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Core Satellite Portfolio

Passive strategies have outperformed active ones in portfolio management in recent years. This phenomenon is explained by many industry experts as a result of the high fees associated with active funds and the challenge of consistently outperforming the market. Nonetheless, some advocates of active management contend that some securities still have mispricing, and competent managers can take advantage of these inefficiencies to produce alpha.

To capitalize on this potential & benefit by using a careful blend of active portfolio and passive portfolio, we have carefully curated core-satellite portfolio.

This approach combines the broad diversification and low cost of passive investments with the active management of a small, concentrated portfolio. This active portion focuses on identifying and exploiting mispricing's in individual securities, aiming to enhance the overall portfolio's risk-adjusted returns.

The Securities in our Portfolio are as follows:

BUY CALL ON UNILEVER PLC

Unilever PLC, a global consumer goods giant with a revenue of approximately $60.9 billion, stands as a powerhouse in the consumer durable sector. Boasting renowned brands such as Axe, Ben & Jerry's, and Lifebuoy, Unilever exhibits resilience and stability, offering investors a safe haven in times of economic uncertainty.

Relative Valuation Metrics:

- The current PE ratio of 13.15 is notably lower than the 3-year average of 17.78,
- Further the current P/E is at a 35% discount to its long-term 20-year average. This shows that the security is trading at a significant discount to its long-term average (*refer Exhibit 1.1*).

Exhibit 1.1: Unilever PLC's P/E ratio historical

Fundamental Analysis

When we look at the intrinsic value of Unilever PLC, we find that the company's 3-year revenue growth rate has been 18% absolute which translates into a CAGR of 5.67% per year. In our intrinsic valuation calculation using DCF we project that the next 5-year revenue growth rate of Unilever PLC will be 5% and we assume the terminal growth rate to be 3%, based on this we come up with the implied value of Unilever PLC to be 6.4% higher than what It currently is (*refer Exhibit 1.2*). This signifies that buying the stock today would provide an alpha of 6.4% to investors.

Further, when we look at the median analyst report we find that the stock price forecast given by the analyst community is $51. This implies, based on analyst median forecast as well, that the upside to Unilever PLC is 6.4% to its current price

UNILEVER PLC	1	2	3	4	5
REVENUE	60.9	63.945	67.14225	70.49936	72.61434
OPERATING INCOME	9.744	10.2312	11.41418	12.68989	13.79673
NET INCOME	8.2824	8.69652	9.702055	11.4209	12.41705
COST OF CAP	9.80%	9.80%	9.80%	9.80%	9.80%
FREE CASH FLOW	7.5431694	7.213413	7.329202	7.857617	114.4189
ENTERPRISE VALUE	144.36234				
NET DEBT	17.7				
VALUE OF EQUITY	126.66234				
CMP	119.02				
UPSIDE	6.42%				

Exhibit 1.2: Cash Flow Statements for Unilever PLC

Conclusion: Hence, based on the fundamental factors and technical factors outlined above, Unilever PLC seems like an attractive security for our portfolio.

BUY CALL ON CITI GROUP INC.

Citigroup Inc., a diversified financial service holding company, provides various financial products and services to consumers, corporations, governments, and institutions in North America, Latin America, Asia, Europe, the Middle East, and Africa. It operates through three segments: Institutional Clients Group (ICG), Personal Banking and Wealth Management (PBWM), and Legacy Franchises. Citi Group Inc. Monthly Returns on S&P 500:

