Technology Team

Final Report

Team:
Chia-Ning Chang, Sharang Mantri, Shuang Liu, Ming-Chia Tsai

Professor:
Richard Excell

Course:
FIN 419/589 - Real Client Managed Portfolios

Executive Summary

Our team conducted a top-down investment analysis to determine optimal positioning for the portfolio, integrating proprietary econometric forecasting with bottom-up valuations for PepsiCo (PEP), Microsoft (MSFT), and TSMC (TSM). We employed XGBoost regression models to project a stagflationary environment beginning in early 2026, characterized by low growth and sticky inflation. Based on leading indicators like the ISM Manufacturing New Orders Index and high import prices, our team prioritizes defensive asset allocations in sectors with inelastic demand and pricing power, specifically Consumer Staples.

We identified PepsiCo as a resilient pick due to its stable cash flows and potential restructuring upside from activist investor Elliott Management. Conversely, our team found that while Microsoft offers stability through recurring enterprise revenue, its heavy AI infrastructure spending poses a near-term risk. We view TSMC as a high-risk asset in this outlook because it operates in a hyper-cyclical industry where demand often collapses during economic slowdowns.

Our team's valuation framework used Discounted Cash Flow (DCF) models to establish a base-case value of $170 for PepsiCo, representing a 16.7% upside. Microsoft was valued at $534.50, reflecting a 12.2% upside, while our base case for TSMC yielded $304.66. Our Monte Carlo simulations confirmed these findings, showing that TSMC exhibits the highest volatility and significant downside risk under stagflationary stress.

Synthesizing the macro outlook with firm-specific research, our team recommends a risk-averse posture. We advise rotating out of hyper-cyclical growth by issuing a Sell on TSMC. Our team recommends a Buy on defensive, dividend-paying staples like PepsiCo that can sustain earnings under economic turbulence, while maintaining a neutral Hold position on Microsoft due to its scale and stability.

Background

In managing real client portfolios through the Applied Portfolio Management course, the primary objective is to pick best quality names using a top-down investment approach. Our strategy begins with forecasting the next stage of the business cycle through a custom-built economic model, which enables us to focus on sectors most likely to outperform under the anticipated macroeconomic conditions. By aligning sector exposure with economic expectations, we aim to enhance portfolio resilience while positioning for upside potential.

The business cycle is segmented into four stages: inflationary, deflationary, stagflationary, and reflationary. Each phase favors distinct sectors based on growth and inflation dynamics. Our model output pointed to a stagflationary environment, characterized by low growth and high inflation. In such a regime, defensive sectors such as staples tend to outperform, due to their stable cash flows.

Given the macro-outlook, our attention turned to the large-cap U.S. staple space, where we selected PepsiCo (PEP) for deeper analysis. PepsiCo firms provide differentiated exposures across innovation, diversification, and acquisition-driven growth strategies, making them compelling candidates for portfolio consideration under stagflation.

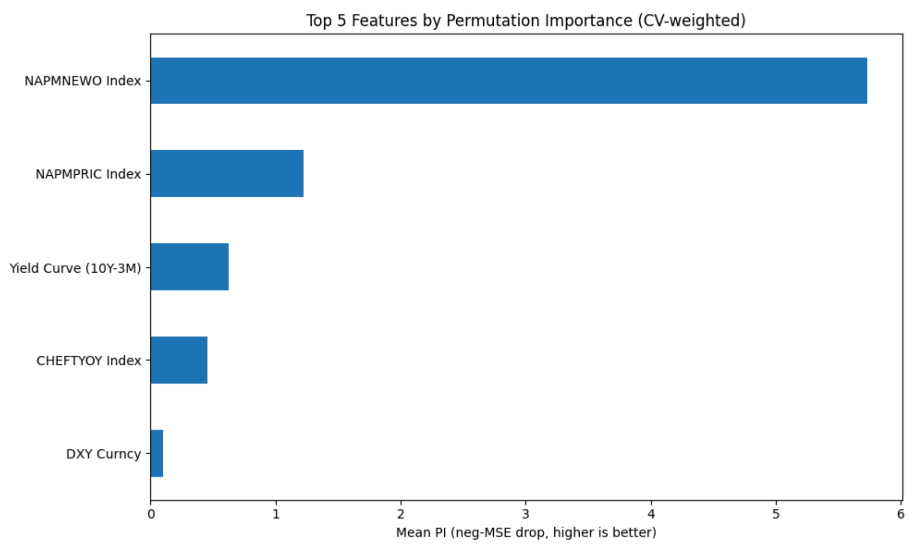
From a valuation perspective, we used Discounted Cash Flow (DCF) models to assess fair value under bull, base, and bear cases, allowing us to quantify the uncertainty and probability distribution of potential outcomes. Scenario assumptions were informed by both macroeconomic forecasts and company-specific fundamentals. In addition to DCFs, we incorporated qualitative insights from earnings calls, product pipelines, litigation developments, and regulatory trends to refine our investment theses.

Ultimately, by integrating economic forecasts with detailed bottom-up research, we arrived at differentiated recommendations: a BUY on PepsiCo, driven by its diversified global portfolio, attractive 4% dividend yield, and potential upside from activist investor Elliott Management; a HOLD on Microsoft due to its stability relative to TSM; and a SELL on TSM, as its high-growth profile faces significant downside risks in a stagflationary environment.

Economic Model

Our method employs two XGBoost regression models to forecast the macroeconomic trajectory of the United States in the next three to six months. The first model focuses on economic growth, represented by the Purchasing Manager Index (PMI), while the second model targets inflation, represented by the Consumer Price Index (CPI). All independent variables are expressed in month-over-month (MOM) growth terms to reduce seasonality.

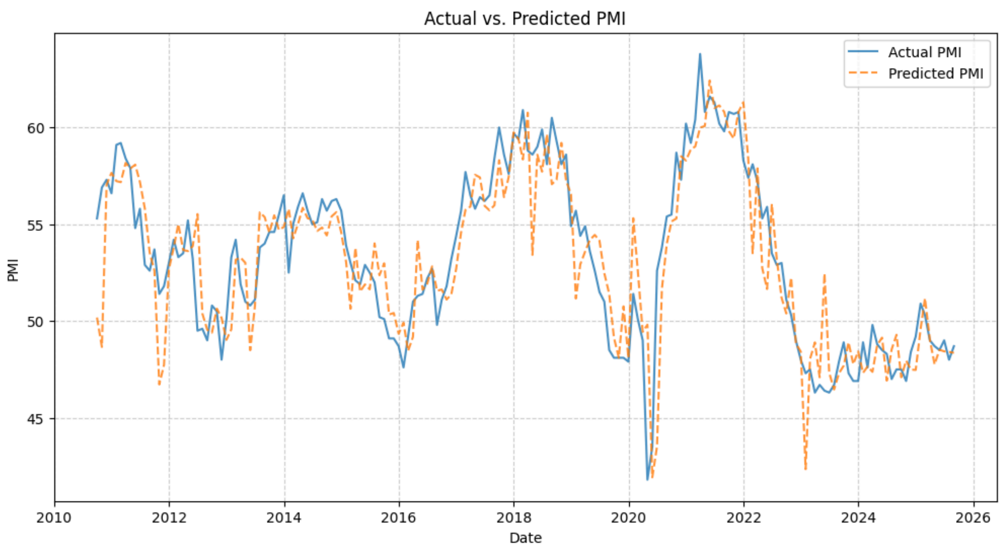
PMI Growth Model:



