investing.

DIVERSE PORTFOLIO

Focuses on large-cap, liquid stocks listed on **Ho Chi Minh Stock Exchange (HSX)** & **Ha Noi Stock Exchange (HNX)**.

BOTTOM UP APPROACH

Detailed analysis of **individual companies**, **industry context**, and **macroeconomic conditions**.

Analyse

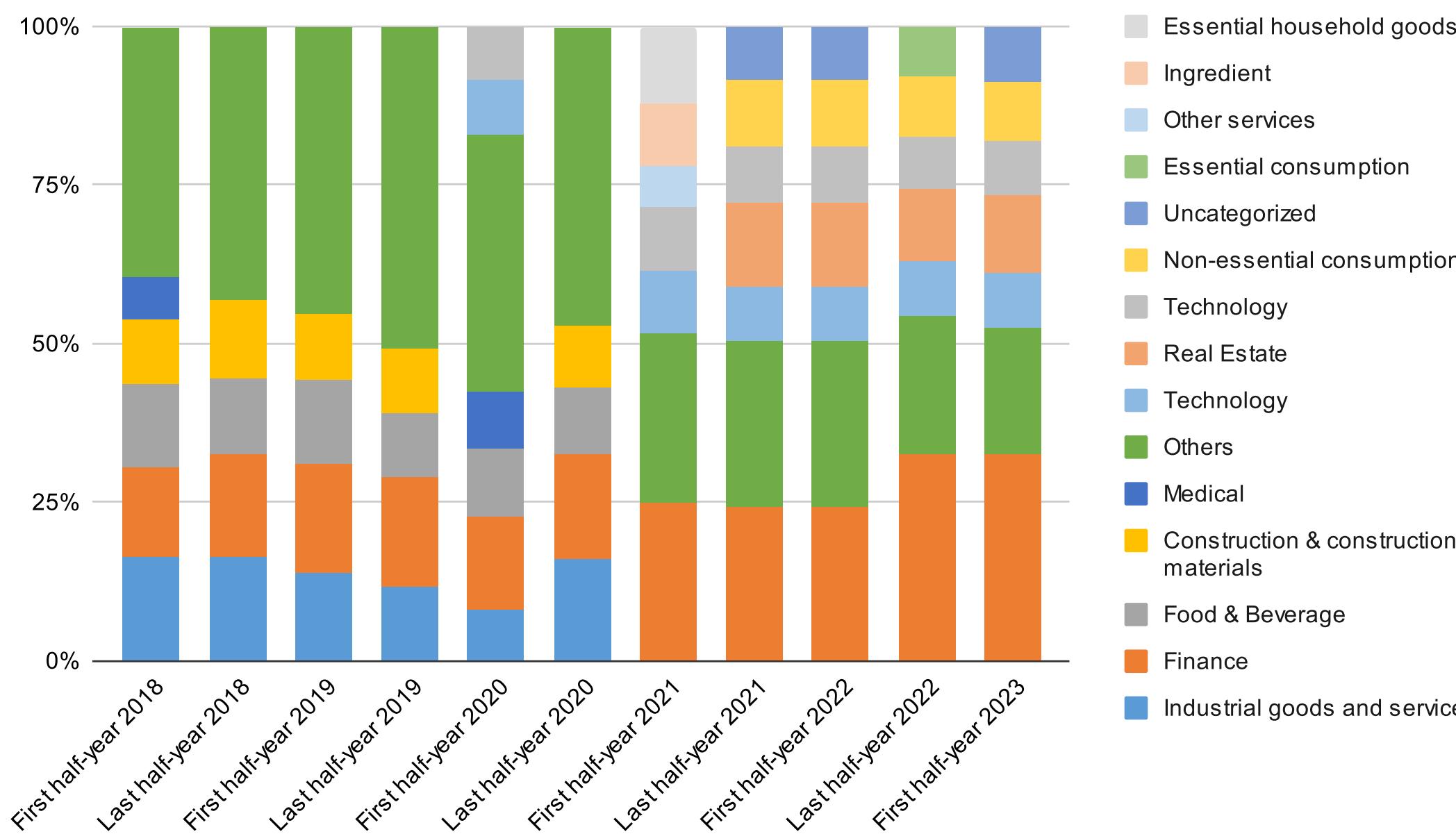
Compare industry

Consider Macro conditions



Portfolio Allocation & Performance

Portfolio Allocation by Sectors from 2018 to 2023

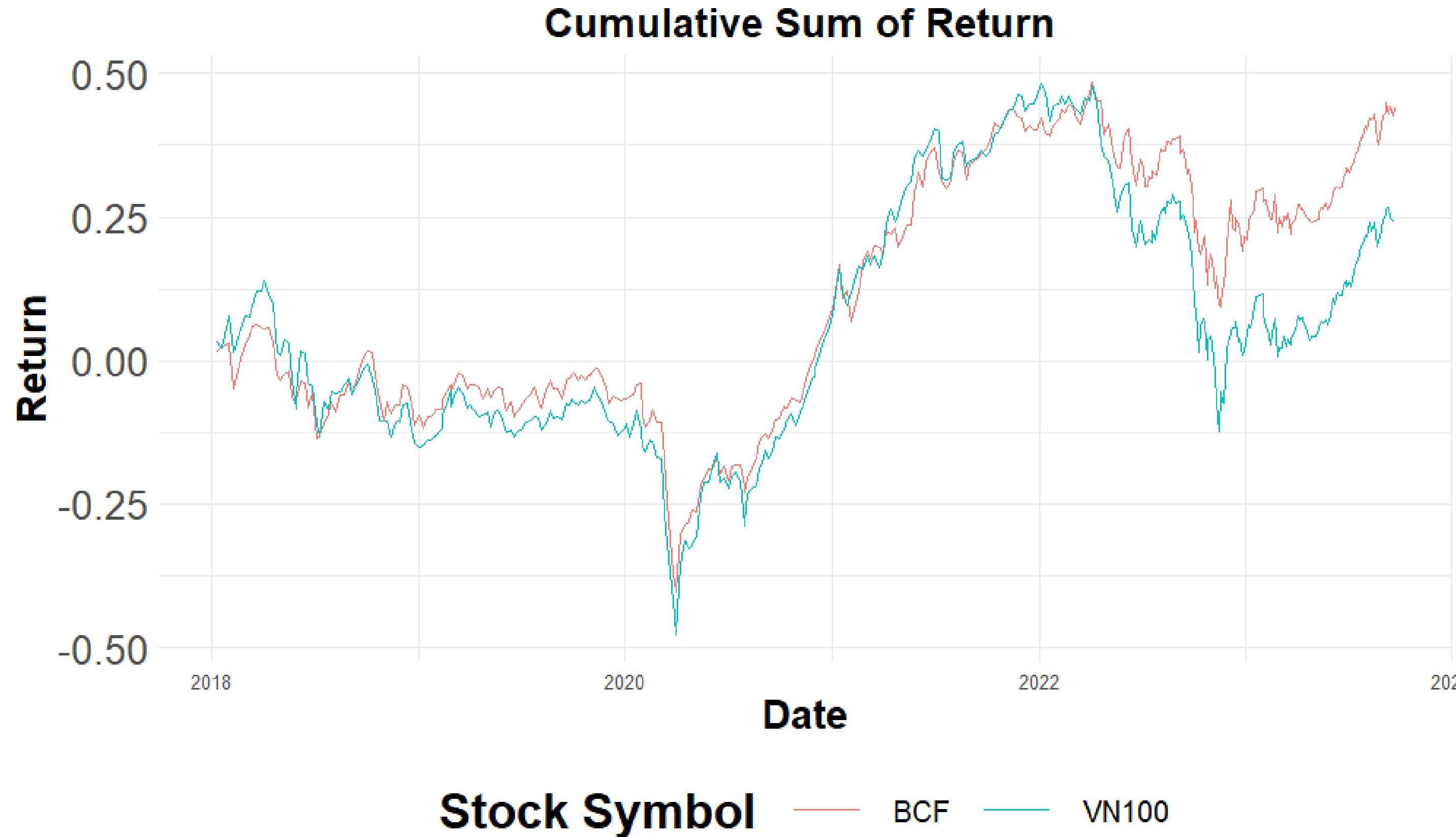


In 2021, reasons for several adjustment in the portfolio allocation:

Industrial production in the third quarter confronted **several hurdles due to the relentless COVID-19 pandemic.**

Consumer Price Index (CPI) for medicine and medical services in the second quarter increased **by 3.36%.**

Net profits of companies across the three primary exchanges (HOSE, HNX, UPCOM) surged **by 49.5%.**



