Lisbon School of Economics & Management
Universidade de Lisboa

MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

INVESTMENT POLICY STATEMENT FOR INSTITUTIONAL INVESTORS:
CARMIGNAC INVESTISSEMENT

GEORGE ANDRAUS

JUNE 2025

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PROFESSOR RAQUEL M. GASPAR

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Abstract

This Investment Policy Statement (IPS) has been developed for the Carmignac Investissement A EUR Acc fund (ISIN: FR0010148981), hereinafter referred to as "the client". Its objective is to ensure clear and effective communication among stakeholders by outlining the fund's investment policy and management approach. The fund is a UCITS-compliant mutual fund managed by Carmignac Gestion S.A., a French asset manager.

The fund aims to outperform the MSCI AC World Net Return USD Index over a five-year horizon through active global equity management. It follows a growth-oriented strategy grounded in fundamental analysis and macroeconomic trends. The target VaR-Equivalent-Volatility (VEV) range is 12%–20%. The portfolio mainly invests in North American equities adhering to UCITS rules, including the short-selling ban and 5/10/40 diversification constraint.

Portfolio construction is driven by Mean-Variance Optimization (MVO), aiming to maximize the Sharpe ratio. The optimization respects strategic asset allocation constraints based on macroeconomic assumptions, VEV targets, liquidity constraint and regulatory limits. The optimized portfolio achieves an expected annualized return of 19.25%, a standard deviation of 19.37%, and a VEV of 16.09%. Expected return is also estimated using the Fama-French Five-Factor Model, yielding an annualized return of 11.23% and a residual standard deviation of 13.14%.

Risk analysis includes historical and parametric Value-at-Risk (VaR) including its Cornish-Fisher expansion. The Minimum Variance Hedge Ratio (MVHR) is computed for each foreign currency exposure, and forwards are used accordingly to hedge the currency risk. The fund's annualized Tracking Error and Information Ratio are calculated. A qualitative macro risk matrix is also developed to assess external factors influencing the fund's strategy.

JEL Classification: C61; G11; E44; G18; G12; G15; C58; G32

Keywords: Institutional Investor, Investment Policy Statement (IPS), Equity Portfolio, Growth Investing, Mean-Variance Optimization (MVO), Minimum Variance Hedge Ratio (MVHR), Fama-French Five-Factor Model, Value at Risk (VaR)

Resumo

Este Investment Policy Statement (IPS) foi elaborado para o fundo Carmignac Investissement A EUR Acc (ISIN: FR0010148981), doravante "o cliente". Visa facilitar uma comunicação eficaz entre as partes interessadas, definindo a política de investimento e a abordagem de gestão. O fundo é um OICVM gerido pela Carmignac Gestion S.A., sob a regulamentação UCITS da UE.

O objetivo é superar o índice MSCI AC World Net Return USD ao longo de cinco anos, através de uma gestão ativa de ações globais com foco em crescimento, baseada em análise fundamental e tendências macroeconómicas. A Volatilidade Equivalente ao VaR (VEV) tem como alvo o intervalo de 12% a 20%. A carteira concentra-se em ações dos EUA e Canadá, respeitando as restrições UCITS, como a proibição de vendas a descoberto e a regra 5/10/40.

A construção da carteira baseia-se na Otimização Média-Variância (MVO), maximizando o índice de Sharpe dentro dos limites estratégicos de alocação, definidos por perspetivas macroeconómicas, metas de VEV e regras regulatórias. A carteira otimizada oferece retorno anualizado esperado de 19,25%, desvio padrão de 19,37% e VEV de 16,09%. O retorno esperado também é estimado pelo modelo de cinco fatores de Fama-French, com prémios ponderados regionalmente, resultando em 11,23% de retorno e 13,14% de desvio padrão residual.

O risco é analisado por meio de VaR Histórico e Paramétrico, com e sem expansão de Cornish-Fisher. O rácio de cobertura de variância mínima (MVHR) é calculado para cada exposição cambial, sendo utilizada cobertura com futuros ou contratos a prazo. O Tracking Error anualizado é de 6,48% e o Information Ratio de 1,80. Um mapa qualitativo de riscos macroeconómicos complementa a análise estratégica do fundo.

Classificação JEL: C61; G11; E44; G18; G12; G15; C58; G32

Palavras-chave: IPS, Investidor Institucional, MVO, VaR, MVHR, Modelo Fama-French, Carteira de Ações, Estratégia de Crescimento

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Abbreviations

AMF – Autorité des Marchés Financiers

CAD – Canadian Dollar

CAPM – Capital Asset Pricing Model

CFCVaR– Cornish-Fisher Conditional VaR

CFVaR – Cornish-Fisher Value-at-Risk

CMA – Conservative Minus Aggressive

EPS – Earnings Per Share

FF5FM – Fama and French Five-Factor Model

GICS – Global Industry Classification Standard

HML – High Minus Low

IMF – International Monetary Fund

IPS – Investment Policy Statement

ISIN – International Securities Identification

JPY – Japanese Yen

LIDAM – Louvain Institute of Data Analysis and Modeling in economics and statistics

MPT – Modern Portfolio Theory

MVHR – Minimum Variance Hedge Ratio

MVO – Minimum Variance Optimization

PEG – Price-Earnings to Growth

ROE – Return on Equity

RMW – Robust Minus Weak

SAA – Strategic Asset Allocation

SMB – Small Minus Big

SR – Sharpe Ratio

UCITS – Undertaking for Collective Investment in Transferable Securities

USD – United States Dollar

VaR – Value-at-Risk

VEV – VaR-Equivalent-Volatility

1. Scope and Purpose

This Investment Policy Statement (IPS) governs the management of the assets of Carmignac Investissement, a sub-fund established under the UCITS framework and managed by Carmignac Gestion S.A, a medium-sized, high-profile boutique asset manager, headquartered in Paris, France. Carmignac Gestion S.A currently manages €34 billion in assets for both institutional and retail investors, operating across 15 countries, primarily within Europe.

The IPS outlines the structure, investment governance, and responsibilities applicable to the fund's portfolio, which is actively managed, open-ended and primarily invested in global equities. The client is the legal entity Carmignac Investissement, complies with UCITS (Directive 2009/65/EC) and complies with French law through the Code Monétaire et Financier and the regulatory requirements of the Autorité des Marchés Financiers (AMF). While the fund is administratively managed by Carmignac Gestion S.A., this IPS treats Carmignac Investissement as a distinct investing entity with its own objectives, risk tolerance, and investment constraints. This IPS applies solely to the assets held within the Carmignac Investissement fund. Table A.1 in the appendix summarizes the client's profile.

The fund, denominated in Euros, with totaling €3.854 billion in assets under management as of May 2025, with dividends reinvested. Responsibility for executing the IPS lies with Carmignac Gestion S.A., including portfolio management, compliance, risk monitoring, and operational processes. Investment decisions are led by an appointed Portfolio Manager supported by analysts and strategists, under the oversight of an Investment Committee that also guides asset allocation. Risk management, compliance, trade execution, and external oversight by the custodian BNP Paribas S.A. are integrated within the firm's broader governance structure. This IPS is reviewed annually or following material changes.

Carmignac Investissement has existed since 1989 and currently maintains its own actively managed portfolio, this study proposes a hypothetical portfolio designed to align with the fund's stated objectives and risk profile. The proposed portfolio serves as a strategic recommendation and does not reflect the fund's actual holdings.

2. Risk Profiling

2.1 Investment Objectives

The fund's objective is to outperform its reference indicator —the MSCI World Index— over a recommended investment horizon of five years. The search for performance involves active management, primarily in equity markets, based on fundamental analysis of the companies and the portfolio manager's expectations of how economic and market conditions evolve. The performance objective is net of all fees and assumes reinvestment of dividends. The Fund does not follow a benchmark-constrained strategy but uses the index as a long-term reference.

2.2 Return and Risk Requirements

The risk-adjusted return measured by Sharpe Ratio (SR_p) is maximized, subject to the constraints of the portfolio and allowable risk. Equation (1) presents the Sharpe ratio:

$$SR_p = \frac{\bar{R}_p - R_f}{\sigma_p} \quad (1)$$

where $\bar{R}_p$ is the expected return of the portfolio, R_f is the risk-free rate, and σ_p is the portfolio's volatility. Although Carmignac Investissement is a pure equity fund, its investment universe may include a limited allocation to hedging instruments for currency risk control purposes.

The fund has been classified as level 4 on a scale ranging from 1 (lower risk) to 7 (higher risk), indicating a medium risk profile with respect to potential losses in future performance and adverse market conditions. As highlighted in LIDAM paper (Herr et al., 2021), UCITS-compliant funds are assumed to be immunized against credit risk, therefore, this indicator can be translated into an allowable Modified VaR-Equivalent-Volatility (VEV) range of 12% to 20% over the medium term, as illustrated in Table 1. Equation (2) defines the VEV measure as a function of the Cornish-Fisher Value-at-Risk (CFVaR), given in Equation (3). If returns are normally distributed, then VEV is equal to the standard deviation, regardless of the holding period,

$$VEV = \frac{z_\alpha + \sqrt{z_\alpha^2 - 2 \times CFVaR_{1-\alpha}^T}}{\sqrt{T}} \times \sqrt{m} \quad (2)$$

where m denotes the number of non-overlapping time intervals per year, and T represents the number of such intervals within the recommended holding period of the fund,

$$CFVaR_{1-\alpha}^T = \left(\mu - \frac{\sigma^2}{2}\right)T + \left(z_\alpha + (z_\alpha^2 - 1)\frac{S}{6\sqrt{T}} - (z_\alpha^3 - 3z_\alpha)\frac{K}{24T} + (2z_\alpha^3 - 5z_\alpha)\frac{S^2}{36T}\right)\sigma\sqrt{T} \quad (3)$$

where S is the skewness coefficient of log-returns observed during the recommended holding period of the fund, and K is the excess kurtosis coefficient of those log-returns over the same period.

Table 1: VEV

Risk Indicator	VEV
1	< 0.5%
2	0.5% - 5%
3	5% - 12%
4	12% - 20%
5	20% - 30%
6	30% - 80%
7	> 80%

Source: LIDAM Discussion Paper LFIN

A risk level of 4 corresponds to a VEV between 12% and 20%, which will serve as one of the restrictions in the portfolio optimization discussed later in the project.

2.3 Risk Tolerance

Carmignac Investissement adopts a disciplined and proactive approach to risk, recognizing that uncertainty is inherent in the pursuit of long-term capital appreciation. An actively managed UCITS equity fund accepts exposure to a broad spectrum of market and non-market risks, acknowledging that investment returns may vary both positively and negatively over time.

The Fund's risk tolerance is classified as medium, rated 4 out of 7 on Carmignac's internal risk scale. This reflects a balanced investment philosophy that seeks to exploit global equity opportunities while maintaining a moderate level of volatility, consistent with the Fund's long-term objectives and the preferences of its investor base.