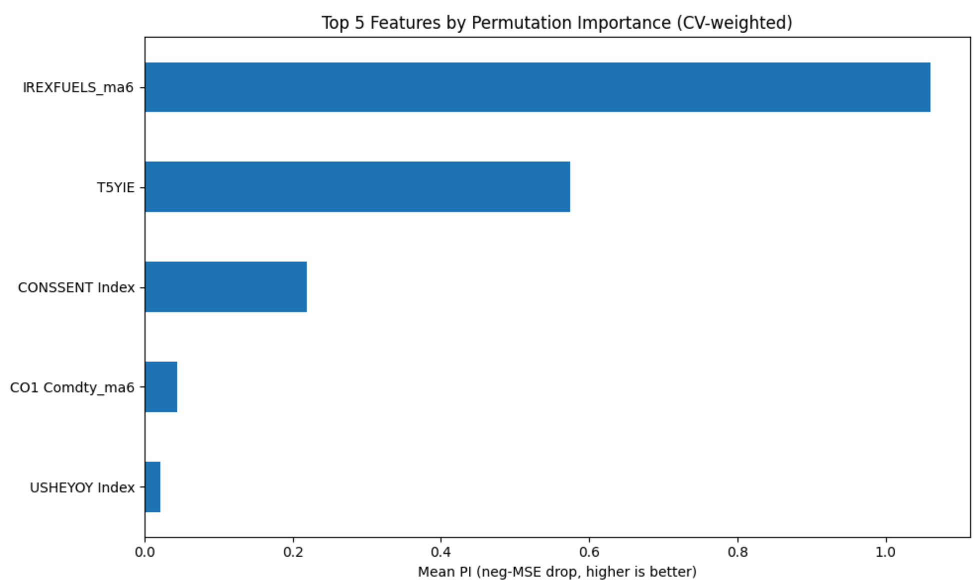
XGBoost regression models are sensitive to feature noise. To ensure model robustness, we first applied Variance Inflation Factor (VIF) analysis to filter out features with high multicollinearity. Subsequently, we utilized cross-validation techniques to identify the five features with the highest predictive impact on PMI. The five key features are:

1. **ISM Manufacturing New Orders Index**: A primary leading indicator that captures the volume of new business bookings, signaling future production levels.
2. **ISM Manufacturing Price Paid Index**: A gauge of supply chain inflationary pressures that reflects raw material costs and demand intensity.

3. **Yield Curve (10-year minus 3-month)**: A critical financial market signal where inversion typically precedes economic contractions and manufacturing downturns.
4. **China PPI YoY Index**: Serves as a proxy for global manufacturing demand and commodity price trends given China's role as a major exporter.
5. **US Dollar Index**: Impacts export competitiveness; a stronger dollar generally acts as a headwind to the domestic manufacturing sector.

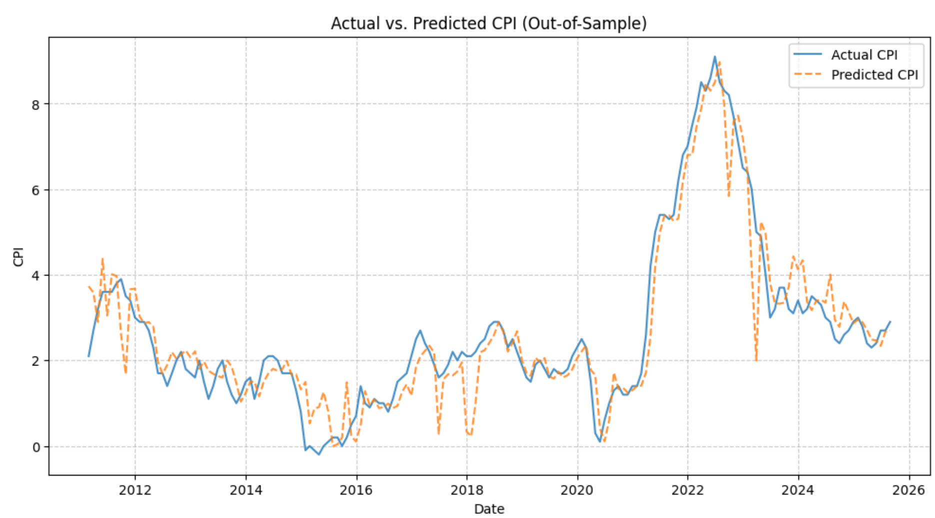


CPI Model: Inflation Forecast



Same as what we did on PMI Growth Model, we filter out five features with the highest predictive impact on CPI. The five key features are:

1. **Import Price Index (Excluding Fuels):** A direct measure of "imported inflation" that strips out volatile energy costs to reveal the underlying pass-through of global supply chain prices and currency strength to domestic goods.
2. **5-Year Breakeven Inflation Rate**: The bond market's implied consensus on medium-term inflation, derived from the spread between Treasuries and TIPS. It serves as a real-time proxy for how firmly inflation expectations are anchored.
3. **University of Michigan Consumer Sentiment Index**: A forward-looking gauge of household optimism. Shifts in sentiment often precede changes in consumption, signaling the strength of potential demand-pull inflation in the economy.
4. **Brent Crude Oil 1st Nearby Continuous Contract**: The primary global benchmark for energy costs. It acts as a high-beta input for the headline CPI and gradually impacts core prices through production costs.
5. **U.S. Average Hourly Earnings (YoY)**: The key metric for labor market tightness. Accelerating earnings suggest rising input costs for the service sector, highlighting the risk of sticky, structural inflation.



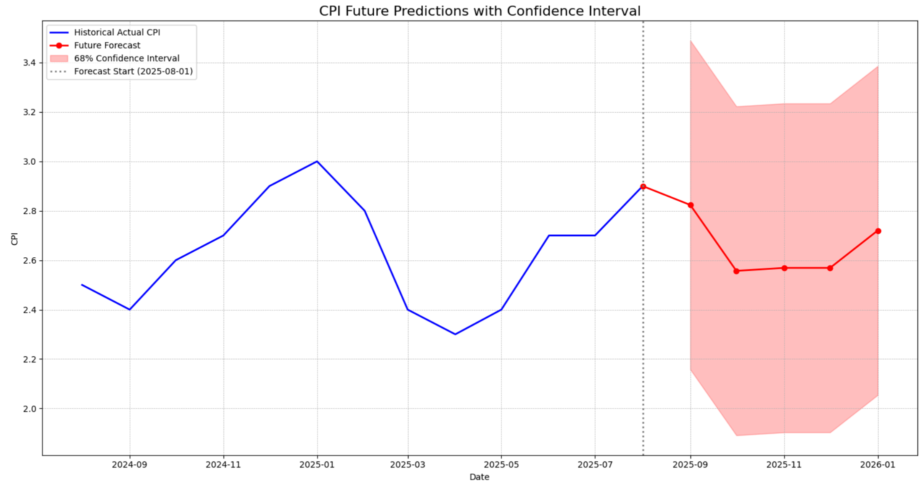
Forecasting

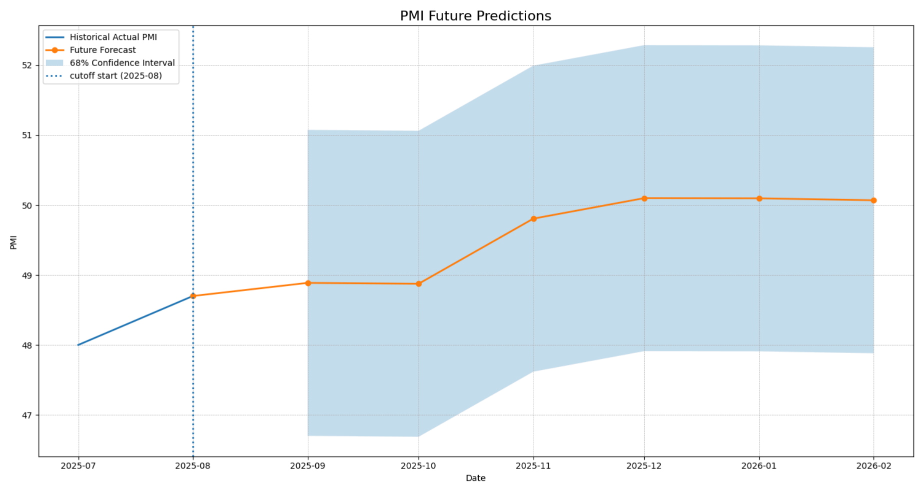
Based on both models, we project that the U.S. economy will experience a stagflationary environment lasting approximately six to nine months, beginning in the early 2026. During this period, GDP growth is expected to stagnate at low positive levels, while inflation is likely to remain sticky due to ongoing supply-side cost pressures and residual effects from previous monetary expansion.

