

# Asset Allocation Analysis Using Fundamental and Risk Factors

The goal of this project is to develop a structured analysis of six major U.S. equities across the technology and retail sectors, using a multifactor framework based on the eight indicators covered in class: Revenue CAGR, Price/Earnings (P/E), EV/EBITDA, Net Margin, ROIC, Beta, Expected Return, and Volatility.

This approach provides a clear and comparable view of each company's financial performance, market valuation, profitability, and risk profile. The analysis focuses on the following firms: Amazon (AMZN), Alphabet / Google (GOOGL), Meta Platforms (META), Walmart (WMT), Home Depot (HD), and Nvidia (NVDA).

The overarching objective is to determine:

which companies appear undervalued or overvalued relative to peers,  
which exhibit strong or accelerating growth,  
which businesses generate the highest levels of profitability,  
which stocks carry higher or lower levels of risk,  
how these securities can be combined into portfolios tailored to three different risk profiles (Conservative, Moderate, Growth),  
and finally, what practical insights emerge for an investor making allocation decisions.

## Methodological Approach

The analysis is based on a FactSet-style dataset processed initially in Excel and subsequently integrated with Power BI visualizations to enhance interpretation and cross-company comparison.

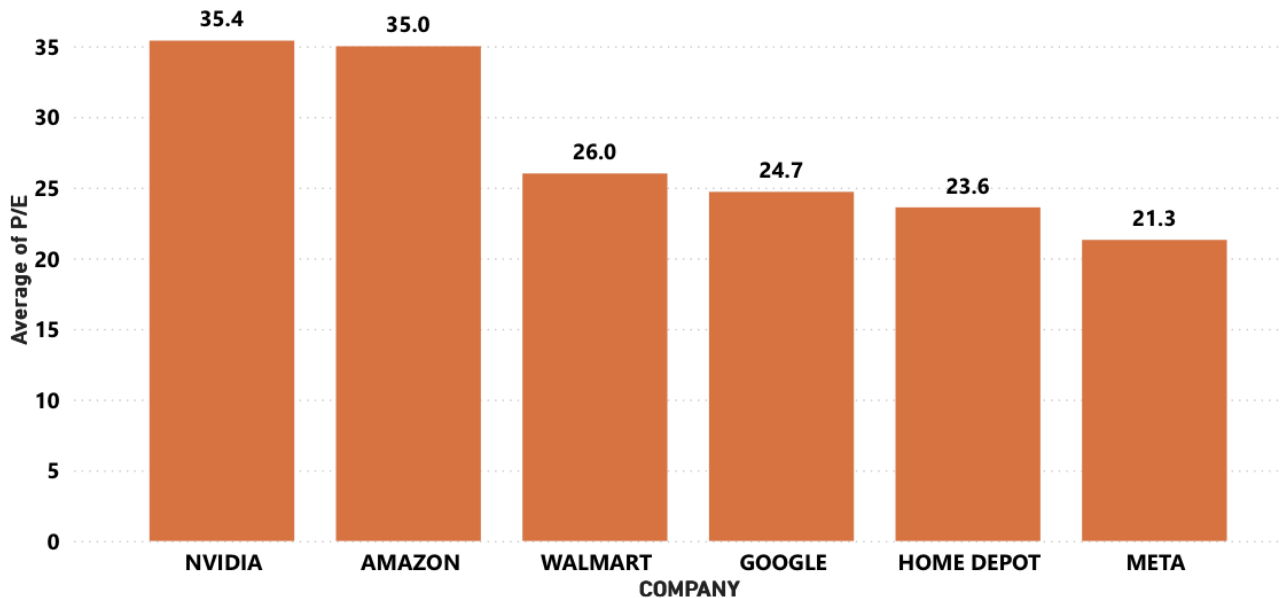
The analytical workflow follows a bottom-up structure:

1. Individual factor assessment, examining each metric company by company.
2. Cross-sectional comparison, identifying discrepancies, patterns, and clusters across the six equities.
3. Integrated factor evaluation, combining signals from valuation, growth, profitability, and risk to form a holistic view of each firm.
4. Portfolio construction, where the securities are allocated based on correlations, expected returns, and volatility.
5. Final recommendation, summarizing the results and outlining the implications for portfolio allocation.

This methodology provides a coherent and comprehensive framework, ensuring that each conclusion is grounded in both data and financial logic.