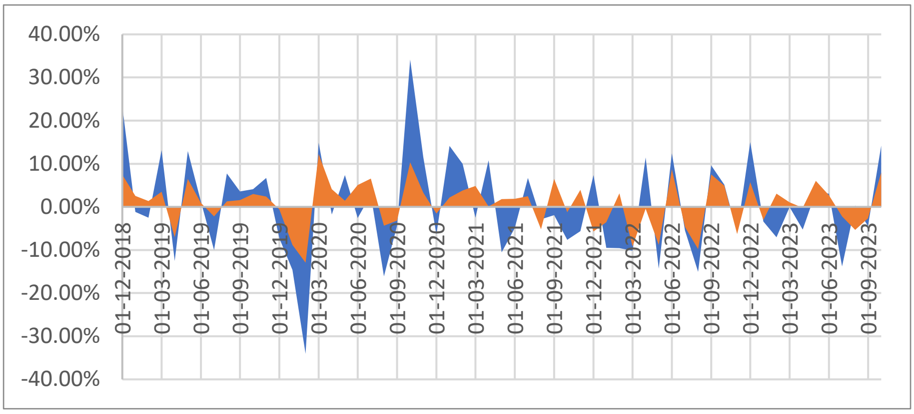

Exhibit 2.1: Monthly Returns of Citi Group Inc. on S&P 500.

Citigroup has been growing earnings at an average annual rate of 4.7%, while the Banks industry saw earnings growing at 12.7% annually (*refer Exhibit 2.1*). Revenues have been growing at an average rate of 3.1% per year. Citigroup's return on equity is 6.5%, and it has net margins of 17%. Citi Group has 1.91b shares outstanding.

Recently, Citi has announced significant changes to its organizational model that will fully align its management structure with its business strategy and simplify the bank. We believe that this will be a good operational transformation for the bank. The new, flatter structure elevates the leaders of Citi’s five businesses and eliminates management layers, which will speed up decision making, drive increased accountability and strengthen the focus on clients.

Valuation of Citi Group using the Dividend Discount Model (DDM):

Citigroup's current dividend stands at $2.04 per share. Historically, the dividend has exhibited a consistent growth rate of 6% over the past 20 years (*refer Exhibit 2.2*). Based on this data and projecting a long-term perpetual dividend growth rate of 4%, which aligns with the estimated GDP growth rate, we can utilize the Dividend Discount Model (DDM) to estimate Citigroup's intrinsic value.

Exhibit 2.2: Data from Yahoo Finance for the valuation of Citi Group Inc.

Dividend	$2.04
Projected Growth rate	4.00%
Cost of Capital	8.3%

(Source: https://finance.yahoo.com/quote/C/)

Intrinsic Value = Dividend / (Cost of Capital - Dividend Growth Rate)
Dividend: $2.04
Projected Dividend Growth Rate: 4%
Cost of Capital: 8.3% (estimated based on market conditions and Citigroup's risk profile)
Intrinsic Value = $2.04 / (0.083 - 0.04) = $49.33
Interpretation:

Based on the DDM calculation, Citigroup's intrinsic value is estimated to be $49.33 per share. This suggests that the current stock price is undervalued compared to its fair value.

- C ($44.86) is trading below our estimate of $49.33.
- This presents a 10% alpha to current market price.

Hence, due to intrinsic valuation we believe Citi is a good addition to our core satellite portfolio to derive alpha.

SELL/SHORT ON NVIDIA CORP. (NVDA)

NVIDIA Corp. designs and manufactures computer graphics processors, chipsets, and related multimedia software. It operates through the following segments: **Graphics Processing Unit (GPU), Tegra Processor, and All Other.**

- **The GPU segment** comprises product brands, including GeForce for gamers, Quadro for designers, Tesla and DGX for AI data scientists and big data researchers, and GRID for cloud-based visual computing users.
- **The Tegra Processor segment** integrates an entire computer onto a single chip and incorporates GPUs and multi-core CPUs to drive supercomputing for autonomous robots, drones, and cars, as well as for consoles and mobile gaming and entertainment devices.
- **The All-Other segment** refers to the stock-based compensation expense, corporate infrastructure and support costs, acquisition-related costs, legal settlement costs, and other non-recurring charges

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Nvidia Corporation Monthly Returns on S&P500: (Yahoo FInance, n.d.)