This forecast implies a constrained policy space. Should the Federal Reserve prioritize inflation control through further tightening, it risks exacerbating the already fragile growth trajectory. On the other hand, a pivot toward monetary easing may reinforce inflationary expectations without delivering meaningful improvements in output. In this context, conventional demand-management tools may prove inadequate.

As a result, alternative policy approaches may be required. These could include supply-side interventions aimed at boosting productive capacity, reducing bottlenecks, or enhancing labor participation, as well as more targeted credit relief programs to avoid unnecessary stress in sectors vulnerable to financing constraints. From an investor’s perspective, this environment favors defensive asset allocations, particularly into sectors with inelastic demand and pricing power—such as healthcare, utilities, and consumer staples. In our broader analysis, the staple sector has been identified as one of the most resilient under stagflation, with firms like Pepsi serving as examples of companies capable of sustaining both earnings and valuation under macro stress.

In sum, the outlook derived from our econometric analysis suggests that the U.S. economy is heading into a transitional phase in which short-term macroeconomic stability will be difficult to achieve. While inflation may moderate gradually, the weakness in growth is likely to persist, making this one of the most complex periods for policy coordination and investment decision-making in recent years.





Industry Overview

Industry Analysis: Consumer Staples Sector under Stagflation

As per the economic view, we expect the next 6-9 months to have a stagflationary view of the economy, characterized by weak growth and persistent inflation. During this period, Consumer Staples is one of the sectors that stands as a resilient and defensive industry.

Staples as an industry comprises companies whose products are bought by consumers irrespective of economic phases and have a more predictable revenue with less volatility.

In staples, we are going to focus on the Food & Beverages sector, with our buy recommendation being Pepsico, a major player in both the snacks and beverages sector.

Analyzing Porter-5 Forces for the Food & Beverages industry, it is an industry with high capital requirements for both mass production and an even bigger marketing budget, making the threat of new entrants at a large level very low, though comparatively easier at the local niche level, though such players are not able to compete with big giants like Pepsico.

Consumer Staples companies usually face high bargaining power from the buyer, with most of their buyer being supermarkets like Walmart, Costco, Target, etc, buying in bulk, asking for discounts and shelf positioning negotiations, but such companies also hold quite a leverage over its suppliers for inputs of its product with them buying raw material in larger quantity, giving them negotiation power over payment structuring to its suppliers.

It's a very saturated industry, with intense rivalry among competitors, as consumers can switch to a product of one company's for another with zero cost.

In stagflation, consumers will cut travel, delay new phones, and postpone car purchases, but they will not stop drinking beverages or eating snacks, and PepsiCo has proven pricing power to pass through inflation. Compare that to TSM: a hyper-cyclical industry where demand can collapse in a slowdown, pricing rolls over instantly, and upstream suppliers (ASML, Tokyo Electron, etc.) hold all the cards. That’s exactly why, in an environment of slowing growth and sticky inflation, rotating out of a highly cyclical name like TSM into a defensive, dividend-paying, inflation-resistant staple like PepsiCo makes perfect sense.

SWOT Analysis

Strengths

Pepsico is one of the household names in the Food & beverage sector, with it being the largest company in the food and snacks sector globally, and the second largest in the beverage sector. One of the largest strengths of Pepsico is its highly diversified portfolio with 23 brands, each generating at least $1-billion in revenue each with $PEP giving a dividend yield of 4%, and a history of raising dividends continuously makes $PEP one of the very attractive names during the potential turbulent economic times.

Weakness

While $PEP offers many strengths, it has a few weaknesses, which the company is trying to address, like the big revenue products are perceived as unhealthy and with increasing health awareness, they are facing headwind, along with the ESG issues which comes while producing their products and 55% of revenue coming from North America alone and with rise of GLP-1 trend in North America, there is greater need for diversification of revenue sources based on geography.

Opportunities

While $PEP has faced some headwinds in the past year or so, it now stands on the verge of potential tailwinds, and now with the involvement of a successful Activist Investor in Elliot Management, we expect many opportunities on the horizon for $PEP. Pepsico is continuously investing to launch the healthier version of their blockbuster products with the rising health awareness and the NKD version of Doritos and Cheetos which are launched recently, are part of that process, alongside the growing revenue from healthy drinks in their portfolio, in Celsius, Poppi, and Aquafina, on which they are spending heavily and are seeing the double digit revenue growth, and with rise in health consciousness we can expect more tailwinds for their new health line of foods and beverages, while the company is seeing a double digit growth in Asia, Eastern Europe, and Latin America, and with activist investors pushing for capital reforms to reform North American business and give more focus to the high growth regions by shedding low RoI assets, therefore there are lot of tailwinds coming to Pepsico and this are not just opportunities, $PEP has started to work with Elliot Management and has already released 1st phase of improvements which are coming from start of new year.

Threat

There are a few threats also which the company also faces, such as intense competition from Coca-Cola in the beverages sector, exposure to movement in commodity pricing to some extent, and potential regulatory pressure from governments towards unhealthy products

Valuation:

Discounted Cash Flow

Our method of valuation involves the Discounted Cash Flow Method or a DCF analysis. Our discounted cash flow model employs the use of estimating future cash flows for a company over a period of 10 years. Essentially, the value of a firm is determined by discounting back its future cash flows with an appropriate discount rate. The components of the discount rate for any firm includes the cost of equity and cost of debt. The drivers while building a discounted cash flow model are the assumptions we make in terms of the firms' revenue growth, profit margins, operational efficiency, capital expenditure and other line items of the financial statements. Since the assumptions act as a major component of deriving the intrinsic value of the firm, we undertake a scenario analysis to ensure our assumptions fit and match the various scenarios of our projected economic trajectory. As a result, we have modelled a total of 3 discounted cash flow models being informed by the assumptions in our base, bull and bear cases. With the added scenarios analysis, we are able to derive a wide range of possibilities that correlate to each stage of the economic cycle and thus it aids us by providing deeper insights into the future performance of a firm.