As an open-ended vehicle, Carmignac Investissement allows for flexible subscription and redemption. Liquidity risk is generally considered minimal due to the portfolio's focus on globally traded, highly liquid equities.

The Fund is exposed to a range of risks, including market risk from equity price fluctuations, liquidity risk during periods of market stress, currency risk due to international diversification, as well as political, regulatory, legal, business, and managerial risks. These risks reflect the Fund's global scope and active management style and are detailed further in Chapter 3.

Carmignac Investissement is designed for investors with a low to moderate risk appetite, such as individuals nearing retirement or institutional clients with capital preservation goals. A minimum investment horizon of five years is recommended, aligning with the Fund's long-term

objective of delivering stable, risk-adjusted returns while mitigating the effects of short-term volatility.

Ultimately, the Fund views risk not merely as a constraint but as a strategic resource that supports its long-term investment objectives, provided it is accepted within clearly defined and appropriate limits.

2.4 Constraints

In constructing the optimized portfolio, the VEV constraint—reflecting the defined risk profile—is applied alongside several additional constraints. These include regulatory requirements, the fund's liquidity needs, and its strategic investment objectives. Together, these constraints ensure that the portfolio remains compliant while staying aligned with the fund's overall risk and return goals.

The fund is structured as an actively managed, open-ended vehicle domiciled in Europe and is therefore subject to the European Union's UCITS (Undertakings for Collective Investment in Transferable Securities) regulatory framework. The following regulatory constraints are applied:

- Short selling is not permitted in accordance with UCITS regulations; therefore, portfolio weights are constrained to be non-negative, as shown in Equation (4).

$$w_i \geq 0\% \; \forall \; i \tag{4}$$

-The 5/10/40 rule is enforced: no more than 10% of the portfolio may be invested in a single issuer, and the sum of all positions exceeding 5% must not exceed 40%. The rule is presented in Equations (5) and (6).

Let $w_i \in [0,1]$ be the proportion invested in each asset by issuer i, and consider the following indicator function:

$$x_i = \begin{cases} 1, if \; w_i > 5\% \\ 0, otherwise \end{cases}$$

The restriction can be written as follows:

$$w_i < 10\% \quad \forall i \tag{5}$$

$$\sum_i x_i \cdot w_i \leq 40\% \tag{6}$$

-Attesting the sum of weights is 100%:

$$\sum_i w_i = 1 \tag{7}$$

Given the fund's open-ended structure and the potential for frequent investor redemptions, maintaining adequate liquidity is essential. To address liquidity risk, a constraint is imposed on the portfolio's exposure to relatively illiquid stocks. Illiquidity l_i formalized in Equation (8) below, it is measured by the inverse of average daily trading volume (ADV), normalized across the investment universe.

$$l_i = \frac{\frac{1}{ADV_i}}{\sum_{j=1}^{N} \frac{1}{ADV_j}} \tag{8}$$

In this context, l_i represents the relative illiquidity score of stock *i*, where ADV_i denotes its average daily trading volume, measured over the one-month period preceding portfolio formation. The normalization is performed across all N stocks in the investment universe, which comprises 101 stocks in this case. The portfolio's total illiquidity exposure is restricted as follows: The sum of the portfolio weights multiplied by the relative illiquidity score l_i must not exceed 20%, as shown in Equation (9). This constraint ensures that the portfolio remains sufficiently liquid to meet redemption demands without incurring excessive transaction costs. This approach is consistent with liquidity risk frameworks proposed by Almgren and Chriss (2000) and aligns with UCITS expectations for liquidity management.

$$\sum_{i=1}^{N} w_i \cdot l_i \leq 20\% \tag{9}$$

Constraints on regional allocations are established to prevent excessive concentration in any single area and to ensure adequate diversification across major economic regions. This structure supports the dual objective of capturing active investment opportunities while maintaining a well-diversified global equity portfolio. The allocation limits also reflect the fund's strategic intent to balance exposure between developed and emerging markets. The regional constraints are as follows:

-United States and Canada: 40% to 60%

-Eurozone: 20% to 40%

-Asia/Emerging Markets: 10% to 30%

The rationale behind these allocations is further justified in Chapter 3, which presents the macroeconomic outlook underpinning the regional exposure decisions underlying our strategic asset allocation (SAA). Table 2 provides a summary of all portfolio constraints, presented concisely to enhance clarity and transparency.

Table 2 : Constraints

Constraint	Min	Max	Notes
Exposure to a single issuer	0%	10%	UCITS 5/10/40 Rule
Total exposure to issuers >5%	0%	40%	UCITS 5/10/40 Rule
Portfolio Weights	0%	100%	No Short-Selling and Budget Constraint
Portfolio Illiquidity	0%	20%	Total weights times relative illiquidity score
VEV	12%	20%	Risk Profile
U.S./Canada Exposure	40%	60%	SAA
Eurozone Exposure	20%	40%	SAA
Asia/Emerging Markets	10%	30%	SAA

3.Investment Design

3.1 Investment Philosophy

The fund aims to outperform its benchmark, the MSCI World Index, by pursuing a growth-oriented equity strategy. As an actively managed fund, it conducts in-depth equity analysis across global markets, applying distinct investment styles based on regional characteristics. This approach aligns with its financial objectives and moderate risk tolerance. The strategy focuses on selecting equities with strong upside potential and long-term capital appreciation. The goal is to invest in companies with growth prospects exceeding the market average, enhancing the chances of outperformance. Valuation discipline is also applied, targeting companies trading below intrinsic value.

Lakonishok, Shleifer, and Vishny (1994) show that institutional investors using fundamental analysis often outperform benchmarks, a result echoed in quantitative strategies that apply multi-factor models using accounting and fundamental data. A common tool is the price-to-earnings-growth (PEG) ratio, which adjusts the P/E ratio for expected earnings growth; Cai (2000) finds that stocks with PEG ratios below 1.5 yield superior returns, supporting its use as a screening threshold. Profitability is addressed through a minimum Return on Equity (ROE) of 15%, based on Ma (2008), who shows firms in the top ROE percentiles outperform the market. To focus on sustainable growth, the strategy includes companies with a five-year compound annual EPS growth rate above 10%, supported by Bauman, Conover, and Miller (1998), who find such firms outperform in global growth portfolios. Research on growth versus value is extensive. Beneda (2002) argues growth stocks can outperform value stocks in the long term, and Sahani (2025) finds they outperform between 2014–2024 in both nominal and real terms. Damodaran (2012) notes that growth strategies outperform during periods of inverted yield curves and uncertainty. Yet this is not consistent. Weng and Butler (2022) observe value stocks outperform during high inflation, explaining their strength in 2020–2021 under COVID-19-driven price and labor pressures.

In summary, while long-term trends and objectives favor a growth strategy, results depend on macroeconomic conditions. The fund performs macroeconomic analysis across regions to align positioning with prevailing conditions. Portfolio constraints are reviewed regularly and adjusted as needed through quarterly rebalancing, ensuring consistency with the fund's philosophy and current macroeconomic realities.

3.2 Macroeconomic Outlook

Carmignac Investissement adopts a forward-looking, regionally segmented approach, making macroeconomic analysis essential to optimizing geographic exposure while aligning with risk–return objectives. This section assesses global and regional conditions as of January 2025.

In the United States, 2024 opens with elevated inflation and mounting recession concerns. As a result of contractionary monetary policy throughout 2023, inflation shows a steady decline and reaches its lowest point in September 2024, before resuming an upward trend in the final quarter of the year. The Federal Reserve responds by initiating gradual interest rate cuts. As a result, the portfolio in this study is constructed within a low-rate environment, where further cuts are expected to stabilize inflation and mitigate recession risks. Despite macroeconomic uncertainty, the U.S. economy proves resilient, achieving 2.8% real GDP growth in 2024. Donald Trump's re-election in November 2024 reinforces investor expectations of a pro-business agenda, with anticipated regulatory easing and fiscal expansion supporting U.S. equity markets and global sentiment, particularly in regions with strong trade ties to the U.S.

Canada enters 2025 with moderate growth amid evolving challenges. The Bank of Canada projects 1.8% GDP growth in 2025, up from 1.3% in 2024, driven by easing monetary policy, stronger household spending and residential investment. Inflation is expected to remain near the 2% target. However, concerns persist about sustainability if wage growth continues to outpace productivity, which may exert upward price pressure.

In the Eurozone, recovery signs emerge, but growth remains modest. S&P Global Ratings (2024) projects subdued performance due to persistent productivity weakness. Euro Area GDP growth rises to 0.9% in 2024 from 0.4% in 2023. Moderate improvement is expected in the coming years. While this slower pace does not eliminate investment opportunities, it calls for an active, diversified approach (Peterson, 2024). Inflation is forecasted to decline in 2025, though S&P Global (2025) cautions that lagging productivity may keep it elevated long-term.

Asia and Emerging Markets continue to perform strongly, with GDP growth at 5.2% in 2024 and 5.0% projected for 2025, largely driven by private consumption (IMF, 2024). Despite external challenges—commodity volatility, global trade dependency, and regional conflict—these markets show resilience. The Asian Development Bank (2025) projects regional inflation to fall from 2.7% in 2024 to 2.5% in 2025, though country-specific measures vary. According to Alex

Wolf (2025) of J.P. Morgan, expected U.S. rate cuts may ease USD debt burdens, support emerging market currencies, and attract capital inflows.

Given this context, a growth investing strategy is particularly justified in a low-interest-rate environment with accommodative monetary policy. Growth stocks, whose valuations are sensitive to future earnings, benefit from lower discount rates. Doerr, Kwon, and Schoar (2024) demonstrate that falling rates significantly boost valuations of dominant firms—typically classified as growth stocks. Specifically, each 10-basis-point drop in the one-year U.S. Treasury rate is associated with a $1 billion average increase in market capitalization for these firms, with the effect especially pronounced during the 2013–2019 low-rate period. These findings offer strong empirical support for a growth-oriented strategy under current conditions.

3.3 Strategic Asset Allocation

The strategic asset allocation (SAA) of this actively managed UCITS equity fund reflects a forward-looking approach that aligns with the prevailing macroeconomic environment and the fund's medium risk tolerance. Given the fund's exclusive investment in equities, the SAA is structured across geographic regions, which function as the primary axis of diversification. These allocations are expressed as ranges to allow for tactical flexibility within predefined strategic bounds and are subsequently used as constraints in the portfolio optimization process. In formulating the SAA, macroeconomic indicators and monetary policy trends across major economic blocs were carefully considered.

