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Analyzing Economic Policy Uncertainty and its Impact on Swedish Institutional Fund Returns

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Abstract

Since its introduction, economic policy uncertainty (EPU) has gained widespread recognition in financial markets due to its strong correlation with market volatility, investment decisions, and economic activity. This thesis investigates the influence of EPU on the returns of institutional funds in Sweden, utilizing a news-based Swedish EPU index developed by Armelius et al. (2016). It explores how local, regional, and global uncertainties affect fund performance using various regression models that include univariate, multivariate, and Fama-MacBeth methodologies. Findings reveal that funds with lower sensitivity to EPU exhibit higher returns, with equity-focused and globally diversified funds being particularly affected. The results suggest that EPU is a significant risk factor in the Swedish market and reveal insights useful for fund managers aiming to enhance portfolio performance by actively managing EPU exposure. Limitations include geographic focus and data constraints, with future research directions suggested to explore sector-specific impacts and ESG investments.

Keywords:

Economic Policy Uncertainty, Institutional fund returns, Swedish EPU index, regression analysis, priced risk factor.

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Chapter 1: Introduction

1.1 Background

Since its introduction in 2013 (Baker et al., 2013), the Economic Policy Uncertainty (EPU) index has gained significant attention for capturing how policy uncertainty influences market behaviors. This includes impacts on stock market returns (e.g., Brogaard and Detzel, 2015; Chiang, 2019; Vikström, 2020; Xu et al., 2021; Hong et al., 2024), market volatility (Liu & Zhang, 2015; Ghani et al., 2024), M&A activity (Elshof, 2021; Han et al., 2020; Bauernfeind, 2023), fund flow (French & Li, 2022; Ali et al., 2023), and interconnectedness among various asset classes (Badshah et al., 2019; Li et al., 2021).

Several researchers have studied how EPU influences financial decisions during economic downturns. For example, Gomes et al. (2012) demonstrate that delays in policy decisions, such as retirement benefits and taxes, prompt households to decrease consumption and adjust financial plans, behavior likely mirrored by institutional investors affecting fund flow and asset allocations in pension and mutual funds under uncertainty. Pastor and Veronesi (2013) reveal that political uncertainty impacts asset prices, increasing stock volatility and correlations, particularly in weaker economies. Additionally, bank liquidity creation is negatively affected by EPU, reducing banks' ability to intermediate liquid funds, which harms the economy (Berger et al., 2017). These insights help us understand how various actors respond to political and economic uncertainties, a key focus of this thesis examining the impact of EPU on investment fund returns.

This thesis investigates the impact of EPU on the returns of various investment funds in Sweden. It employs a monthly, news-based Swedish EPU index built by Armelius et al. (2016) that draws on Baker et al.'s (2016) methodology to explore the effects of global, regional, and local uncertainties on the returns of Sweden's institutional funds. By focusing on Sweden's financial ecosystem, this study aims to expand the current literature by examining the impact of policy uncertainty on Swedish domiciled fund returns rather than on the Swedish stock market returns, as explored by Jacobsson (2023) and Vikström (2020). Additionally, given that Sweden is notably influenced by external uncertainties (Stockhammar & Osterholm, 2016), we will compare the

effects of the Swedish EPU index with the European and global EPU indices to highlight any disparities or notable changes.

While the research provides detailed insights into Sweden's financial ecosystem, it naturally focuses on a specific geographic context, which may limit broader applicability. Additionally, certain constraints are acknowledged, such as the availability of comprehensive fund performance data and the complexities of quantifying economic policy uncertainty's direct impact. These factors are considered throughout the study, highlighting the nuanced interpretation of the findings.

1.2 Research questions

This thesis investigates the impact of economic policy uncertainties using a Swedish EPU index on institutional fund returns in Sweden. It seeks to identify whether local EPU acts as a significant risk factor influencing returns and how it compares to global EPU's and European EPU's influence on the Swedish financial market. The study will explore whether policy uncertainty influences the returns of these funds and if it commands a risk premium, indicating a significant impact on fund performance based on a fund's exposure to policy uncertainty. Throughout our thesis, we aim to address the following hypotheses:

H1: Local EPU in Sweden significantly negatively impacts the returns of institutional investments.

H2: Local uncertainty plays a more dominant role as a driver of Swedish institutional investment returns than global or European uncertainty.

H3: EPU is a priced risk factor in Sweden's cross-section of fund returns, commanding a statistically significant risk premium associated with a fund's exposure to policy uncertainty.

H4: The relationship between returns and exposure to the Swedish EPU varies by asset type and geographical focus of the funds.

H5: The risk premium associated with exposure to Swedish EPU remains significant even after accounting for other systematic risk factors.