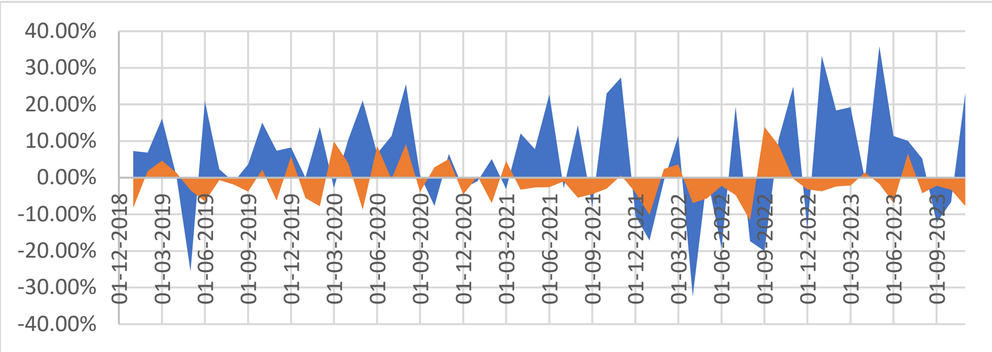

Exhibit 3.1: Monthly Returns of Nvidia Corporation and S&P 500

Market Cap	$1.179T
Beta	1.68
PE Ratio (TTM)	63.04
EPS	$ 7.57
Earnings Date	Feb 21, 2024
Forward Dividend and Yield	0.16(0.03%)

Exhibit 3.2: Market Data for Nvidia Corporation

(Source: https://finance.yahoo.com/quote/NVDA?p=NVDA)

Analysis:

- Its quarterly revenue was up 205.5% on a year-over-year basis. NVIDIA has generated $7.57 earnings per share over the last year ($7.57 diluted earnings per share) and currently has a price-to-earnings ratio of 63.04, suggests that this stock is over-valued (*refer Exhibit 3.1*). Earnings for NVIDIA are expected to grow by 56.85% in the coming year, from $9.71 to $15.23 per share. NVIDIA has not formally confirmed its next earnings publication date, but the company's estimated earnings date is Wednesday, February 21st, 2024 based off prior year's report dates.
- In the past three months, NVIDIA insiders have sold more of their company's stock than they have bought. Specifically, they have bought $0.00 in company stock and sold $67,606,089.00 in company stock.
- Nvidia is currently trading at the P/E that is >100% its 5-year P/E ratio. The analyst has baked in earnings growth of 60% for coming year. Recently, Morningstar also threw in the towel & changed their recommendation to buy (*refer Exhibit 3.2*).

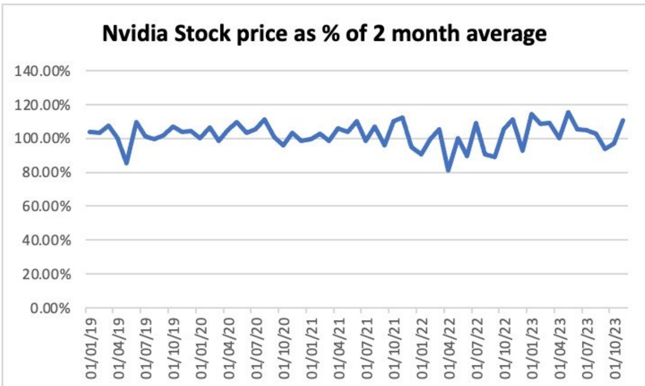

Exhibit 3.3: Stock price Data of Nvidia Corporation.

- Currently no analyst on Wall Street is predicting Nvidia stock to fall & we believe that this is the perfect sign of euphoria. As market is currently priced to perfection, we believe that there is nothing but disappointment that is left for investors who hold the stock.

Referring at the 2-month averages technical analysis vs current stock price we find that Nvidia is overvalued by 15% (*refer Exhibit 3.3*). We use a combination of technical analysis, behavior finance & fundamental analysis to support our hypothesis.

CORE - SATELLITE PORTFOLIO SUMMARY:

Core-satellite investing represents a strategic approach to constructing a portfolio designed to mitigate costs, tax implications, and market volatility, while concurrently seeking to outperform the broader stock market. The portfolio is predominantly composed of passive investments mirroring major market indices, such as the Standard and Poor's 500 Index (S&P 500). To enhance diversification and performance, actively managed investments, termed "satellites," are incorporated.