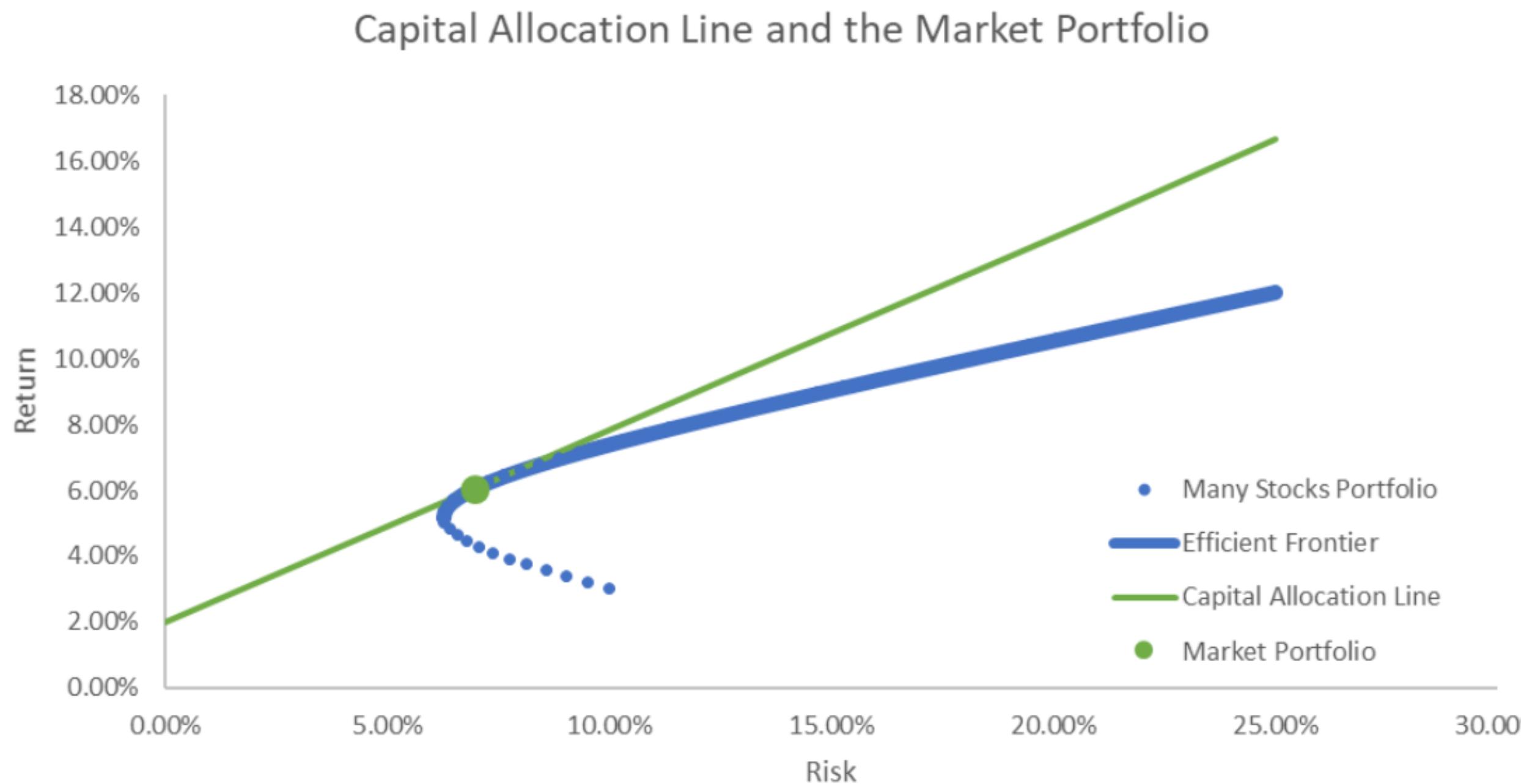
Chapter 3

Portfolio Optimization & Comparision

- Portfolio Theory
- Stocks Selection
- Stocks Correlation
- Portfolio Optimization
- Performance Analysis



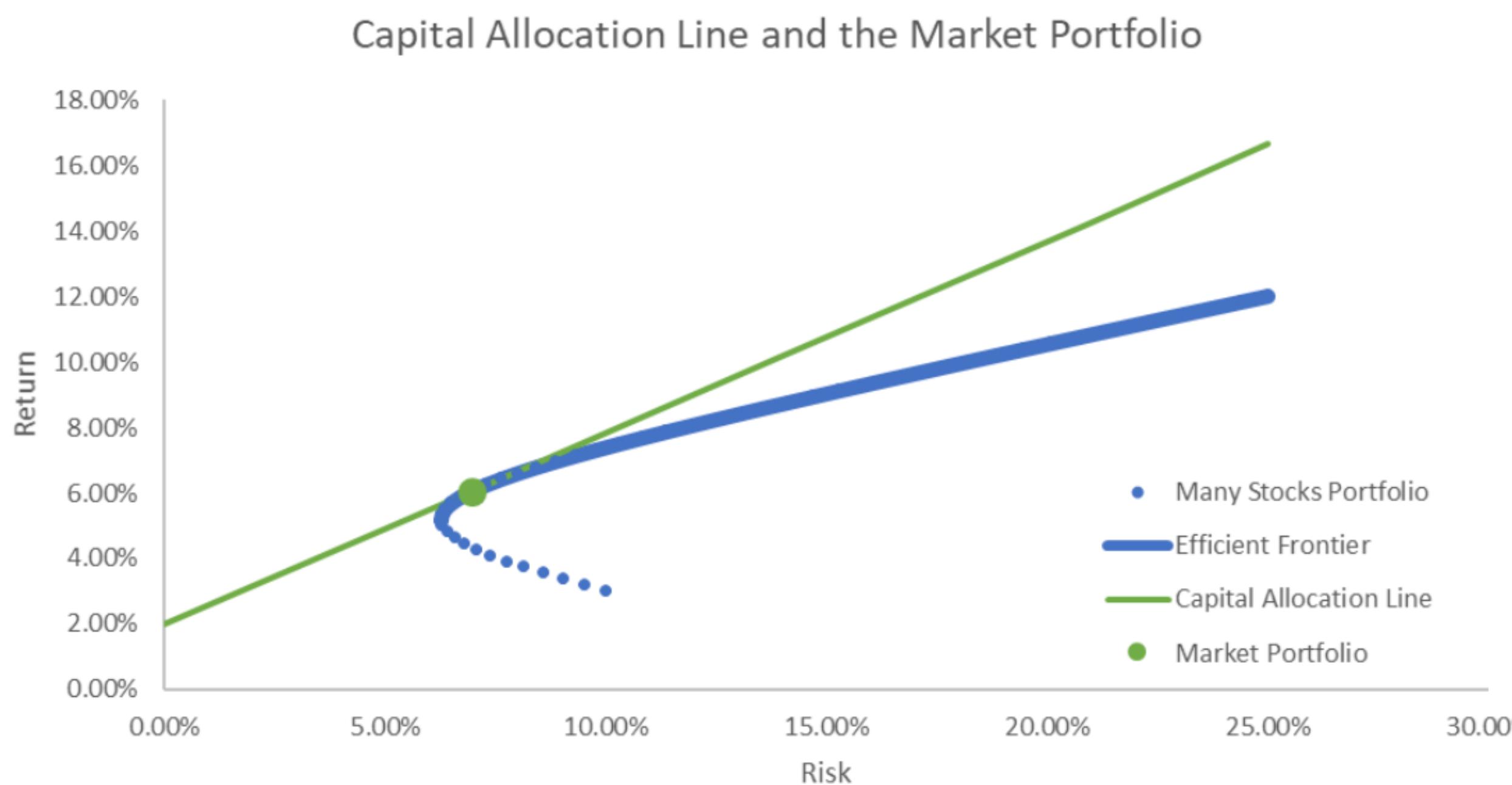
Portfolio theory



Markowitz's Portfolio Theory:

Optimize assets for highest return at a set risk or lowest risk at a set return.

Portfolio theory



The Capital Market Line (CML)

Finds the ideal mix of risk-free asset and optimal risky portfolio. The market portfolio is where the CML touches the efficient frontier.



Portfolio Key Performance Indicators

Alpha	Alpha (α) is a term used in investing to describe an investment strategy's ability to beat the market or its "edge".
Beta	Beta (β) is a measure of the volatility—or systematic risk—of a security or portfolio compared to the market as a whole
Treynor ratio	The Treynor ratio is a performance metric for determining how much excess return was generated for each unit of risk taken on by a portfolio.
Maximum drawdown	A maximum drawdown (MDD) is the maximum observed loss from a peak to a trough of a portfolio before a new peak is attained.



Portfolio selection

Stocks based on VCBF-BCF's top 10 holdings from August 2023.

Our portfolio construction is done in R, starting with a correlation matrix to check stock diversification.