## Valuation Analysis

P/E multiple by company



The Price-to-Earnings ratio is one of the most widely used valuation metrics in financial markets, as it reflects how much investors are willing to pay for each dollar of earnings generated by a company. Our analysis highlights clear differences across the six firms in the dataset.

Nvidia shows by far the highest P/E multiple. Such a premium reflects exceptionally strong expectations for future growth, driven by the company's central role in artificial intelligence, semiconductors, and the broader GPU computing ecosystem.

Amazon also trades at a relatively high P/E. This valuation captures the unique combination of its low-margin retail operations and the high-margin, fast-growing AWS segment, which remains the company's primary driver of profitability.

Google and Meta fall in a more moderate range. Investors recognize the strength and resilience of their business models and their solid profitability, but the market assigns them more measured valuations compared with Nvidia.

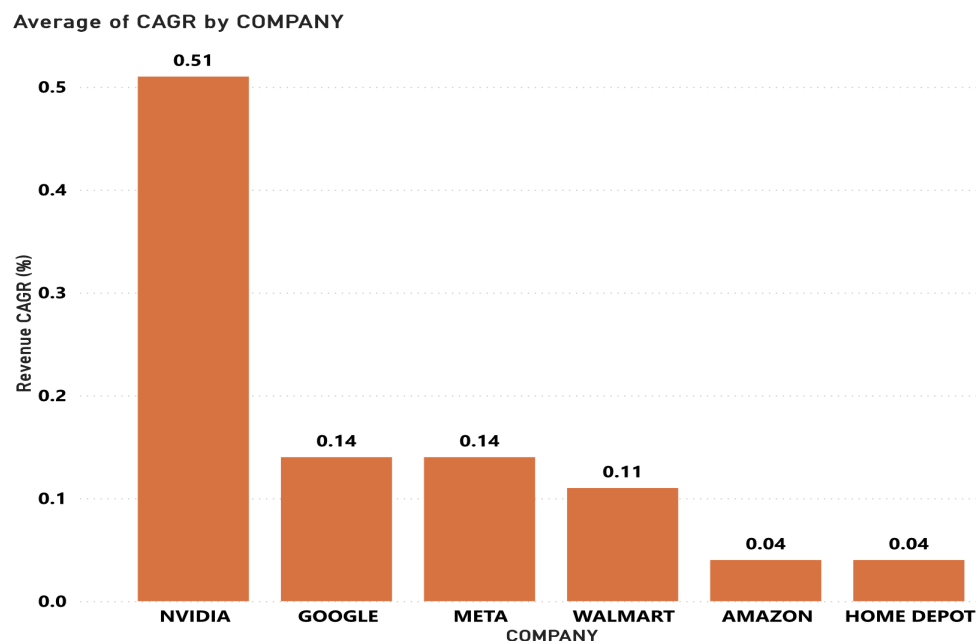
Walmart and Home Depot appear as the most "affordable" stocks in the group, with lower P/E multiples that reflect mature business models, slower growth dynamics, and a generally lower risk profile.

From a style-classification perspective, Walmart and Home Depot align well with Value stocks, while Nvidia and Amazon represent high-valuation Growth stocks. Google and Meta sit somewhere in between as core or blend names.

More importantly, a high P/E does not necessarily indicate overvaluation. It often signals the market's willingness to pay a premium for companies viewed as long-term leaders in structural technological trends. Conversely, a low P/E is not automatically a sign of

undervaluation; it may simply reflect steady, predictable business models that grow at a slower pace. For this reason, integrating the P/E ratio with additional factors such as growth, margins, and ROIC is essential to avoid simplistic interpretations and to form a more balanced view of each company's potential.

## Revenue Growth Analysis (5-Year CAGR)



The five-year revenue CAGR is a key indicator for assessing a company's long-term growth trajectory, and the results across the six firms reveal a highly uneven landscape.

Nvidia stands out with an exceptional growth rate above 50 percent, driven by the explosive demand for GPUs and AI-related computing solutions. This performance clearly positions Nvidia as the company with the strongest growth potential in the entire sample, far exceeding the other firms.

