QUINTET
INVESTOR 3

FIN 2

ASSIGNMENT REPORT

HCMC, DECEMBER 6, 2024

QUINTET'S MEMBER

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Executive Summary

Quintet Capital, as financial adviser company to Carlo and Mary, is responsible for coordinating updates to the Investment Policy, including soliciting input from the designated tax and legal advisers to Carlo and Mary. Quintet is also responsible for monitoring application of the Investment Policy Statement and shall promptly notify Carlo and Mary of the need for updates to the Policy and/or violations of the Policy in implementation. We also affirm its compliance as a firm with the CFA Institute Asset Manager Code of Professional Conduct. Carlo and Mary shall be responsible for approving the Investment Policy Statement and all subsequent revisions to it.

Main Points

INVESTMENT POLICY STATEMENT (IPS)

ASSET ALLOCATION

PORTFOLIO CONSTRUCTION

FINAL AGGREGATE PORTFOLIO

SCENARIO ANALYSIS

PORTFOLIO EVALUATION

I. INVESTMENT POLICY STATEMENT (IPS)

1. Background

Name	Carlos Ramirez
Age	48
Career	Business Owner with annual income of $165,198
Family	Wife, two children (aged 16 and 18)
Investment Goals	Growth and income for personal goals and business expansion
Value of Investment	$750,000 (liquid investments)
Risk Tolerance	Moderate
Investment Horizon	10 - 20 Years, shifting to conservative as retirement nears
Preferences	Equities, corporate bonds, REITs, index funds

I. INVESTMENT POLICY STATEMENT (IPS)

1. Background

ASSETS

Mid-size logistics business equity	$1,200,000
Investment portfolio	$600,000
Personal savings	$150,000
Vacation Property	$350,000

LIABILITIES

Business loans	$200,000
Mortgage on vacation property	$100,000

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

2.1 Investment Objective

Stage 1 (2024–2030)

Carlos will prioritize **saving for his children's college expenses and mortgage payment** during this period. The financial strategy will be structured to ensure that adequate funds are available to cover tuition and other educational costs. Notably, he will **provide financial support for both children** in 2026 and 2027, with an estimated total fee of approximately **$56,000**, which represents nearly **26% of his family's annual expenses**, while maintaining a **balanced approach to personal savings and investments**.

Stage 2 (2031–2035)

During this stage, Mr. Carlo intends to **expand his logistics business** with a focus on the urban logistics market. His plan is to **acquire 10 semi-trucks over the next five years**, purchasing two trucks annually at a cost of **$100,000 each**. This expansion is projected to increase his net income by 1.92% annually, supporting both business growth and personal income objectives. For the purpose of forecasting and planning, other minor expenses, such as marketing and research, will not be considered.

Stage 3 (2036–2041)

As his business reaches a stable phase, Mr. Carlo will focus on **accumulating funds for retirement**, which he plans to achieve with his wife at **age 65 in 2041.** His strategy will shift toward **more conservative investments**, aiming to secure enough savings to support a comfortable retirement.

Stage 4 (2041 onwards)

After retiring in 2041, Mr. Carlo plans to **sell his logistics business for $5.7 million**. The sale will provide the necessary capital for his retirement, allowing him to enjoy a **financially secure post-retirement life** with his wife.

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

Stage 1 (2024 - 2030)

	2024	2025	2026	2027	2028	2029	2030
NET INCOME							
Net income - Carlos	$189,496.75	$196,024.51	$202,997.27	$210,186.80	$217,645.29	$225,211.96	$233,228.14
Net income - Wife	$94,753.70	$97,796.75	$100,748.57	$103,754.56	$106,857.69	$110,061.13	$131,882.95
TOTAL YEARLY INCOME	**$284,250.45**	**$293,821.27**	**$303,745.84**	**$313,941.36**	**$324,502.99**	**$335,273.09**	**$365,111.09**
EXPENSES							
Living Expense	**$117,462.07**	**$119,975.58**	**$115,925.42**	**$118,535.45**	**$99,093.81**	**$101,354.55**	**$82,227.81**
Food	$14,266.80	$14,552.14	$9,905.15	$10,113.16	$10,325.54	$10,542.37	$10,863.74
Utilities	$5,151.96	$5,255.00	$3,576.90	$3,652.02	$2,796.53	$2,855.26	$2,942.30
Medical	$30,480.00	$31,089.60	$31,742.48	$32,409.07	$24,817.25	$25,338.41	$17,407.21
Clothing	$7,728.00	$7,882.56	$8,048.09	$8,217.10	$6,292.25	$6,424.38	$4,413.48
Public transportation	$13,487.98	$13,757.74	$14,046.65	$14,341.63	$10,982.10	$11,212.73	$7,703.02
Telephone	$6,768.00	$6,903.36	$7,048.33	$7,196.35	$5,510.60	$5,626.32	$3,865.22
Property tax	$3,630.00	$3,702.60	$3,780.35	$3,859.74	$3,940.80	$4,023.55	$4,146.20
Retirement savings (401K)	$11,369.80	$11,761.47	$12,179.84	$12,611.21	$13,058.72	$13,512.72	$13,993.69
Savings/emergencies	$5,000.00	$5,100.00	$5,207.10	$5,316.45	$5,428.09	$5,542.08	$5,711.03
Entertainment	$14,272.00	$14,557.44	$14,863.15	$15,175.27	$11,620.46	$11,864.49	$8,150.78
Vacation (Summer)	$3,695.41	$3,769.32	$3,848.48	$3,929.30	$3,008.86	$3,072.04	$2,110.46
Anniversary party	$1,254.00	$1,279.08	$1,305.94	$1,333.37	$1,021.02	$1,042.47	$716.16
Miscellaneous	$358.11	$365.27	$372.95	$380.78	$291.58	$297.70	$204.52
Children's Education	**$24,920.00**	**$25,999.97**	**$54,253.50**	**$56,604.72**	**$29,528.92**	**$30,808.63**	**$0.00**
Mortgage Payment	**$20,144.90**	**$20,144.90**	**$20,144.90**	**$20,144.90**	**$20,144.90**	**$17,026.75**	**$0.00**
TOTAL EXPENSES	**$162,526.97**	**$166,120.45**	**$190,323.81**	**$195,285.06**	**$148,767.62**	**$149,189.93**	**$82,227.81**

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

Stage 2 (2031 - 2035)

	2031	2032	2033	2034	2035
NET INCOME					
Net income - Carlos	$241,558.56	$254,145.70	$267,386.87	$281,202.41	$295,762.73
Net income - Wife	$131,882.95	$135,951.81	$140,163.17	$144,846.81	$149,662.53
TOTAL YEARLY INCOME	**$373,441.51**	**$390,097.51**	**$407,550.04**	**$426,049.22**	**$445,425.27**
EXPENSES					
Living Expense	**$84,828.10**	**$87,878.47**	**$90,925.19**	**$93,721.50**	**$96,537.43**
Food	$11,198.16	$11,563.58	$11,922.17	$12,235.40	$12,544.64
Utilities	$3,032.87	$3,131.84	$3,228.96	$3,313.79	$3,397.55
Medical	$17,943.06	$18,528.57	$19,103.14	$19,605.04	$20,100.54
Clothing	$4,549.34	$4,697.79	$4,843.47	$4,970.73	$5,096.36
Public transportation	$7,940.14	$8,199.25	$8,453.50	$8,675.60	$8,894.87
Telephone	$3,984.21	$4,114.22	$4,241.80	$4,353.25	$4,463.27
Property tax	$4,273.84	$4,413.30	$4,550.16	$4,669.70	$4,787.73
Retirement savings (401K)	$14,493.51	$15,248.74	$16,043.21	$16,872.14	$17,745.76
Savings/emergencies	$5,886.83	$6,078.93	$6,267.43	$6,432.10	$6,594.67
Entertainment	$8,401.68	$8,675.84	$8,944.88	$9,179.89	$9,411.91
Vacation (Summer)	$2,175.43	$2,246.42	$2,316.08	$2,376.93	$2,437.00
Anniversary party	$738.21	$762.30	$785.94	$806.59	$826.97
Miscellaneous	$210.81	$217.69	$224.44	$230.34	$236.16
Business expansion	**$200,000.00**	**$200,000.00**	**$200,000.00**	**$200,000.00**	**$200,000.00**
TOTAL EXPENSES	**$284,828.10**	**$287,878.47**	**$290,925.19**	**$293,721.50**	**$296,537.43**

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

Stage 3 (2036 - 2041)

	2036	2037	2038	2039	2040	2041
NET INCOME						
Net income - Carlos	$306,284.38	$317,224.03	$328,595.36	$340,417.81	$351,570.22	$364,005.36
Net income - Wife	$159,761.01	$149,818.87	$153,585.62	$157,502.73	$161,526.90	$163,715.63
TOTAL YEARLY INCOME	**$466,045.39**	**$467,042.90**	**$482,180.98**	**$497,920.53**	**$513,097.12**	**$527,720.99**
EXPENSES						
Living Expense	**$99,179.34**	**$101,940.26**	**$104,819.36**	**$107,826.67**	**$110,903.87**	**$114,178.29**
Food	$12,864.75	$13,199.82	$13,549.58	$13,915.45	$14,298.84	$14,701.38
Utilities	$3,484.24	$3,574.99	$3,669.72	$3,768.81	$3,872.65	$3,981.67
Medical	$20,613.47	$21,150.36	$21,710.79	$22,297.02	$22,911.34	$23,556.34
Clothing	$5,226.41	$5,362.53	$5,504.63	$5,653.26	$5,809.02	$5,972.55
Public transportation	$9,121.85	$9,359.44	$9,607.44	$9,866.86	$10,138.71	$10,424.13
Telephone	$4,577.16	$4,696.38	$4,820.82	$4,950.99	$5,087.40	$5,230.62
Property tax	$4,909.90	$5,037.78	$5,171.27	$5,310.91	$5,457.23	$5,610.86
Retirement savings (401K)	$18,377.06	$19,033.44	$19,715.72	$20,425.07	$21,094.21	$21,840.32
Savings/emergencies	$6,762.95	$6,939.09	$7,122.96	$7,315.30	$7,516.84	$7,728.46
Entertainment	$9,652.08	$9,903.48	$10,165.89	$10,440.39	$10,728.04	$11,030.06
Vacation (Summer)	$2,499.19	$2,564.28	$2,632.23	$2,703.30	$2,777.79	$2,855.99
Anniversary party	$848.07	$870.16	$893.22	$917.34	$942.61	$969.15
Miscellaneous	$242.19	$248.50	$255.08	$261.97	$269.19	$276.77
TOTAL EXPENSES	**$99,179.34**	**$101,940.26**	**$104,819.36**	**$107,826.67**	**$110,903.87**	**$114,178.29**

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

Stage 4 (2041 onwards)

	2042	2043	2044	2045	2046	2047
NET INCOME						
Net income -Carlos	$38,605.26	$39,670.59	$40,746.39	$41,837.45	$42,961.26	$44,121.71
Net income - Wife	$44,000.00	$45,214.20	$46,440.34	$47,683.86	$48,964.71	$50,287.33
TOTAL YEARLY INCOME	**$82,605.26**	**$84,884.80**	**$87,186.72**	**$89,521.31**	**$91,925.97**	**$94,409.04**
EXPENSES						
Living Expense	**$92,747.53**	**$95,306.95**	**$97,891.51**	**$100,512.73**	**$103,212.64**	**$106,000.58**
Food	$15,110.94	$15,527.94	$15,949.03	$16,376.09	$16,815.98	$17,270.20
Utilities	$3,981.67	$4,091.55	$4,202.50	$4,315.03	$4,430.94	$4,550.63
Medical	$23,556.34	$24,206.39	$24,862.83	$25,528.57	$26,214.30	$26,922.39
Clothing	$5,972.55	$6,137.37	$6,303.80	$6,472.60	$6,646.46	$6,825.99
Public transportation	$10,424.13	$10,711.79	$11,002.27	$11,296.88	$11,600.33	$11,913.67
Telephone	$5,230.62	$5,374.96	$5,520.72	$5,668.55	$5,820.81	$5,978.04
Property tax	$5,610.86	$5,765.70	$5,922.05	$6,080.62	$6,243.96	$6,412.62
Savings/emergencies	$7,728.46	$7,941.73	$8,157.10	$8,375.52	$8,600.49	$8,832.81
Entertainment	$11,030.06	$11,334.44	$11,641.81	$11,953.54	$12,274.62	$12,606.18
Vacation (Summer)	$2,855.99	$2,934.80	$3,014.38	$3,095.10	$3,178.24	$3,264.09
Anniversary party	$969.15	$995.89	$1,022.90	$1,050.29	$1,078.50	$1,107.63
Miscellaneous	$276.77	$284.40	$292.12	$299.94	$307.99	$316.31
TOTAL EXPENSES	**$92,747.53**	**$95,306.95**	**$97,891.51**	**$100,512.73**	**$103,212.64**	**$106,000.58**
Business Exit	**$5,700,000.00**					

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

Stage 4 (2041 onwards)

	2048	2049	2050	2051	2052	2053	2054
NET INCOME							
Net income - Carlos	$45,319.43	$46,554.05	$47,825.32	$49,132.45	$50,474.11	$51,848.27	$53,256.97
Net income - Wife	$51,652.42	$53,059.56	$54,508.48	$55,998.27	$57,527.42	$59,093.60	$60,699.16
TOTAL YEARLY INCOME	**$96,971.85**	**$99,613.61**	**$102,333.80**	**$105,130.73**	**$108,001.53**	**$110,941.87**	**$113,956.13**
EXPENSES							
Living Expense	**$108,863.82**	**$111,804.41**	**$114,824.42**	**$117,926.01**	**$121,111.38**	**$124,382.79**	**$127,742.57**
Food	$17,736.70	$18,215.80	$18,707.83	$19,213.16	$19,732.14	$20,265.14	$20,812.53
Utilities	$4,673.55	$4,799.79	$4,929.44	$5,062.59	$5,199.34	$5,339.78	$5,484.01
Medical	$27,649.61	$28,396.47	$29,163.51	$29,951.26	$30,760.29	$31,591.17	$32,444.50
Clothing	$7,010.37	$7,199.74	$7,394.21	$7,593.94	$7,799.07	$8,009.73	$8,226.09
Public transportation	$12,235.48	$12,565.98	$12,905.41	$13,254.00	$13,612.01	$13,979.70	$14,357.31
Telephone	$6,139.52	$6,305.36	$6,475.68	$6,650.59	$6,830.24	$7,014.73	$7,204.21
Property tax	$6,585.83	$6,763.73	$6,946.43	$7,134.06	$7,326.76	$7,524.67	$7,727.92
Savings/emergencies	$9,071.39	$9,316.43	$9,568.08	$9,826.53	$10,091.96	$10,364.56	$10,644.52
Entertainment	$12,946.69	$13,296.41	$13,655.56	$14,024.42	$14,403.24	$14,792.30	$15,191.86
Vacation (Summer)	$3,352.26	$3,442.81	$3,535.80	$3,631.31	$3,729.40	$3,830.13	$3,933.59
Anniversary party	$1,137.55	$1,168.28	$1,199.84	$1,232.25	$1,265.53	$1,299.72	$1,334.82
Miscellaneous	$324.86	$333.63	$342.64	$351.90	$361.41	$371.17	$381.19
TOTAL EXPENSES	**$108,863.82**	**$111,804.41**	**$114,824.42**	**$117,926.01**	**$121,111.38**	**$124,382.79**	**$127,742.57**

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

2.1 Investment Objective

Based on an evaluation of our client's objectives, we employ the **Goals-Based Asset Allocation (GBAA)** methodology to determine the optimal distribution of portfolio assets.