Stock	Sector	% NAV
FPT	Technology and information	9.31
STB	Bank	8.86
MBB	Bank	7.72
MWG	Retail	6.43
HPG	Building materials	6.33
VNM	Food - Drinks	4.18
VIC	Real estate	3.95
VTP	Other	3.86
PNJ	Supportive Manufacturing	3.84
VHM	Real estate	3.84
Total		58.32%



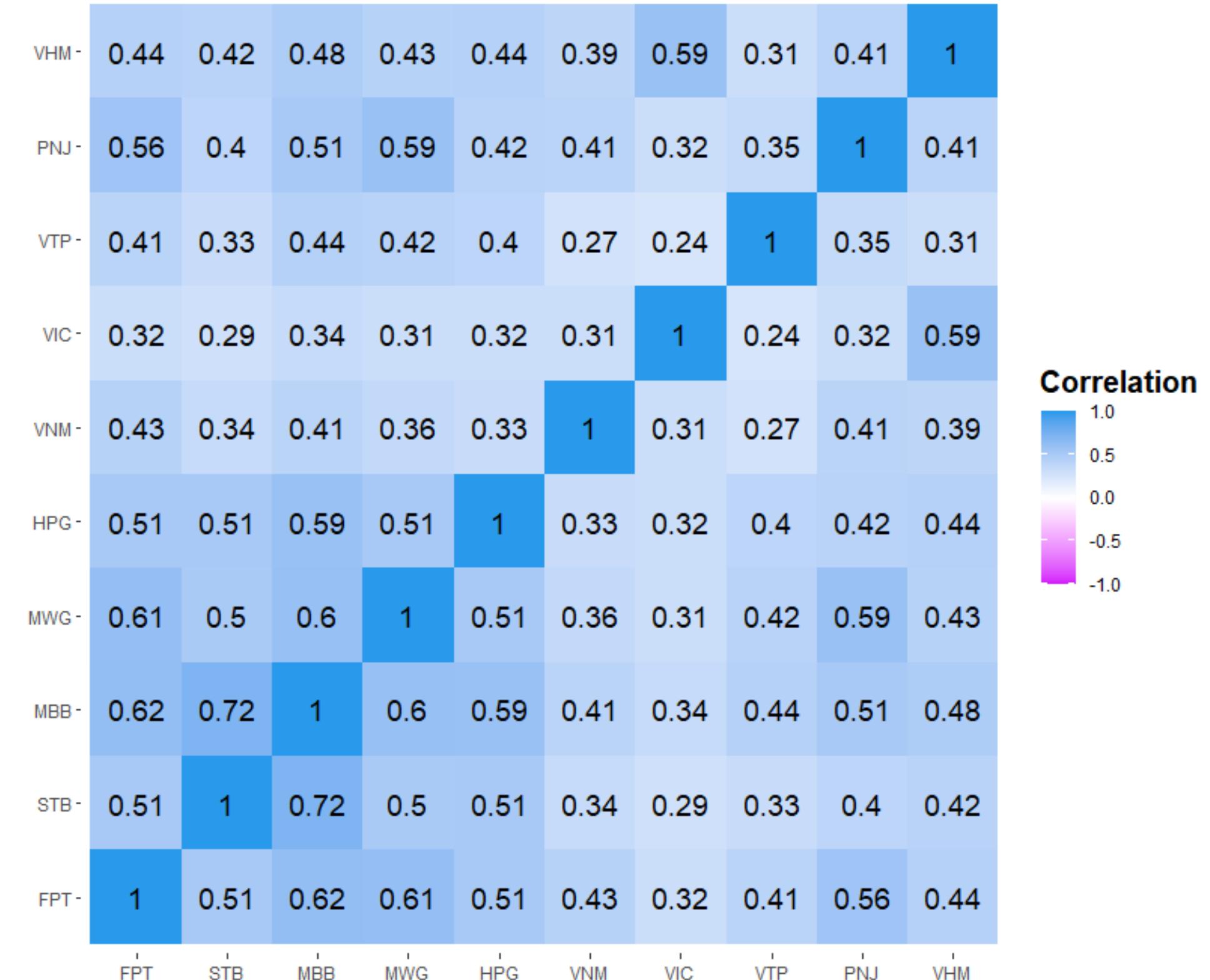
Portfolio Correlation

Investors hold multiple stocks in a portfolio is to benefit from diversification.

 **A high correlation between stocks in a portfolio is generally undesirable.**

STB and MBB, have a slightly above-desirable correlation with a value of 0.72.

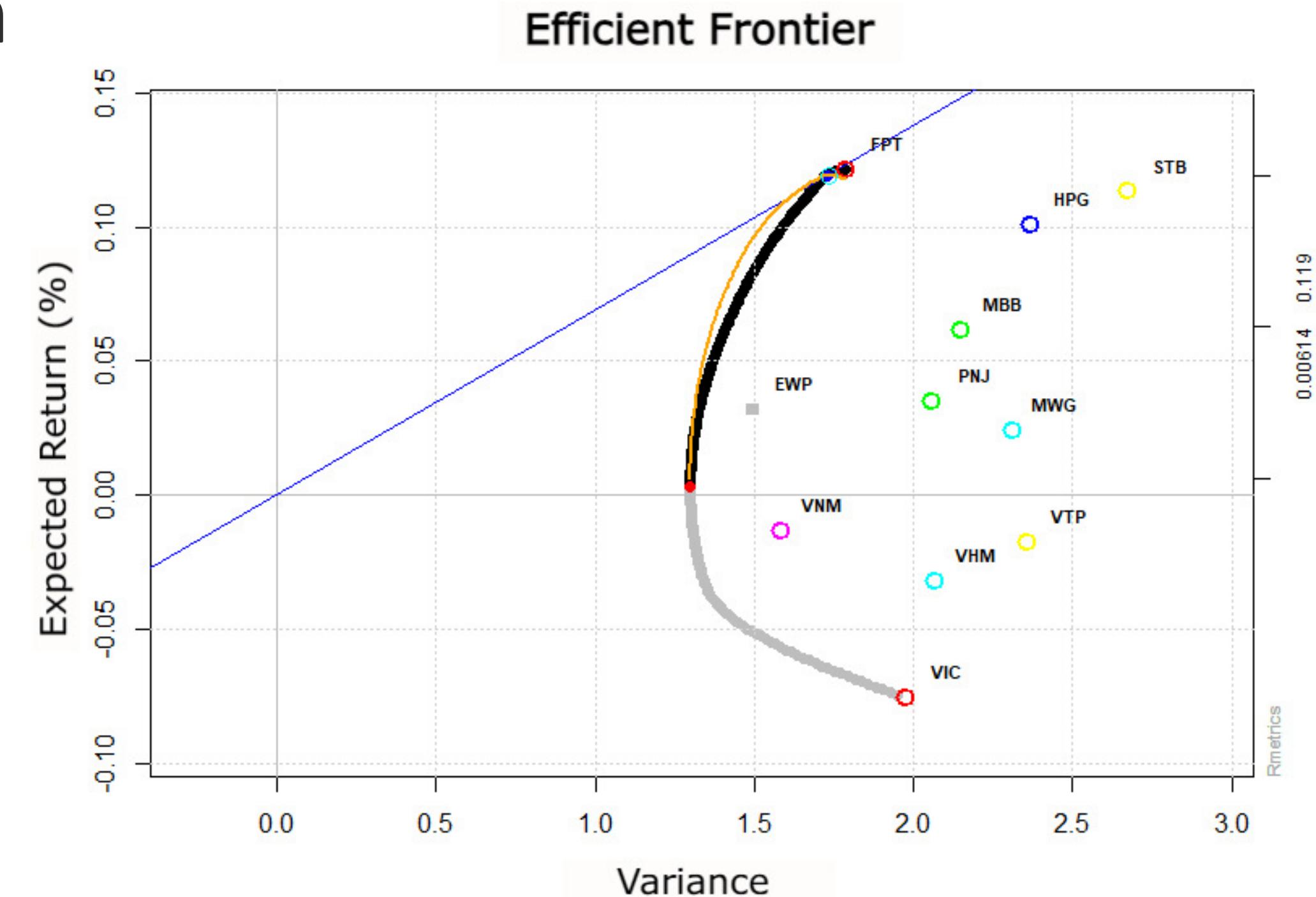
The rest of the stocks have correlations below 0.7, indicating a well-diversified portfolio.



Portfolio Optimization

Using a **2.741% annual risk-free rate** from the **10-year Vietnamese bond (22/09/2023)**, we build an efficient frontier for **ten stocks** (long-purchase only due to short selling prohibition).