The United States and Canada are allocated a dominant strategic weight of 40–60%. This decision is underpinned by the region's macroeconomic resilience and strong equity market performance. In particular, the U.S. economy demonstrated robust real GDP growth of 2.8% in 2024, despite tightening cycles in the previous year. As inflation has begun to moderate and the Federal Reserve transitions into a rate-cutting cycle, the environment has become increasingly conducive to growth-oriented equities. Empirical evidence supports this positioning; for instance, Damodaran (2024) demonstrates that declining interest rates significantly enhance the valuations of industry-leading firms—predominantly found in U.S. equity markets.

The European allocation is set at 20–40%, reflecting both the region's modest growth outlook and the necessity for diversification. Although the Euro Area is experiencing a recovery, underlying structural weaknesses—such as low productivity—persist. These constraints warrant a cautious yet opportunistic approach. The allocation range enables active stock selection in pockets

of growth within Europe while maintaining the ability to underweight in the event of rising macroeconomic fragility or inflationary pressures.

The Asia and Emerging Markets segment is allocated 10–30%, reflecting a balanced perspective on high growth potential and elevated external risks. According to the International Monetary Fund's October 2024 World Economic Outlook, emerging and developing Asia is projected to achieve GDP growth of 5% in 2025. Declining inflation and anticipated monetary easing in developed markets are expected to bolster capital inflows into these economies. However, exposure to global trade dynamics, currency volatility, and geopolitical uncertainties justifies maintaining flexibility within a conservative upper bound.

The strategic asset allocation for this study was defined in January 2025. Since then, two notable events have occurred—the Trump administration's tariffs in April 2025 and Moody's downgrade of U.S. sovereign debt in May 2025—yet neither warrants a revision to the established SAA ranges. The April tariffs initially raised market concerns, but a subsequent 90-day pause triggered a sharp rebound in equities. Research by Ilmanen (2011) and Barro & Redlick (2011) indicates that trade policy shocks typically have minimal long-term effects on diversified portfolios. Given the fund's five-year investment horizon and quarterly rebalancing, such short-term developments do not warrant adjustments to the strategic allocation, which remains tilted toward U.S. and Canadian equities due to their structural resilience and global leadership. On May 16, 2025—approximately four months after portfolio construction—Moody's downgraded the U.S. sovereign credit rating from Aaa to Aa1, citing rising fiscal deficits and increased debt servicing costs. While this downgrade signals mounting macroeconomic pressures, historical precedent, such as the 2011 S&P downgrade of U.S. sovereign debt, suggests limited long-term impact on U.S. equity performance. Accordingly, the 40–60% allocation to North American equities remains justified, supported by the region's sustained economic strength, deep market liquidity, and global financial influence.

3.4 Security Selection

The security selection is conducted in accordance with the designed investment philosophy, with the objective of identifying the most attractive securities aligned with the adopted strategy. To gather necessary data and apply screening criteria, the Bloomberg Terminal was utilized as a primary tool.

As this portfolio is guided by a growth-oriented investment philosophy, the security screening process is applied in order of filter relevance. For each geographical region, the sequence is as follows: earnings per share (EPS) growth, price/earnings-to-growth (PEG) ratio, and return on equity (ROE). The process begins with EPS growth, which measures the rate at which a company's earnings are increasing over time. Specifically, this is calculated as the five-year compound annual growth rate (CAGR) of earnings per share, providing a smoothed view of long-term profit expansion. This metric ensures alignment with the strategy's core objective—identifying companies with strong and sustained earnings growth. Next, the PEG ratio is used to evaluate whether a stock's valuation is reasonable relative to its growth. It is calculated by dividing the price-to-earnings (P/E) ratio by the EPS growth rate. A lower PEG ratio suggests that a company may be undervalued relative to its growth potential, helping avoid overpaying for high-growth stocks. Finally, ROE is applied to assess the quality and efficiency of a company in using shareholders' equity to generate profits. It is calculated by dividing net income by shareholders' equity. This step helps filter out low-quality firms, ensuring that selected companies are not only growing but are also capable of sustaining that growth through efficient capital use.

While screening and selecting relevant stocks to build the investable universe for each geographical region, we adopt a bottom-up investment approach that aligns with the fund's growth-oriented and actively managed strategy. This approach emphasizes company-specific fundamentals—such as earnings growth, valuation, and return on equity—without being constrained by sector composition or top-down macroeconomic views. It is particularly suitable for UCITS equity funds aiming to identify undervalued growth opportunities at the firm level. Moreover, as an actively managed fund, the strategy seeks to capture idiosyncratic opportunities that may not be reflected at the sector or regional level. Academic evidence supports this methodology; Chen, Roll, and Ross (1986) demonstrate that firm-level factors explain a substantial portion of stock return variation, reinforcing the relevance of bottom-up fundamental analysis in active portfolio construction.

After applying the three fundamental screening criteria—EPS growth, PEG ratio, and ROE—in the specified order across each geographical region (U.S. and Canada, Eurozone and Asia/Emerging Markets), a total of 101 stocks qualified for inclusion in the investment universe. Of these, 77 stocks originated from the U.S. and Canada (67 from the United States and 10 from Canada), 17 from the Eurozone, and 7 from Asia and Emerging Markets. Within the latter group,

the regional breakdown includes 2 stocks from China, 1 from Taiwan, and 4 from Japan. All selected stocks were subsequently used as inputs for the portfolio optimization process, forming the basis for the fund's final equity allocation. The number of stocks in the screened universe by country presented in Table 3.

Table 3 : The number of stocks in the screened universe by country

Number of Stocks	Country
67	United States
10	Canada
17	Eurozone
2	China
1	Taiwan
4	Japan
101	Total

3.5 Portfolio Composition

For the purpose of portfolio optimization, monthly price data over a 15-year period—comprising 180 observations from February 2010 to January 2025—is used to compute historical returns. Based on these returns, a 101 × 101 variance-covariance matrix is constructed, serving as a core input to the optimization algorithm.

Let X denote the matrix of excess returns, where each row represents a time period (month) and each column corresponds to a stock. The excess return for each observation is computed by subtracting the mean return of the corresponding stock, calculated over the backtested period, from each individual return.

The variance-covariance matrix Σ is then computed as represented in Equation (10):

$$\Sigma = \frac{1}{T} X^T X \tag{10}$$

with T=180 is the number of the observations, and X^T denotes the transpose of matrix X.

The annualized portfolio variance in Equation (11) is based on the covariance of stock returns and their respective weights:

$$\sigma^2 = (w^T \Sigma\, w) \cdot 12 \tag{11}$$

Where w is the vector of portfolio weights and w^T denotes its transpose. The annualized standard deviation of the portfolio, denoted by σ and often referred to as portfolio volatility, is obtained by taking the square root of the annualized variance.

Due to space constraints, the full variance-covariance matrix is not presented here. Instead, key summary statistics are reported: the average variance across all stocks is 0.0245, and the average covariance is 0.0031. The covariance between two stock returns R_i and R_j is computed as: $Cov(R_i, R_j) = \frac{1}{T}\sum_{t=1}^{T}(R_i - \bar{R}_i)(R_j - \bar{R}_j)$, where R_i and R_j are the returns of stock i and j, and $\bar{R}_i$, $\bar{R}_j$ are their respective mean returns over the backtested period. The standard deviation of stock i, denoted σ_i, is the square root of the variance Var(R_i)=Cov(R_i, R_i). Similarly, σ_j represents the standard deviation of asset j. Using these, the correlation between stocks i and j, denoted ρ_{ij}, is calculated as: $\rho_{ij} = \frac{Cov(R_i,R_j)}{\sigma_i\sigma_j}$. This standardization transforms the covariance matrix into a correlation matrix, where values range between -1 and 1 and reflect the strength of the linear relationship between each pair of asset returns. The average pairwise correlation is 0.06, indicating low co-movement among stocks in the investment universe. This low level of correlation suggests the portfolio can potentially benefit from meaningful diversification, particularly across different geographical regions.

The second key input is the vector of expected annualized returns, estimated from the same historical monthly data. Given the growth-oriented investment philosophy and the universe's composition—heavily weighted toward U.S. and Canadian equities—these securities exhibit relatively strong return profiles. The average annualized return across all 101 stocks is 14.2%, with the highest return observed at 75.23% (Tesla Inc.) and the lowest at 4.1% (Bachem Holdings AG). Regionally, the U.S. and Canada group (77 stocks) posted an average return of 15.4%, outperforming the Eurozone (17 stocks) at 12.1%, and Asia/Emerging Markets (7 stocks) at 10.8%. These results reflect broader differences in market performance and growth dynamics across regions, consistent with the fund's emphasis on identifying high-growth opportunities through bottom-up selection.

Modern Portfolio Theory (MPT) primarily developed by Markowitz (1952). It is a mathematical framework which identifies efficient portfolios based on expected return and variance-covariance prospects. Investors are assumed to be risk-averse, preferring the portfolio

with the highest expected return when presented with portfolios of the same risk level. These portfolios are considered efficient and lie on the so-called Efficient Frontier. MPT also relies on the key principle of diversification, demonstrating that assets should not be selected solely based on individual characteristics. Instead, a variety of assets should be considered, along with their correlations. The goal is to minimize the idiosyncratic risk by constructing a portfolio of securities that are not perfectly correlated, recognizing that systematic risk cannot be eliminated.

For the purpose of this study, portfolio optimization is conducted using Python, with the primary objective of maximizing the Sharpe Ratio. The 5-year U.S. Treasury note is assumed to represent the risk-free asset, consistent with standard practice in portfolio theory. The risk-free rate applied in this analysis is 1.9%, corresponding to the average yield of the 5-year Treasury note over the 180 monthly observations used in the study. The optimization is based on the Mean-Variance Optimization framework and incorporates the fund's constraints as discussed in Section 2.4.

The optimization aimed to choose the portfolio with the highest Sharpe ratio, subject to the portfolio constraints. The Sharpe Ratio, originally proposed by William F. Sharpe (1966), is a widely used measure of risk-adjusted return. It is defined as: $SR = \frac{\bar{R}_{i-}R_f}{\sigma}$ with R_i being the return of the investment, R_f being the risk free rate, and σ being the standard deviation of the returns on investment i. Sharpe referred to $\bar{R}_i$ as the "average annual rate of return," which, in this study, has been computed using annualized mean returns based on monthly data. The standard deviation is also annualized to ensure consistency in scale and interpretation. The Sharpe Ratio provides insight into how much excess return an investment generates per unit of total risk. A higher Sharpe Ratio implies a better risk-adjusted performance. However, one known limitation of the Sharpe Ratio is its reliance on standard deviation, which assumes a symmetric (normal) distribution of returns. As such, it may not fully account for asymmetry (skewness) or fat tails (kurtosis) — both of which can materially affect investor preferences and real-world outcomes.