Unlike institutional clients, individual investors typically pursue multiple objectives, each characterized by distinct time horizons and levels of urgency. The GBAA strategy addresses this by dividing the investor's portfolio into separate sub-portfolios, each designed to meet the specific requirements of an individual goal. This approach accounts for the unique time horizon, urgency, and probability of success associated with each objective.

The investment methodology shifts from relying on average expected returns to leveraging probability- and horizon-adjusted expectations, referred to as minimum expectations, to calculate the funding costs associated with each goal. These minimum expectations function as the discount rate applied to future cash flows.

Our strategy prioritizes achieving the most cost-effective funding for each goal by constructing multiple optimized sub-portfolios, tailored to the individual requirements of these objectives. This process minimizes risk within defined parameters. The sub-portfolios are differentiated by unique constraints, such as minimum liquidity requirements, acceptable levels of volatility, and the minimum cash allocations necessary for each goal.

I. INVESTMENT POLICY STATEMENT (IPS)

2. Investment Objective, Strategy and Return Objective

2.2 Investment Strategy

Through a comprehensive analysis of our client's needs, aspirations, and priorities, we have identified six key objectives to shape their asset allocation strategy:

Retirement Security

Achieving a **90% probability** of maintaining the current level of expenditures over the next 30 years to ensure financial stability throughout retirement

Mortgage Obligation

Attaining a **90% probability** of meeting mortgage payment requirements in six years.

Educational Funding

Securing a **80% probability** of covering the anticipated financial needs for their children's future within the next six years.

Business Expansion

Reaching a **70% probability** of amassing the necessary capital for business growth in 12 years.

Endowment

Establishing a **70% probability** of building a sustainable endowment for future use within 20 years.

Charitable Donation

Ensuring a **60% probability** of enabling a significant contribution to their local library as a charitable donation upon their passing in approximately 30 years.

I. INVESTMENT POLICY STATEMENT (IPS)

3. Risk Tolerance

3.1 Ability

Carlos Ramirez and his wife, with their combined annual income of $259,952, have established a strong financial foundation. Their diversified portfolio, which includes $1.2 million in logistics business equity, $600,000 in REITs and index funds, $150,000 in personal savings, and a $350,000 vacation property, reflects a prudent investment strategy. Despite $300,000 in liabilities, their net asset position of $2 million and consistent cash flows provide significant capacity to accommodate investment volatility without jeopardizing their financial objectives. Considering their wealth position, ongoing income stability, and long-term goals like funding their children's education and preparing for retirement, Carlos's ability to take risks can be characterized as " **average**."

3.2 Willingness

Carlos and Mary Ramirez are pragmatic investors who prioritize maintaining financial stability while pursuing growth in their investment portfolio. They have a clear understanding of the uncertainties associated with investment risk and aim to achieve returns that correspond to their risk exposure. Their investment philosophy emphasizes a balance between growing assets and managing potential losses, in alignment with their 2024 Financial Plan. Based on a risk assessment conducted on November 11, 2024, Carlos and Mary have expressed a firm aversion to losses exceeding 10% over any 12-month period. Their willingness to take risks is generally “**below average**’’.

To reconcile the portfolio's considerable ability to accommodate risk and the Carlo' apparent preference for lower risk, their overall risk tolerance is described in this policy statement as "moderate" or "average."

I. INVESTMENT POLICY STATEMENT (IPS)

4. Constraints

4.1 Liquidity and Constraints

Goal	Constraints	
	Liquidity	**Time Horizon**
Retirement Security	An extreme liquidity constraint. This is because, as the client approaches retirement and begins to draw income from the portfolio, there must be sufficient cash or easily liquidated assets available to meet regular withdrawals. Given the long duration of the retirement period, it's essential to maintain a portion of the portfolio in highly liquid assets, such as cash or short-term investments, to ensure the client can meet any immediate cash needs without having to sell long-term investments at unfavorable times.	The portfolio will be invested with a 30-year time horizon until they pass away.
Mortgage Obligation	High liquidity constraints. This high liquidity requirement ensures that the client can promptly access the necessary funds for mortgage payments at any time, avoiding the risk of cash flow shortages.	The client has to finish home payment in 6 years, which is fully paid in 2029
Educational Funding	A median liquidity need because it represents only a small portion of the couple's income, and the education is also heavily supported by the U.S. government	The client plans the children's education is 7 years (2024-2030), with a specific focus on 2 years (2026,2927) of support for both children.
Business Expansion	A low liquidity constraint because the client views business expansion as an optional goal to be pursued once other, more immediate goals have been achieved.	The client plans to expand the business 5 years after funding their children's education.
Endowment	A low liquidity constraint is appropriate as Carlos views this as an optional goal to make a meaningful contribution to society.	The endowment is intended to support his children starting 20 years from now, coinciding with the client's planned retirement plan.
Charitable Donation	A low liquidity constraint is appropriate as Carlos views this as an optional goal to make a meaningful contribution to society.	The remaining funds after the client's passing will be allocated as a charitable donation to help the disabilities.

I. INVESTMENT POLICY STATEMENT (IPS)

4. Constraints

4.2 Tax

Carlos and Mary Ramirez are subject to their country's tax regulations and are focused on implementing strategies that minimize tax liabilities while maximizing the wealth. They aim to optimize their financial plan by leveraging tax-efficient investment strategies, such as utilizing tax-advantaged accounts and taking advantage of available deductions and credits, to ensure long-term financial security and financial goals.

4.3 Legal

Carlos and Mary are committed to adhering to all legal and regulatory standards applicable to their financial planning.

I. INVESTMENT POLICY STATEMENT (IPS)

5. Unique Circumstances

Business Equity and Liquidity

A key component of Carlos and Mary’s financial strategy is the equity held in their logistics business, which represents a significant portion of their wealth. This asset is illiquid, and while it plays an integral role in their financial plan, they must continually monitor business performance and market conditions to ensure this asset aligns with their retirement and legacy goals.

Vacation Property

Their vacation property, valued at $350,000, is another illiquid asset. Carlos and Mary have decided not to include this property in their actively managed investment portfolio, as it serves more as a personal asset for family enjoyment rather than an income-generating investment. It is fully owned and does not carry a mortgage.

Estate Planning Considerations

Carlos and Mary are committed to ensuring their children's financial security through tax-efficient strategies. They will explore options such as outright gifts, the establishment of family trusts, or other wealth transfer strategies that allow them to support their children’s future educational and financial needs. Additionally, they are considering making charitable contributions to support local causes, including a planned donation to their community library, to establish a lasting legacy.

Investment Preferences

Carlos and Mary want to maintain a diversified portfolio that balances growth with risk management. While they are open to various investment opportunities, they have expressed a preference for lower-risk options and want limited exposure to high-volatility assets, including stocks.

II. Asset Allocation

1. Asset Classes selection

a. Equity: S&P 500 (Expected Return: 10%)

The S&P 500 index includes the largest and most established companies in the U.S., covering a wide range of industries. It is commonly used as a benchmark for the overall U.S. economy and has a proven history of generating strong long-term capital growth. Over the last ten years, the S&P 500 has achieved impressive **annualized returns of 16.6%.**

S&P 500 long-term returns can be broken down into **five components**:

Total return = (Sales growth / share count growth) × margin growth × P/E multiple growth + dividend yield

Between 2011 and 2021, a significant portion of these returns were driven by a 6% annual increase in the **price-to-earnings (P/E) multiple**, which was the largest contributor to overall performance, followed by **margin growth (3.9%)**, **sales growth (3.5%)**, the **dividend yield (2.4%)**, and a decrease in the share count due to buybacks (0.7%). These high returns were supported by favorable macroeconomic conditions, including low interest rates and expanding margins.

10 Years	EPS	DPS	Sales Per Share	Sales in Dollars	Share Count	Margin	P/E Multiple	Yield	Price	Total Return
12/31/2011	96.44	29.12	1,052.83	9,531.2	9,052.9	9.2%	13.0	2.3%	1,257.6	
12/31/2021	208.21	63.12	1,566.80	13,266.5	8,467.3	13.3%	22.9	1.3%	4,766.2	
Growth %	115.9%	116.8%	48.8%	39.2%	6.9%	45.1%	75.5%	-42.8%	279.0%	362.6%
Annual Avg	8.0%	8.0%	4.1%	3.4%	0.7%	3.8%	5.8%	2.3%	14.3%	16.6%
Return Attribution				3.5%	0.7%	3.9%	6.0%	2.4%		16.6%

Source: Chris Bloomstran

With P/E multiples and profit margins currently at historic highs, further expansion from these levels seems improbable. As a result, the main sources of future returns are anticipated to come from **sales growth, share buybacks, and dividends**.

II. Asset Allocation

1. Asset Classes selection

a. Equity: S&P 500 (Expected Return: 10%)

Our research suggests that long-term economic conditions will remain stable, fostering steady sales growth. We also expect buybacks to be moderate and dividend payouts to remain consistent. Profit margins and P/E multiples are likely to stabilize at their current levels. After incorporating these assumptions into Chris Bloomstran model, we project a **long-term expected return of 10%** for the S&P 500.

Time horizon	EPS	Sales per share	Sales in $	Share count	Profit Margins	P/E Multiple	Div. Yield	Price	Total Return
9/30/2023	208.11	$1,707.00	$14,338.70	8400	12.20%	17.2	1.90%	3585.6	
9/30/2032	340.01	$2,558.27	$20,031.58	7830.18	13.30%	22.90%	1.30%	7786.34	
Total Growth	**63.40%**	**49.90%**	**39.70%**	**-6.80%**	**9.00%**	**33.10%**	**-31.60%**	**117.20%**	
Growth p.a	5%	4.10%	3.40%	-0.70%	0.90%	2.90%	-3.70%	8.10%	
Attribution	5%	4.10%	3.40%	0.70%	0.90%	2.90%	1.90%		**10%**

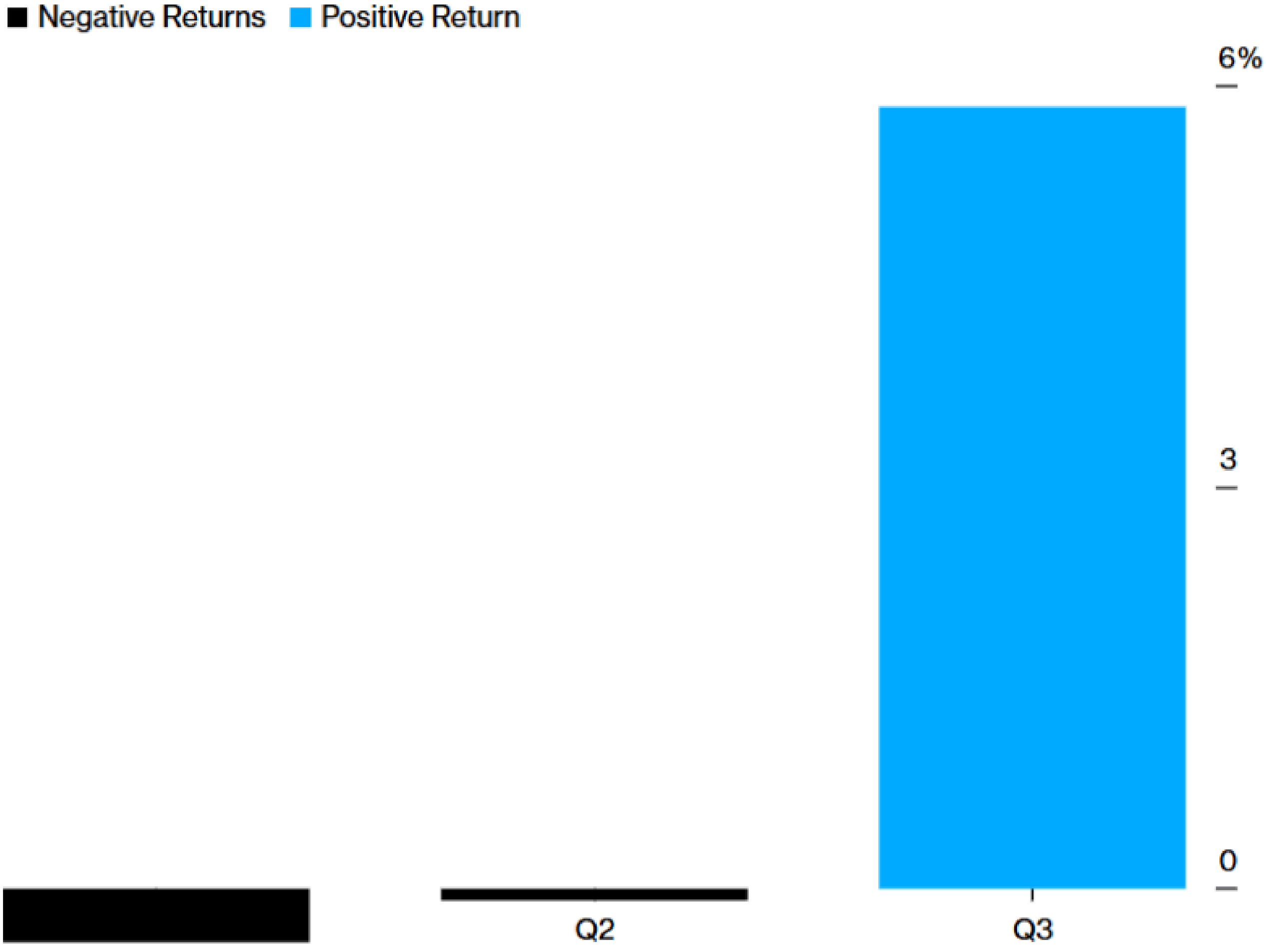
II. Asset Allocation

1. Asset Classes selection

b. U.S Investment Grade Bond (Expected Return: 5.8%)

The U.S. investment-grade corporate bond market has shown strong resilience and solid performance, posting a 5.8% return in the past three months, marking its most substantial gain since the final quarter of 2023. This outstanding performance is primarily driven by **improved investor sentiment** and increased clarity about the Federal Reserve's **monetary policy direction**. In particular, the Fed's policy approach has helped push Treasury yields down to their lowest levels in over a year.

Investment-Grade Bonds Post Best Quarter Since End of 2023



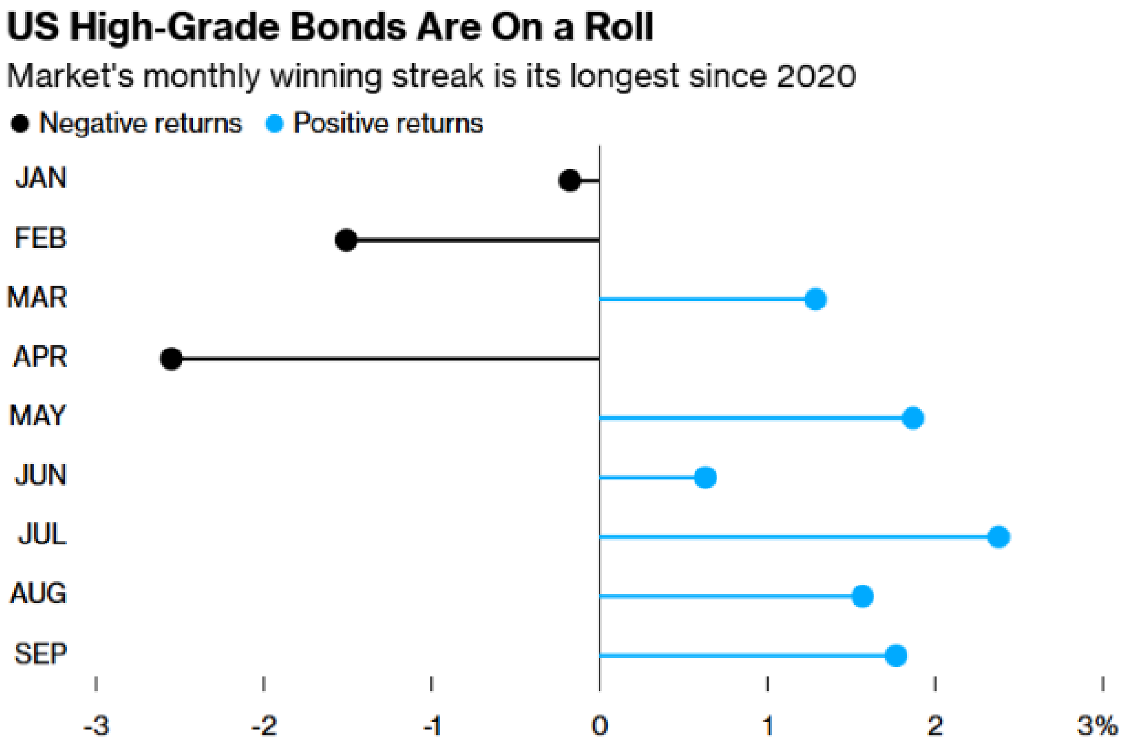
Source: Bloomberg investment-grade corporate index

II. Asset Allocation

1. Asset Classes selection

b. U.S Investment Grade Bond (Expected Return: 5.8%)

Investor appetite for investment-grade corporate bonds has been particularly strong, with demand far surpassing supply. According to Bloomberg data, year-to-date orders have outpaced supply by a factor of 3.7, and in September, demand surged to **5.4 times the available supply**, despite a global rise in debt issuance. This persistent demand highlights the attractiveness of high-quality corporate debt, even in a challenging economic environment with shifting monetary policies and heightened uncertainty.