Pepsico Base Case

	2025_Q4	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Option Selection											
Operating Scenario	**1**										
						Projected					
	2025_Q4	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Total Revenue Growth	**2.00%**	**1.00%**	**2.00%**	**2.00%**	**1.00%**	**1.00%**	**1.00%**	**1.00%**	**1.00%**	**1.00%**	**1.00%**
Base	2.00%	1.00%	2.00%	2.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
Bull	2.00%	2.00%	3.50%	3.50%	3.50%	3.50%	3.00%	3.00%	3.00%	2.50%	2.50%
Bear	1.00%	-1.00%	-0.50%	0.00%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%	0.50%
Gross Margin	**54.40%**	**54.60%**	**54.75%**	**54.75%**	**54.75%**	**54.75%**	**54.75%**	**54.75%**	**54.75%**	**54.75%**	**54.75%**
COGS	45.60%	45.40%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%
Base	45.60%	45.40%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%	45.25%
Bull	45.55%	45.35%	45.20%	45.10%	45.05%	45.05%	45.05%	45.05%	45.05%	45.05%	45.05%
Bear	46.00%	45.60%	45.70%	45.65%	45.60%	45.60%	45.60%	45.60%	45.60%	45.60%	45.60%
Operating Expense											
SG&A	**39.65%**	**38.25%**	**38.18%**	**38.05%**	**38.05%**	**38.05%**	**38.05%**	**38.05%**	**38.05%**	**38.05%**	**38.05%**
Base	39.65%	38.25%	38.18%	38.05%	38.05%	38.05%	38.05%	38.05%	38.05%	38.05%	38.05%
Bull	39.55%	38.22%	38.10%	38.05%	38.05%	38.05%	38.05%	38.05%	38.05%	38.05%	38.05%
Bear	40.00%	39.05%	39.70%	39.70%	39.55%	39.50%	39.45%	39.45%	39.45%	39.45%	39.45%
R&D	**1.00%**	**1.00%**	**1.00%**	**1.00%**	**0.80%**	**0.80%**	**0.80%**	**0.80%**	**0.80%**	**0.80%**	**0.80%**
Base	1.00%	1.00%	1.00%	1.00%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%
Bull	1.00%	1.00%	1.00%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%	0.80%
Bear	1.00%	1.30%	1.30%	1.30%	1.30%	1.00%	1.00%	1.00%	1.00%	1.00%	1.00%
CapEx	**6.70%**	**5.50%**	**5.50%**	**5.50%**	**5.50%**	**5.00%**	**5.00%**	**5.00%**	**5.00%**	**5.00%**	**5.00%**
Base	6.70%	5.50%	5.50%	5.50%	5.50%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Bull	6.50%	5.50%	5.50%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%
Bear	6.80%	5.70%	5.70%	5.70%	5.50%	5.50%	5.00%	5.00%	5.00%	5.00%	5.00%
Other Income	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Base	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bull	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bear	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
ROIC	**17.50%**										
Base	17.50%										
Bull	21.00%										
Bear	17.00%										

Pepsico
Discounted Cash Flow Analysis
For the Years Ended December 31
Millions of US Dollars

	2023	2024	2024_Q4	2025_Q1-3	2025	2025_Q4 E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	
Revenue	91,471.0	91,854.0	27,784.0	64,582.0	92,921.7	28,339.7	93,850.9	95,727.9	97,642.5	98,618.9	99,605.1	100,601.1	101,607.1	102,623.2	103,649.5	104,685.9	
Cost of Goods Sold	41,865.0	41,409.0	12,857.0	29,377.0	42,299.9	12,922.9	42,608.3	43,316.9	44,183.2	44,625.1	45,071.3	45,522.0	45,977.2	46,437.0	46,901.4	47,370.4	
Gross Margin	49,606.0	50,445.0	14,927.0	35,205.0	50,621.8	15,416.8	51,242.6	52,411.0	53,459.3	53,993.8	54,533.8	55,079.1	55,629.9	56,186.2	56,748.1	57,315.6	
Operating Expenses:																	
SG&A	34,927.0	35,119.0	11,465.0	24,450.0	35,686.7	11,236.7	35,898.0	36,548.9	37,153.0	37,524.5	37,899.7	38,278.7	38,661.5	39,048.1	39,438.6	39,833.0	
R&D	804.0	813.0	-	-	283.4	283.4	938.5	957.3	976.4	789.0	796.8	804.8	812.9	821.0	829.2	837.5	
Total Operating Expenses	35,731.0	35,932.0	11,465.0	24,450.0	35,686.7	11,236.7	35,898.0	36,548.9	37,153.0	37,524.5	37,899.7	38,278.7	38,661.5	39,048.1	39,438.6	39,833.0	
Operating Income	13,875.0	14,513.0	3,551.0	10,755.0	14,935.1	4,180.1	15,344.6	15,862.1	16,306.3	16,469.4	16,634.0	16,800.4	16,968.4	17,138.1	17,309.5	17,482.6	
Other Income/(Expense)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pretax Income	13,875.0	14,513.0	3,551.0	10,755.0	14,935.1	4,180.1	15,344.6	15,862.1	16,306.3	16,469.4	16,634.0	16,800.4	16,968.4	17,138.1	17,309.5	17,482.6	
Income Taxes	2,747.3	2,815.5	632.1	2,097.2	2,912.3	815.1	2,992.2	3,093.1	3,179.7	3,211.5	3,243.6	3,276.1	3,308.8	3,341.9	3,375.3	3,409.1	
Net Income	11,127.8	11,697.5	2,918.9	8,657.8	12,022.8	3,365.0	12,352.4	12,769.0	13,126.6	13,257.8	13,390.4	13,524.3	13,659.6	13,796.2	13,934.1	14,073.5	
+ Depreciation & Amortization	2,948.0	3,160.0	1,042.0	2,315.0	2,962.3	647.3	2,732.8	2,886.8	3,049.1	3,214.0	3,354.8	3,501.0	3,649.8	3,801.1	3,954.9	4,111.4	
- Capital Expenditures	(5,320.0)	(4,976.0)	(2,303.0)	(2,227.0)	(4,125.8)	(1,898.8)	(5,161.8)	(5,265.0)	(5,370.3)	(5,424.0)	(4,980.3)	(5,030.1)	(5,080.4)	(5,131.2)	(5,182.5)	(5,234.3)	
- Working Capital Additions	1,010.0	(296.0)	2,904.0	(3,192.0)	(3,158.7)	33.3	55.8	112.6	114.9	58.6	59.2	59.8	60.4	61.0	61.6	62.2	
Free Cash Flow	9,765.8	9,585.5	4,561.9	5,553.8	7,700.6	2,146.8	9,979.2	10,503.4	10,920.2	11,106.4	11,824.1	12,055.0	12,289.3	12,527.0	12,768.1	13,012.7	302,070.1
Present Value Factor						0.9939	0.9639	0.9178	0.8738	0.8320	0.7922	0.7543	0.7182	0.6838	0.6511	0.6200	0.6049
PV Free Cash Flow						2,133.7	9,618.9	9,639.7	9,542.6	9,240.9	9,367.2	9,093.1	8,826.3	8,566.4	8,313.5	8,067.3	182,734.3

Value of Firm	275143.868
Less: Debt Outstanding	$ (50,849.00)
Plus: Cash	$ 8,661.00
Equity Value	232955.868
Shares Outstanding	1372
Value Per Share	$ 169.79

Our DCF model for $PEP starts by normalizing its income statement for FY23, FY24, and 9-month completed in FY25 to get a better picture of $PEP expenses and margins as a percentage of revenue which helps us in allocation of those numbers in our models based on our assumptions, which we gathered through management commentary, market view and our intrinsic research about the company’s product and form our three scenarios' for base (1), bull (2), and bear (3) for the valuation of the company.

Pepsico is on part of a stable growth, saturated industry, which is potentially going to have a form of restructuring/operational changes. It operates in two sectors, its snack brand of Frito-Lays and its beverage brand under Pepsi.

For operating margin, we made changes according to management commentary, market expectations for FY26 and beyond, with improvement in operating margin by 15-20 bps with potential operational changes, while also giving its revenue a growth of 1% to 2% given the large base already for the base case. $PEP is a stable cash flow, a low beta company, therefore faces a low WACC of 5.03%.

For the base case, we had a ROIC of 17.5% for the company for our terminal value which is in line with its past few years' ROIC and expected ROIC in our base case.

Given the assumption, we arrived at a value of $170 for $PEP, a 16.7% upside, we expect this growth to come through for the stock in case of a stagflationary scenario, in which the company doesn’t shed its assets and less success for the activist investor.