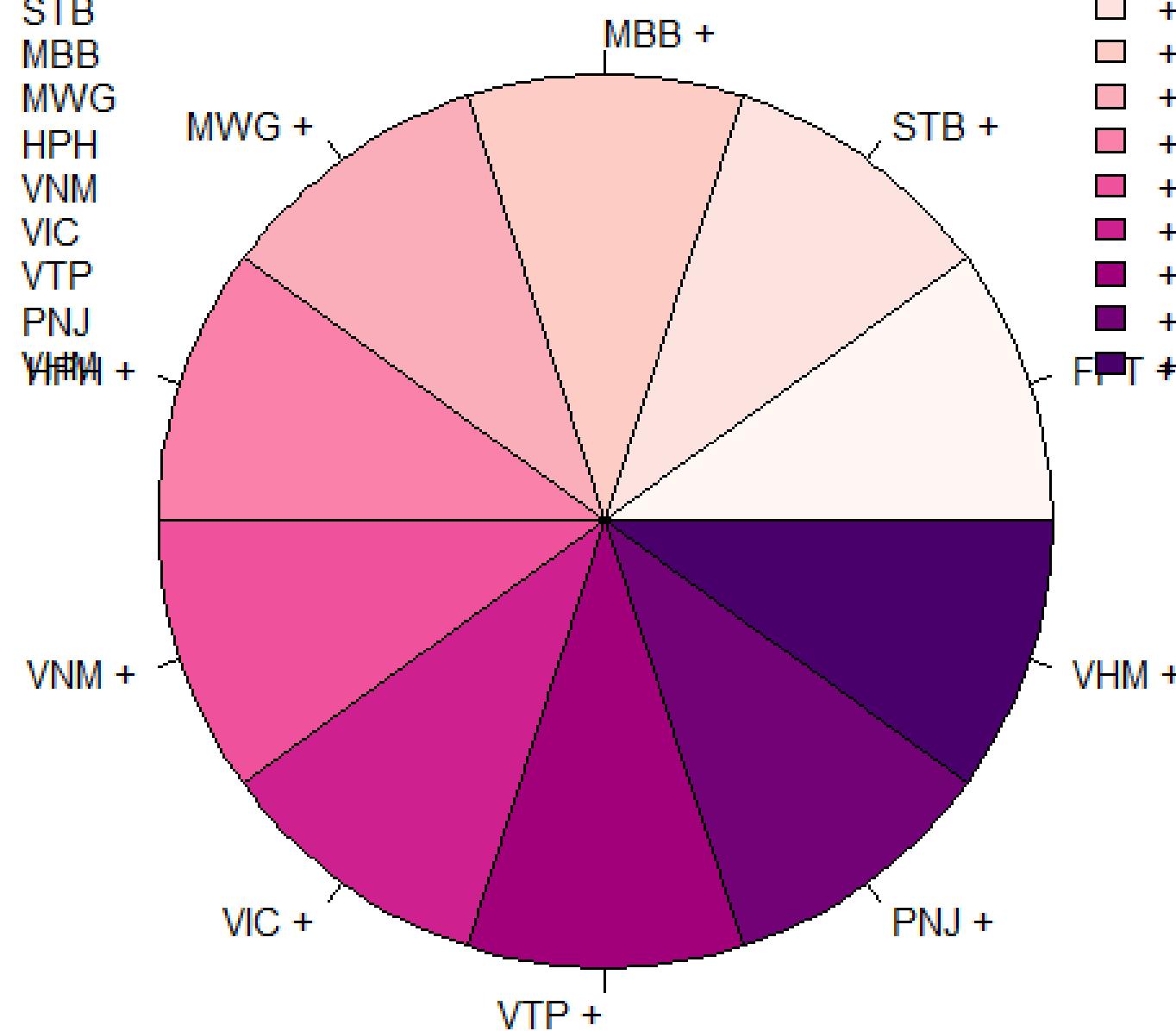
- GMV portfolio as the red dot.
- EWP location as the gray square.
- Capital Market Line as the blue line from bottom-left.
- Optimal portfolio where the CML meets the frontier.



Weights

EWP Portfolio

- FPT
- STB
- MBB
- MWG
- HPH
- VNM
- VIC
- VTP
- PNJ
- VHM



- +10 %
- +10 %
- +10 %
- +10 %
- +10 %
- +10 %
- +10 %
- +10 %
- +10 %
- +10 %

Equally-Weighted Portfolio

Weights

The proportion for each stock is equally distributed. Because this portfolio has ten stickers, the weight of each individual stock is 10%.

Equally-Weighted Portfolio

Returns

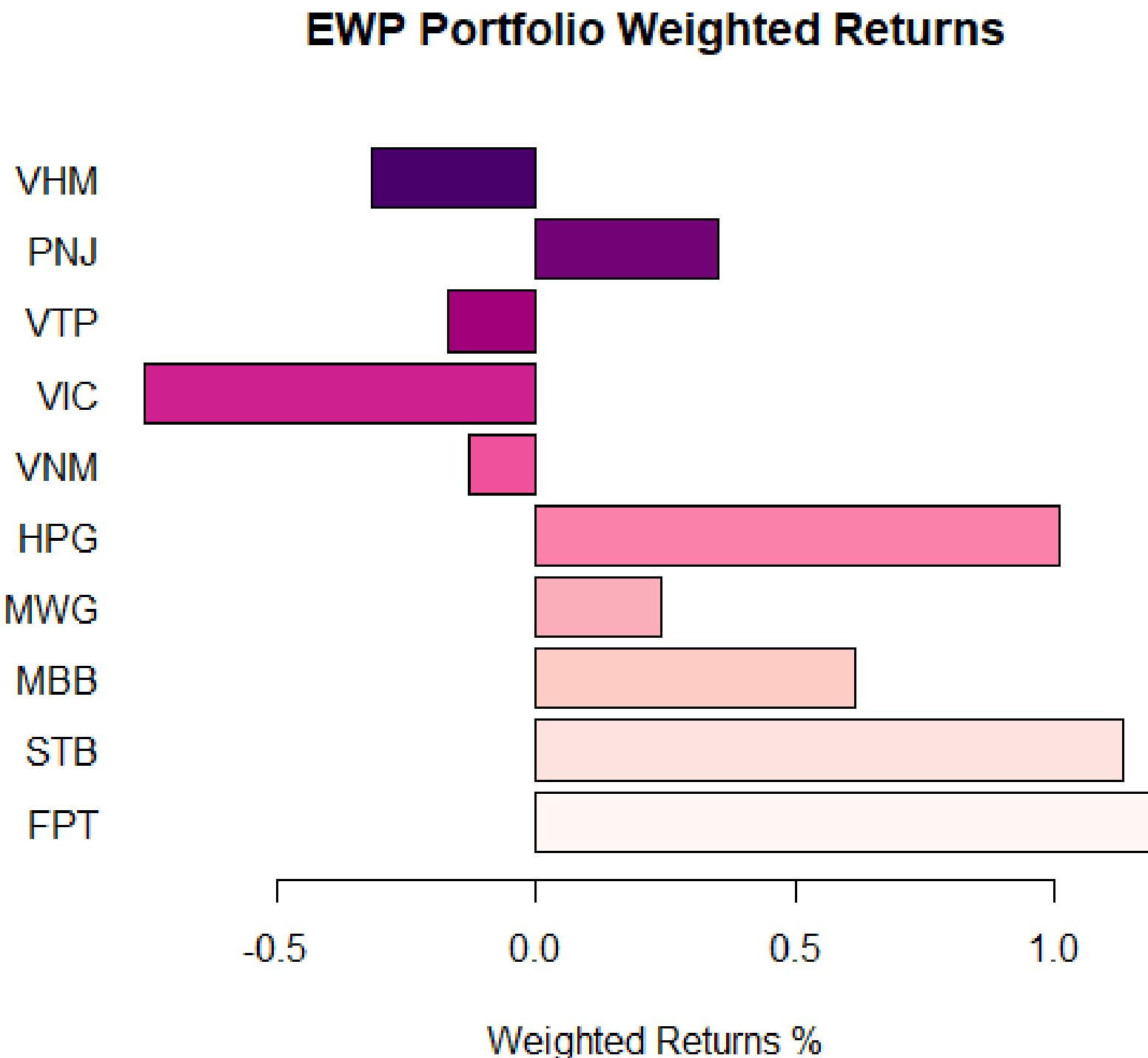
The barplot displays weighted returns of ten stocks in the portfolio.



Top contributors: FPT, STB, MBB, HPG.