Source: Bloomberg investment-grade corporate index

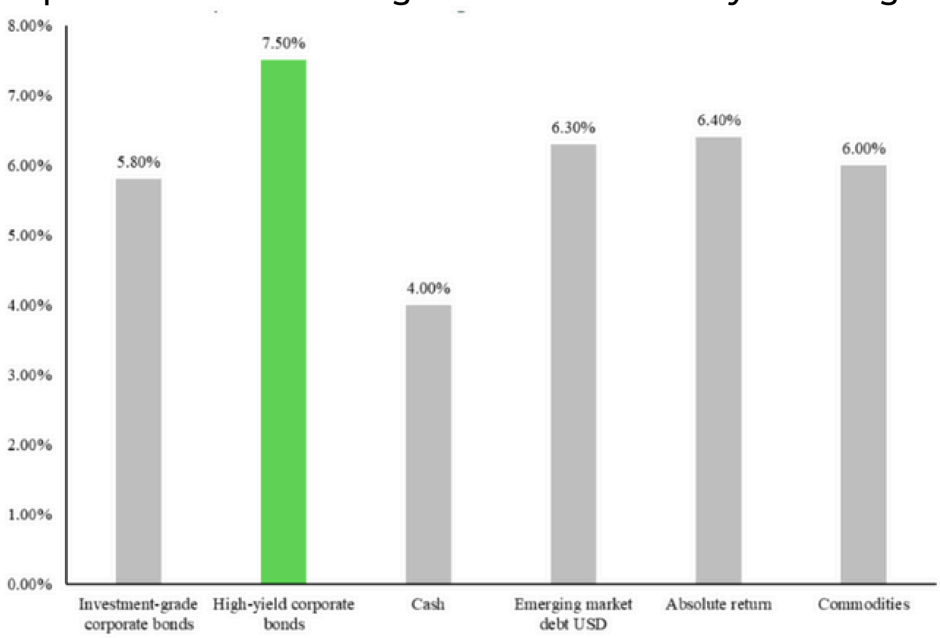
Investor appetite for investment-grade corporate bonds has been particularly strong, with demand far surpassing supply. According to Bloomberg data, year-to-date orders have outpaced **supply by a factor of 3.7**, and in September, demand surged to **5.4 times the available supply**, despite a global rise in debt issuance. This persistent demand highlights the attractiveness of high-quality corporate debt, even in a challenging economic environment with shifting monetary policies and heightened uncertainty.

II. Asset Allocation

1. Asset Classes selection

c. US High - Yield Bond (Expected Return: 7.5%)

According to Columbia Threadneedle Investments, in the long term, U.S. stocks are expected to generate a return of 6.3%, while investment-grade corporate bonds are projected to deliver a higher total return of 7.5%. This makes high-quality corporate bonds particularly appealing to income-seeking investors. While the Federal Reserve's decision to cut the federal funds rate in September 2024 could result in lower coupon rates, expectations that fewer rate cuts will occur suggest that rates may not decline significantly in the near future. As a result, investment-grade corporate bonds continue to be an attractive option, especially as their yields have risen alongside Treasury yields in recent months, maintaining a position near the high end of their 15-year range.



Forecasted five-year total average returns (%) (source: Columbia Threadneedle Investments)

With expected returns of 7.5% or more, these bonds present a compelling choice for investors with an intermediate- to long-term investment horizon, who are seeking consistent income and the potential for stable returns. These bonds not only offer higher yields compared to equities but also benefit from favorable market conditions, such as the tightening of credit spreads and the ongoing adjustments in the yield curve, further enhancing their appeal relative to other investment options.

II. Asset Allocation

1. Asset Classes selection

d. US REITs (Expected Return: 15%)

A look back at REIT returns reveals an interesting trend. Over a 15-year period (from 6/30/2004 to 6/30/2019), U.S. REITs have outperformed the broader U.S. market by about 0.7%. The situation shifts significantly in the past 5 years, though. In the wake of the COVID-19 pandemic and the Federal Reserve's Quantitative Tightening (QT) policies, REITs have struggled, delivering average annual returns of just 3.40%.

	FTSE Nareit All Equity REITs	S&P 500	S&P 500 Equal Weighted
20-year through 6/30/2024	7.87%	10.29%	10.06%
15-year through 6/30/2019 *(6/30/2004 - 6/30/2019)*	9.41%	8.75%	9.77%
5-year through 6/30/2024 *(6/30/2019 - 6/30/2024)*	3.40%	15.05%	10.94%

This underperformance has resulted in a notable valuation gap, with REITs trading at a -4.3x multiple discount compared to equities, whereas historically, they traded at a +0.5x premium.

II. Asset Allocation

1. Asset Classes selection

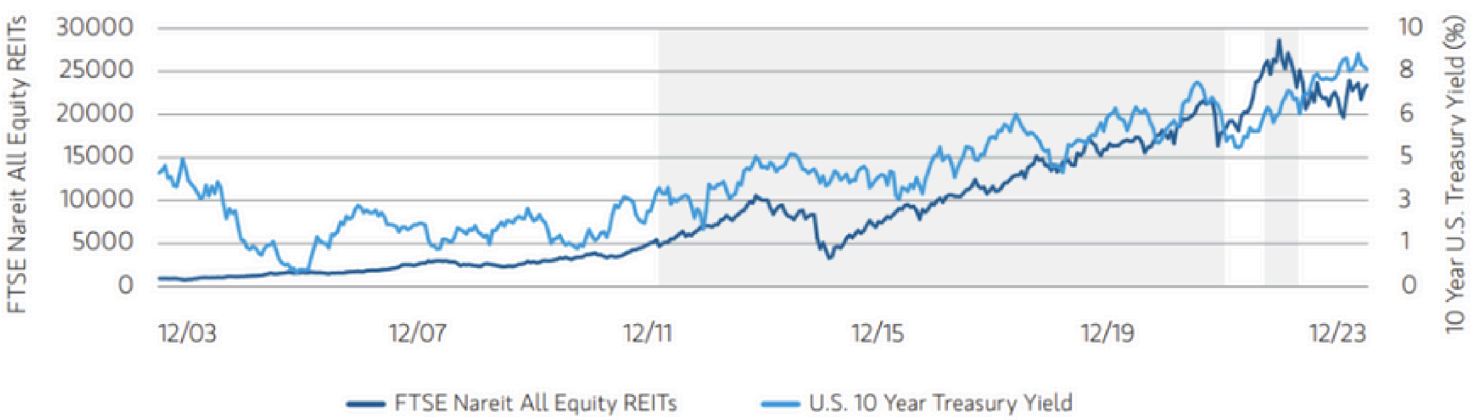
d. US REITs (Expected Return: 15%)

The expectation is that REITs will see a breakout when the current period of Quantitative Tightening (QT) shifts to Quantitative Easing (QE). Historically, REITs have shown a strong negative correlation to rising interest rates, and with global central banks beginning rate cuts, the environment for REITs could improve. In fact, REITs have historically performed well after the first rate cut.

DISPLAY 3

History Suggests that as Interest Rates Drop, REIT Values Will Increase

REITs vs. U.S. 10-year Treasury Yield



Source: Bloomberg, FTSE Nareit. Index performance is provided for illustrative purposes only and is not meant to depict the performance of a specific investment. **Past performance is no guarantee of future results.**

Thus, the outlook for REITs is optimistic. The current 0% NAV premium is expected to rise to 6% by the end of 2024, with underlying NAVs projected to grow by 5%, driven by 3% growth in net operating income (NOI) and minor cap rate compression. This leads to an estimated 11% price return for the REIT index, and with a 4% dividend yield, a total return of 15% for REITs is expected.

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

a. Constructing Optimized Modules

Having chosen the asset classes, we now explore how each sub-portfolio is developed.

Creating an appropriate set of optimized modules starts with the formulation of capital market assumptions. After employing **Black Litterman model** to estimate the expected return and **DCC-Copula GARCH model** to estimate covariance matrix, we get the Exhibit 40 presents a set of expectations for expected return, volatility, and liquidity and Exhibit 41 represent DCC-copula GARCH covariance matrix (being squared).

	Expected		
	Return	Expected Volatility	Liquidity
Cash	0.30%	0.29%	100%
Large-Cap S&P 500 Equity	6.67%	6.64%	80%
Investment-Grade US Bonds	4.10%	4.53%	70%
High-Yield US Bonds	5.16%	4.99%	65%
Real Estate Investment Trusts (REITS)	11.30%	14.25%	65%

Exhibit 40. Expectations for expected return, volatility, and liquidity

	Large-Cap S&P 500 Equity	Investment-Grade US Bonds	High-Yield US Bonds	Real Estate Investment Trusts (REITs)	Cash
Large-Cap S&P 500 Equity	6.64%	2.31%	3.34%	6.62%	0.47%
Investment-Grade US Bonds	2.31%	4.53%	3.61%	4.54%	0.26%
High-Yield US Bonds	3.34%	3.61%	4.99%	4.91%	0.45%
Real Estate Investment Trusts (REIT	6.62%	4.54%	4.91%	10.25%	0.54%
Cash	0.47%	0.26%	0.45%	0.54%	0.29%

Exhibit 41. Covariance matrix of DCC GARCH

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

a. Constructing Optimized Modules

Next, we will find the **optimized** modules with **distinct constraints.** The optimization process employs an efficient frontier framework to **maximize sharpe** as well as satisfy a range of constraints designed to reflect the suitability of strategies in alignment with the goals of our client.

Three key constraints are particularly noteworthy. The first is the emphasis on **minimum liquidity**, second is **minimum cash to hold** and finally is the **maximum volatility** of the portfolio.

Here are 4 optimized asset allocation modules that inline with different constraints we have mentioned.

	A	B	C	D
Portfolio Characteristics				
Expected return	4.10%	4.80%	5.40%	5.70%
Expected volatility	3.10%	3.60%	4.10%	4.30%
Portfolio Allocations				
Cash	31.75%	20%	10%	5%
Large-Cap S&P 500 Equity	19.31%	22.44%	25.26%	26.67%
Investment-Grade US Bonds	19.83%	23.08%	25.94%	27.36%
High-Yield US Bonds	20.88%	24.78%	27.94%	29.51%
Real Estate Investment Trusts (REITs)	8.23%	9.70%	10.87%	11.45%
Total	100%	100%	100%	100%
Constraints				
Minimum Cash	30%	20%	10%	5%
Minimum Liquidity	80%	70%	60%	50%
Maximum volatility	3.50%	4%	4.50%	5%

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

b. Choosing suitable asset allocation module for client

The IPS have defined the needs of the investor in as much detail as possible, the next step in the process is to **identify the proportion** of assets that needs to be allocated to each goal. The process will start with a set of sub-portfolio modules.

When using a set of pre-optimized modules, we will then **identify the module best suited to each of the specific goals** of the client. That process is always driven by the client’s time horizon and required probability of success, and it involves identifying the module that offers the highest possible return given the investor’s risk tolerance as characterized by a given required probability of success over a given time horizon.

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

b. Choosing suitable asset allocation module for client

Here, we list out the : "**Highest Probability- and Horizon-Adjusted Return**" Sub-Portfolio Module under Different Horizon and Probability Scenarios.

Portfolio Characteristics	A	B	C	D
Expected return	4.10%	4.80%	5.40%	5.70%
Expected volatility	3.10%	3.60%	4.10%	4.30%
	Annualized Minimum Expectation Returns			
Time Horizon (years)	**6**			
Required Success				
90	2.50%	2.93%	3.29%	3.47%
80	3.05%	3.58%	4.02%	4.25%
70	3.46%	4.05%	4.56%	4.81%
60	3.80%	4.45%	5.01%	5.28%
Time Horizon (years)	**12**			
Required Success				
90	2.97%	3.48%	3.92%	4.13%
80	3.37%	3.94%	4.43%	4.68%
70	3.65%	4.28%	4.81%	5.08%
60	3.89%	4.56%	5.13%	5.41%
Time Horizon (years)	**20**			
Required Success				
90	3.23%	3.79%	4.26%	4.49%
80	3.54%	4.14%	4.66%	4.91%
70	3.76%	4.40%	4.95%	5.22%
60	3.94%	4.62%	5.19%	5.48%
Time Horizon (years)	**30**			
Required Success				
90	3.39%	3.98%	4.47%	4.72%
80	3.64%	4.27%	4.80%	5.06%
70	3.82%	4.48%	5.03%	5.31%
60	3.98%	4.66%	5.24%	5.52%

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

b. Choosing suitable asset allocation module for client

Returning to the client, let us use that same set of modules to look at their Six specific goals. The table presents a client's portfolio allocation across six goals, with varying probabilities of success, time horizons, and liquidity needs. The largest allocation (37.23%) is for living expenses (30-year horizon, high liquidity needs), using a conservative strategy (Module A). Shorter-term goals like children's education and mortgage payments have smaller allocations (3.62% and 2.00%, respectively). Long-term, growth-oriented goals such as business expansion, endowment, and charity are allocated 11.44%, 38.62%, and 7.09%, respectively with higher-risk, higher-return strategies (Module D). The total present value of the portfolio is $5,336,946, distributed across these goals based on their priorities.