For bull case for $PEP, we arrived at a value of $205, an upside of 41%, which we mainly see with the increase in revenue growth from their new healthy products, operating margins improving by 30-40 bps, an uptick in revenue from North America and continuing growth in Asia, and Latin America, and company shedding its low performing assets to increase its ROIC to 21% similar to its rival Coca-cola after the activist involvement, some of which we are already seeing with the recent announcement of action plan by joint statement of Elliot Management and Pepsico.

In our bear case, we arrived at a price of $132, a downside of 10%, which can happen if the company is unable to properly rejuvenate its North American business with the new products as its older products face headwinds with changing market preferences, and any sudden movement in the commodity market, affecting its margins.

Given all the analysis we recommend a buy call on Pepsico given the availability at a high dividend yield, recent tailwinds with its new products launch in line with market demand, and the involvement of a historically successful activist investor, and with the uncertain and potential turbulent market, Pepsico comes out as a shining light with stable cash flow, high potential upside with its its potential restructuring with very limited downside.

TSM Base Case:

Option Selection

Operating Scenario 1

	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
					Projected					
Total Revenue Growth	**30.00%**	**27.00%**	**25.00%**	**25.00%**	**25.00%**	**23.00%**	**23.00%**	**21.00%**	**21.00%**	**21.00%**
Base	30.00%	27.00%	25.00%	25.00%	25.00%	23.00%	23.00%	21.00%	21.00%	21.00%
Bull	32.50%	30.00%	28.00%	28.00%	28.00%	26.00%	26.00%	24.00%	24.00%	24.00%
Bear	27.00%	24.00%	22.00%	22.00%	22.00%	20.00%	20.00%	18.00%	18.00%	18.00%
Gross Margin	**59.17%**	**57.50%**	**57.50%**	**58.00%**	**58.00%**	**58.50%**	**58.50%**	**58.50%**	**58.50%**	**58.50%**
COGS	**40.83%**	**42.50%**	**42.50%**	**42.00%**	**42.00%**	**41.50%**	**41.50%**	**41.50%**	**41.50%**	**41.50%**
Base	40.83%	42.50%	42.50%	42.00%	42.00%	41.50%	41.50%	41.50%	41.50%	41.50%
Bull	39.25%	41.25%	41.25%	40.75%	40.75%	40.25%	40.25%	40.25%	40.25%	40.25%
Bear	43.00%	44.00%	44.00%	43.75%	43.75%	43.50%	43.50%	43.00%	43.00%	43.00%
Operating Expense										
SG&A	**2.71%**	**2.80%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**	**3.00%**
Base	2.71%	2.80%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
Bull	2.50%	2.55%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%	3.25%
Bear	3.00%	3.30%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
R&D	**7.50%**	**8.00%**	**8.20%**	**7.70%**	**7.70%**	**7.70%**	**7.70%**	**7.70%**	**7.70%**	**7.70%**
Base	7.50%	8.00%	8.20%	7.70%	7.70%	7.70%	7.70%	7.70%	7.70%	7.70%
Bull	7.25%	7.75%	7.95%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%	7.55%
Bear	8.00%	8.50%	8.65%	8.15%	8.15%	8.15%	8.15%	8.15%	8.15%	8.15%
Capex	**40.00%**	**37.00%**	**37.00%**	**35.00%**	**35.00%**	**34.00%**	**34.00%**	**34.00%**	**34.00%**	**34.00%**
Base	40.00%	37.00%	37.00%	35.00%	35.00%	34.00%	34.00%	34.00%	34.00%	34.00%
Bull	39.75%	36.75%	36.75%	34.75%	34.75%	33.75%	33.75%	33.75%	33.75%	33.75%
Bear	40.25%	37.25%	37.25%	35.25%	35.25%	34.25%	34.25%	34.25%	34.25%	34.25%
Other Income	**0.00%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Base	0.00%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Bull	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Bear	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

TSM

Discounted Cash Flow Analysis

For the Years Ended December 31

Millions of New Taiwan Dollars

	2023	2024	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	Terminal Value
Revenue	2,161,735.8	2,894,307.7	3,762,600.01	4,778,502.01	5,973,127.52	7,466,409.39	9,333,011.74	11,479,604.44	14,119,913.47	17,085,095.29	20,672,965.31	25,014,288.02	
Cost of Goods Sold	986,625.2	1,269,954.1	1,536,269.6	2,030,863.4	2,538,579.2	3,135,891.9	3,919,864.9	4,764,035.8	5,859,764.1	7,090,314.5	8,579,280.6	10,380,929.5	
Gross Margin	1,175,110.6	1,624,353.6	2,226,330.4	2,747,638.7	3,434,548.3	4,330,517.4	5,413,146.8	6,715,568.6	8,260,149.4	9,994,780.7	12,093,684.7	14,633,358.5	
Operating Expenses:													
SG&A	60872.8	83,745.0	101,966.5	133,798.1	179,193.8	223,992.3	279,990.4	344,388.1	423,597.4	512,552.9	620,189.0	750,428.6	
R&D	182370.2	204,181.8	282,195.0	382,280.2	489,796.5	574,913.5	718,641.9	883,929.5	1,087,233.3	1,315,552.3	1,591,818.3	1,926,100.2	
Marketing	10590.7	13143.6	16,931.7	21,503.3	26,879.1	33,598.8	41,998.6	51,658.2	63,539.6	76,882.9	93,028.3	112,564.3	
Total Operating Expenses	253,833.7	301,070.4	401,093.2	537,581.5	695,869.4	832,504.6	1,040,630.8	1,279,975.9	1,574,370.4	1,904,988.1	2,305,035.6	2,789,093.1	
Operating Income	921,276.9	1,323,283.2	1,825,237.3	2,210,057.2	2,738,679.0	3,498,012.8	4,372,516.0	5,435,592.7	6,685,779.0	8,089,792.6	9,788,649.1	11,844,265.4	
Other Income/(Expense)	-	-	-	-	-	-	-	-	-	-	-	-	
Pretax Income	921,276.9	1,323,283.2	1,825,237.3	2,210,057.2	2,738,679.0	3,498,012.8	4,372,516.0	5,435,592.7	6,685,779.0	8,089,792.6	9,788,649.1	11,844,265.4	
Income Taxes	184,255.4	264,656.6	365,047.5	442,011.4	547,735.8	699,602.6	874,503.2	1,087,118.5	1,337,155.8	1,617,958.5	1,957,729.8	2,368,853.1	
Net Income	737,021.5	1,058,626.6	1,460,189.8	1,768,045.7	2,190,943.2	2,798,410.2	3,498,012.8	4,348,474.2	5,348,623.2	6,471,834.1	7,830,919.3	9,475,412.3	
+ Depreciation & Amortization	532,190.9	662,796.6	1,172,855.5	1,310,799.3	1,537,145.4	1,844,128.7	2,281,774.2	2,761,379.3	3,367,924.2	4,087,699.3	4,317,501.4	6,018,473.0	
- Capital Expenditures	(949,817.0)	(956,006.5)	(1,505,040.0)	(1,768,045.7)	(2,210,057.2)	(2,613,243.3)	(3,266,554.1)	(3,903,065.5)	(4,800,770.6)	(5,808,932.4)	(7,028,808.2)	(8,504,857.9)	
- Working Capital Additions	56,852.1	(13,350.8)	(486,243.7)	(568,905.1)	(668,990.3)	(836,237.9)	(1,045,297.3)	(1,202,091.9)	(1,478,573.1)	(1,660,501.8)	(2,009,207.2)	(2,431,140.7)	
Free Cash Flow	376,247.5	752,065.9	160,440.4	741,894.1	849,041.1	1,193,057.8	1,467,935.5	2,004,696.0	2,437,203.8	3,090,099.2	3,110,405.3	4,557,886.7	95,013,681.8
Present Value Factor			0.9877	0.9283	0.8406	0.7612	0.6893	0.6242	0.5652	0.5118	0.4634	0.4197	0.3994
PV Free Cash Flow			158,462.5	688,683.1	713,689.8	908,124.8	1,011,799.2	1,251,235.8	1,377,481.5	1,581,501.6	1,441,509.5	1,912,790.2	37,943,868.3
Value of Firm			48,989,146.3										
Less: Debt Outstanding			(2,318,529.0)										
Plus: Cash			2,470,759.0										
Equity Value			49,141,376.3										
Shares Outstanding			25,932.6										
Value Per Share			$ 1,894.97	adr	$ 304.66		fx		31.1	% of change		6.96%	
Share Price (11/14/25)			$ 1,430.00		$ 284.82								

TSM is known for its cutting-edge technology and manufacturing processes. The company continually invests in research and development to maintain its competitive lead in chip fabrication technology.