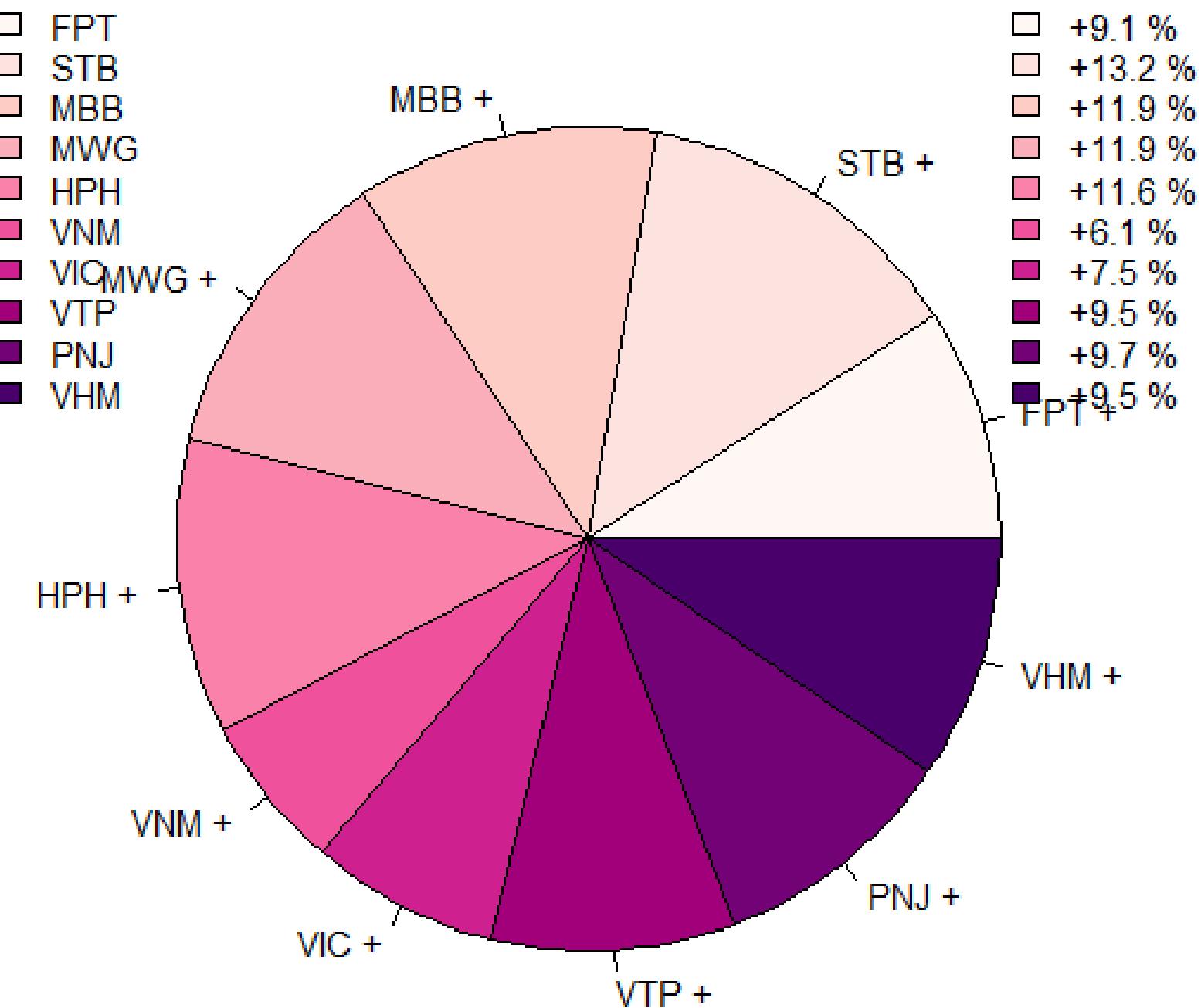


Stocks decreasing overall return: VIC, VHM, VTP, VNM.



Covariance Risk Budgets

EWP Portfolio



Equally-Weighted Portfolio

Variance

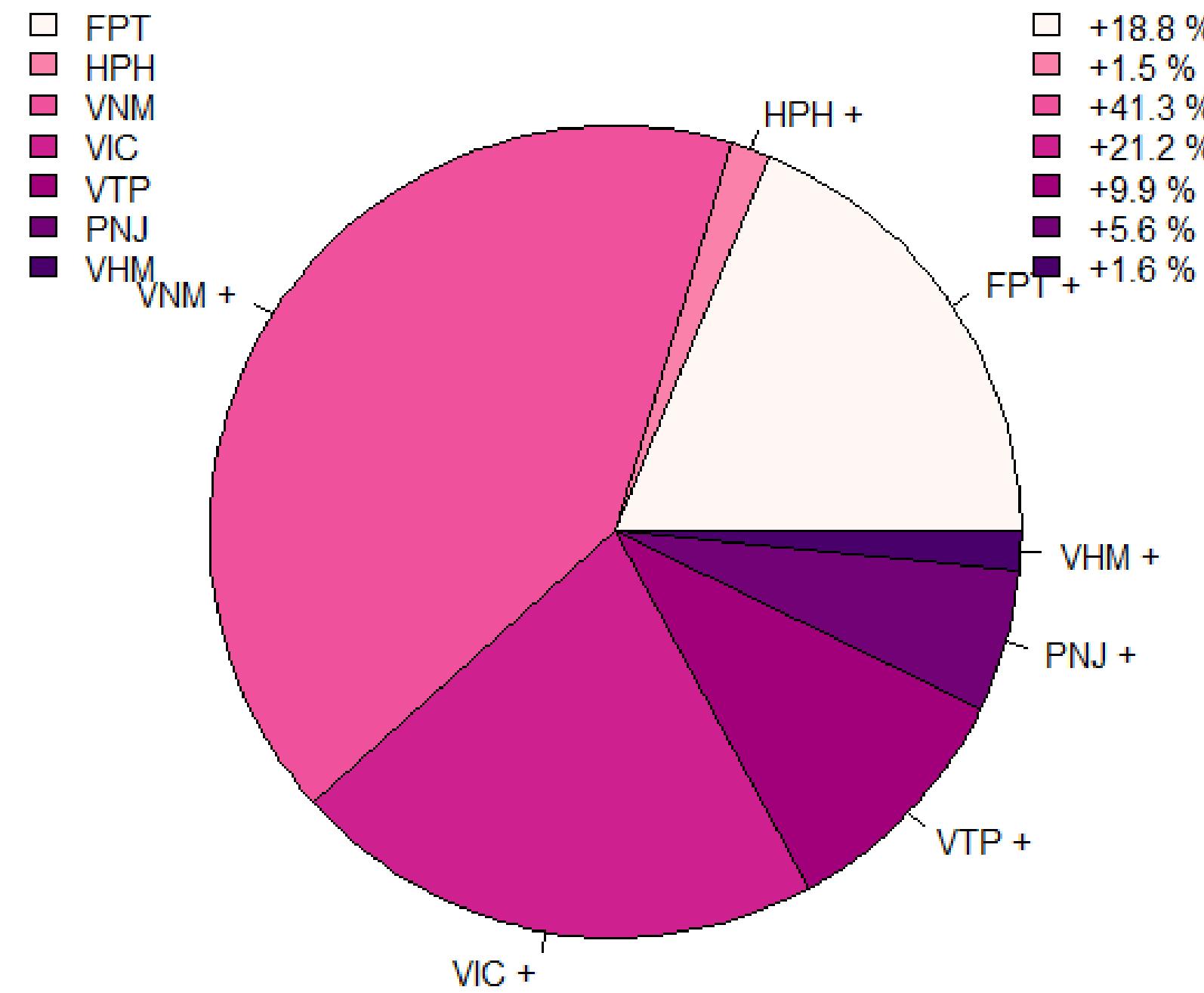
Pie chart indicates variance risk budgets distribution:

- Mostly equal distribution.
- MBB contributes most to risk at 13.2%.
- VNM's risk budget is minimal at 0.061%.



Weights

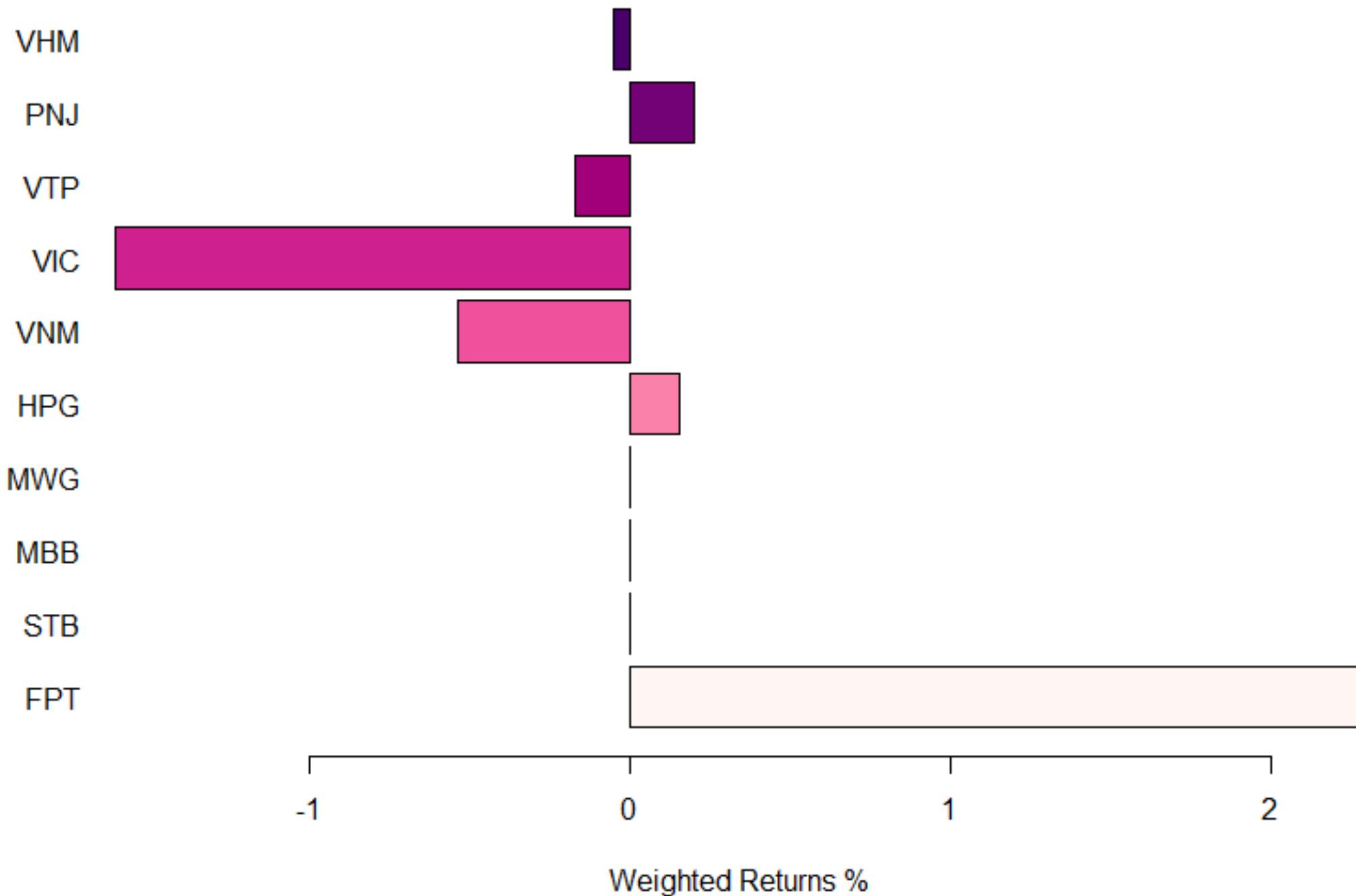
Minimum Variance MV Portfolio



MV | solveRquadprog

GMV Portfolio

Overall, the portfolio exhibits a diverse range of weightings, with VNM having the highest share at 41.3%