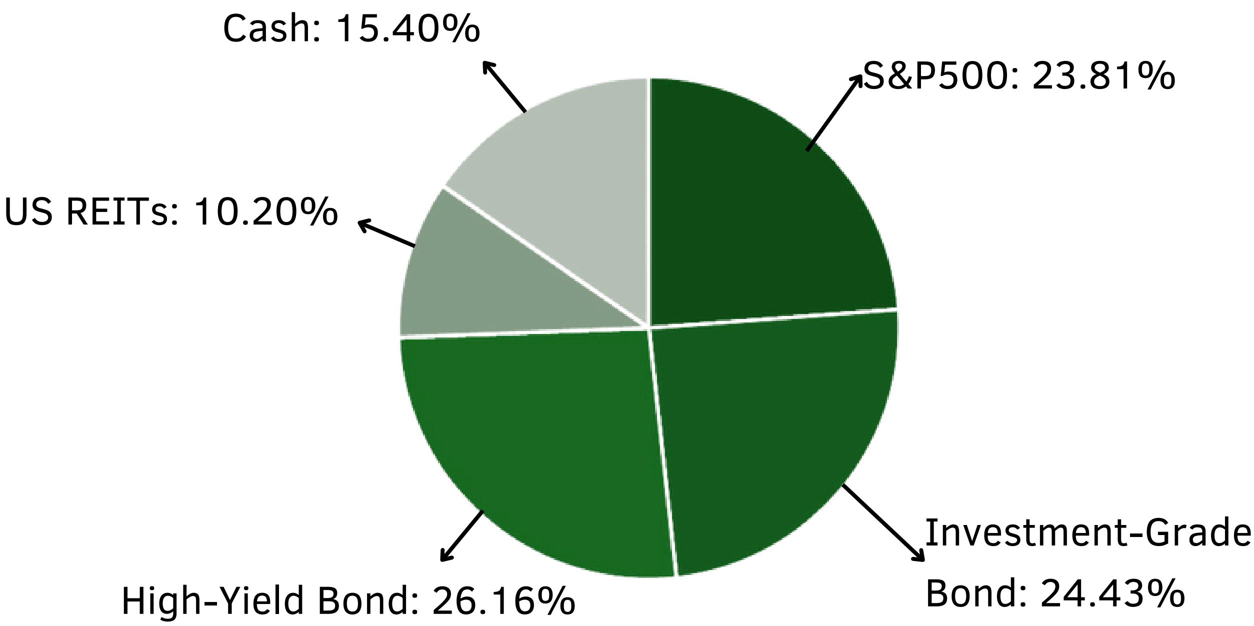
Goals	Required probability of success	Time Horizon	Liquidity Needs	Module	Discount Rate	Present Values	Proportion
Fundamental Needs (Living Expense)	90%	30	Extreme	A	3.39%	(1,987,145)	37.23%
Children's education	80%	6	Median	C	4.02%	(193,106)	3.62%
Mortgage payment	90%	6	High	B	2.93%	(106,760)	2.00%
Business Expansion	70%	12	Low	D	5.08%	(610,752)	11.44%
Endowment	70%	20	Low	D	5.22%	(2,061,043)	38.62%
Charity	60%	30	Low	D	5.52%	(378,139)	7.09%
Total						(5,336,946)	100.00%

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

b. Choosing suitable asset allocation module for client

From derived proportion of each sub-portfolio, we can get the **aggregate asset allocation portfolio**.
The aggregate asset allocation portfolio is **balanced with weight** is diversely allocate to each asset classes.



Here is the **annualized expected return** and **standard deviation** of the aggregate asset allocation.

Annualized Expected Return	5.10%
Annualized Standard Deviation	3.83%

II. Asset Allocation

2. Construction of Asset Allocation for the Clients

b. Choosing suitable asset allocation module for client

From that, we will discount the Present Value of the Financial Assets, Carlos Income, Wife Income, Business Exit and get the total economic assets of **$7,750,925.**

Now, we have the economic balance sheet:

Assets		Liabilities and Economic Net Worth	
Financial Assets		*Financial Liabilities*	
Personal savings, portfolio of REITs and index funds	750,000	PV of Mortgage Loans	106,760
Vacation Property	350,000		
Extended Assets		*Extended Liabilities*	
PV of Carloz and Wife Income	4,785,672	Children' education expense	193,106
PV of expected business exit	2,215,253	Business Expansion	610,752
		Endowment Fund	2,061,043
		Charitable Donation	378,139
		PV of future living expense	1,987,145
		Economic Net Worth	
		Economic net worth (economic assets less economic liabilities)	2,763,980
Total	**8,100,925**		**8,100,925**

The economic balance sheet shows a positive **net worth of $2,413,979**, thanks to a well-structured asset allocation portfolio. This portfolio is designed to provide safety while effectively supporting the client's financial goals.

By diversifying investments across various asset classes, the allocation aims to **balance risk and return**, ensuring **long-term growth** while **minimizing volatility**. The positive net worth demonstrates that the strategy is working well to secure the client’s financial future, helping them stay on track to meet their objectives.

III. Portfolios Construction

We have chosen an active investment approach for US Equities, High-Yield Bonds, and REITs to leverage their higher return potential and volatility, where active management can add value. For US Investment Grade Bonds, a passive strategy aligns with their lower volatility and stable performance, serving as a portfolio stabilizer.

1. Equity

We classify our investment style as **Large-cap Blend** according to Morningstar's classification.

We choose the **two** benchmark: **VTHR** and **SPLG** to measure our equity portfolio performance

Despite monetary policy tightenings, United States stocks have generally performed well, with the largest gains in tech stocks. The S&P 500 index gained 17.8%, the Dow Jones Industrial Average 4.8%, and the NASDAQ composite 35.1% in the first 7 months with growth stocks leading the pack. With these information, we list out 14 stocks from different sectors:

TECHNOLOGY:
AAPL, MSFT, IBM

COMMUNICATIONS SERVICE:
META, GOOGL

ENTERTAINMENT:
SPOT, NFLX

HEALTHCARE:
JNJ, ELV

CONSUMER CYCLICAL:
BKNG, BBY

FINANCIALS:
GS, JPM,BRK-B

III. Portfolios Construction

1. Equity

Technology: AAPL, MSFT, IBM (Spotlight: AAPL)

The technology sector is a high-growth industry, attracting investors due to its innovation potential. In 2023, the U.S. IT services market was valued at $405.7 billion, with a projected **CAGR of 7.9%** from 2024 to 2030. Key growth drivers include big data analytics, artificial intelligence, IoT, and machine learning, which are reshaping business models across industries.

In 2023, **Apple** achieved notable milestones in innovation and financial performance. The company introduced groundbreaking products, including the Apple Vision Pro and 15-inch MacBook Air, alongside updates to iOS 17, macOS Sonoma, and other operating systems. Financially, Apple reported record revenue of $211 billion, with over $88 billion in operating income, driven by strong iPhone sales and a thriving Services segment, which surpassed 1 billion paid subscriptions. The company also generated substantial operating cash flow and returned $23 billion to shareholders in Q2. Looking ahead, Apple's growth prospects for 2024 are promising, with the anticipated iPhone 16 launch and continued expansion in services, we expected to drive a projected **19% return for AAPL.**

III. Portfolios Construction

1. Equity

Communications Service: META, GOOGL (Spotlight: META)

The U.S. telecom market, valued at **$443.12 billion**, is crucial to the US economy. Growth is driven by demand for 5G and future 6G technologies and strategic partnerships. Projected revenue growth is **1.43% annually from 2024 to 2028,** reaching $356.7 billion. Key growth drivers include advances in internet access and government initiatives to expand rural broadband and foster competition.

In 2023, **META** achieved significant milestones across hardware, AI, and sustainability. The company introduced the Meta Quest 3 headset and Ray-Ban Meta smart glasses while advancing AI capabilities with innovations like Meta AI and AI Studio. Financially, Meta reported a 19% increase in Q3 revenue to $40.59 billion and a 35% rise in net income to $15.7 billion. On the sustainability front, it achieved net-zero emissions and transitioned to 100% renewable energy. Based on these developments, we forecast a **23.51% return** for META in 2024.

III. Portfolios Construction

1. Equity

Entertainment: SPOT, NFLX (Spotlight: SPOT)

The U.S. entertainment industry, contributing 4.2% to GDP with a 10.06% CAGR, thrives on demand for digital content, streaming services, and virtual/augmented reality. Major players like Disney, Netflix, and Warner Bros. Discovery innovate to meet consumer preferences. In 2023, streaming platforms saw record growth with consumer spending on digital video surpassing $100 billion. The industry's expansion is fueled by global appeal, international revenue, government tax incentives, and investments in digital infrastructure, making it a key driver of U.S. cultural and economic activity.

Despite a temporary stock price dip, **Spotify (SPOT)** demonstrated strong growth potential in 2023, achieving 602 million monthly active users (up 23% YoY), 236 million subscribers (up 15% YoY), and €3.7 billion in revenue (up 16% YoY). The company returned to profitability in Q3 with an improved gross margin of 26.7% and recorded its highest free cash flow quarter ever. Looking ahead to 2024, Spotify is expected to add millions of premium subscribers, reaching 259 million users, and grow premium revenue by 10% YoY to €13.7 billion. Advertising revenue is projected to rise 12%, contributing to overall profitability. Based on these trends, a **24% growth** for SPOT in 2024 is forecasted.

III. Portfolios Construction

1. Equity

Healthcare: JNJ, ELV (Spotlight: ELV)

The **U.S. healthcare sector** demonstrates resilience and growth, driven by aging baby boomers and biotech advancements. Despite challenges from early 2021 to mid-2022, including regulatory hurdles and the COVID-19 pandemic, the sector rebounded with breakthrough clinical trials in COVID-19, cancer, obesity, and Alzheimer's. This recovery underscores the sector's crucial role in public health and its ability to adapt to global changes.

Elevance Health (ELV) delivered strong results in 2023, with $170.2 billion in operating revenue (up 9% YoY) driven by growth in its Health Benefits segment and CarelonRx pharmacy revenue. Operating gain rose 14% YoY to $6.9 billion. For 2024, ELV projects continued growth, forecasting over $10.3 billion in operating gain (up 9% YoY) and medical membership reaching 45.8–46.6 million. With these factors, ELV is expected to achieve **10% growth in 2024**.

III. Portfolios Construction

1. Equity

Consumer Cyclical: BKNG,BBY (Spotlight: BKNG)

In 2023, the U.S. consumer cyclical sector showed strong growth, fueled by resilient consumer spending despite its sensitivity to economic fluctuations. Retail sales increased by 4.87% year-over-year, reaching $7.04 trillion in 2022, highlighting robust demand. This positive trend is supported by solid economic fundamentals, including declining unemployment and rising wages, which have boosted disposable income and consumer confidence, further driving the sector's growth.

Booking Holdings (BKNG) delivered strong results in 2023, driven by robust travel demand and effective strategy execution. Gross bookings grew 24% to $150.6 billion, total revenue rose 25% to $21.4 billion, and net income increased 40% to $4.3 billion. Looking ahead to 2024, BKNG anticipates continued growth, supported by the recovery of the travel industry, strong brand recognition, and increased international travel demand.Based on those reasons, we expect a **16% return for BKNG** in 2024.

III. Portfolios Construction

1. Equity

Financials: GS, JPM,BRK-B (Spotlight: GS)

The U.S. financial industry is a crucial driver of the global economy, projected to grow at a CAGR of 9.57% from 2022 to 2029. This growth is fueled by increasing demand for financial services and products, driven by expanding capital markets and technological advancements. The industry's health relies on a dynamic interplay between buy-side institutions, such as mutual funds and hedge funds, which drive demand, and sell-side institutions, like investment banks and broker-dealers, which facilitate capital formation and market access.

Goldman Sachs (GS) had a strong 2023, with net revenues of $46.25 billion, net earnings of $8.52 billion, and a return on equity (ROE) of 7.5%. The firm led Advisory net revenues for the 21st year and set records in financing revenues across FICC and Equities. Its Asset & Wealth Management division exceeded its alternatives fundraising target. In 2024, Goldman Sachs aims to execute a simplified strategy, strengthen its client franchise, and deliver strong returns. We expect the expected return for GS is **14%**

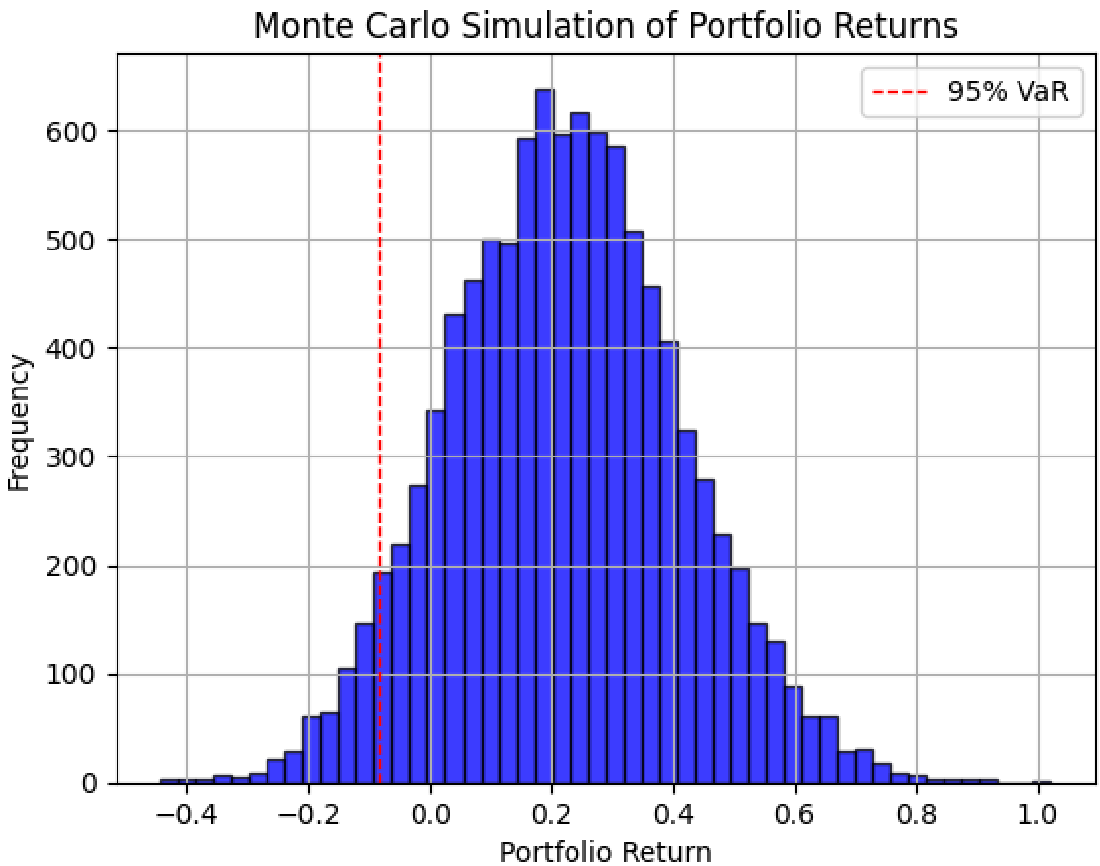
III. Portfolios Construction

1. Equity

We employed the Black-Litterman model to calculate the implied expected return of the stock selected. The model took into consideration historical data in the 10-year period from 1/1/2015 to 1/1/2024. We then adjusted these figures by taking into account the growth potential of each stock in the portfolio. Finally, we took the Black-Litterman implied expected return to maximize our Sharpe ratio with the condition that each stock weights at least 3%. Our optimized portfolio is in the following table:

Stocks	AAPL	MSFT	IBM	META	GOOGL	BKNG	BBY
Weights	13.64%	8.97%	3.00%	8.97%	16.81%	3.45%	5.09%
Stocks	BRKb	JPM	GS	NFLX	SPOT	JNJ	ELV
Weights	9.04%	3.00%	3.00%	4.77%	3.00%	9.46%	3.00%

We evaluated our equity portfolio using Monte Carlo simulation and Value-at-Risk (VaR) analysis, revealing strong metrics for 2024. The mean return of 22.22% highlights significant growth potential, supported by a manageable standard deviation of 18.9%.



With a **95% VaR of -8.36%**, the portfolio demonstrates a favorable balance of risk and return, positioning it for strong performance in the year ahead.

III. Portfolios Construction

2. REITs

In 2023, the U.S. REITs market, valued at $1.37 trillion, showed resilience despite economic challenges. The Dow Jones Equity All REIT Index recorded an 11.3% return for the year, outperforming the broader market in Q4. Key sectors like industrial, retail, and self-storage REITs performed strongly, while office REITs lagged behind. Industrial-focused REITs like Industrial Logistics Properties Trust saw a 63.3% return for Q4, and self-storage REITs like Extra Space Storage Inc. recorded a 33.3% return. However, office REITs like Office Properties Income Trust faced challenges, ending the year with a negative 35.7% return.