Despite its leading position in the industry, TSM faces persistent geopolitical risk, which contributes to its high beta. As a growth stock carrying higher risk than its peers in the tech sector such as MSFT, we believe it is safer to sell and take profits now.

For our DCF model, we projected growth based on margins from its 2nm and 3nm process nodes and High-Performance Computing (HPC) revenue. Based on management commentary, market consensus, and our internal research, we applied conservative revenue growth assumptions, considering the headwinds growth companies like TSM face under stagflation.

- Base Case ($304.66, +6.9% upside): Assumes the prevailing stagflationary scenario with conservative growth.
- Bull Case ($381.76, +34% upside): Predicated on improved operational efficiency, higher-than-expected HPC demand, and an economic recovery.
- Bear Case ($233.42, -18.1% downside): Assumes higher operating costs, softer HPC demand, and a severe economic downturn affecting broad equity markets.

Based on our qualitative and quantitative analysis, we recommend selling TSM. The stock carries higher risk compared to other tech companies, and its growth properties are unfavorable given the current stagflationary economic scenarios.

Microsoft Base Case

Option Selection										
Operating Scenario	**1**									
						Projected				
	2026	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**
Total Revenue Growth	**16.0%**	**16.0%**	**16.0%**	**15.0%**	**14.0%**	**13.0%**	**12.0%**	**12.0%**	**11.0%**	**11.0%**
Base	16.0%	16.0%	16.0%	15.0%	14.0%	13.0%	12.0%	12.0%	11.0%	11.0%
Bull	18.0%	20.0%	18.0%	17.0%	16.0%	15.0%	13.0%	12.0%	12.0%	12.0%
Bear	15.0%	13.0%	12.0%	11.0%	11.0%	11.0%	10.0%	10.0%	9.0%	9.0%
Gross Margin	**69.0%**	**70.0%**	**70.0%**	**71.0%**	**72.0%**	**73.0%**	**75.0%**	**75.0%**	**75.0%**	**75.0%**
COGS	31.0%	30.0%	30.0%	29.0%	28.0%	27.0%	25.0%	25.0%	25.0%	25.0%
Base	31.0%	30.5%	30.0%	29.0%	28.0%	27.0%	25.0%	25.0%	25.0%	25.0%
Bull	30.5%	29.0%	28.0%	27.0%	26.0%	25.0%	24.5%	24.5%	24.5%	24.5%
Bear	31.5%	32.0%	31.0%	30.0%	29.0%	28.0%	27.0%	26.5%	26.5%	26.5%
Operating Expense										
SG&A	**11.6%**	**11.5%**	**11.0%**	**10.5%**	**10.2%**	**10.0%**	**10.0%**	**10.0%**	**10.0%**	**10.0%**
Base	11.55%	11.5%	11.0%	10.5%	10.15%	10.0%	10.0%	10.0%	10.0%	10.0%
Bull	11.0%	11.0%	10.5%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
Bear	11.6%	12.0%	12.0%	11.0%	10.75%	10.5%	10.5%	10.5%	10.5%	10.5%
R&D	**11.8%**	**11.7%**	**11.5%**	**11.5%**	**11.5%**	**11.0%**	**11.0%**	**11.0%**	**11.0%**	**11.0%**
Base	11.8%	11.7%	11.5%	11.5%	11.5%	11.0%	11.0%	11.0%	11.0%	11.0%
Bull	11.5%	11.5%	11.3%	11.2%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
Bear	12.0%	12.8%	12.5%	12.5%	12.5%	12.0%	12.0%	12.0%	12.0%	12.0%
CapEx	**30.0%**	**29.0%**	**25.0%**	**18.5%**	**17.0%**	**15.5%**	**14.0%**	**13.5%**	**12.5%**	**11.5%**
Base	30.0%	29.0%	25.0%	18.5%	17.0%	15.5%	14.0%	13.5%	12.5%	11.5%
Bull	29.5%	28.5%	24.0%	17.5%	15.5%	14.5%	14.0%	12.5%	11.5%	11.0%
Bear	30.5%	29.0%	25.0%	19.0%	17.5%	16.0%	15.0%	14.0%	13.0%	12.0%
Other Income	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Base	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bull	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Bear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

MSFT
Discounted Cash Flow Analysis
For the Years Ended June 30
Millions of US Dollars

	2023	2024	2025	2025_Q1	2026_Q1	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	
Revenue	211,915.0	245,122.0	281,724.0	65,585.0	77,673.0	326,799.8	379,087.8	439,741.9	505,703.1	576,501.6	651,446.8	729,620.4	817,174.9	907,064.1	1,006,841.1	
Cost of Goods Sold	65,863.0	74,114.0	87,831.0	20,099.0	24,043.0	101,308.0	113,726.3	131,922.6	146,653.9	161,420.4	175,890.6	182,405.1	204,293.7	226,766.0	251,710.3	
Gross Margin	146,052.0	171,008.0	193,893.0	45,486.0	53,630.0	225,491.9	265,361.5	307,819.3	359,049.2	415,081.1	475,556.2	547,215.3	612,881.1	680,298.1	755,130.9	
Operating Expenses:																
SG&A	30,334.0	32,065.0	32,877.0	7,390.0	7,523.0	37,745.4	43,595.1	48,371.6	53,098.8	58,514.9	65,144.7	72,962.0	81,717.5	90,706.4	100,684.1	
R&D	27,195.0	29,510.0	32,488.0	7,544.0	8,146.0	38,562.4	44,353.3	50,570.3	58,155.9	66,297.7	71,659.1	80,258.2	89,889.2	99,777.0	110,752.5	
Total Operating Expenses	57,529.0	61,575.0	65,365.0	14,934.0	15,669.0	76,307.8	87,948.4	98,941.9	111,254.7	124,812.6	136,803.8	153,220.3	171,606.7	190,483.5	211,436.6	
Operating Income	88,523.0	109,433.0	128,528.0	30,552.0	37,961.0	149,184.1	177,413.1	208,877.4	247,794.5	290,268.5	338,752.3	393,995.0	441,274.4	489,814.6	543,694.2	
Other Income/(Expense)	788.0	(1,646.0)	(4,901.0)	(3,660.0)	-	-	-	-	-	-	-	-	-	-	-	
Pretax Income	89,311.0	107,787.0	123,627.0	30,269.0	34,301.0	149,184.1	177,413.1	208,877.4	247,794.5	290,268.5	338,752.3	393,995.0	441,274.4	489,814.6	543,694.2	
Income Taxes	16,950.0	19,651.0	21,795.0	5,602.0	3,468.0	28,345.0	33,708.5	39,686.7	47,081.0	55,151.0	64,362.9	74,859.1	83,842.1	93,064.8	103,301.9	
Net Income	72,361.0	88,136.0	101,832.0	24,667.0	30,833.0	120,839.1	143,704.6	169,190.7	200,713.6	235,117.5	274,389.4	319,136.0	357,432.3	396,749.8	440,392.3	
+ Depreciation & Amortization	13,861.0	22,287.0	34,153.0		13,061.0	42,279.5	61,475.8	67,404.9	72,379.9	77,514.0	83,413.9	89,431.1	96,265.5	103,406.3	110,787.5	
- Capital Expenditures	(28,107.0)	(44,477.0)	(64,551.0)		(19,394.0)	(98,040.0)	(109,935.5)	(109,935.5)	(93,555.1)	(98,005.3)	(100,974.3)	(102,146.9)	(110,318.6)	(113,383.0)	(115,786.7)	
- Working Capital Additions	(5,390.0)	(6,760.0)	168.0		(12,109.0)	(7,677.0)	(8,905.4)	(10,330.2)	(11,234.1)	(12,058.0)	(12,764.2)	(13,314.1)	(14,911.7)	(15,309.4)	(16,993.4)	
Free Cash Flow	52,725.0	59,186.0	71,602.0			43,051.3	86,339.6	116,329.9	168,304.3	202,568.3	244,064.8	293,106.2	328,467.5	371,463.8	418,399.7	5,643,320.6
Present Value Factor						0.9698	0.9028	0.8319	0.7665	0.7063	0.6508	0.5997	0.5526	0.5092	0.4692	0.4504
PV Free Cash Flow						41,750.5	77,946.6	96,771.7	129,009.7	143,076.6	158,844.5	175,777.0	181,509.4	189,144.3	196,308.0	2,541,653.6
Value of Firm			3,931,792.0													
Less: Debt Outstanding			(43,208.0)													
Plus: Cash			102,012.0													
Equity Value			3,990,596.0													
Shares Outstanding			7,466.0													
Value Per Share			$ 534.50													