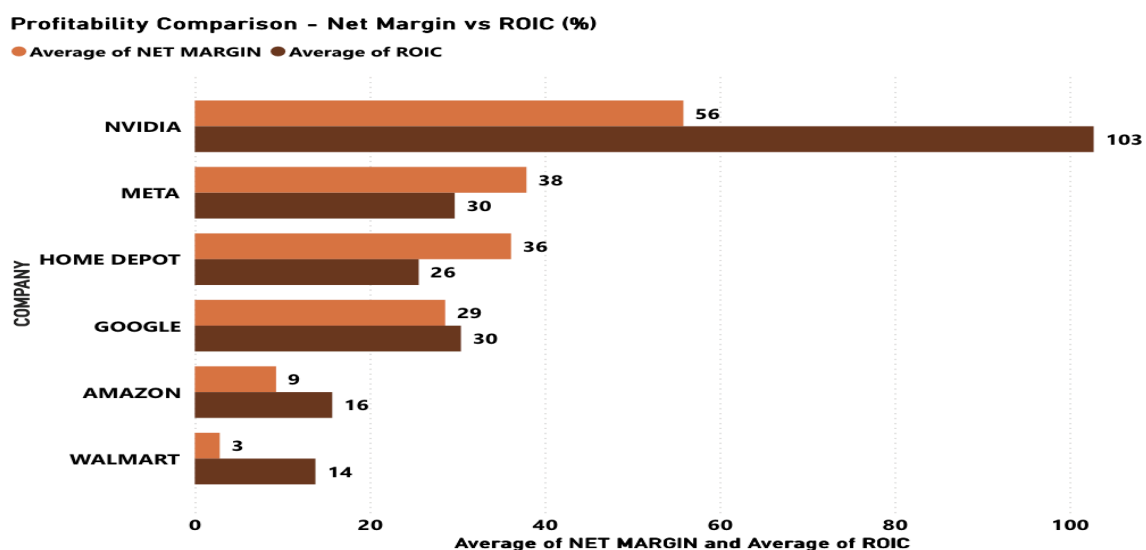
Google and Meta show more moderate, but still solid, growth rates around 14 percent. Although both are considered mature technology companies, they continue to expand through segments such as cloud services, digital advertising, and AI-integrated products, which sustain a healthy rate of revenue acceleration.

Walmart and Amazon display noticeably lower growth levels. For Walmart, this is largely attributable to the structural limitations of the traditional retail model, which naturally scales at a slower pace. Amazon's softer growth, on the other hand, reflects a transition into a more mature phase after years of aggressive expansion across e-commerce and cloud services.

Home Depot exhibits moderate and stable growth, consistent with the characteristics of a cyclical business tied to the housing and home-improvement sectors.

Overall, the analysis identifies Nvidia, Google, and Meta as the clear growth leaders, with Nvidia operating at an entirely different scale relative to its peers.

## Profitability and Quality Analysis (Net Margin and ROIC)



This section focuses not on how fast these companies grow, but on how efficiently they convert revenues into profits and how effectively they employ invested capital. Together, Net Margin and ROIC provide a deeper view of business quality and operational discipline.

### Net Margin:

Nvidia clearly dominates this metric, supported by exceptionally high margins that stem from its technological leadership and pricing power in the GPU and AI-computing markets. Meta also maintains very strong margins, largely thanks to significant cost optimization efforts and the scalability of its digital platforms. Google posts stable and healthy margins, reflecting the maturity and efficiency of its core businesses. Amazon and Walmart operate with much thinner margins, which is typical for highly competitive retail environments where cost structures are heavier and pricing power is limited. Home Depot shows solid profitability, though naturally lower than the big tech firms given the nature of its sector.