As we employ an active management approach to achieve above-average growth and outperform our **benchmark** as the **S&P United States REIT Index.**

III. Portfolios Construction

2. REITs

Residential REITs: EQR, AVB

Residential REITs faced challenges in 2023 due to rising interest rates and economic uncertainty. However, many REITs demonstrated resilience, maintaining strong fundamentals and implementing strategic initiatives. As interest rates stabilize and economic conditions improve, the outlook for 2024 is more promising. For instance, the FTSE Nareit All Equity REITs Index recorded a 7.3% return in Q2 2023.

Equity Residential

Equity Residential (EQR) achieved strong results in 2023, effectively managing rising interest rates and inflation through rent growth and expense control. In Q3, the company reported same-store revenue growth of 4.1% and expense growth of 3.1%. For 2024, EQR is well-positioned for growth as demand for high-quality rental housing remains robust and economic conditions stabilize. Supported by operational excellence and strategic investments, we forecast an **11% return** for EQR in 2024.

III. Portfolios Construction

2. REITs

Office REITs: SLG, HIW

Office REITs faced a challenging 2023 due to remote work trends and economic uncertainty, leading to decreased demand and rising vacancy rates. For instance, the FTSE Nareit All Equity REITs Index recorded a negative return of 8.4% in the third quarter of 2023. The outlook for 2024 remains uncertain. However, some REITs are adapting by investing in property upgrades, offering flexible lease terms, and focusing on high-quality properties.

SLG, a leading New York City REIT, reported a Q4 2023 net loss of $155.6 million but saw its Manhattan same-store office occupancy rise to 90.0% by year-end, driven by strong leasing activity, including early renewals and expansions with premier tenants. Looking ahead to 2024, SLG is optimistic, raising its earnings guidance and expecting to benefit from the recovery of the NYC office market. The company's high-quality property portfolio, commitment to sustainability. With these information, we forecast the expected return for SLG in the next year is approximately **8%.**

III. Portfolios Construction

2. REITs

Retail REITs: SPG, REG

2023 was a year of mixed performance for **Retail REITs**. While some REITs, like Simon Property Group (SPG), experienced increased occupancy rates, reaching 94.4% in 2023, and rental income growth, others, such as CBL & Associates Properties, faced challenges from rising costs and vacancies, leading to a 2.5% decline in same-store NOI. Despite these challenges, the sector's outlook for 2024 remains optimistic, driven by the ongoing recovery of the retail industry, the growth of e-commerce, and the increasing demand for experiential retail.

Simon Property Group (SPG) had a strong 2023, generating a record $4.7 billion in Funds From Operations (FFO), leasing over 18 million square feet, and completing 13 redevelopment projects. The company delivered a 29.3% total shareholder return, returning $2.9 billion to shareholders. Domestic property NOI grew 4.8%, with portfolio NOI up 4.9%. For 2024, SPG forecasts FFO per share of $12.50–$12.70, driven by strong leasing momentum, despite potential challenges from rising interest rates. SPG's high-quality portfolio and strategic investments position it for sustained growth and stable cash flows. With these information, we forecast the expected return for SLG in the next year is approximately 8%

III. Portfolios Construction

2. REITs

Healthcare Facilities REITs: WELL, VTR

Healthcare Facilities REITs (HCPs) delivered strong performance in 2023, with an average total return of 10.4% year-to-date. This growth was driven by an aging population, rising healthcare costs, and increasing demand for specialized medical facilities. The number of Americans aged 65 and older is projected to grow by 53% between 2020 and 2040, boosting demand for senior housing and skilled nursing facilities. Looking ahead to 2024, HCPs are poised for continued growth, supported by trends like outpatient care and value-based healthcare.

In 2023, **Welltower Inc. (WELL)** reported strong performance, with its Seniors Housing Operating (SHO) portfolio driving over 20% same-store net operating income (SSNOI) growth. In Q4, SSNOI increased 23.7%, supported by a 9.7% rise in revenue and a 330 basis point gain in occupancy. Welltower made $5.9 billion in strategic investments, improving its net debt to adjusted EBITDA ratio to 5.03x from 6.31x in 2022. For 2024, the company raised its FFO guidance to $4.05–$4.17 per share, benefiting from trends like a growing aging population and increased healthcare spending. With these information, we forecast the expected return for WELL in the next year is approximately **10%.**

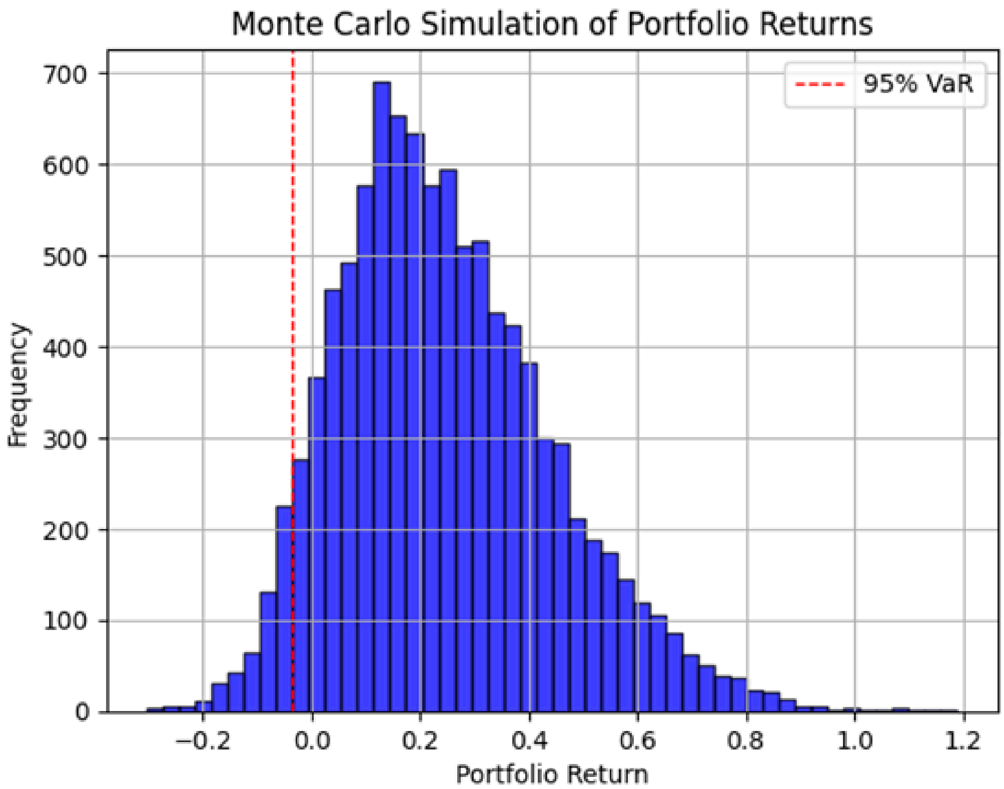
III. Portfolios Construction

2. REITs

We utilized the Black-Litterman model to determine the implied expected return for the selected REITs, using historical data from January 1, 2015, to January 1, 2024. After calculating these returns, we adjusted them to reflect the growth potential of each stock in our portfolio. Subsequently, we applied the Black-Litterman implied expected return to optimize our Sharpe ratio, ensuring that each stock holds a minimum weight of 3%. The results of our optimized portfolio are presented in the following table.

REITs	EQR	AVB	SLG	HIW
Weights	3.00%	17.02%	7.83%	3.00%
REITs	SPG	REG	WELL	VTR
Weights	3.00%	17.02%	42.13%	6.52%

We assessed our REITs portfolio using Monte Carlo simulation and Value-at-Risk (VaR) analysis, uncovering strong performance metrics for 2024. The projected mean return of 24.65% underscores substantial growth potential, complemented by a standard deviation of 19.79%, indicating manageable volatility.



Additionally, the 95% VaR of -3.62% reflects controlled downside risk. These results highlight an efficient balance between potential returns and risks, positioning the portfolio favorably for the year ahead.

III. Portfolios Construction

3. High-Yield Bond

- In 2023, High-Yield Bonds performed well, with the Bloomberg US Corporate High Yield Bond Index returning about 11%. This strong performance was driven by factors like lower interest rate volatility, improved corporate earnings, and a resilient economy. Looking to 2024, the outlook remains cautiously optimistic. While risks such as inflation and geopolitical tensions persist, the sector's long-term fundamentals are solid, supported by expected economic growth and improving corporate credit quality.
- We choose the PIMCO Active Bond Exchange-Traded Fund (BOND) to be the benchmark for our HYCorpBond portfolio.

iShares iBoxx $ High Yield Corporate Bond ETF (HYG)

In 2023, the **iShares iBoxx $ High Yield Corporate Bond ETF (HYG)** posted a 6.5% total return, recovering from a -11.8% loss in 2022, driven by cooling inflation and expectations of a Fed pause. Its distribution yield increased to 8.3% from 7.7%, and spreads tightened from 500 to 420 basis points, signaling lower credit risk. HYG's assets under management exceeded $16.5 billion, though rising default rates (1.6% in 2022 to 2.5% in 2023) and exposure to weaker sectors like consumer discretionary impacted performance. The current yield of 6.7% may cap upside potential, leading to an expected return of **1.1%**.

SPDR Nuveen Bloomberg High Yield Municipal Bond ETF (HYM)

In 2023, the **SPDR Nuveen Bloomberg High Yield Municipal Bond ETF (HYMB)** gained 5.8%, recovering from a -13.2% loss in 2022, driven by slower inflation and stabilizing interest rates. Its 30-day SEC yield increased to 5.1%, equivalent to an 8.1% taxable yield for high-income investors. HYMB's assets under management grew to $3.2 billion, benefiting from low municipal bond defaults (0.3%), though its 7.4-year duration made it sensitive to interest rate volatility. Looking ahead to 2024, demand for tax-exempt income should support the fund, but potential rate hikes and credit risks may limit growth. The ETF's diversified approach positions it well amid market fluctuations. Based on these perspectives, we suggest a **5%** return in the next year.

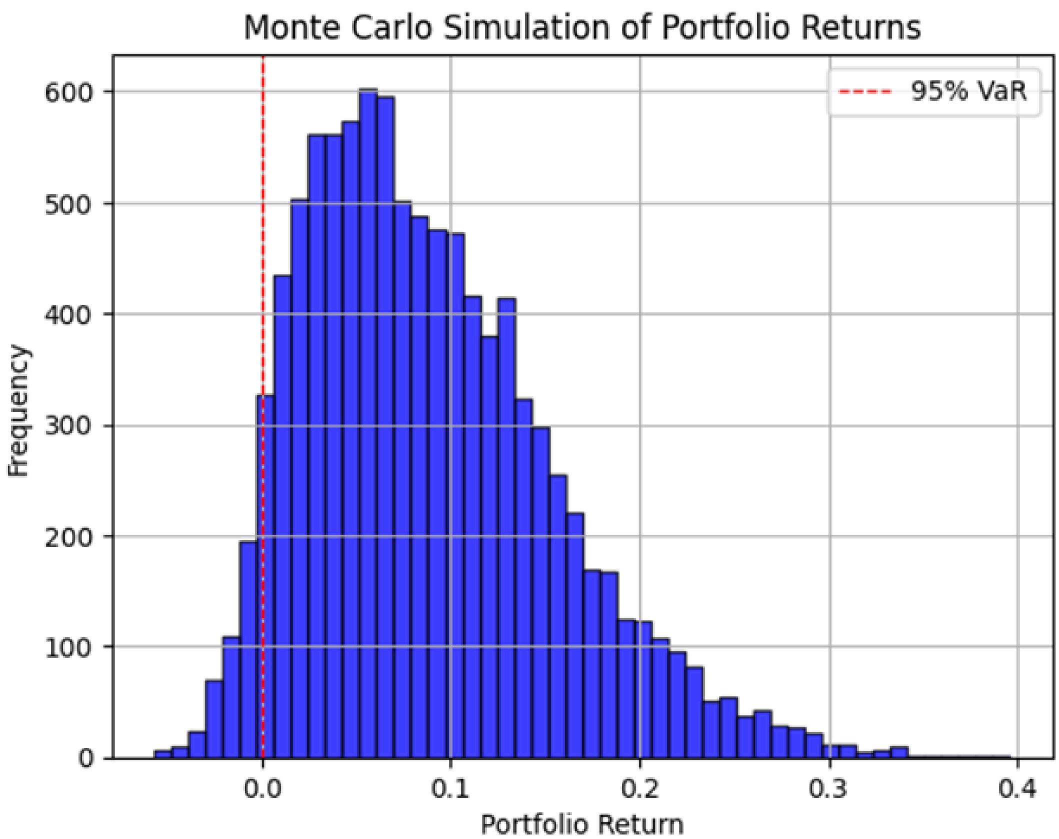
III. Portfolios Construction

3. High-Yield Bond

We employed the Black-Litterman model to calculate the implied expected return of the selected High-Yield Bond ETF, drawing on historical data from January 1, 2015, to January 1, 2024. Following this, we adjusted the expected returns based on the growth potential of each stock in our portfolio. Using the Black-Litterman implied expected return, we aimed to maximize our Sharpe ratio while ensuring that each stock had a minimum weight of 3%. The optimized portfolio is detailed in following table:

HYCorpBond ETFs	HYG	HMB
Weights	25.79%	74.21%

We analyzed our High-Yield Corporate Bond ETF portfolio using Monte Carlo simulation and Value-at-Risk (VaR) analysis, yielding promising metrics for 2024. The mean return of 8.82% reflects strong growth potential, complemented by a manageable standard deviation of 6.64%, indicating relatively low volatility.



Furthermore, the 95% VaR of -0.01% highlights minimal downside risk. Together, these results showcase a well-balanced portfolio with attractive returns, stable performance, and limited potential losses.