1.3 Disposition

Chapter 2 provides definitions and reviews the relevant literature. Chapter 3 outlines the methodology used by Armelius et al. to create the Swedish EPU index, details the data sources and sample selection, and briefly overviews the risk factors considered. Chapter 4 describes the statistical techniques, results, and findings. Chapter 5 presents the conclusions, acknowledges the study's limitations, and suggests areas for future research. Chapter 6 lists all the references cited throughout the thesis.

Chapter 2: Empirical Research

2.1 Definitions

Al-Thaqeb et al. (2019) define Economic Policy Uncertainty (EPU) as "a risk in which government policies and regulatory frameworks are undefined for the near future." Numerous major monetary policymakers and financial institutions, including the Federal Open Market Committee (2010), IMF (2013), World Bank (2023), and Citibank (2024), suggest that uncertainty about U.S. and European fiscal, regulatory, and monetary policies have contributed to significant economic fluctuations and prolonged periods of instability.

Below, we review several techniques for measuring and quantifying EPU proposed in the literature. Particular emphasis is given to the EPU index proposed by Baker et al. (2016), which we will use throughout our research.

2.1.1 Measuring EPU

Measuring EPU has long been a challenge for researchers. The Volatility Index (VIX), created by the Chicago Board Options Exchange, is a traditional method that gauges market volatility by looking at the variance in stock returns and prices (CBOE, 2024). Nonetheless, the VIX falls short of capturing a wide spectrum of uncertainties since it primarily focuses on market volatility. Its applicability across various industries and countries is limited (Al-Thaqeb et al., 2019), highlighting a need for more versatile measures of EPU.

In pursuit of broader indicators, researchers have developed several alternative methods. The Federal Reserve Bank of Philadelphia, for instance, conducts quarterly surveys of professional forecasters on macroeconomic trends, offering a U.S.-centric EPU measure (FED Philadelphia, 2021). Julio and Yook (2012) analyzed the impact of national elections on EPU by including election years in their regression models.

Other indexes include the FEARS index (Da et al., 2014), which analyzes investor sentiments through internet searches, and methodologies that employ textual analysis of corporate earnings call transcripts to gauge firm-level political risk (Hassan et al., 2019) or economic uncertainty (Scotti, 2016). Jurado et al. (2015) also developed a measure focusing on macro-uncertainty within financial markets. However, these approaches tend to emphasize the economic and investor sentiment aspects over direct policy implications.

The most widely used index in academia is the one developed by Baker et al. (2016). It uses a news-based approach, scanning major newspapers for terms related to economic uncertainty and policy tailored to each country's context. Its standardized methodology ensures consistent EPU measurement over time, making it broadly applicable and insightful. This index will be the primary EPU measure used in this research. We will utilize the Swedish EPU Index as described by Armelius et al. (2016), which, like the Global and European EPU Indices, is constructed using the methodology developed by Baker et al.

2.1.2 Institutional Investors

Institutional investors, such as pension funds, fund of funds, mixed funds, and hedge funds, significantly impact financial markets due to their large asset holdings and market influence. These entities invest on behalf of others, leveraging large pools of money gathered from corporations or individual investors. Their investment decisions are typically guided by the dual objectives of asset growth and risk management (Davis, 1996).

Characteristically, institutional investors are more risk-averse than retail investors (O'Connell, 2009). This cautious approach is primarily driven by their fiduciary duties to safeguard stakeholders' interests (Yang, 2021). Amidst increased economic uncertainty, it is common for these investors to recalibrate their portfolios towards more liquid and stable assets, thereby minimizing exposure to potential market volatilities (He et al., 2022). The investment decisions of institutional investors are influenced by various factors, including regulatory requirements, market conditions, and the macroeconomic environment (Han et al., 2021). They employ asset diversification, hedging, and strategic asset allocation strategies to manage risks and optimize

returns (Froot et al., 1993; Jorion, 2008). These strategies can differ markedly among institutional investors: for instance, pension funds often have long-term investment horizons and might prioritize stability and steady yields, while hedge funds may seek higher returns and accept greater risks (CFGS, 2007).

In Sweden, institutional investors typically adopt conservative investment strategies (Ehne, 2018). This cautious approach is often intensified by shifts in economic policies, reflecting a broader trend toward risk aversion in response to policy uncertainties (Andersson et al., 2023). Comparatively, institutional investors in more volatile economies might adopt more aggressive strategies, reflecting a greater tolerance for risk or a different regulatory landscape. For example, in the United States, pension funds and endowments might occasionally increase their exposure to alternative investments like private equity and real estate to achieve portfolio growth and diversification (Hui et al., 2006)

2.2 Previous research and literature

2.2.1 Economic Policy Uncertainty and Financial Markets

The existing literature robustly supports the influence of EPU on financial markets, with numerous studies highlighting how EPU affects asset pricing (Li, 2022), investment decisions (Jackson & Orr, 2019), and stock market returns (Xu et al., 2021; Christou et al., 2017; Phan et al., 2018). Pástor and Veronesi (2013) provide a foundational understanding by demonstrating the significant negative impacts of EPU on market dynamics. They suggest that EPU can alter corporate decision-making, leading to greater stock return volatility and affecting firm valuations through increased discount rates.