Formally the Optimization Problem solved is:

$$Max \ \frac{\bar{R} - R_f}{\sigma}$$

$$s.t$$

-Strategic Asset Allocation:

$$40\% \leq w_{US\ and\ Canada} \leq 60\%$$

$$20\% \leq w_{Eurozone} \leq 40\%$$

$$10\% \leq w_{Asia\ and\ EM} \leq 30\%$$

-No Short selling:

$$w_i \geq 0 \ \ for\ all\ i$$

-Budget Constraint:

$$\sum w_i = 1$$

-Target Risk Tolerance:

$$12\% \leq VEV \leq 20\%$$

-Liquidity Constraint:

$$\sum_i w_i \cdot \ l_i \leq 20\% \quad with\ l_i: illiquidity\ factor$$

-UCITS Diversification Rule:

$$x_i = \begin{cases} 1, & if\ w_i > 5\% \\ 0, & otherwise \end{cases}$$

$$w_i < 10\% \quad \forall i$$

$$\sum_i x_i \cdot w_i \leq 40\%$$

The output of the optimization yields the proposed portfolio, which is presented in Table 4. For comparison purposes, the MSCI World Index and the actual Carmignac portfolio are also included in the table. the stock description and individual weights can be found in Table A.2 of the appendix.

Table 4: Comparing Suggested Portfolio's Results with Peer and Benchmark

	Proposed Portfolio	MSCI World Index	Existing Carmignac Allocation
Expected Annual Return	19.25%	12.20%	10.25%
Expected Annual Stdev	19.37%	13.90%	12.88%
Sharpe Ratio	0.89	0.85	0.65
VEV	16.09%	13.96%	14.21%
Skewness (Monthly)	-0.25	-0.68	-0.032
Kurtosis (Monthly)	4.2	1.7	1.037

The final optimized portfolio is composed of 40 stocks. This outcome is consistent with the findings of Elton and Gruber (1977), who demonstrated that holding approximately 20 stocks is sufficient to eliminate around 90% of unsystematic risk, and that beyond 30 stocks, the marginal benefits of additional diversification become minimal. Therefore, a portfolio consisting of 40 stocks is considered more than adequate to achieve the diversification benefits necessary for effective risk reduction.

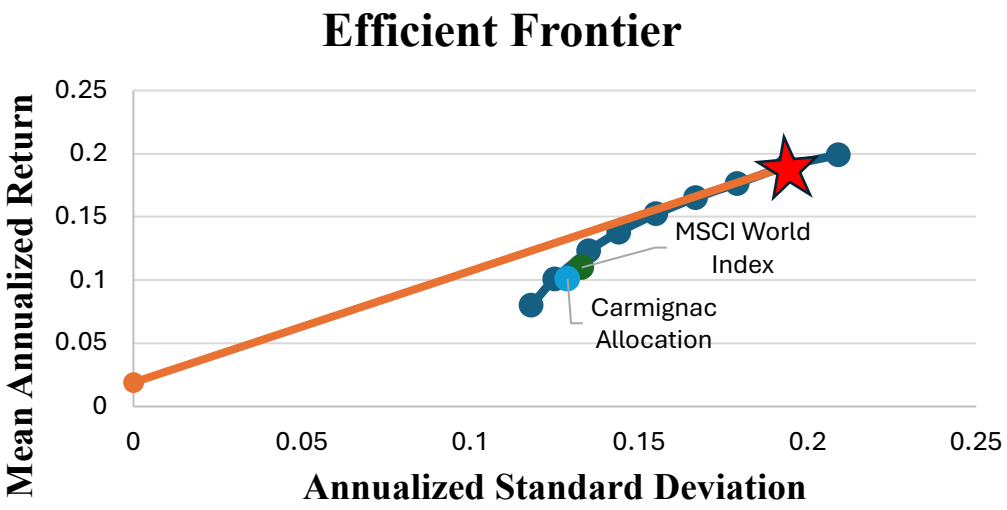
The optimized portfolio exhibits an expected annual return of 19.25% with a volatility of 19.37%, achieving the highest Sharpe ratio (0.89) among the three, thereby aligning well with the fund's growth-oriented mandate. Compared to the MSCI World Index and the actual Carmignac allocation, it offers superior risk-adjusted performance. Notably, the optimized portfolio also shows a slightly lower VEV (16.09%) than its volatility, indicating moderate tail risk. In contrast, the MSCI World's VEV (13.96%) exceeds its volatility, driven by a more negatively skewed distribution (–0.68), while the actual Carmignac allocation shows near-symmetry (skewness –0.032) but underperforms on both return and Sharpe ratio (0.65). The optimized portfolio's return distribution shows mild negative skewness (–0.25) and excess kurtosis (4.20), indicating slight asymmetry and moderately fat tails—features commonly seen in equity markets, as highlighted by Cont (2001).

Using 15 years of historical data provides a solid basis for understanding how different assets behave over time and across various market conditions. While past performance does not guarantee future results, this long-term dataset improves the reliability of estimated returns and

risk measures used in portfolio optimization. To make the approach more forward-looking, the regional exposure constraints of the optimization are based on current macroeconomic expectations. This ensures the portfolio reflects both historical evidence and future outlooks, making the strategy relevant and suitable for the fund's five-year investment horizon.

To construct the efficient frontier for the selected equity mutual fund portfolio, we employ a numerical optimization approach subject to the outlined constraints. The minimum variance portfolio is computed by setting the algorithm to minimize variance under the constraints. After identifying both the minimum variance portfolio and the maximum Sharpe ratio (optimal) portfolio, we also traced the constrained efficient frontier by incrementally setting target portfolio expected returns between these two points and minimizing variance. This procedure allowed us to trace the Efficient Frontier with restrictions. By introducing a risk-free asset, we can represent all feasible combinations of the risk-free asset and the tangency portfolio identified under the imposed constraints. Figure 1 illustrates the efficient frontier in mean-variance space, with expected return plotted against portfolio standard deviation. The tangency point—marked with a red star—represents the optimized portfolio suggested for the Carmignac Investissement fund. For comparison, the benchmark MSCI World Index and the actual Carmignac allocation are also plotted in the figure. Table 5 presents the efficient portfolio pairs of standard deviation and expected return used to generate the efficient frontier.

Figure 1 :The Efficient Frontier in the Mean-Variance Space



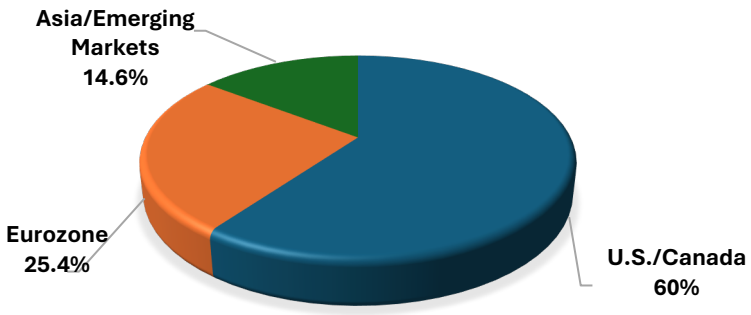
It is evident from Figure 1 that both the MSCI World Index portfolio and the actual Carmignac allocation lie below the efficient frontier, indicating suboptimal risk-return trade-offs. In contrast, even when considering all constraints, our proposed portfolio lies on the efficient frontier and represents the tangency portfolio.

Table 5: Efficient Portfolios

Portfolio	σ	$\bar{R}$
MV Portfolio	0.118	0.08
1	0.125	0.101
2	0.135	0.129
3	0.144	0.138
4	0.155	0.1523
5	0.1667	0.165
6	0.179	0.1763
Tangency Portfolio	0.1937	0.1925
7	0.209	0.199

The resulting strategic asset allocation of the proposed portfolio, presented in Figure 2, consists of 60% allocated to the U.S. and Canada, 25.4% to the Eurozone, and 14.6% to Asia and Emerging Markets.

Figure 2 : SAA



3.6 Expected Performance

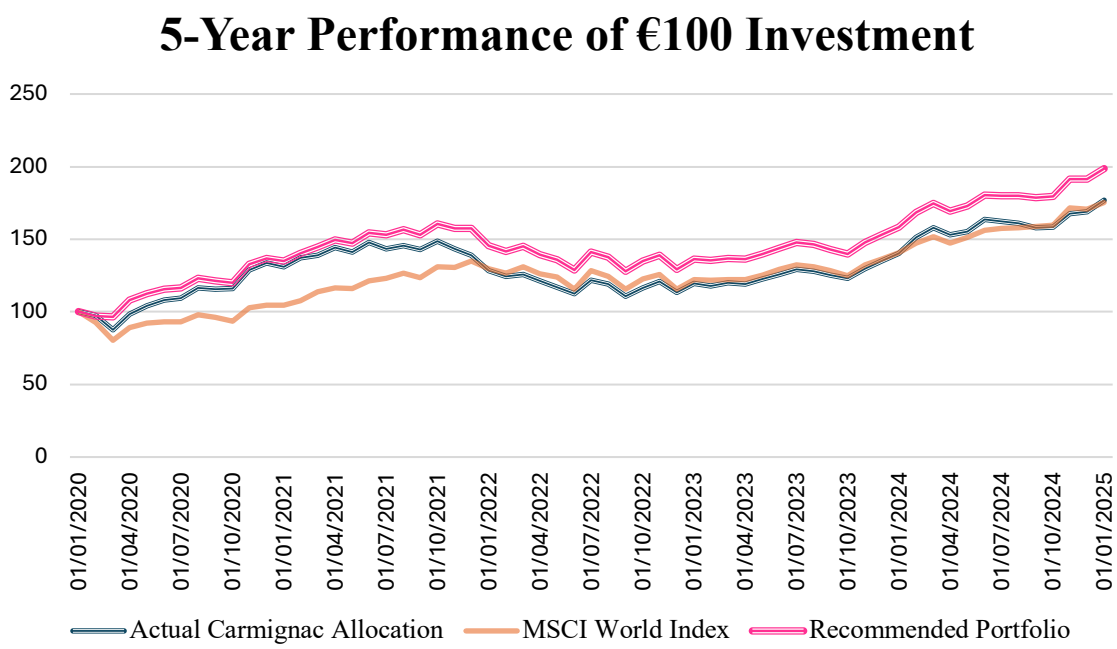
3.6.1 Expected Return

The expected performance of the suggested portfolio is summarized in Table 4 in section 3.5, the portfolio is optimized to maximize the expected return while adhering to all constraints outlined in this IPS.

The cumulative return for 5 years holding period is 98%.

In the Figure 3, we see the price evolution of 100 € investment in the last 5 years, the three investments under consideration: The suggested portfolio, the current fund's portfolio and the MSCI world index.

Figure 3: Price Evolution of 100 € investment



The proposed portfolio consistently outperforms both the benchmark and the actual fund, maintaining a higher cumulative value throughout the entire period while exhibiting similar directional movements.