**GMV Portfolio Weighted Returns**

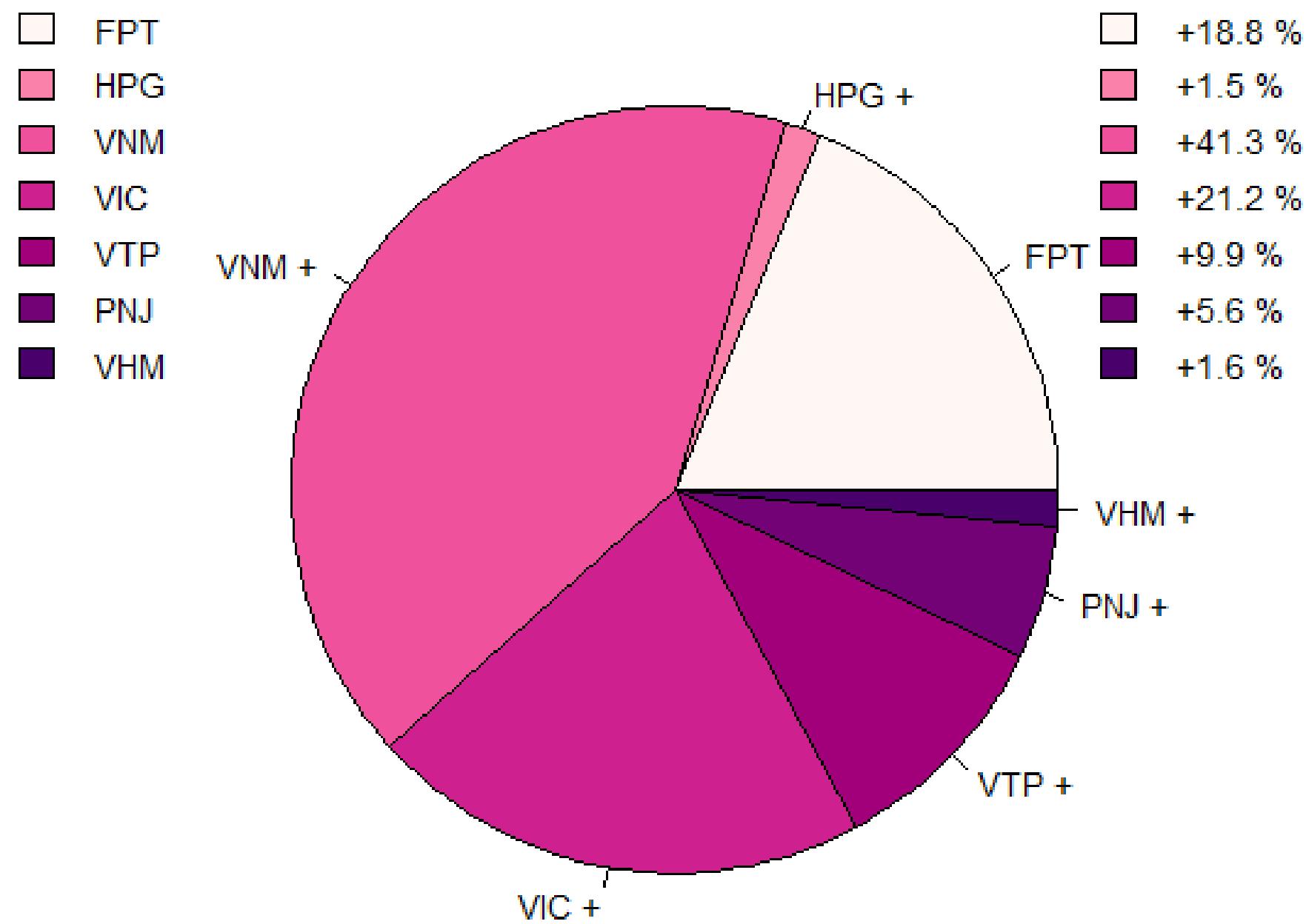
GMV Portfolio

FPT has the highest positive weighted return at 2.289, indicating it has made a substantial positive contribution to the portfolio's performance.

On the other hand, VNM and VIC have notably negative weighted returns of -0.537 and -1.605, respectively.

Covariance Risk Budgets

Global Minimum Variance MV Portfolio



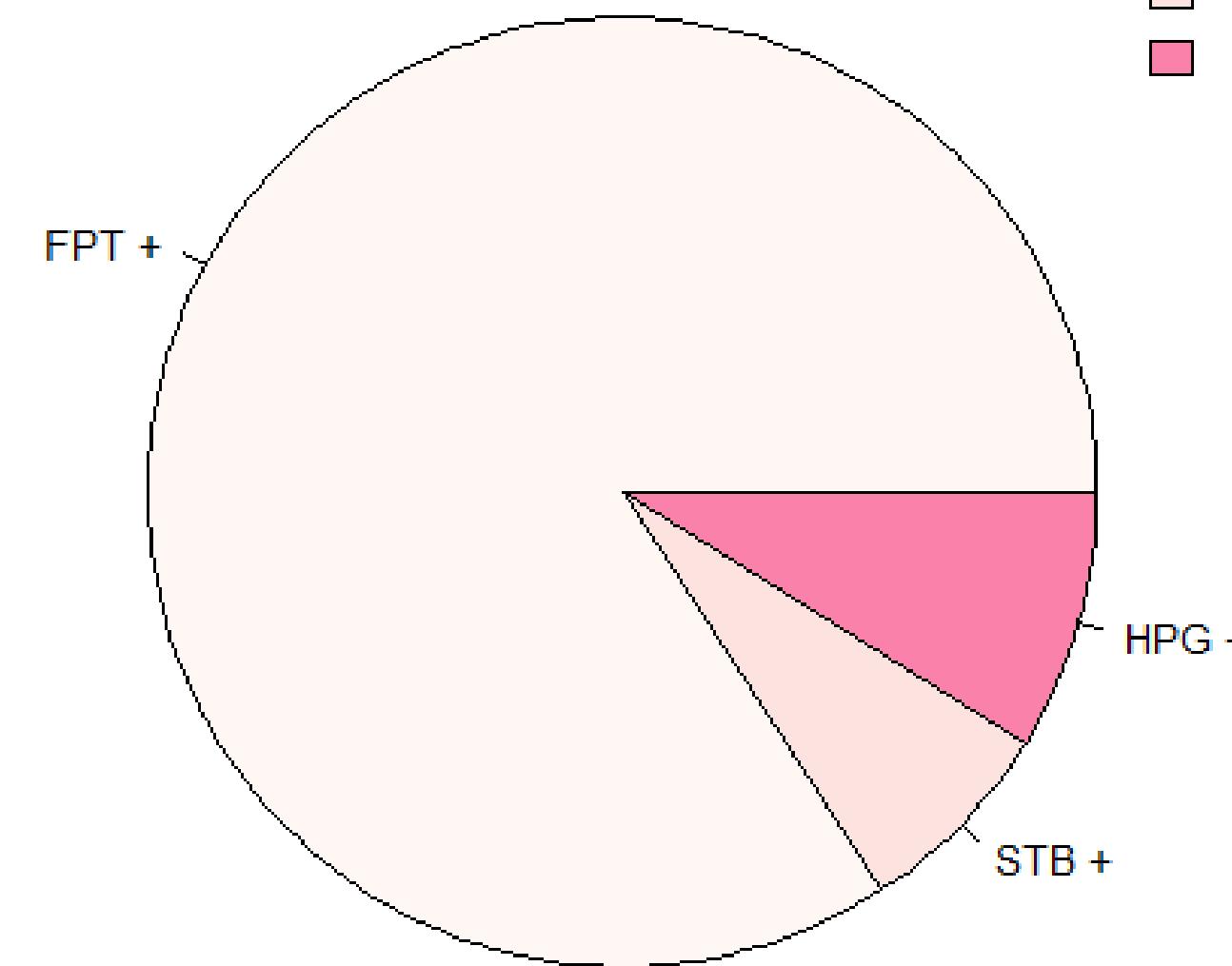
GMV Portfolio

VNM having the highest risk budget at 41.3%, while STB has no risk allocation, indicating its absence in the portfolio.