Microsoft has been a very stable stock. Its revenue growth, gross margin, and operating expense have been kept steady for the past few years, and its latest revenue boost has beaten the market's expectations. Combined with its scale, as well as highly recurring, contract-driven, and enterprise-anchored revenue, it stands out as one of the safest large-cap technology investments.

Its diversified business—Intelligent Cloud (Azure), Productivity and Business Processes (Office, LinkedIn), and More Personal Computing (Windows, Gaming)—provides both structural growth and downside resilience. High switching costs, ecosystem lock-in, and scale advantages support durable pricing power and elevated returns on capital.

However, Microsoft's recent surge in capital expenditures—driven by aggressive AI infrastructure build-outs—poses a near-term risk. Elevated spending pressures free cash flow and raises execution risk, particularly if AI demand scales more slowly than expected, potentially weighing on returns and valuation in a cautious macro environment.

For our DCF model, we projected growth based on Microsoft's growth in cloud computing, artificial intelligence, and enterprise productivity software, as well as its stable historical data. Based on management guidance, market expectations, and internal analysis, we took a cautious view of revenue growth. This approach reflects the anticipated macro headwinds—such as those associated with a stagflationary environment—that are likely to impact growth-oriented companies like Microsoft.

- Base Case ($534.50, +12.20% upside): Given the current environment of high inflation and low growth, Microsoft is likely to be operating on a conservative growth projection.
- Bull Case ($618.75, +29.88% upside): Based on the assumption of sustained growth within the AI sector over the ensuing year, alongside expected enhancements in operational efficiency and a broader economic rebound.
- Bear Case ($420.59, -11.71% downside): Predicated upon the possible downturn in the artificial intelligence sector, alongside heightened operational expenditures and widespread economic adversity.

We recommend maintaining a 'Hold' position on Microsoft stock after reviewing our researched comparable stocks. While it shares the tech sector's exposure to macroeconomic downturns, Microsoft is considered one of the safer investment choices due to its diverse and stable revenue streams and lower stock price volatility, which aligns well with our defensive investment strategy.

Overall Findings

Our integrated analysis of the consumer staples and technology sectors reveals a clear divergence in risk-adjusted performance potential under a stagflationary regime. By synthesizing macroeconomic forecasts with detailed bottom-up valuations, we have identified PepsiCo (PEP) as the primary beneficiary of this environment, while TSM faces significant cyclical headwinds that necessitate a tactical exit. Microsoft occupies a middle ground, serving as a stabilizing, defensive tech anchor.

PepsiCo: The Defensive Heavyweight

PepsiCo epitomizes the "defensive-value" profile required to thrive during periods of low growth and sticky inflation. Our economic model projects a 6–9 month stagflationary window where consumer purchasing power will be tested. Historically, the Food & Beverages industry remains resilient because demand for snacks and beverages is relatively inelastic; consumers may delay high-ticket electronics but maintain stable consumption of daily essentials.

PepsiCo's strength lies in its diversified global portfolio of 23 billion-dollar brands and its proven pricing power, which allows it to pass through input cost increases to consumers. Furthermore, the involvement of Elliott Management serves as a strategic catalyst. We anticipate that activist-driven operational reforms and a shift toward high-growth regions like Asia and Latin America could expand ROIC toward 21%, narrowing the gap with rivals like Coca-Cola. With a 4% dividend yield and 16.7% base-case upside, PepsiCo offers a compelling "shining light" for the portfolio.

Technology: Cyclical Risk vs. Enterprise Stability

In contrast, the technology sector presents an asymmetric risk profile. TSMC, while fundamentally strong in chip fabrication, is inherently hyper-cyclical. In a stagflationary environment, semiconductor demand can collapse rapidly, and TSMC's high capital intensity and geopolitical risk exposure (high beta) make it vulnerable to significant valuation contraction. Our bear-case scenario suggests an 18.1% downside, prompting our recommendation to take profits and rotate into defensive names.

Microsoft offers a more robust alternative within technology. Its revenue is heavily enterprise-anchored and contract-driven, providing a level of "defensive growth" that TSM lacks. High switching costs and ecosystem lock-in (Office, Azure) support durable pricing power even under macro stress. While aggressive AI infrastructure spending poses a near-term risk to free cash flow, Microsoft's diverse revenue streams and lower volatility justify a HOLD position as a safer large-cap tech investment.

Strategic Conclusion

Ultimately, the transition toward a stagflationary phase requires a shift from high-beta growth toward stable cash flows and dividend reliability. By rotating out of the cyclical risks associated with TSMC and into the inflation-resistant stability of PepsiCo, the portfolio is better positioned to sustain earnings and valuation. Maintaining Microsoft ensures the portfolio retains exposure to structural AI tailwinds but through a far more resilient vehicle.

Monte Carlo Scenario Analysis

Our discounted–cash-flow framework delivers single-point fair-value estimates under three macro scenarios (bear, base, bull). To gauge how often the market might realize those cash-flow targets over the next 90 days, we overlaid a Monte Carlo (MC) simulation on each company's equity price. The MC layer therefore complements the DCF by converting deterministic forecasts into a probability distribution of outcomes.

Methodology

I. **Daily Drift**: We calibrated the drift parameter using the historical daily log returns of TSM over the selected sample period (Nov 14, 2019 – Nov 15, 2025). Unlike complex factor models, we utilized the realized mean of log returns to establish a baseline conditional mean return series.

II. **Volatility Process**: We estimated the volatility parameter as the standard deviation of the historical daily log returns over the same observation window. This approach assumes constant volatility based on the realized historical distribution.