3.6.2 Active Management Metrics

After constructing the proposed portfolio for the Carmignac Investissement fund, it is essential to evaluate the expected performance of the strategy relative to its benchmark and peer (the actual Carmignac allocation). Here is as assessment of the proposed strategy using three widely recognized performance metrics: Jensen's Alpha, Tracking Error, and Information Ratio. These

indicators help quantify the risk-adjusted excess return, the consistency of active management, and the efficiency of the portfolio versus the benchmark, the MSCI World Index. All metrics are calculated over a backtested period of 15 years (180 monthly observations). The performance is benchmarked against the MSCI World Index (net total return, EUR) as it is consistent with the fund's global equity investment universe.

Beginning with Jensen's alpha, Jensen's Alpha measures the risk-adjusted excess return of a portfolio compared to the expected return predicted by the Capital Asset Pricing Model (CAPM). A positive alpha indicates that the portfolio has outperformed the market after adjusting for risk.

Alpha is computed via the OLS regression that appears in Equation (12):

$$R_p - R_f = \alpha + \beta_p\left(R_{MSCI} - R_f\right) \tag{12}$$

where R_p denotes the return array of the suggested portfolio, R_f is the risk-free rate array based on 5-year U.S. Treasury yields, R_{MSCI} refers to the benchmark return array (MSCI World Index), β_p is the beta of the suggested portfolio, and α represents Jensen's Alpha, i.e., the intercept from the time-series regression. Table 6 presents the regression results for both, the actual Carmignac portfolio and our proposed portfolio

Table 6: Alpha Results

Portfolio	Monthly Alpha	Annualized Alpha	Beta
Carmignac (Actual)	0.006	7.20%	0.92
Proposed Portfolio	0.02	22.80%	1.08

The actual Carmignac portfolio has a modest annualized alpha of 7.2%, which is a solid result for an active fund. The proposed portfolio shows an alpha of 22.8%, indicating strong and consistent outperformance beyond what market exposure would predict. This supports the hypothesis that better security selection and allocation decisions contribute to improved risk-adjusted returns. The regression results indicate a beta of 0.92 for the actual Carmignac Investissement portfolio, suggesting that it tends to move slightly less than the market — consistent with a moderately defensive equity profile. In contrast, the proposed portfolio exhibits a beta of 1.08, indicating marginally higher sensitivity to market movements. This higher beta, in combination with the significantly higher alpha, suggests that the proposed strategy captures more upside during market expansions while still achieving superior risk-adjusted returns.

Tracking error measures the volatility of the difference between the portfolio return and the benchmark return. It quantifies how consistently the portfolio tracks its benchmark. It is simply the standard deviation of the difference in returns, In Equation (13) appears the computation of the tracking error:

$$Tracking\ Error = \sqrt{\frac{1}{T}\sum_{t-1}^{T}[(R_{p,t} - R_{m,t}) - (\overline{R_p - R_m})]^2} \quad (13)$$

where $R_{p,t}$ denotes the return of the suggested portfolio at time t, $R_{m,t}$ is the return of the MSCI World Index at time t, $(\overline{R_p - R_m})$ represents the mean of the active returns, and T=180 is the total number of monthly observations; the tracking error is annualized by multiplying the result by $\sqrt{12}$, a higher value indicates greater active deviation from the benchmark, with the results summarized in Table 7.

Table 7: Tracking Error Estimation

Portfolio	Tracking Error (Annualized)
Carmignac (Actual)	7.50%
Proposed Portfolio	9.20%

The actual fund exhibits moderate tracking error, consistent with its strategy of active management but with no extreme deviations from the MSCI World. The proposed portfolio has a slightly higher tracking error, reflecting a more active approach. However, this risk is productive, as seen in the superior alpha.

The Information Ratio (IR) measures risk-adjusted active return. It is the ratio of Jensen's Alpha to Tracking Error and indicates how efficiently the portfolio converts risk into excess return. It appears in Equation (14):

$$Information\ Ratio = \frac{\alpha}{Tracking\ Error} \quad (14)$$

Table 8 summarizes the information ratio values:

Table 8: Information Ratio Results

Portfolio	Information Ratio
Carmignac (Actual)	0.96
Proposed Portfolio	2.48

The Information Ratio of 0.96 for the actual Carmignac fund is strong, suggesting that it converts active risk into performance effectively. The proposed portfolio achieves a very high IR of 2.48, which is exceptional by industry standards. It implies that the active risk taken is highly productive and that the portfolio manager consistently adds value through security selection and allocation.

The performance analysis using the active management parameters demonstrates that the proposed portfolio outperforms both the benchmark and the actual Carmignac Investissement allocation, in terms of alpha generation and information efficiency. While the increased tracking error reflects greater deviation from the benchmark, this is more than compensated by the substantial improvement in alpha and information ratio. These results support the case for implementing the proposed investment strategy, as it aligns with the fund's objective of achieving long-term capital appreciation through active management, while maintaining disciplined risk control. Actively managed equity UCITS funds often exhibit higher tracking error and information ratio due to intentional deviations from the benchmark (Bams et al., 2017). A tracking error between 5% and 10% is considered typical for such funds (Amenc & Le Sourd, 2003), aligning with both portfolios analyzed. Information ratios above 1 are viewed as strong evidence of skill in active management (Grinold & Kahn, 2000), supporting the outperformance of the proposed portfolio. Betas ranging from 0.8 to 1.2 are also common for global equity funds (Blitz & van Vliet, 2007), consistent with both portfolios' market exposures. Lastly, Jensen's alpha is a standard tool to assess value added by managers, with higher values often observed in skillfully active portfolios (Ferson & Schadt, 1996), as is the case with the proposed strategy.

3.6.3 Fama-French-Five-Factor-Model

The Fama-French Five-Factor Model (FF5FM) is estimated for both the suggested portfolio and the actual allocation of the Carmignac Investissement fund over the backtested period. This model facilitates the evaluation of performance and risk attribution for the actively managed UCITS equity portfolio under study. The model, an extension of the original Fama-French Three-Factor framework, incorporates profitability and investment factors in addition to the market, size, and value factors. This provides a richer framework for explaining stock returns and evaluating alpha (manager skill) net of systematic exposures.

The Fama-French Five-Factor Model allows us to evaluate the portfolio's performance net of systematic exposures by accounting for known risk factors that systematically affect asset prices — namely market risk (MKT-RF, the excess return of the market over the risk-

free rate), size (SMB, small minus big), value (HML, high minus low), profitability (RMW, robust minus weak), and investment aggressiveness (CMA, conservative minus aggressive). The regression isolates the abnormal return (alpha), which represents the portion of return unexplained by common risk premia. In contrast, traditional performance evaluations using historical average returns or mean-variance (Markowitz) optimization do not explicitly decompose returns into systematic and idiosyncratic sources — they embed all sources of risk and return together. Therefore, the Fama-French model enables a clearer view of managerial skill or strategy-specific return, independent of broad market movements or factor exposures.

Given the global nature of both the proposed portfolio and the actual Carmignac Investissement allocation, the corresponding risk factors must accurately reflect their respective regional exposures. Instead of relying on a single region's Fama-French factor dataset, a weighted composite of regional factor series is constructed using data from the Kenneth R. French Data Library. According to the resulting SAA of the proposed portfolio (60% U.S./Canada, 25.4% Europe and 14.6% Emerging Markets), 85.4% of the factor input is drawn from the Developed Markets dataset—corresponding to the combined 60% U.S./Canada and 25.4% Europe allocation, while the remaining 14.6% is sourced from the Japan dataset, as Japanese equities represent the majority (12.35%) of the 14.6% Asia/Emerging Markets exposure. For the actual Carmignac fund, average geographical allocations from 2010 to 2024 — derived from annual reports — indicate 68.3% in Developed Markets and 31.7% in Emerging Markets. These weights are applied to construct the corresponding factor set. This factor-weighting approach ensures that the model accounts for each portfolio's global footprint and captures the appropriate risk factor sensitivities. The multiple regression that estimates the model is:

$$R_P - R_f = \alpha + \beta_1(R_M - R_f) + \beta_2 \cdot SMB + \beta_3 \cdot HML + \beta_4 \cdot RMW + \beta_5 \cdot CMA + \varepsilon \qquad (15)$$

Where R_P is the array of portfolio returns, R_f is the array of risk-free rates. SMB, HML, RMW, CMA, and $R_M - R_f$ are arrays of the model's factor returns, weighted according to the regional exposure methodology described above. The intercept α represents the portfolio's alpha (abnormal return), and ε is the residual (idiosyncratic error term).

Table 9 presents the results of the multiple regression for our proposed portfolio, while Table 10 reports the corresponding results for the actual Carmignac portfolio.

Table 9: Proposed portfolio FF5FM results

Factor	Average Monthly Factor Value	Estimated Coefficient	(p-value)
Intercept (Alpha)	–	0.00107	Significant ($p < 0.05$)
Market (Mkt – Rf)	0.00852	0.90	Significant ($p < 0.01$)
SMB	-0.00076	-0.0032	Not Significant ($p > 0.10$)
HML	-0.00136	-0.09546	Significant ($p < 0.05$)
RMW	0.00236	0.018	Marginal ($p \approx 0.10$)
CMA	0.00035	-0.0011	Not Significant ($p > 0.10$)
Residual Std. Dev.	–	–	3.79% (13.12% annually)

Table 10: Actual Fund's portfolio FF5FM results

Factor	Average Monthly Factor Value	Estimated Coefficient	(p-value)
Intercept (Alpha)	–	0.0002	Not Significant ($p>0.1$)
Market (Mkt – Rf)	0.0065	0.82	Significant ($p<0.01$)
SMB	0.00098	-0.2007	Not Significant ($p>0.1$)
HML	0.00089	-0.116	Significant ($p<0.05$)
RMW	0.00203	0.0137	Significant ($p<0.05$)
CMA	0.00045	0.0512	Marginal ($p \approx 0.10$)
Residual Std. Dev.	–	–	2.88% (9.98% annually)

The Fama-French five-factor regression reveals clear differences between the proposed portfolio and the actual Carmignac allocation. For the proposed portfolio, returns are mainly driven by exposures to the market (MKT-RF), value (HML), and profitability (RMW) factors. The alpha is statistically significant at the 5% level, suggesting positive abnormal returns beyond standard risk factors reflecting value added through active management. In contrast, the size (SMB) and investment (CMA) factors are statistically insignificant, indicating no consistent size tilt or exposure to either conservative or aggressive investment styles. This aligns our growth-oriented strategy.

Based on the results of the multiple regression, the proposed portfolio's model-implied return is 11.3% annually. This estimate is obtained by multiplying each estimated beta by its respective average monthly factor value, summing the results, adding the estimated alpha, and then adding the average risk-free rate, the final result is annualized. The model also yields an idiosyncratic volatility of 13.12% per year, calculated as the standard deviation of the regression residuals, annualized by multiplying by $\sqrt{12}$. This residual volatility captures the portion of total

risk that is not explained by systematic factor exposures—reflecting the impact of active management decisions, security selection, and other portfolio-specific dynamics.