III. Portfolios Construction

4. Investment-Grade Corporate Bond

In 2023, investment-grade corporate bonds faced challenges primarily due to the Federal Reserve's interest rate hikes, which led to declining bond prices and a flat performance in the broader bond market. Despite these difficulties, corporate fundamentals remained stable, with resilient earnings supporting credit quality. Looking ahead to 2024, the outlook is more optimistic, as potential rate cuts could boost bond prices, alongside increased demand driven by significant inflows into bond funds.

iShares iBoxx $ Investment Grade Corporate Bond ETF (LQD)

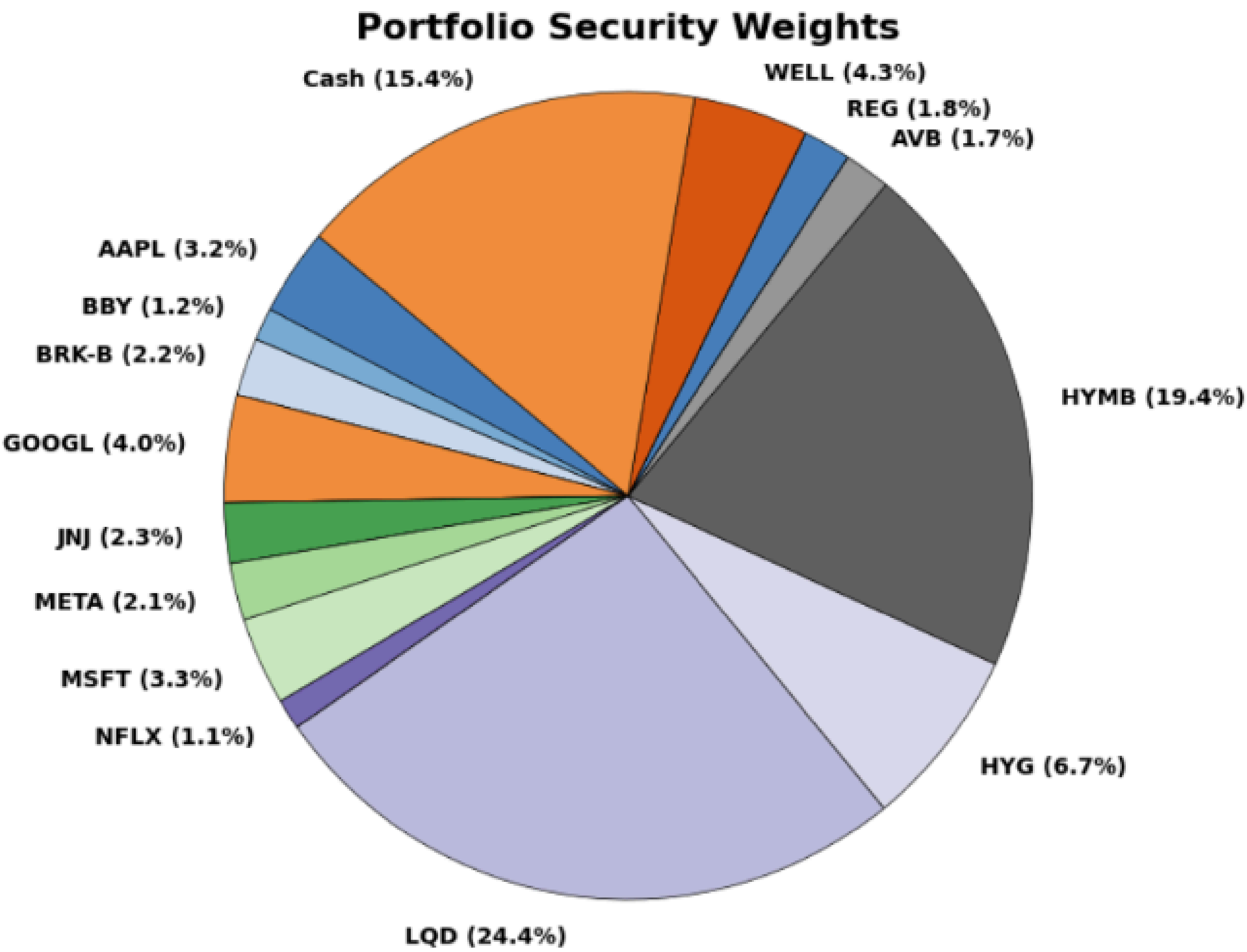
- In 2023, the iShares iBoxx $ Investment Grade Corporate Bond ETF (LQD) delivered a year-to-date return of 2.64% and an annual return of 8.67%, supported by stable interest rates and strong corporate earnings. With a low expense ratio of 0.14%, it remained appealing to cost-conscious investors. Looking ahead to 2024, LQD’s outlook is optimistic, as potential Federal Reserve rate cuts of 25-50 basis points could boost bond prices. Corporate fundamentals remain strong, with S&P 500 companies projected to achieve 11.3% earnings growth, driven by resilient consumer spending and improving margins.

- We choose to passively invest in iShares iBoxx $ Investment Grade Corporate Bond ETF (LQD) to backup our portfolio for its high liquidity and stable return overtime.

IV. Final Aggregated Portfolio

1. Our portfolio

After conducting the asset allocation and security selection process, we now combined the asset allocation and the security selection to get the final Aggregated Portfolio for our customer.



This security allocation appears to be diversified across various asset classes. The balance between equities, fixed income, and cash strive to manage both growth, liquidity and stability.

Given client's moderate risk tolerance, we believe the allocation seems well-structured, though it could benefit from periodic rebalancing to maintain desired risk levels. The equity exposure seems to be the largest portion, suggesting a growth-focused strategy, with a healthy proportion in bonds for income and stability.

IV. Final Aggregated Portfolio

2. Benchmark portfolio

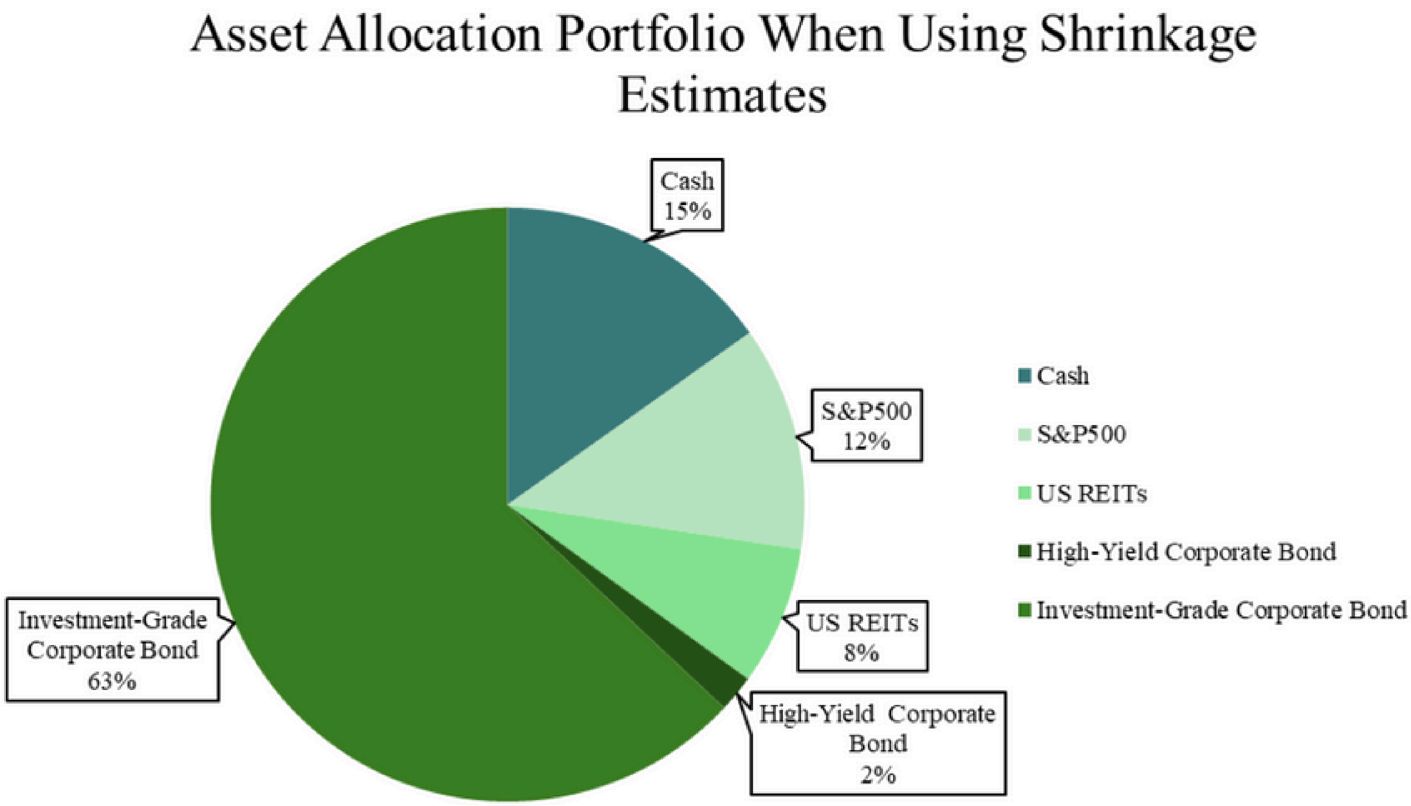
Since our portfolio is uniquely tailored to meet the specific needs of our clients, it is **challenging to find a market benchmark** that accurately reflects its structure. Therefore, we decided to use a different approach with similar the goal-based asset allocation as the benchmark. This allows us to assess whether our current technique is delivering strong performance.

For asset allocation, we **applied shrinkage estimates** to the covariance matrix to construct optimized sub-portfolios, while for security selection, we opted for **passive investment strategies** that track the index.

Below, we present the asset allocation portfolio based on this shrinkage-optimized approach, with asset class weights determined using the same goal-based framework as previously outlined.

IV. Final Aggregated Portfolio

2. Benchmark portfolio

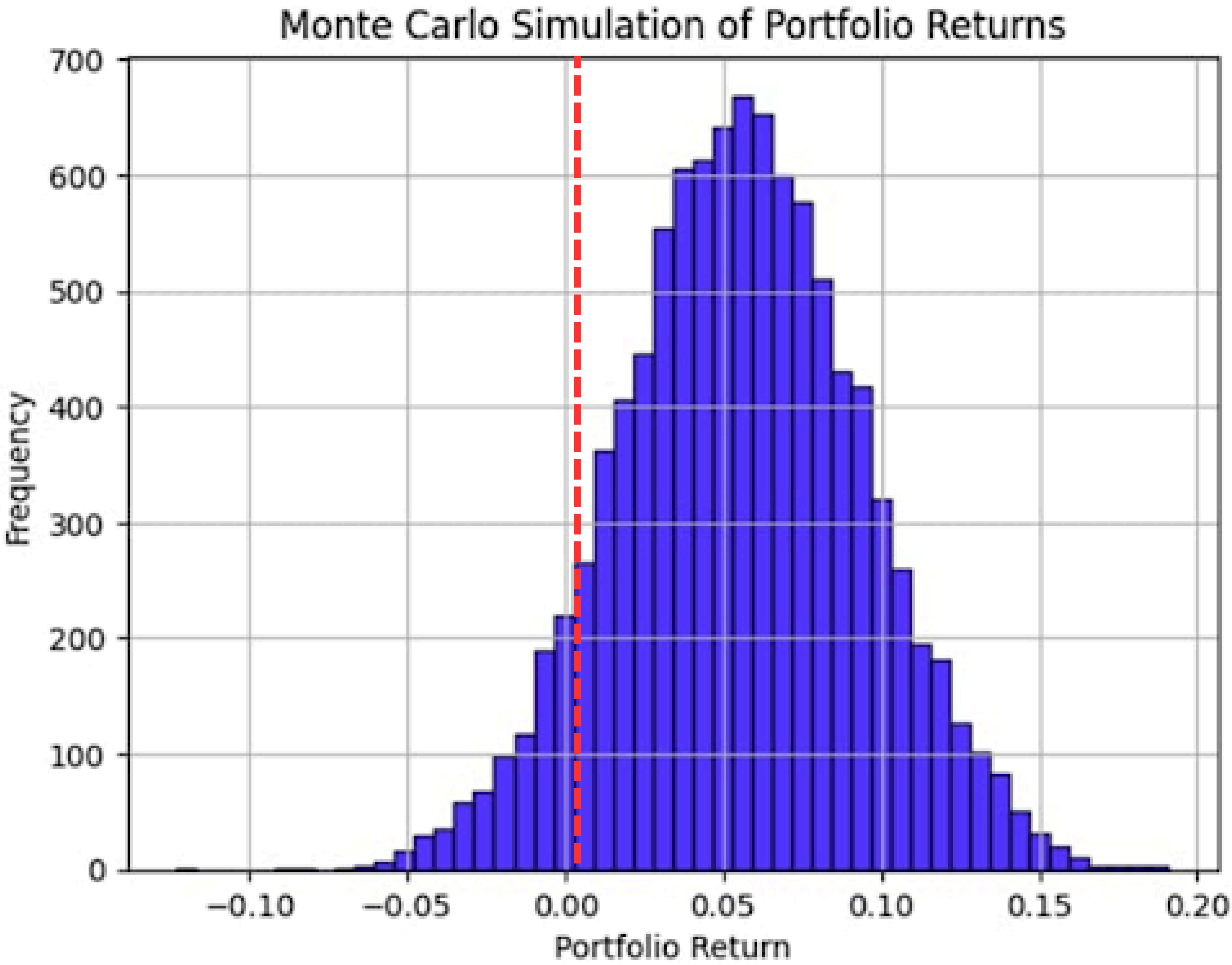


This asset allocation is heavily tilted toward investment-grade corporate bonds (63.02%), reflecting a conservative, income-focused strategy. The large bond allocation prioritizes stability and capital preservation. S&P 500 (12.23%) provides moderate equity exposure for growth, while US REITs (7.57%) adds diversification through real estate. High-yield bonds (2.01%) introduce a small amount of risk for higher returns, and cash (15.18%) ensures liquidity and flexibility. Overall, the portfolio favors low risk and steady income.

V. Scenario Analysis

1. Monte Carlo simulation

After running the Monte Carlo simulation, we get the histogram of the portfolio, which shows resemblance to a normal distribution, when combined with the relatively low standard deviation (3.84%), suggests **low-to-moderate risk.**



Additionally, using an expected annualized return of 5.52% and an annualized standard deviation of 3.84%, we conducted a Monte Carlo simulation, assuming that returns follow a multivariate normal distribution. The results indicate that the 90% Value at Risk (VaR) for our asset allocation portfolio is above zero, demonstrating its robustness and safety for our client. In the best-case scenario, the portfolio could achieve **returns exceeding 15%.**

V. Scenario Analysis

2. Put Option Hedge

Based on our analysis of the portfolio, we also select a few industries to more carefully monitor:

Office REITs

Remote work trends may continue to be on the increase, with at least 30% of job seekers seeking fully remote positions, and 60% would like a hybrid position, an increase compared to 10% seeking remote positions in 2022. The current office vacancy rate is 19.6%, a massive 14.79% increase compared to last year (16.9%) and a steady 10% YoY increase since 2021 (14.8%). The increase of remote working may put increasing financial pressure on office rentals, as they struggle to retain their customer base. If this trend continues, we predict a **10% expected loss** in the next year.

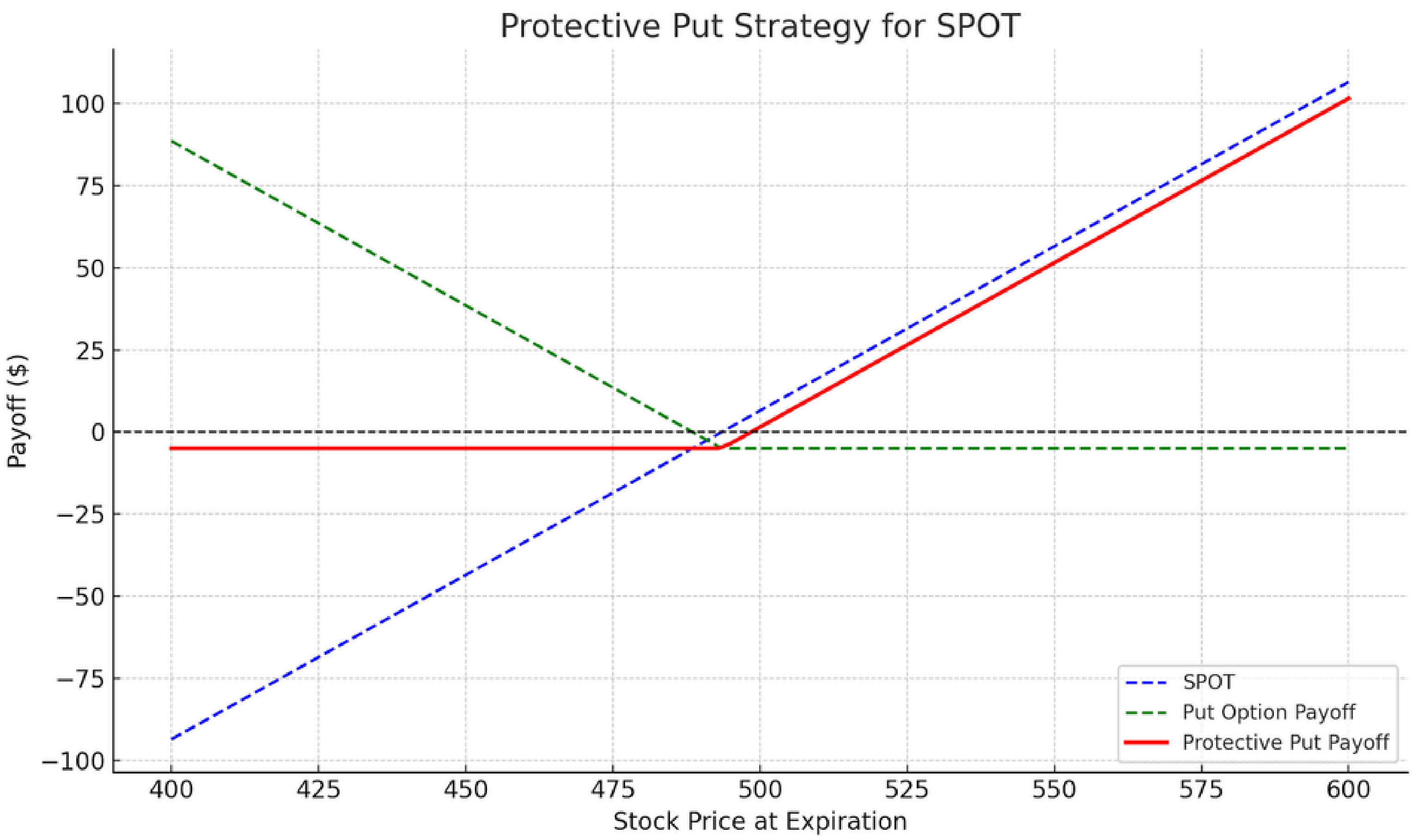
Entertainment

The entertainment sector is highly dependent on the disposable income of households, and when income decreases, entertainment expenses will be among the first to be cut. Accompanying this, the current rate of U.S household disposable income has been stagnating since 2022 ($21.9K billion), and predicted to slightly drop in the first half of 2025 ($21.6K billion), sounding the alarm that there might be a decrease in entertainment spending in the near future. If disposable income declines, we predict that there will be a **3% loss** in 2024.