III. **Simulation Design**: For the TSM ticker, we launched 1,000,000 price paths over a forecast horizon of 90 trading days:

$$P_t = P_{t-1} \cdot \exp(r_t)$$

$$r_t \sim N(\mu, \sigma)$$

Initial prices were set to the last observed closing price from the dataset. The simulation utilizes a Geometric Brownian Motion (GBM) framework where log returns are sampled from a normal distribution defined by our historical log returns and volatility.

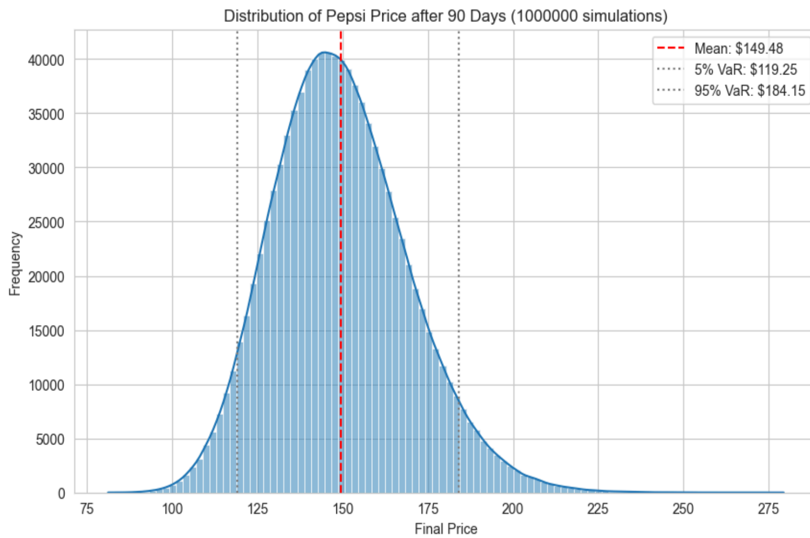
IV. **Outputs**: We recorded the terminal (t=90) price of every simulated path and summarized the distribution to extract the mean expected price, as well as the 5th and 95th percentiles to estimate the Value at Risk (VaR) bands.

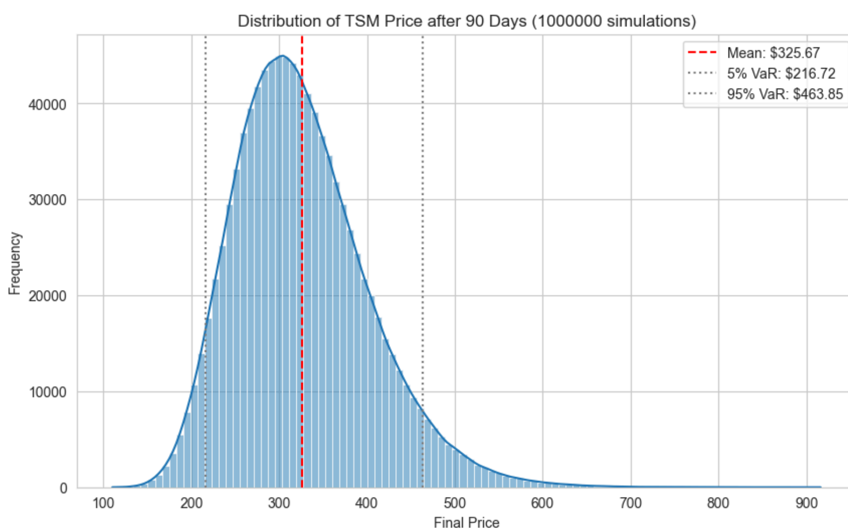
Results

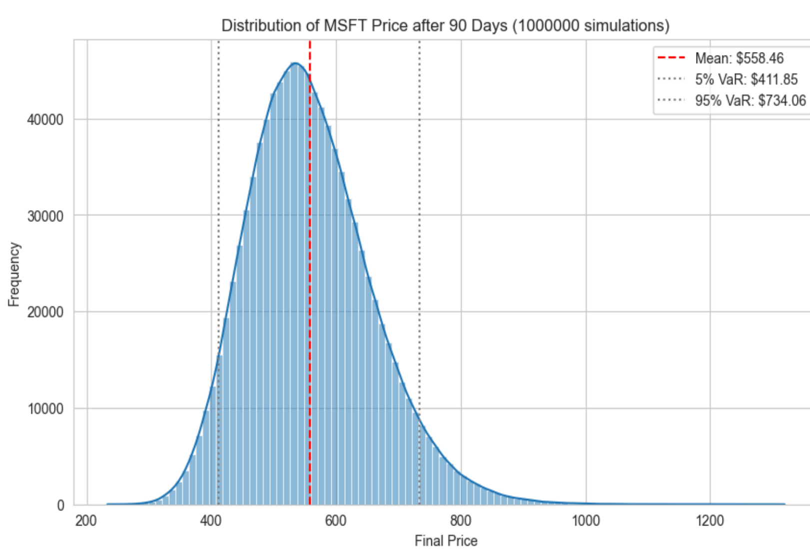
	Monte Carlo (90DAYS)	5% - 95% Band	Downside - Upside
PEP	$149.48	$119.25 – $184.15	20% - 23%
TSM	$325.67	$216.72 - $463.85	33.4% - 42.5%
MSFT	$558.46	$411.85 - $734.06	26% - 31.5%

Conclusion

Our Monte Carlo analysis indicates that TSM exhibits the highest volatility, presenting the largest potential for both upside and downside. Conversely, PEP demonstrates the lowest volatility with limited downside risk. Given our economic outlook of stagflation, a risk-averse approach is warranted. With the potential for a market pullback over the next 90 days—particularly in the technology sector—TSM's high variance poses a significant risk. To mitigate potential losses, we advise reducing exposure to high-volatility assets. **Therefore, we recommend a rating of Sell for TSM, Hold for MSFT, and Buy for PEP.**


Distribution of Pepsi Price after 90 Days (1000000 simulations)
Mean: $149.48
5% VaR: $119.25
95% VaR: $184.15
Frequency
Final Price


Distribution of TSM Price after 90 Days (1000000 simulations)
Mean: $325.67
5% VaR: $216.72
95% VaR: $463.85
Frequency
Final Price


Distribution of MSFT Price after 90 Days (1000000 simulations)
Mean: $558.46
5% VaR: $411.85
95% VaR: $734.06
Frequency
Final Price

Future Considerations

Economic Model

While the current models are statistically robust and offer a clear directional forecast, future iterations could benefit from:

I. Incorporating more real-time data, such as alternative credit metrics or commodity prices.
II. Introducing interaction terms or structural breaks to account for changing macro policy frameworks (e.g., the impact of the Big Beautiful Act).

Continued monitoring and refinement of these models will be essential as the macroeconomic environment evolves, particularly in response to geopolitical risks, supply chain shifts, and domestic policy actions.

Monte-Carlo Analysis

To improve risk estimation, future iterations can replace the static Geometric Brownian Motion framework with Stochastic Volatility or Jump-Diffusion models. Unlike the current assumption of constant volatility and normal distributions, these methods capture "fat tails" and volatility clustering. This adjustment can provide a more realistic assessment of potential downside and Value at Risk (VaR) during periods of market stress.

Portfolio Positions

As for our final recommendation, we give a buy call on Pepsico, hold on Microsoft, and sell on TSMC. For future considerations, we should continue to monitor our positions, while being monitored for its ongoing work with Elliot management regarding the restructuring and potential new product launches to replace the ones facing headwinds with the changing market behaviour in food and beverage products.
For Microsoft, we should look at the market for AI story, as well as Microsoft's own AI progress, and eventually the revenue it is able to generate through its AI products, on

which they are spending very heavily, as with every tech company, they are betting big on AI with heavy CapEx, which requires a healthy ROIC.