Weights

Tangency MV Portfolio

- FPT
- STB
- HPG

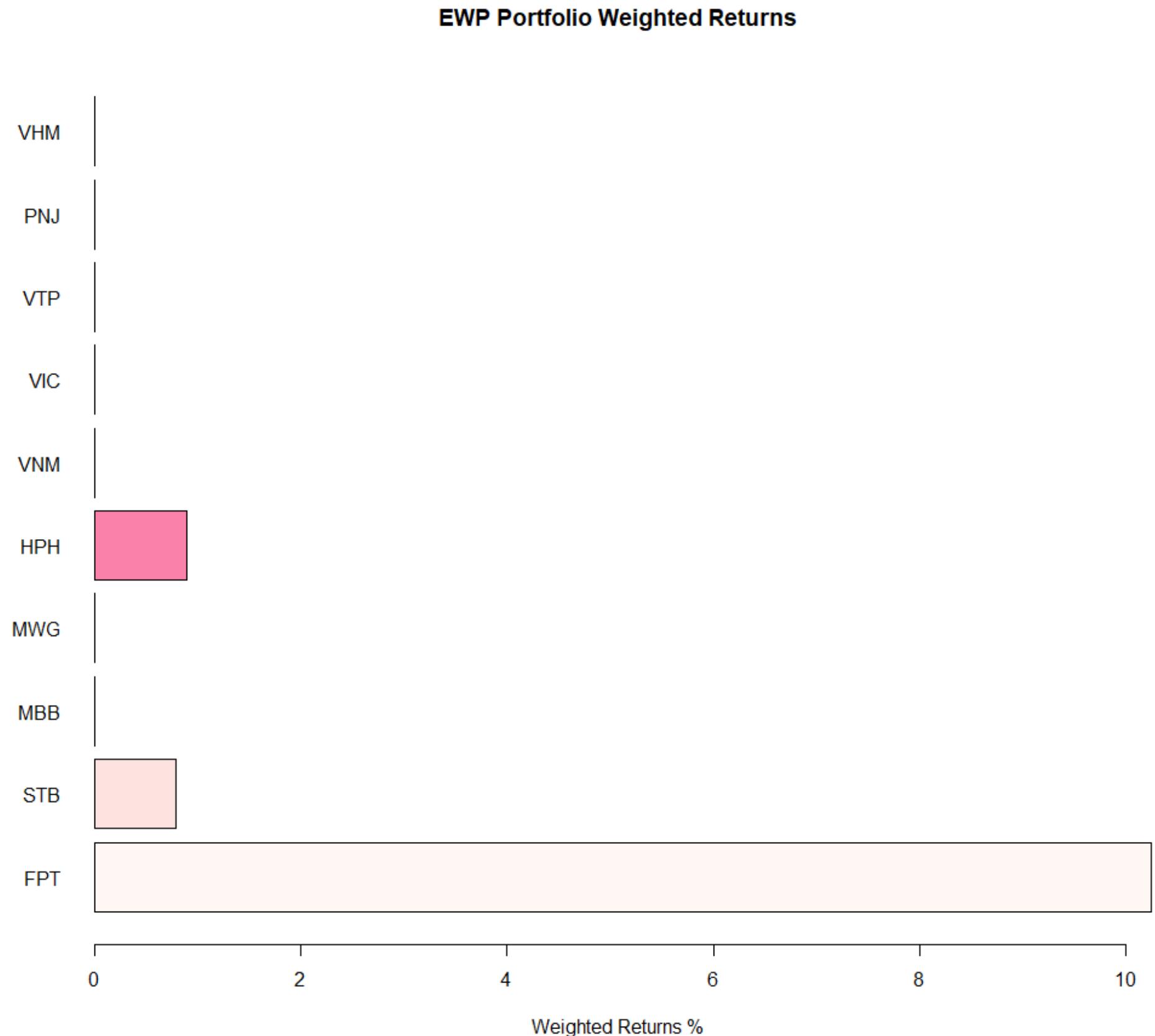


Optimal Portfolio

- FPT is dominant at 84.2%.
- Followed by STB at 7% and HPG at 8.8%.
- All other assets are excluded with zero weights.

Optimal Portfolio

- FPT contributes over 10% of the 12% portfolio return.
- HPG and STB each add roughly 1%.



Optimal Portfolio

- FPT carries the highest risk budget of 0.859,- dominant position in the portfolio.
- Followed by STB and HPG, with risk budgets of 0.066 and 0.075, respectively.

Covariance Risk Budgets

Tangency MV Portfolio



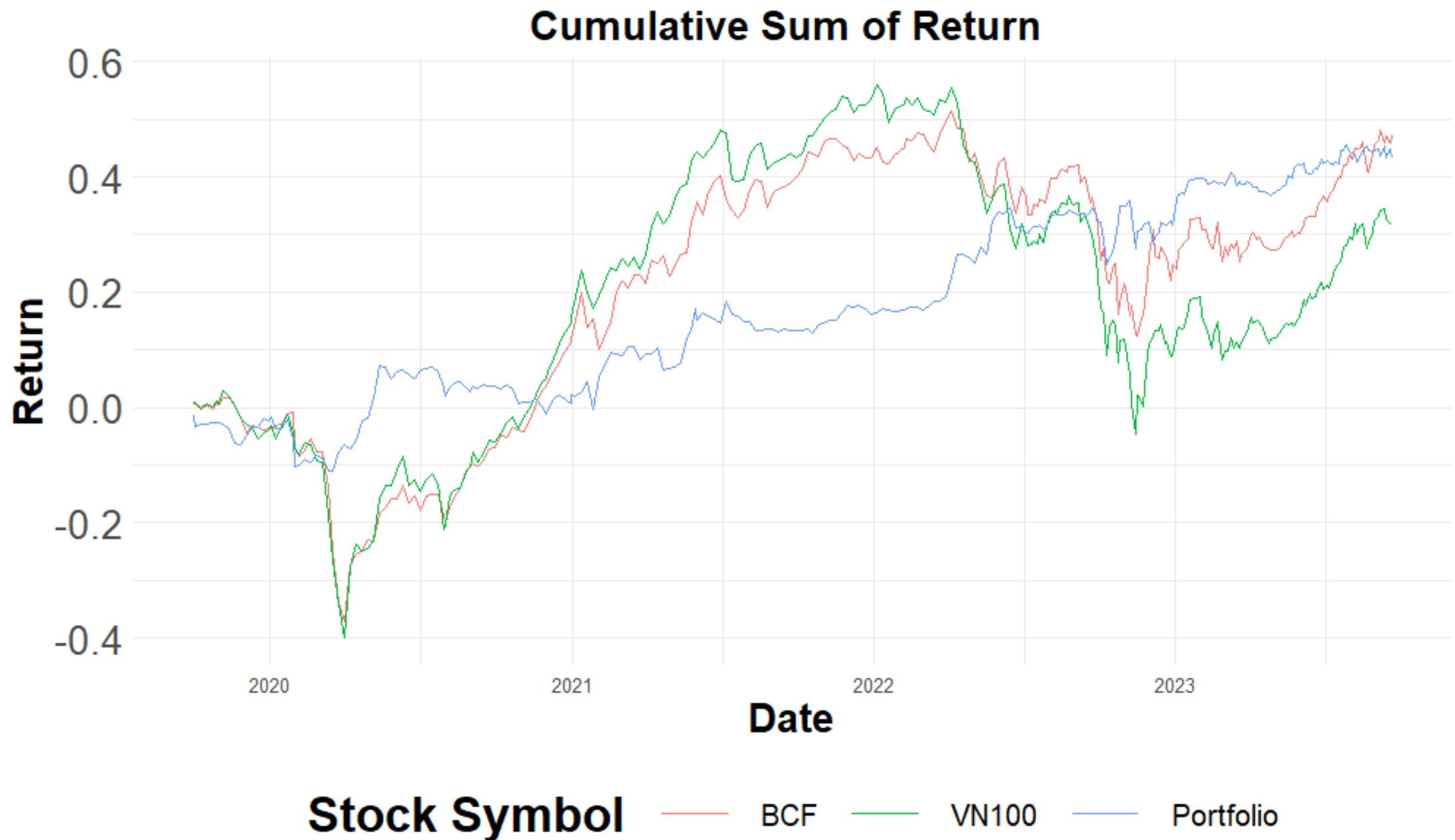
Summarise of Portfolios

	EWP	GMV	Optimal
Expected return (%)	0.032	0.0028	0.12
Var (%)	1.496	1.23	1.73
CVaR (%)	4.161	3.35	4.36
95% VaR (%)	2.771	1.97	2.67

- The Optimal portfolio clearly stands out with the highest expected return of 0.12%, which is significantly greater than both the EWP (0.032%) and GMV (0.0028%)
- The Optimal portfolio has the highest variance at 1.73%, The GMV has the lowest variance at 1.2985%
- The Optimal portfolio has the highest CVaR at 4.36%, meaning that its potential losses during extreme adverse movements are the greatest among the three portfolios
- The EWP has the highest 95% VaR at 2.771%