V. Scenario Analysis

2. Put Option Hedge

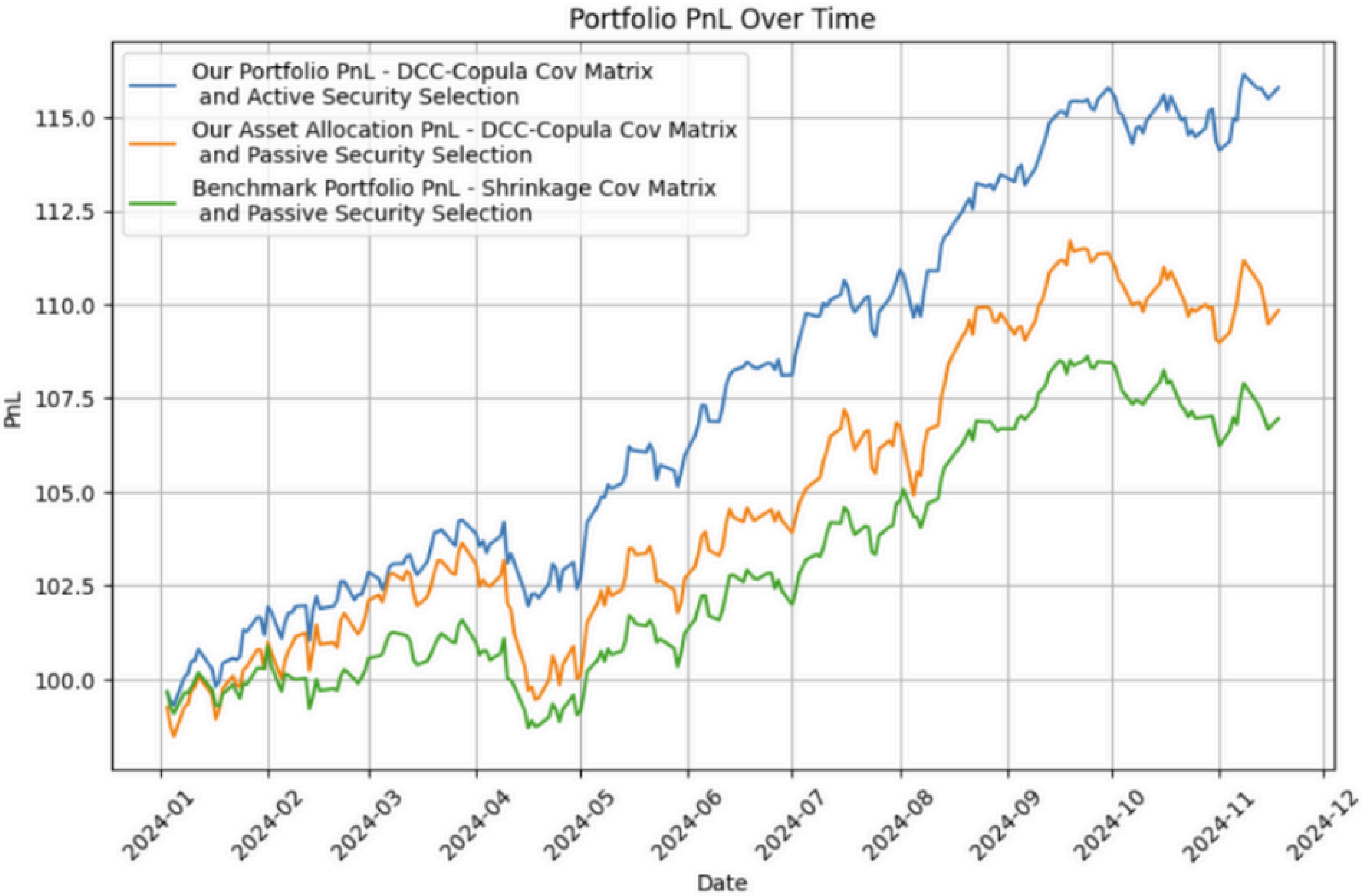
In order to hedge these predictions, we suggest using a **protective put strategy**. The purpose of this strategy is to hedge against downside risk, while still preserving the potential gains if market conditions are positive. The strategy involves buying put options, which gives the holder the right to sell a stock at a specified price in the future, for a fee, which will act as an insurance for when stock price falls, as we can exercise the option to sell the stock. The maximum loss is the fee, or premium, from buying the option, while the potential for profits is only reduced by the premium.



VI. Performance Evaluation

1. Asset Allocation Performance

Up until this point, our evaluation has focused on the asset allocation and portfolio performance based on historical data from January 1, 2015, to December 31, 2023. Moving forward, we will now assess the portfolio's performance from the start of 2024 to the present. So far, the results are striking—our asset allocation has delivered exceptional performance in 2024



VI. Performance Evaluation

1. Asset Allocation Performance

The portfolio has delivered an impressive annualized return of 9.68% with an annualized standard deviation of 6.35%, resulting in a strong Sharpe ratio of 1.55. This outperforms our benchmark, which, using the shrinkage covariance matrix, has a Sharpe ratio of 1.19. This superior risk-adjusted return can be largely attributed to the exceptional performance of key asset classes, notably the S&P 500 equities and high-yield bonds, which have significantly contributed to the portfolio's outperformance.

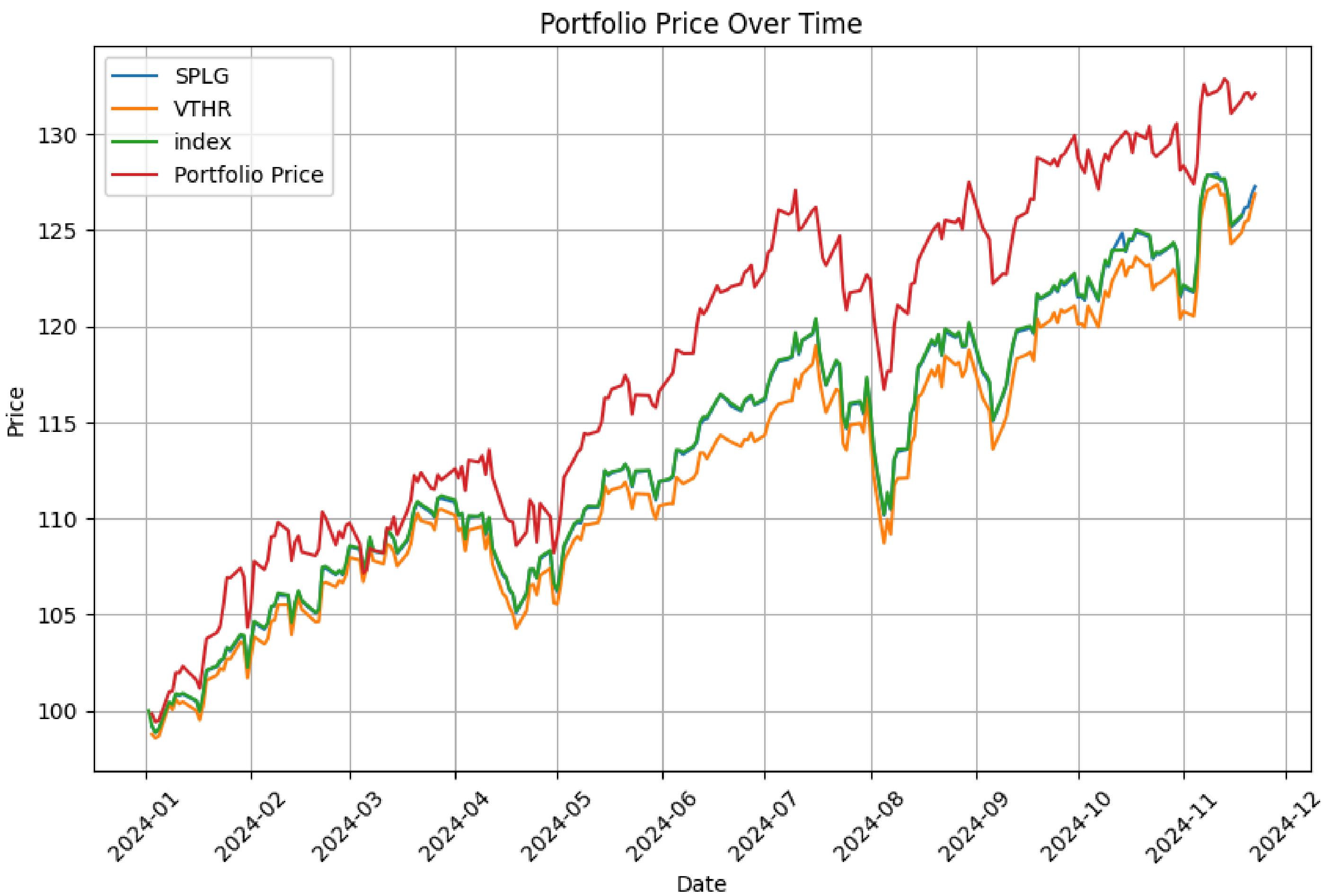
The max drawdown of our asset allocation module is 3.88%, occurring between 04/2024-05/2024. This is due to the Oil prices jumping as Iranian and Israeli saber-rattling raised concerns that the Middle East could be engulfed in a regional war, jeopardizing the stability of global oil supplies.

VI. Performance Evaluation

2. Security Selection Performance

Equity

In our estimation, our equity portfolio has the expected return of 15.3% and expected standard deviation of 21.2%.



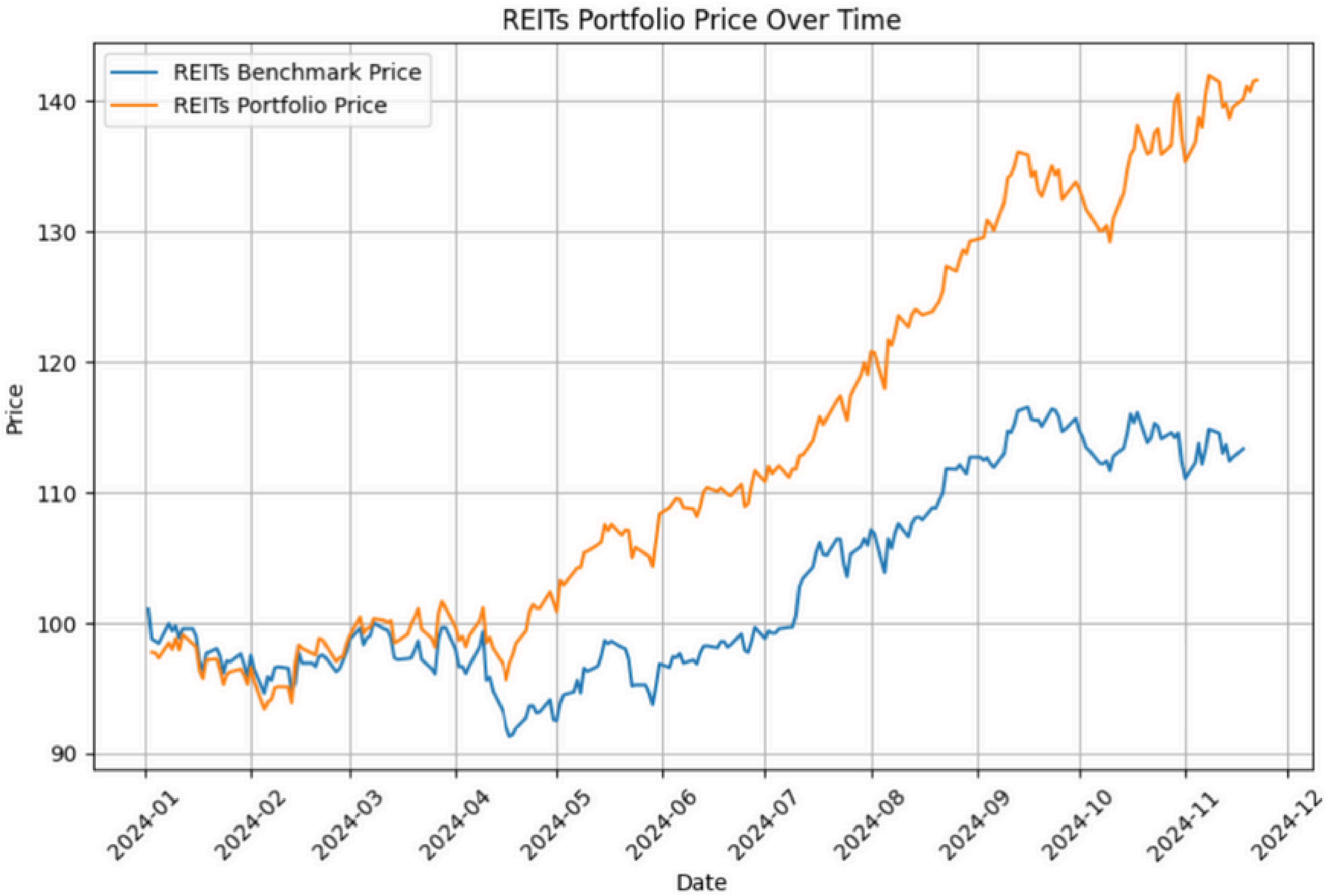
As illustrated in the graph, our equity portfolio achieved an actual return of 31.95%, significantly surpassing the benchmark returns of around 5%, with a standard deviation of **13.41%**. This strong performance can be attributed to the robust growth in the technology sector, particularly fueled by the rapid expansion of generative AI. Additionally, cloud computing and cybersecurity have played crucial roles, as cloud services offer scalable infrastructure and investments in cybersecurity increase.

VI. Performance Evaluation

2. Security Selection Performance

REITs

In our estimation, our REITs portfolio has the expected return of 7.3% and expected standard deviation of 28.3%.