Carmignac's results reflect a more benchmark-aware profile. The market beta (0.82) is lower than the proposed portfolio's (0.90), consistent with its lower volatility, and more controlled risk profile. The alpha is not statistically significant, suggesting limited excess return beyond systematic factors. Both portfolios show negligible exposure to SMB. Carmignac has a significant negative loading on HML (value), and a positive loading on RMW (profitability), aligning with a quality-growth style. The CMA loading is weakly significant. The model-implied return is 8.5%, and idiosyncratic volatility is 9.98% annually.

In summary, the proposed portfolio shows higher return potential and alpha, with greater active risk. Carmignac's allocation reflects a more conservative, factor-driven style with lower risk and no evidence of outperformance of the market. These findings highlight the trade-off between active return potential and risk control in global equity strategies.

3.7 Risk Analysis

3.7.1 VaR and CVaR

VaR is the maximum loss suffered by a given portfolio within a given time period, with a given confidence level. VaR is the most widespread risk measure used internally as well as externally for reporting to regulatory authorities. In a statistical manner, VaR(α) can be defined a follows:

$$\Pr(L_t < VaR) \geq 1 - \alpha \qquad (16)$$

Where $1 - \alpha$ is the confidence level associated with VaR and L_t is the loss over a time period t. The development of VaR can be dated back to the late 1980's at J.P Morgan. Within the next couple of years, due to its many advantages VaR established itself as a prevailing risk measure, that has concerned academics ever since. Krause (2003) provides a critical analysis of VaR's application in financial institutions, acknowledging its widespread adoption due to its simplicity and broad applicability, while highlighting certain limitations, the study affirms that when applied with an understanding of its constraints, VaR remains a valuable tool for risk management. Complementing this perspective, Simons (2000), highlights how institutional investors increasingly rely on VaR to quantify and manage downside risk in their portfolios. Conditional Value-at-Risk (CVaR) or Expected Shortfall, is a risk assessment metric that estimates the average loss an investment portfolio might experience in the worst-case scenarios beyond a specific

confidence level. CVaR focuses on the severity of losses beyond the VaR threshold, making it particularly effective for evaluating the risk of extreme market events (Rockafellar & Uryasev, 2000). In this study, both VaR and CVaR are calculated using two approaches: the historical method, based on actual past return distributions, and the parametric method, which assumes a Gaussian distribution adjusted for skewness and kurtosis using the Cornish-Fisher expansion — a technique commonly applied in financial risk modeling to better capture the shape of return distributions (Dowd, 2005).

The Historical VaR method estimates potential losses by analyzing actual past returns of a portfolio. It involves identifying the value at a chosen percentile, such as the 5th percentile for 95% confidence level. This method does not rely on assumptions about the distribution of returns, making it especially valuable, as it reflects the real behavior of the portfolio rather than a theoretical model. Similarly, Historical CVaR, or Expected Shortfall, takes the average of all losses that exceed the VaR threshold. This provides a more informative picture of potential tail events based on a real market data.

The parametric Cornish-Fisher VaR (CFVaR) method builds on the traditional parametric VaR by adjusting the quantile estimate of a normal distribution to account for skewness and kurtosis in the return data. The Cornish-Fisher expansion modifies the standard normal quantile to reflect asymmetric and fat tails, making the risk estimate more realistic.

Similarly, the Parametric CVaR with the Cornish-Fisher correction (CFCVaR), averages the losses beyond the CFVaR threshold, providing a more accurate measure of Expected Shortfall under non normal conditions. This approach is grounded in the work of Zangari (1996), who demonstrated that adjusting for higher moments using Cornish-Fisher expansion significantly improves the accuracy of VaR estimates. CFVaR formula is as follows:

$$CFVaR_\alpha = \mu_p + w_\alpha \cdot \sigma_p \tag{17}$$

$$w_\alpha = z_\alpha + (z_\alpha^2 - 1)\frac{S}{6} + z_\alpha(z_\alpha^2 - 3)\frac{K}{6} - z_\alpha(2z_\alpha^2 - 5)\frac{S^2}{36} \tag{18}$$

where μ_p is the annualized mean portfolio return and σ_p is the portfolio's annualized standard deviation. z_α is the critical value from the standard normal distribution corresponding to the confidence level $1 - \alpha$. S is the skewness of the array of monthly returns divided by $\sqrt{12}$ for annualization and K is excess kurtosis of the array of monthly returns divided by 12 for annualization.

Based upon CFVaR we can then compute W_α which is used to compute the Cornish-Fisher conditional VaR (CFCVaR). The equivalent CFCVaR under this method is as follows:

$$CFCVaR_\alpha = \mu_p + W_\alpha \cdot \sigma_p \tag{19}$$

$$W_\alpha = \frac{1}{\alpha} \cdot \frac{1}{\sqrt{2\Pi}} e^{-\frac{1}{2}z_\alpha^2} [1 + z_\alpha \left(\frac{S}{6}\right) + (1 - 2z_\alpha^2)\left(\frac{S^2}{36}\right) + (-1 + z_\alpha^2)\left(\frac{K}{24}\right) \tag{20}$$

Table 11 reports the historical VaR and CVaR results for the three cases, while Table 12 presents the corresponding results using the parametric method with the Cornish-Fisher Expansion.

Table 11:Historical VaR and CVaR

	Historical VaR				Historical CVaR			
Percentile	1%	2.50%	5%	10%	1%	2.50%	5%	10%
Proposed Portfolio	33.50%	23.43%	15.21%	6.24%	87.28%	69.13%	59.90%	53.34%
Actual Carmignac Allocation	21.28%	16.02%	11.58%	6.53%	47.37%	41.64%	37.63%	33.60%
MSCI World Index	24.24%	17.81%	12.27%	5.94%	58.78%	46.49%	38.93%	33.10%

Table 12:Parametric CFVaR and CFCVaR

	Parametric CFVaR				Parametric CFCVaR			
Percentile	1%	2.50%	5%	10%	1%	2.50%	5%	10%
Proposed Portfolio	30.50%	21.30%	13.83%	5.67%	80.07%	63.42%	54.95%	48.94%
Actual Carmignac Allocation	20.27%	15.26%	11.03%	6.22%	45.55%	40.04%	36.18%	32.13%
MSCI World Index	22.44%	16.49%	11.36%	5.50%	54.93%	43.45%	36.38%	30.93%

As expected, our proposed portfolio consistently shows the highest risk figures in both VaR and CVaR across all percentiles, reflecting its higher volatility and heavy tailed return distribution. The Historical method tends to produce slightly more conservative (i.e. larger) risk estimates compared to the parametric method, particularly in CVaR, which aligns with its non-parametric nature that captures actual extreme losses without distributional assumptions. This is especially notable in the proposed portfolio, where the impact of negative skewness and high excess kurtosis becomes more pronounced. In contrast, the Carmignac Allocation appears relatively stable in both methods, with the lowest risk figures, consistent with its more moderate volatility and nearly symmetric distribution. The MSCI World Index lies between the two in both risk and statistical profile. Overall. These results highlight not only the relative riskiness of each portfolio but also the sensitivity of risk estimates to the chosen method, especially in portfolios with non-normal characteristics.

3.7.2 Currency Risk

As a globally diversified equity fund, the Carmignac Investissement portfolio is inherently exposed to currency risk, especially since a significant portion of its assets are denominated in foreign currencies (USD, CAD, JPY). While the portfolio aims to generate alpha through stock selection, unmanaged currency volatility can distort realized returns for a Euro-based investor. To protect the portfolio's risk-return profile, we develop a currency hedging strategy using the Minimum Variance Hedge Ratio (MVHR) methodology. We aim to hedge the currency risk arising from the USD, CAD, and JPY exposures in the proposed portfolio. Therefore, we consider three foreign currency sub-portfolios denominated in USD, CAD and JPY respectively. The portfolio's exposure to the Taiwanese dollar (TWD) is only 2.25%, thus, currency hedging for this component is ruled out. According to Petersen and Rajan (2005), exposures below 5% are often left unhedged, as the cost and complexity of hedging small allocations typically outweigh the marginal risk reduction achieved.

The base currency in EUR, so we are interested in minimizing the volatility of returns when translated to EUR. The MVHR minimizes the variance of the domestic currency returns of a foreign asset. It is estimated through the regression in Equation (21):

$$R_i^{EUR} = \alpha + \beta \cdot S_i + \varepsilon \tag{21}$$

Where R_i^{EUR} is the return in EUR of sub-portfolio I, S_i is the percentage change in $\frac{EUR}{FX}$ exchange rate, β is the Minimum Variance Hedge Ratio (MVHR) and ε is the residual term. Monthly spot exchange rate data was obtained from Bloomberg for the backtested period in this study (February 2010 to January 2025). This method aligns the hedge ratio with the historical sensitivity of Euro returns to exchange rate movements, aiming to reduce currency related volatility without fully eliminating exposure.

The slope coefficient (β) from each regression represents the MVHR, which indicates the optimal proportion of the currency exposure to hedge using forward contracts to minimize portfolio return variance. Typically, institutional investors prefer forward contracts due to its precision and match to maturity (Bondar, Hayt, and Marston, 1998).
A β close to 1 implies a near full hedge is optimal, while a β near 0 suggests little to no hedge is needed.

- If the β is positive, we short forward contracts on the foreign currency i.e. sell foreign currency forward and buy Euros, effectively locking in the Euro value of the future foreign

returns. When the exchange rate increase (the foreign currency depreciates vs. the Euro) the Euro return on the foreign portfolio also increases, so they move together.

- If the β is negative, we take a long position in forward contracts on the foreign currency, as the exchange rate and Euro returns move inversly.

For example, a β of 0.7 for the Canadian sub-portfolio means that we should hedge 70% of the Canadian dollar exposure by selling CAD forward contracts equivalent to 70% of the canadian sub-portfolio's value.