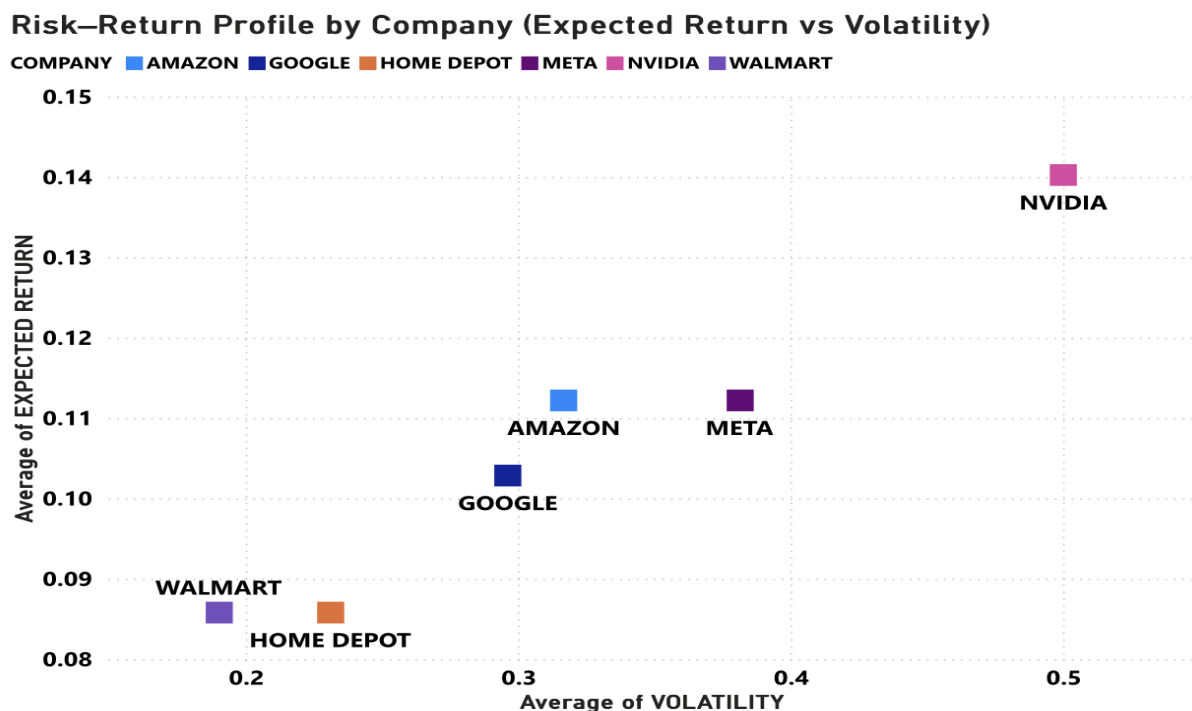
### ROIC:

ROIC captures a company's ability to generate value for shareholders by deploying capital efficiently. Nvidia once again stands out as the strongest performer, confirming its superior

business economics. Meta also posts a high ROIC, reflecting the scalability and asset-light nature of its digital ecosystem. Home Depot performs surprisingly well on this metric; despite operating outside the tech sector, the company demonstrates excellent operational discipline and capital efficiency. Google maintains a solid ROIC, while Amazon and Walmart sit further behind due to the capital-intensive nature of their businesses.

Considering both profitability and capital efficiency, the highest-quality companies in the group are Nvidia, Meta, and Home Depot. Each of them combines strong economics with sustainable competitive advantages, positioning them as structurally superior businesses within the sample.

## Risk–Return Analysis (Expected Return vs. Volatility)



The scatter plot provides a clear representation of the risk–return trade-off across the six companies, highlighting how each stock positions itself in terms of expected performance and associated uncertainty.

Nvidia appears in the upper-right quadrant, reflecting both the highest expected return and the highest volatility in the group. This positioning makes it an inherently aggressive choice, suitable for investors with a high tolerance for risk. Meta offers an appealing balance, pairing a strong expected return with only moderate volatility, which places it among the more attractive large-cap growth names. Google displays a relatively stable profile, characterized by lower volatility and a solid expected return, making it one of the most balanced options in the sample. Amazon shows medium-to-high volatility combined with a

more moderate expected return, largely due to the hybrid nature of its business model, which spans low-margin retail and high-margin cloud services. Walmart and Home Depot are the most defensive stocks in the set, delivering lower expected returns but offering a high degree of stability.

## Correlation Matrix Interpretation

### Correlation Matrix

COMPANY	AMAZON	GOOGLE	HOME DEPOT	META	NVIDIA	WALMART
AMAZON	1.0000	0.0062	-0.0020	-0.0406	0.3517	0.0081
GOOGLE	0.0062	1.0000	-0.0336	0.3795	0.0443	0.0488
HOME DEPOT	-0.0020	-0.0336	1.0000	-0.0189	-0.0038	0.2149
META	-0.0406	0.3795	-0.0189	1.0000	0.0458	0.1083
NVIDIA	0.3517	0.0443	-0.0038	0.0458	1.0000	0.0156
WALMART	0.0081	0.0488	0.2149	0.1083	0.0156	1.0000

Correlation plays a central role in portfolio construction, as it determines how different assets interact and how effectively they can reduce overall portfolio risk. The correlation matrix highlights several important relationships among the six companies.

Google and Meta exhibit a very high correlation, which suggests that including both in a highly concentrated portfolio may not significantly improve diversification. Amazon shows moderate correlations with the rest of the group, making it a useful diversifying component due to the hybrid nature of its business. The two retail names, Walmart and Home Depot, have relatively low correlations with the technology stocks, providing a stabilizing effect when combined with higher-growth companies. Nvidia, despite being a high-growth tech stock, does not display extremely high correlation with the other tech names, which means it can add diversification benefits while still contributing meaningful upside potential.