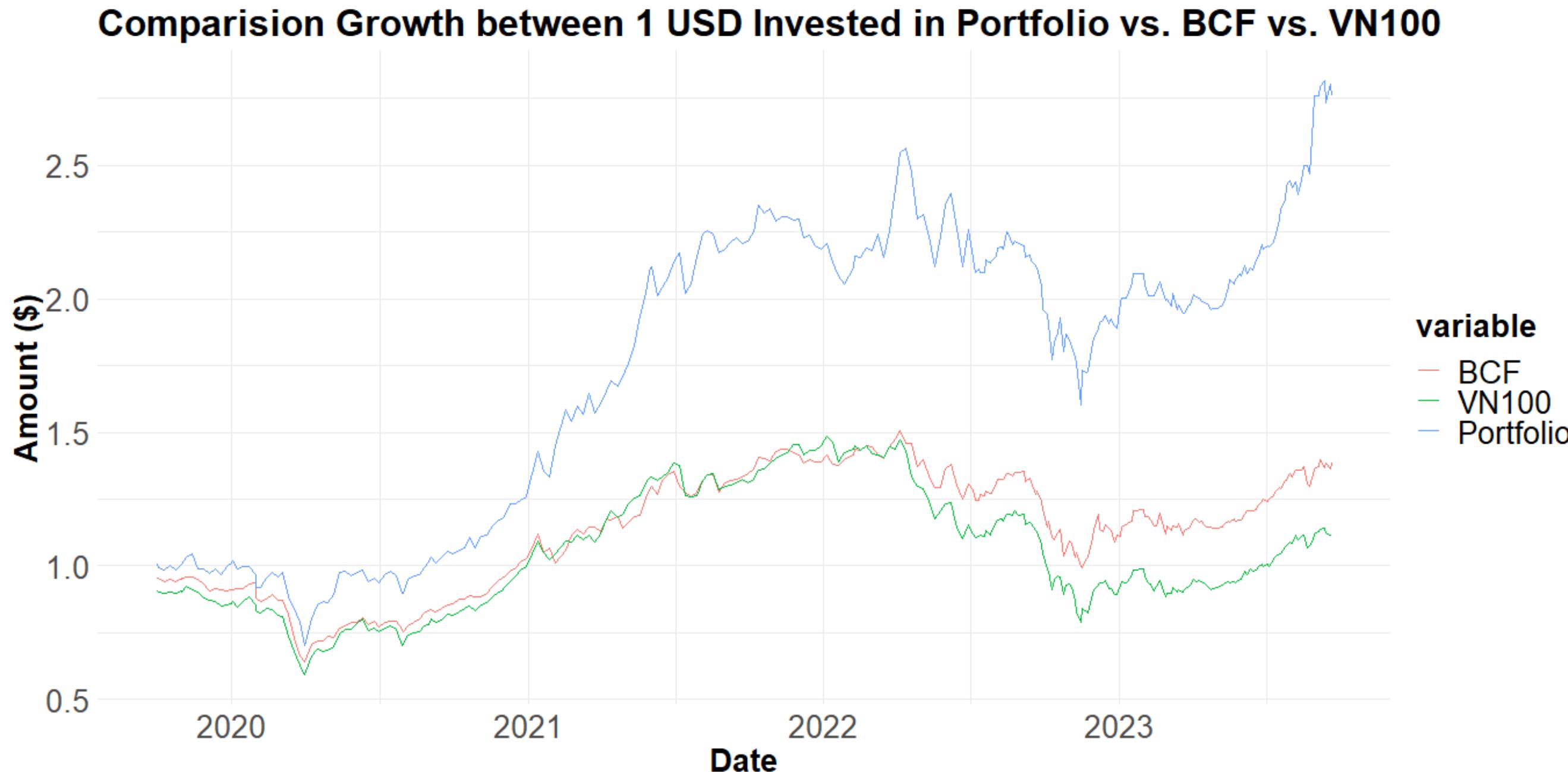
Performance Analysis

- Optimal portfolio (blue line) shows steady growth.
- VCBF-BCF and VN100 lines have noticeable fluctuations.
- Portfolio composition crucially impacts risk and return.



Performance Analysis

- Optimal portfolio (blue line) shows steady growth.
- VCBF-BCF and VN100 lines have noticeable fluctuations.
- Because of its gradual growth, portfolio outperforms the VN100 and BCF





Performance Analysis

	Portfolio	VBCF-BCF	VN100
Alpha	0.0013	0.00087	0
Beta	0.17	0.69	1
Maximum Drawdown	0.098	0.34	0.47
Treynor Ratio	0.0085	0.0023	0.0015

Alpha insights:

- Portfolio alpha: 0.0013, BCF: 0.00087.
- Both positive, suggesting outperformance on risk-adjusted basis.
- Portfolio's alpha is higher than BCF's, indicating **better excess return**.

Beta:

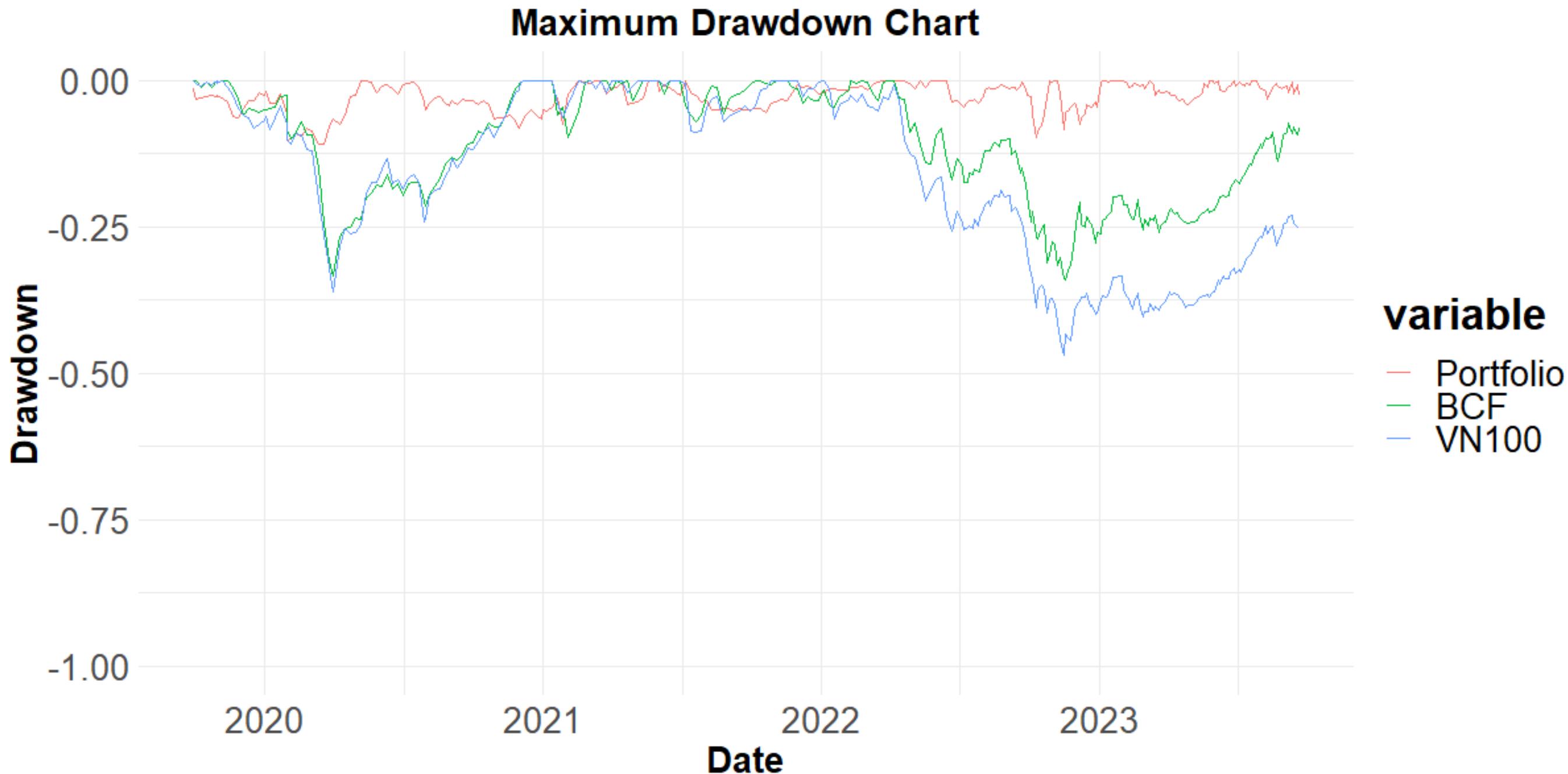
- Portfolio: 0.17, showing **low sensitivity to market movements**.

Performance Analysis

Performance insights:

- Portfolio's maximum drawdown: 9.8%. Lower than BCF's 34% and VN100's 47%. Indicates less downside risk.
- Treynor Ratio (risk-adjusted measure): Portfolio: 0.0085, higher than both market and BCF.

 Overall, the portfolio outperforms BCF and the market on all metrics.





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Conclusion

Overall, our portfolio is shown to outperform both the market and the VCBF-BCF fund, **with an expected return of 0.12% and a well-risk-return balanced variance of 1.73%**.

It's worth noting that not all stocks from the initial list feature in the final portfolio, **as several have zero weights**.

In addition, because of the prohibition of short-selling in the Vietnamese stock market, the optimal portfolio might not have the highest possible Sharpe ratio and is still leaving room for better optimization.





Thank you

TOPICS IN PORTFOLIO MANAGEMENT

VCBF-BCF Case Study

Group 1