Our devised core-satellite portfolio comprises three equities for the actively managed component—Unilever PLC, Citi Group Inc., and Nvidia Corporation—and the S&P 500 for the passive component (*refer Exhibit 4.1*). The asset allocation weights for these investments are as follows:

Asset	Allocation Weight
S&P 500	0.7500
Unilever PLC	0.1859
Citi Group Inc.	0.1085
Nvidia Corporation	-0.0444

Exhibit 4.1: Allocations of securities in the Core-Satellite Project

Utilizing the Treynor-Black model, we optimized the portfolio's asset allocation, resulting in a standard deviation of 0.1782 and a beta of 0.9254. Notably, the portfolio's beta proximity to unity suggests that the portfolio is closely correlated to the benchmark but not perfectly correlated. This gives way for us to generate alpha for our clients. Furthermore, the portfolio exhibits a significantly lower standard deviation compared to both the S&P 500 and its active components, signaling comparable rewards with a notably reduced risk profile.

The core-satellite strategy has notably elevated the portfolio's Sharpe ratio, indicating superior risk-adjusted returns (*refer Exhibit 4.2*). A comparative analysis with the passive S&P 500 investment and the active portfolio yields the following metrics:

	Passive Portfolio: S&P 500	Active Portfolio	Core Satellite Portfolio
Beta	1	0.7014	0.9254
Risk premium	0.0350	0.1421	0.0618
SD	0.1857	0.2295	0.1782
Sharpe Ratio	0.19	0.62	0.3467
M-Square	0	0.0800	0.0294
Benchmark Risk			0.0474

Exhibit 4.2: Computed Data of the Core-Satellite Portfolio

Back-testing was conducted to validate the portfolio's reliability and accuracy. Throughout the entire period, the back-tested portfolio consistently outperformed the S&P 500, demonstrating reduced volatility, as evidenced by a lower standard deviation (*refer Exhibit 4.3*).

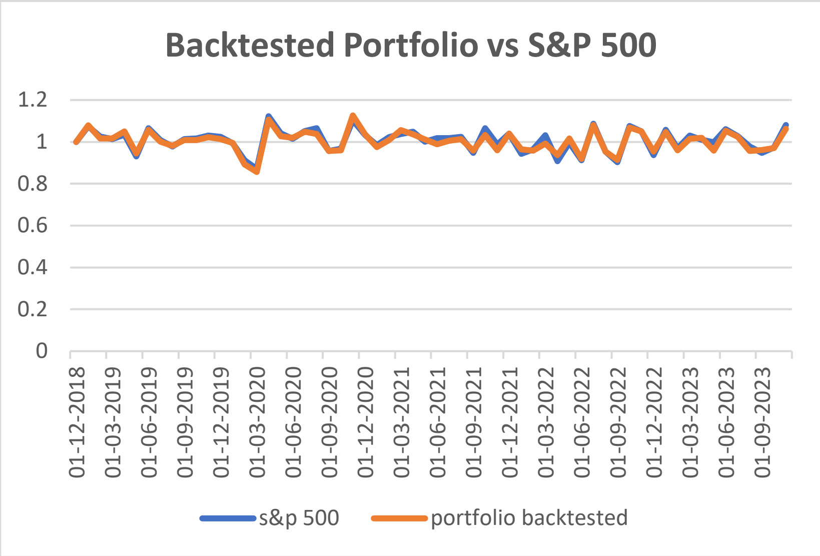

Exhibit 4.3: Graph of the Back-tested portfolio against the S&P 500

Based on our in-depth knowledge of security valuation, we are convinced that the current state of the market offers investors a special chance because of pervasive mispricing's in a range of asset classes. In order to take advantage of this potential, our meticulously developed core-satellite portfolio strategy seeks to minimize tracking error relative to the benchmark while concurrently generating alpha for individual investor portfolios.

Our belief, which is based on in-depth analysis and meticulous back-testing, is that this strategic approach can enable investors to take advantage of market inefficiencies. This translates into the potential for higher returns combined with a precisely calibrated investment approach that maximizes exposure to a variety of market niches.