## Portfolio Construction and Allocation

In this section, three distinct portfolios, Conservative, Moderate, and Growth, are constructed. The goal is not only to assign numerical weights, but also to explain the underlying logic through which each security contributes to the overall risk–return profile.

### Conservative Portfolio

The Conservative portfolio is designed to prioritize stability, predictable cash flows, and low volatility. The largest allocations are given to Walmart (35 percent) and Home Depot (25

percent), two historically resilient companies with moderate growth, stable margins, and relatively low betas. Google receives a 30 percent weight, supported by its strong profitability and financial robustness, which make it suitable even within a defensive framework. Meta and Amazon are included only marginally, at 5 percent each, adding a modest growth component without materially increasing the risk of the portfolio. Nvidia is intentionally excluded, as its elevated volatility is inconsistent with a conservative strategy. Overall, the objective is to maximize stability and capital preservation while still generating a credible level of expected return.

## Moderate Portfolio

The Moderate portfolio seeks a balanced approach between growth and stability by expanding exposure to higher-potential companies while maintaining a defensive core. Google (25 percent) and Meta (20 percent) form the central foundation of this allocation, combining strong cash generation, reasonable valuations, and solid growth prospects. Amazon is assigned a meaningful 20 percent weight, reflecting its steady expansion driven primarily by AWS. Walmart (15 percent) and Home Depot (10 percent) preserve a stabilizing component that reduces overall volatility. Nvidia enters the portfolio at a controlled 10 percent weight, allowing participation in the long-term structural trend of artificial intelligence without overwhelming the risk profile. The resulting allocation targets a higher return than the conservative portfolio, while managing risk in a disciplined and balanced way.

## Aggressive Portfolio

The Aggressive portfolio is constructed to maximize long-term expected returns, accepting a substantially higher level of risk and volatility. Nvidia holds the dominant position at 35 percent, mirroring its central role in the AI ecosystem and the exceptional earnings growth anticipated by the market. Meta (25 percent) is included as a highly profitable company with strong operating leverage. Amazon (20 percent) further reinforces exposure to high-growth business segments, particularly the cloud. Google receives a 10 percent allocation, maintaining portfolio quality while acknowledging that its growth outlook is less explosive than that of Nvidia or Meta. Finally, Walmart (5 percent) and Home Depot (5 percent) provide a minimal defensive buffer, preventing excessive concentration in high-volatility names. This portfolio is suited for investors focused on long-term return maximization who are willing to tolerate significant short-term fluctuations.

## Final Conclusions

The analysis of the six selected companies shows that building an effective portfolio requires a structured integration of valuation, growth, profitability, and risk considerations. The five Power BI visualizations made it possible to clearly highlight the differences among

the stocks, illustrating how each company presents a distinct financial profile and occupies a specific role within an asset allocation strategy.

From a valuation standpoint, Nvidia and Amazon emerge as the most expensive names, reflecting the market's extremely high expectations for future growth, while Walmart and Home Depot position themselves as more defensive Value options. The growth analysis reinforces Nvidia's dominance in terms of CAGR, with Google and Meta offering a solid balance between revenue expansion and financial sustainability. Regarding profitability, both margins and ROIC emphasize Nvidia's exceptional efficiency and the steady performance of the retail names, demonstrating how different business models can generate value through different mechanisms. The risk-return analysis completes the picture by illustrating the relationship between expected returns and volatility, a key element for calibrating portfolio construction. Finally, the correlation matrix provides essential insight into how these stocks interact with one another, enabling the design of portfolios with meaningful diversification benefits.

Based on these findings, three portfolios were developed, each aligned with a distinct risk profile:

The Conservative portfolio prioritizes stability and capital preservation, relying on defensive, low-volatility companies.

The Moderate portfolio strikes a balance between growth and security, blending high-quality firms with companies offering greater expansion potential.

The Aggressive portfolio maximizes exposure to high-growth names, accepting a materially higher level of risk.

Overall, this project demonstrates that a well-structured asset allocation strategy must integrate fundamental analysis, comparative valuation, risk assessment, and correlation dynamics. Each proposed portfolio follows a clear internal logic and serves a specific investor profile, providing efficient solutions for individuals with different objectives and risk tolerances.