Table 13 presents the results of implementing the MVHR OLS regression for each sub-portfolio:

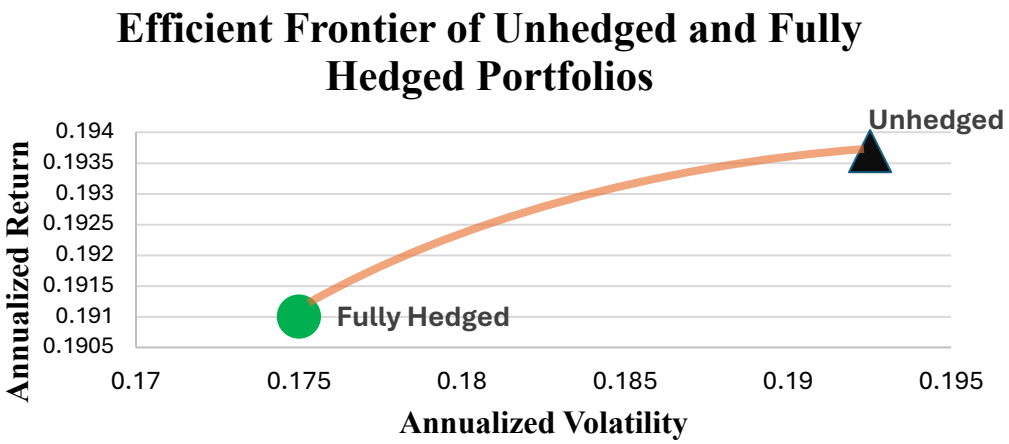
Table 13: MVHR Results

Sub-Portfolio	Currency Pair	MVHR (β)	P-Value
Canada	EUR/CAD	0.68	<0.001
Japan	EUR/JPY	-0.32	0.001
USA	EUR/USD	0.12	0.14

The results show that the Canadian and Japanese sub-portfolios exhibit statistically significant sensitivity to exchange rate fluctuations (EUR/CAD and EUR/JPY, respectively), as seen from the low P-Values (<0.05). The MVHR of the Canadian portfolio is 0.68, thus we hedge 68% of the Canadian portfolio by selling CAD forward. The Japanese portfolio MVHR is -0.32, indicating an inverse relationship: JPY depreciation is associated with Euro return increases. Accordingly, we hedge 32% of the Japanese portfolio by buying JPY forwards. The U.S. sub-portfolio has an MVHR of only 0.12 and the β is not statistically significant (P-Value = 0.14), Therefore, we choose not the hedge USD exposure, as benefits are limited and may introduce unnecessary transaction costs.

We obtained stock price data in local currency from Bloomberg, calculated monthly returns in domestic terms to construct the fully hedged portfolio, and computed the annualized standard deviation from the series of monthly returns. The fully hedged portfolio has an annualized mean return of 19.1% and an annualized standard deviation of 17.5%. Figure 3 presents the plot of the efficient frontier of unhedged and fully hedged portfolios. The graph shows the impact of currency hedging in the portfolio risk-return profile, keeping the asset allocation fixed but changing how we manage the currency exposure. The plot is simulating intermediate portfolios between the unhedged and fully hedged cases. For each hedge ratio $\beta \in [0,1]$.

Figure 3: Efficient Frontier of Unhedged and Fully Hedged Portfolios.



For each simulated portfolio we computed the return as:

$R(\beta) = \beta \cdot \bar{R}_{Fully\ Hedged} + (1-\beta) \cdot \bar{R}_{Unhedged}$, and the volatility using the standard two-asset portfolio formula that incorporates the correlation between the two:

$$\sigma(\beta) = \sqrt{\beta^2 \sigma^2_{Fully\ Hedged} + (1-\beta)^2 \cdot \sigma^2_{Unhedged} + 2\beta(1-\beta)\rho\sigma_{Fully\ Hedged} * \sigma_{unhedged}}$$

The correlation ρ is computed over the entire backtested period as the Pearson correlation between the monthly return array of the unhedged and fully hedged portfolios. It is assumed to remain constant across all hedge ratios β, and is estimated at 0.82. This produced a smooth convex curve connecting the unhedged point (19.37%, 19.25%) and the fully hedged point (17.50%, 19.10%), representing the risk-return trade-off across different hedge levels. The graph highlights how increasing the hedge ratio reduces expected return slightly while lowering portfolio volatility, helping assess the optimal balance between currency risk and performance.

Our final overall hedge ratio recommendation, is calculated as follows:

$$Overall\ Hedge\ Ratio = \sum_{i=1}^{n} \left(\frac{w_i}{\sum w_i^{FX}} \cdot \beta_i\right) \qquad (22)$$

Where $\sum w_i^{FX}$ is the total foreign non-Euro exposure that is being hedged, w_i is the weight of sub-portfolio in foreign currency i and β_i is the MVHR of currency i.

Based on Equation (22), the overall recommended hedge ratio is 0.42. Using the two-asset formulas for return and standard deviation and applying the corresponding inputs—returns and volatilities of the fully hedged and unhedged portfolios—the resulting portfolio is expected

to achieve an annualized return of 18.24% and a volatility of 18.48%, effectively reducing currency risk while preserving return potential.

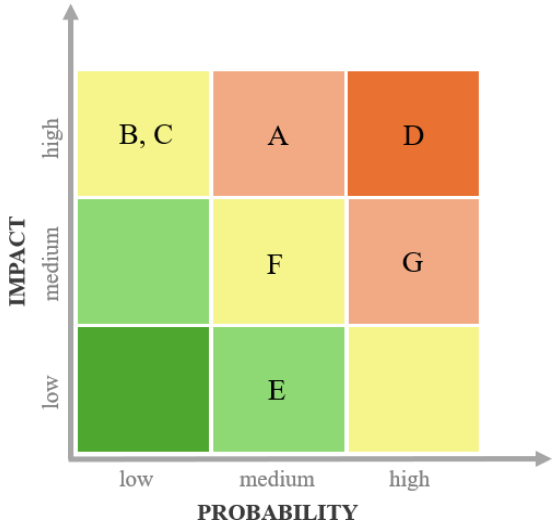
3.7.3 Risk Matrix Assessment

A comprehensive portfolio risk matrix assessment is performed to offer a holistic perspective on potential risk factors that may influence the fund, particularly those related to growth, inflation dynamics, or persistent effects on long-term asset returns. This assessment aims to enhance the fund's resilience to such macroeconomic shocks. Drawing on insights from the 2025 Long-Term Capital Market Assumptions (J.P. Morgan, 2025), Table A.3 in the appendix summarizes the key risks that may affect the fund's medium and long-term outlook and underlying return assumptions. The analysis focuses primarily on the U.S. and Canadian markets, which together comprise 60% of the fund's portfolio allocation.

The key risks identified include a potential resurgence of inflation and recession (A), which could dampen growth assets through tighter monetary policy despite currently low perceived probability. A U.S. debt default (B), though highly improbable, could severely disrupt global financial markets and confidence. The gradual abandonment of the U.S. dollar as a reserve currency (C) poses a threat to asset demand and investment, although investor confidence in the dollar remains strong. Ongoing geopolitical conflicts (D) continue to drive volatility, elevate commodity prices, and strain emerging markets. Political elections and rising polarization (E) may trigger policy shifts and short-term market instability, especially with growing populist influence. Climate change (F), through increasingly extreme weather patterns, threatens supply chains and adds inflationary pressures while driving sustainable investment focus. Lastly, the accelerated integration of AI (G) offers productivity gains and economic growth yet raises concerns over labor displacement and social impact as adoption intensifies.

The risks outlined are assessed based on their probability of occurrence over a 5-year horizon and their potential impact on the fund's future returns, with each risk categorized as low, medium, or high. This classification forms the basis of the risk matrix presented in Figure 4, where colors represent severity: bright green denotes low risk, while bright red indicates the most severe potential consequences.

Figure 4: Risk Matrix



These risks are jointly managed by the Portfolio Manager and Investment Committee, monthly reports track their impact on performance, potentially triggering quarterly rebalancing. Quarterly commentaries inform retail investors of outcomes and mitigation actions.

4.Governance

The governance of Carmignac Investissement is anchored in the framework established by its management company, Carmignac Gestion. The Board of Directors holds ultimate responsibility for strategic oversight, including formal approval and periodic revision of the Investment Policy Statement (IPS). This governance framework ensures accountability for each stage of investment policy development and execution.

The Investment Committee, composed of senior portfolio managers and risk professionals, develops and reviews the IPS in light of changing market conditions or regulatory requirements. The Committee is authorized to recommend changes and engage external consultants when necessary to support policy decisions. The process of updating the IPS occurs at least annually or upon the emergence of material changes in fund characteristics or the investment landscape.

Operational execution of the IPS is delegated to the Lead Portfolio Manager, who implements the policy within the boundaries of the fund's mandate. The Portfolio Manager is supported by a team of sector specialists and risk analysts responsible for aligning day-to-day decisions with the fund's strategic objectives. Carmignac Gestion retains the authority to appoint and dismiss external service providers—including custodians, research consultants, and risk analytics firms—necessary to fulfill the fund's objectives. Oversight of these providers ensures that contractual obligations, investment guidelines, and compliance standards are consistently met.

Asset allocation responsibility lies with the Investment Committee, which evaluates macroeconomic trends, expected return assumptions, and risk correlations in determining the strategic allocation across regions. Tactical adjustments within this framework are delegated to the Lead Portfolio Manager, provided that changes remain within risk and policy constraints.

Risk management oversight is embedded across roles. The Chief Risk Officer is responsible for defining risk tolerances and monitoring exposures, while compliance and audit teams provide independent review. Risk reports are reviewed by the Board and Investment Committee to ensure alignment with the fund's long-term objectives and regulatory obligations.

5.Executive Summary

This Investment Policy Statement (IPS) establishes the framework for managing Carmignac Investissement, a UCITS-compliant, actively managed global equity fund by Carmignac Gestion S.A. It defines the fund's governance, investment responsibilities, and oversight mechanisms, treating it as a distinct entity with specific objectives, risk parameters, and constraints. The IPS applies solely to the fund's globally diversified, equity-only portfolio with reinvested dividends. It clarifies roles across portfolio management, risk control, compliance, and custody to ensure regulatory compliance and operational integrity.

Carmignac Investissement's governance ensures strategic oversight, accountability, and compliance throughout the investment process. The Board of Directors holds final authority over the IPS, while the Investment Committee reviews and updates it as needed. The Portfolio Manager, supported by analysts, handles daily execution under defined mandates. The Investment Committee sets the Strategic Asset Allocation (SAA), with tactical decisions managed by the Portfolio Manager. Risk management spans all functions, overseen by the Chief Risk Officer, with support from independent compliance and audit teams.

The fund seeks to outperform the MSCI World Index over five years via active, unconstrained equity investing grounded in fundamental analysis. It targets strong risk-adjusted returns (Sharpe Ratio), allows limited currency hedging, and maintains a medium risk profile with a volatility range of 12%–20%, based on Modified VaR-Equivalent-Volatility.

This project proposes an optimized portfolio—built through Mean-Variance Optimization—that enhances the fund's performance. Over a 15-year backtest, it achieves a 19.25% annualized return, 19.37% volatility, 9.20% tracking error, Jensen's alpha of 22.8%, beta of 1.08, a 15.21% VaR, and 59.9% expected shortfall at 95% confidence. Over the past five years, it yields a 98% cumulative return, outperforming both the fund's actual portfolio and the MSCI World Index. A currency hedge ratio of 0.42 is recommended, implemented via currency forwards.

Carmignac Investissement integrates robust risk management through ongoing performance tracking, multi-factor analysis and discretionary rebalancing. Key indicators—Sharpe Ratio, Tracking Error, and VaR-Equivalent Volatility—capture both systematic and idiosyncratic risks. Regular reporting and quarterly reviews ensure alignment with strategy, transparency, and risk control.