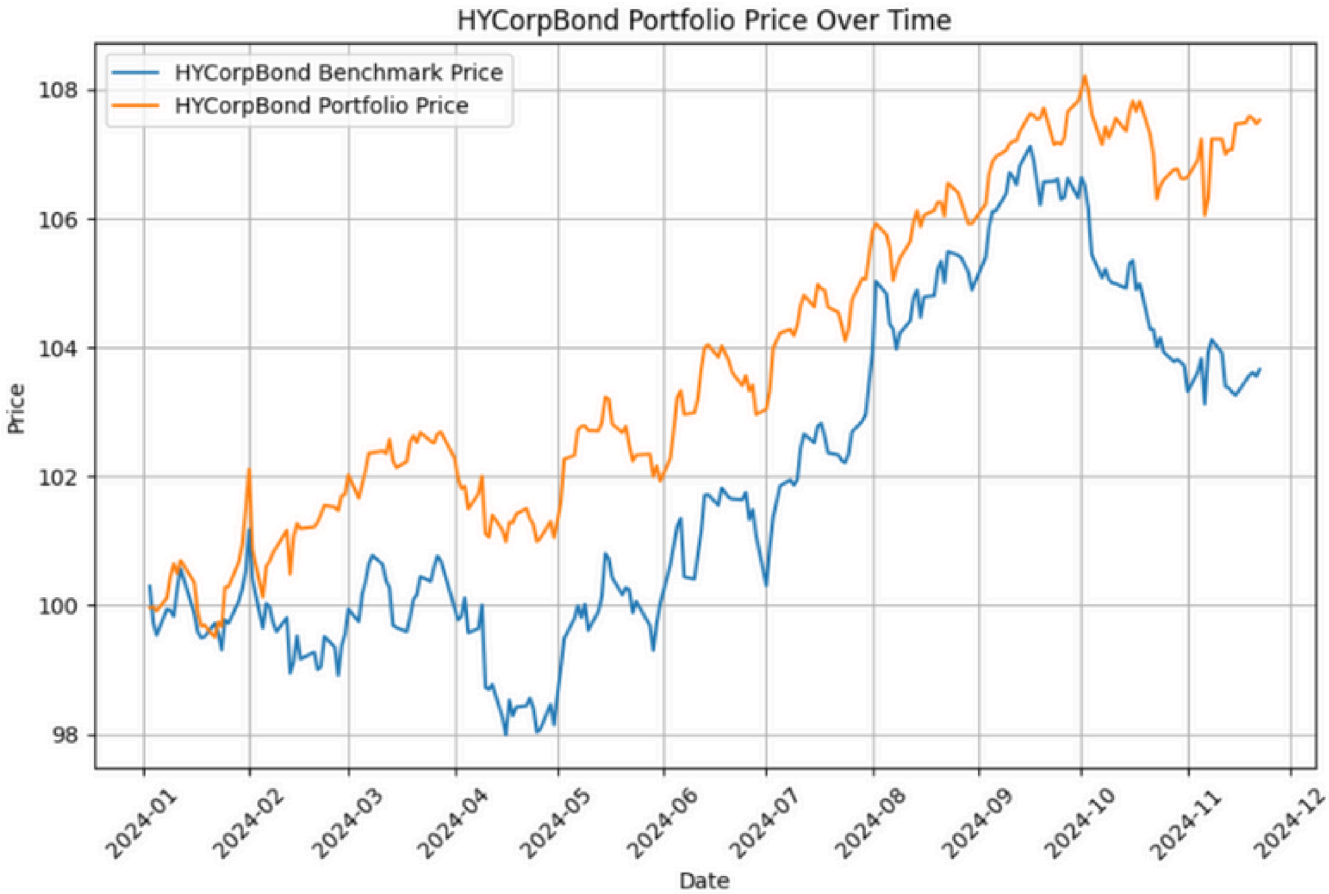
As illustrated in the graph, our REITs portfolio achieved an actual return of 40.08%, significantly surpassing the benchmark returns of around 25%, with a standard deviation of 15.89%. This outperformance is attributed to robust demand and resilience across sectors. Residential REITs saw high occupancy and rental income from population growth. Office REITs, with prime location offices, attracted hybrid work tenants. Retail REITs benefited from essential services and experiential shopping. Healthcare facilities thrived with stable occupancy and long-term leases, driven by an aging population and increased health focus. **This diversification enabled our portfolio to navigate economic uncertainties effectively.**

VI. Performance Evaluation

2. Security Selection Performance

High-Yield Corporate Bond ETF

In our estimation, our High-Yield Corporate Bond ETF portfolio has the expected return of 2.4% and expected standard deviation of 9.9%.

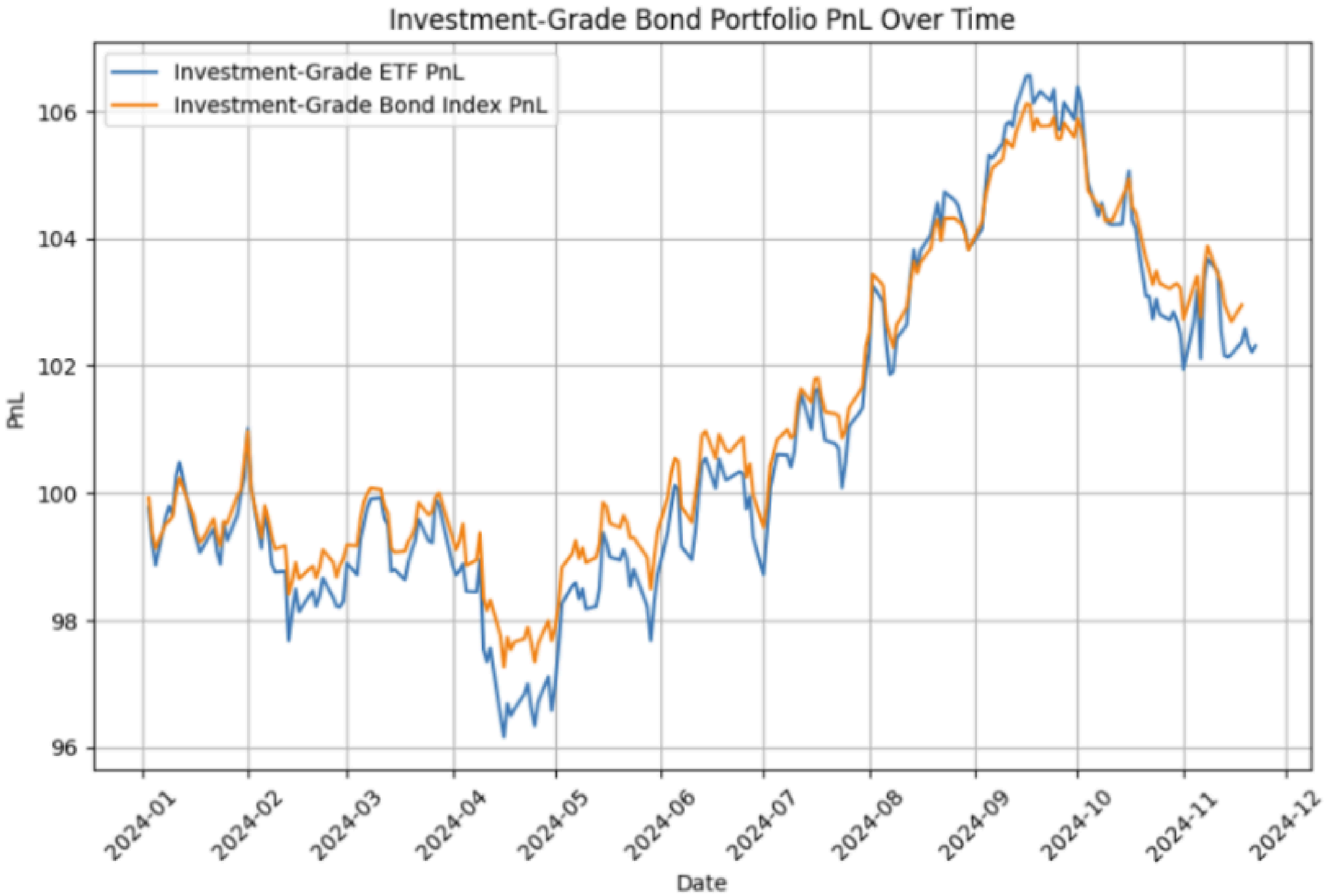


As illustrated in the graph, our High-Yield Corporate Bond ETF portfolio achieved an actual return of 8.18%, significantly surpassing the benchmark returns of around 4.38%, with **a standard deviation of 4.47%**. This performance is influenced by sustained economic growth and low default rates have boosted investor confidence, while the Federal Reserve's pause on interest rate hikes has made high-yield bonds more attractive relative to other fixed-income options. Additionally, the operational efficiency and diversification of both ETFs have mitigated risks and enhanced returns, making them strong choices in **a low-yield environment**.

VI. Performance Evaluation

2. Security Selection Performance

U.S Investment-Grade Bond

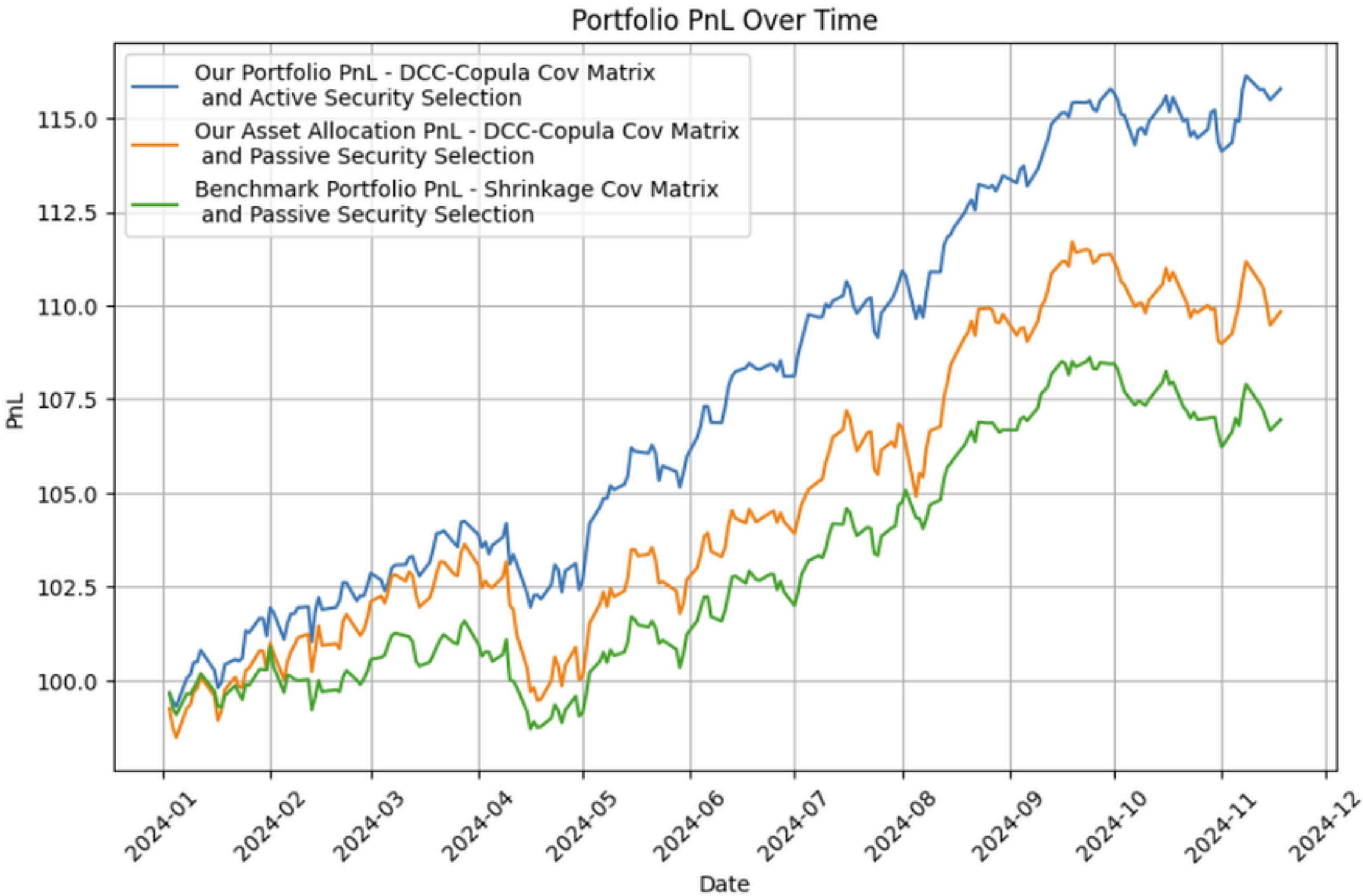


As illustrated in the graph, our chosen Investment-Grade Corporate Bond ETF tracked the Index closely, **ensure our passive investing strategy**.

VI. Performance Evaluation

3. Final Aggregated Portfolio

The performance of our security selection has significantly outpaced the benchmark. Now, combining the strengths of both strategic asset allocation and security selection, let's examine how our governing portfolio performed in 2024 compared to the asset allocation benchmark.



The performance of our aggregated portfolio in 2024, compared to the benchmark, indicates strong outperformance, suggesting that both the strategic asset allocation and security selection were highly effective. This outperformance likely reflects the successful positioning of the asset allocation to take advantage of market trends, while security selection enhanced those positions by identifying securities with superior growth potential or undervaluation.

VI. Performance Evaluation

3. Final Aggregated Portfolio

To explore more how asset allocation and security selection affect the overall portfolio performance, let’s consider attribution analysis:

	Portfolio Weight	Benchmark Weight (Shrinkage Covariance Matrix)	Portfolio Return	Benchmark Return (Index Return)	Allocation	Selection	Interaction
Asset Classes							
Equities - S&P500	23.81%	12.23%	32.21%	25.77%	2.21%	0.79%	0.75%
Investment-Grade Bonds	24.43%	63.00%	2.54%	2.95%	1.44%	-0.26%	0.16%
High-yield Bonds	26.16%	2.02%	7.69%	3.35%	-0.81%	0.09%	1.05%
REITs	10.20%	7.57%	40.08%	12.19%	0.14%	2.11%	0.73%
Cash	15.40%	15.18%	4.58%	4.58%	0.00%	0.00%	0.00%
Total	100.00%	100.00%	15.09%	6.70%	2.99%	2.73%	2.69%

The portfolio outperformed its benchmark by **8.39%** (15.09% vs. 6.70%), with balanced contributions from allocation, selection, and interaction effects.

VI. Performance Evaluation

3. Final Aggregated Portfolio

The portfolio outperformed its benchmark by **8.39%** (15.09% vs. 6.70%), with contributions from allocation, selection, and interaction effects:

Allocation Effect (+2.99%)

Overweights in Equities (S&P 500) and High-Yield Bonds contributed positively, as these asset classes performed well relative to the benchmark.

Selection Effect (+2.73%)

Strong selection within Equities, REITs, and High-Yield Bonds added value. These asset classes outperformed their benchmarks, particularly REITs and High-Yield Bonds.

Interaction Effect (+2.69%)

Positive interaction indicates that the combination of asset class weights and individual security selection worked well together, further enhancing returns.

Overall, the portfolio's outperformance was driven by a *well-balanced strategy* of favorable asset allocation, strong security selection, and effective synergy between the two.

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Index Factsheet MSCI USD Investment Grade Corporate Bond Index Cumulative Index Performance Annual Performance(%) USD Returns Year MSCI USD Investment Grade Corporate Bond Index Index Performance USD returns (%). (2008). Available at: https://www.msci.com/documents/1296102/e30b49cd-c1f9-d90a-dc97-725b52df5d22 [Accessed 6 Dec. 2024>.