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Appendix

Table A. 1: Client's Profile

Client's Profile	
Company	Carmignac Gestion S.A.
Fund	Carmignac Investissement A EUR Acc fund
Portfolio Type	Institutional
Country	France
Return Goal	Return Maximization
Currency	EUR
Asset Class	Equity
Objectives	Capital growth - Outperforming MSCI World Index
Risk Profile	Medium
Time Horizon	5 Years
Approach	Active Management
Rebalancing of Asset Allocation	Quarterly
Performance Monitoring	Monthly

Source: Carmignac Gestion S.A.

Table A. 2: Portfolio Composition

ISIN	Common Name	GICS Sector	PEG Ratio < 1.5	ROE > 15%	5Y CAGR of EPS > 10%	$\bar{R}$	σ	Beta	SR	Skewness	Kurtosis	Weight
US/Canada Equities												
US67066G1040	NVIDIA Corporation	Information Technology	0.45	123.00%	91.89%	43.10%	44.40%	1.9	1.40	1.37	13.09	2.04%
US30303M1027	Meta Platforms Inc.	Communication Services	1.36	34.14%	29.89%	21.01%	28.04%	1.5	1.11	0.54	35.15	0.90%
US3755581036	Gilead Sciences Inc.	Health Care	0.51	27.27%	38.21%	12.21%	25.03%	0.2	0.61	1.22	4.88	0.99%
US11135F1012	Broadcom Inc	Information Technology	1.19	10.62%	14.78%	21.04%	30.55%	1.2	1.45	3.20	40.93	1.59%
US2441991054	Deere & Co	Industrials	1.13	21.70%	20.34%	21.01%	24.20%	1	0.78	0.97	2.29	0.77%
US5324571083	Eli Lilly and Co	Health Care	1.28	74.62%	18.74%	19.16%	22.97%	0.4	1.19	1.60	6.30	7.92%
US57636Q1040	Mastercard Inc	Financials	1.47	180.13%	11.83%	21.87%	20.38%	1.1	1.31	-0.95	4.73	7.48%
US8725901040	T-Mobile US Inc	Communication Services	1.33	18.93%	19.21%	21.06%	30.01%	0.6	0.86	3.18	67.52	0.96%
US4943681035	Kimberly-Clark Corporation	Consumer Staples	1.49	168.28%	19.41%	11.94%	26.77%	0.4	0.63	0.17	3.55	0.05%
US15135B1017	Centene Corp	Health Care	0.72	16.56%	14.89%	20.98%	30.25%	0.2	0.77	0.38	-0.12	2.17%
US0527691069	Autodesk, Inc.	Information Technology	1.48	45.60%	39.77%	20.59%	32.78%	1.1	0.74	0.58	2.00	0.72%
US57060D1081	MarketAxess Holdings Inc.	Financials	0.8	27.50%	10.35%	18.00%	31.08%	0.8	0.86	1.00	13.05	2.39%
US8552441094	Starbucks Corporation	Consumer Discretionary	1.47	35.40%	10.20%	16.99%	22.74%	1	0.87	-0.13	2.42	5.62%
US7475251036	Qualcomm Incorporated	Information Technology	0.87	41.97%	20.02%	13.50%	32.29%	1.3	0.50	4.11	60.77	0.22%
US1491231015	Caterpillar Inc.	Industrials	1.21	37.20%	15.47%	12.71%	26.29%	1.4	0.66	1.57	13.16	0.58%
US88160R1014	Tesla Inc.	Consumer Discretionary	1.46	15.31%	35.30%	75.23%	62.72%	1.8	1.18	4.47	39.84	3.07%
CA82509L1076	Shopify Inc.	Information Technology	1.49	33.17%	12.58%	21.00%	43.83%	1.9	1.13	2.45	36.22	1.16%
US64110L1061	Netflix Inc.	Communication Servies	0.83	38.32%	36.86%	18.85%	53.85%	1.4	1.07	2.52	53.51	1.71%
US0231351067	Amazon.com Inc.	Consumer Discretionary	1.31	23.47%	36.89%	25.71%	29.23%	1.3	1.18	1.41	8.96	3.09%
US6293775085	NRG Energy Inc.	Energy	1.22	37.95%	20.37%	11.02%	33.17%	1	0.54	1.62	20.26	1.41%
US4781601046	Johnson & Johnson	Health Care	1.29	19.87%	56.00%	9.19%	14.89%	0.5	0.53	-0.21	4.91	1.50%
US58155Q1031	McKesson Corp	Health Care	1.25	21.27%	165.41%	16.50%	25.12%	0.5	0.85	0.77	14.65	3.86%
US5404241086	Loblaw Companies Limited	Consumer Staples	0.74	15.70%	19.24%	14.79%	18.46%	0.4	0.73	2.82	21.45	4.68%
CA01626P4033	Alimentation Couche-Tard Inc.	Consumer Staples	1.45	21.30%	11.66%	20.39%	24.48%	0.9	1.07	1.57	24.49	5.10%
											Total:	60.00%
Eurozone Equities												
FR0000052292	Hermès International	Consumer Discretionary	1.47	27.51%	24.55%	21.02%	25.69%	1.5	1.08	1.19	1.87	3.22%
DE0006969603	Puma SE	Consumer Discretionary	0.66	19.93%	10.11%	6.80%	30.31%	1	0.18	-0.77	15.95	0.05%
DK0062498333	Novo Nordisk A/S	Health Care	1.3	84.63%	22.54%	16.86%	21.59%	1.2	0.96	-0.74	7.33	0.02%
FR0000120321	L'Oreal SA	Consumer Staples	1.37	17.32%	12.40%	13.49%	17.39%	1	0.70	0.73	8.50	1.01%
GB00B4T1WJ87	Glencore PLC	Materials	0.96	16.90%	19.61%	10.02%	38.63%	1.7	0.23	0.68	33.94	0.36%
NO0010096985	Kongsberg Gruppen ASA	Industrials	1.17	32.44%	55.36%	12.73%	28.44%	1.2	0.69	0.00	4.14	4.04%
SE0007491303	Bravida Holding AB	Industrials	1.27	16.30%	14.47%	18.73%	29.83%	0.9	0.92	3.17	48.24	2.80%
FR0000130650	Dassault Systèmes SE	Information Technology	1.44	15.20%	13.97%	12.56%	21.90%	0.8	0.79	-0.02	2.03	1.01%
FR0000120073	L'Air Liquide S.A.	Materials	0.7	16.10%	17.91%	10.89%	16.08%	1.1	0.60	-0.22	1.73	5.26%
GB00B10RZP78	Unilever PLC	Consumer Staples	1.33	34.57%	11.36%	7.76%	15.34%	0.5	0.43	1.55	24.82	6.61%
GB00BP6MXD84	Shell PLC	Energy	0.22	18.03%	15.35%	5.70%	22.19%	0.7	0.20	1.70	38.79	1.03%
											Total:	25.40%
Asia Emerging Markets												
JP3475350009	Daiichi Sankyo Company, Limited	Health Care	0.94	15.03%	16.88%	17.78%	30.14%	0.3	0.55	2.52	15.86	2.00%
TW0002330008	Taiwan Semiconductor Manufacturing	Information Technology	1.07	35.87%	27.71%	26.24%	23.48%	1.3	1.07	1.55	26.57	2.25%
JP3571400005	Tokyo Electron Ltd.	Information Technology	0.76	26.70%	11.64%	18.11%	30.27%	1.2	0.86	0.82	13.93	7.30%
JP3788600009	Hitachi, Ltd.	Industrials	1.49	18.85%	21.46%	10.18%	24.29%	1.3	0.78	-0.41	0.66	1.10%
JP3902900004	Mitsubishi UFJ Financial Group	Financials	1.05	19.26%	13.29%	11.91%	25.55%	1.3	0.42	-0.54	7.23	1.96%
											Total:	14.60%

Source: Bloomberg

Table A. 3: Potential Risks

Risk	Implications	Impacts	Probability
Resurgence of inflation and potential recession **(A)**	Real estate prices are climbing, supply chain disruptions are pushing up goods prices, and wage growth has steadied above recent levels. These factors, along with policy measures, could potentially trigger a recession to counter the inflationary trend.	Rising interest rates and falling investment and corporate earnings are squeezing growth equities. Short and long-term government bonds, commodities, and infrastructure offer strong returns.	The specialists strongly dismiss the possibility of a resurgence in inflation, given the recent settling trend and the improved balance between prices and the labor market.
Debt default by US **(B)**	Debt ceiling breaches and budgetary issues cast doubt on the government's ability to meet obligations, potentially leading to default. Even if resolved, this event heightens uncertainty and unsettles financial markets.	Liquidity crunch, declining equity prices, private credit market contraction and loss of consumer and business confidence. Favors non-US economies.	This event is extremely unlikely, as it would signify the bankruptcy of one of the world's leading economic superpowers.
Abandonment of USD as key reserve currency **(C)**	Alternatives are diverting reserve assets from the USD, reducing demand for US assets and highlighting its deficit level.	Negatively impacts the value of the US dollar, as well as growth and investment in stocks and bonds.	Unlikely in a massive proportion. Although its stability depends on various factors, investors continue to view the US dollar as a reliable investment.
Geopolitical conflicts **(D)**	The Ukraine/Russia war, Middle East conflict, and China/US tension have caused negative shocks on food, gas, and oil prices, leading to chain disruptions and higher shipping costs. This lowers consumer purchasing power, growth potential, and increases vulnerability in EMs.	Implied market volatility favors bonds, supports commodities, and dampens stocks. Key sectors to focus on include technology, clean energy, infrastructure, and defense.	These conflicts are already ongoing, and it is still not possible to predict when or how they will end.
Elections and increasing polarization **(E)**	Continued gradual reforms can sustain the economy, but changes in government policy, laws, and foreign relations may lead to political instability and economic uncertainty.	May induce short-term equity volatility and weaken currency strength.	The existing studies and early polls have zero predictive value. However, the overall scenario indicates an increasing influence of far-right parties worldwide.
Climate change **(F)**	The increase in unexpected and extreme weather events disrupts food and raw material production and supply, prompting a reinforcement of sustainable practices.	Resource deficiency could lead to short-term inflationary pressures, favoring commodities and unsettling traditional assets.	Climate change has persisted since the late 19th century; however, its evolution is occurring at a moderate pace.
Accelerated integration of AI **(G)**	Increasing productivity and automation boost profit margins, alleviate labor scarcity, and foster growth. However, they may also contribute to higher unemployment rates.	Positive inflationary effects support investment in risky assets, EMs, and the technology sector.	AI is increasingly becoming an integral part of company processes. This trend is expected to continue growing due to the benefits it provides.

Source: JP Morgan "2025 Long-Term Capital Market Assumptions"

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