Further extending the intertemporal capital asset pricing model (ICAPM), studies by Merton (1973) and Campbell (2018) have shown that assets that covary positively with future volatility forecasts, often due to policy uncertainty, are considered hedges but tend to result in lower expected returns due to increased investor demand. This relationship is supported by Ang et al.

(2005), who demonstrate that market-wide volatility, often spurred by policy uncertainty, is consistently priced in stock returns, affirming a negative risk premium associated with EPU.

Furthermore, studies such as Handley and Limão (2015) explore how EPU affects international trade agreements and investment decisions, demonstrating that anticipation of policy changes can significantly freeze or redirect investment flows. Zhu et al. (2022) delve into the relationship between EPU and technological innovation, suggesting that uncertainty can stifle innovation by increasing the risks associated with long-term investments in research and development.

2.2.2 EPU and Institutional Investment Returns

Recent studies have focused explicitly on how hedge funds and other investment vehicles manage and react to economic policy uncertainty (EPU). Institutional investors, such as pension funds and mutual funds, often have diversified portfolios that include equity and corporate bonds. According to research by Brogaard and Detzel (2015) and Wang et al. (2019), EPU influences both equity and corporate bond markets and commands a significant negative risk premium. This means that institutional investors need to actively manage EPU as a critical, systematic risk factor to prevent adverse effects on their returns. The impact of EPU on both asset classes underscores its relevance to the diverse investment strategies institutional investors employ.

The empirical evidence presented by Liang et al. (2020) highlights the market timing abilities of hedge fund managers regarding EPU, with those adept at anticipating increases in EPU adjusting their portfolios to mitigate potential losses. This skill in timing EPU translates into higher risk-adjusted returns, reinforcing the economic value of understanding and managing EPU exposure in institutional investments.

A study by Ali et al. (2022) also constructs a New Zealand-specific economic policy uncertainty index. It examines its impact on a large sample of pension and hedge funds. The research demonstrates that funds with lower exposure to EPU yield notably higher returns, suggesting that investors demand extra compensation for the increased risk associated with higher EPU exposure,

in line with intertemporal capital asset pricing models (ICAPM). This further underscores the importance of nuanced management of EPU in institutional investment strategies.

Complementing these insights, He et al. (2022) investigate foreign institutional investment in China, revealing that increased economic policy uncertainty leads to reduced investment by foreign institutions, mainly when originating from culturally or geographically closer countries. Their findings highlight how local and international institutional conditions influence investment decisions, emphasizing the impact of policy environments on cross-border investment flows.

2.2.3 Comparative Impact of Local vs. Global EPU

While much research has addressed the broader implications of Economic Policy Uncertainty (EPU), there is growing interest in comparing local versus global EPU effects. This is particularly relevant for Sweden, notably influenced by external uncertainties (Stockhammar & Osterholm, 2016). Studies by Brogaard and Detzel (2015) and Jiang et al. (2021) highlight how different EPU scales influence investment returns, with local uncertainties potentially playing a more pivotal role in certain contexts. Ali et al. (2022) support this view by demonstrating that local EPU, rather than global, significantly affects returns, establishing New Zealand EPU as a priced, systematic, and undiversifiable risk factor. This supports the hypothesis that local EPU might significantly impact Swedish institutional investment returns more than global or European uncertainty levels.

Armelius et al. (2016) explored the timing and impact of uncertainty shocks in Sweden, contrasting it with larger economies. They found that shocks to the Swedish EPU index—which includes uncertainties from the US, EU, and Germany—directly affect Swedish GDP growth within the same quarter, showing a decline of 0.2 percentage points. This immediate impact is sharper than in larger economies, where effects are typically delayed due to more substantial internal buffers and diversified economic structures. For instance, US EPU shocks impact Swedish GDP with a one-quarter delay, while EU and German shocks take up to two quarters to exert maximum effect.

Caldara and Iacoviello (2022) found similar results to Armelius's and extended the EPU analysis by examining its impact on macroeconomic variables across different countries. Their findings

suggest that local EPU has a more pronounced effect on smaller, open economies like Sweden than on larger, more diversified ones.

Further research by Fuest et al. (2018) highlights the impact of tax policy uncertainty on investment behavior, adding another dimension to understanding local versus global EPU impacts. Their study found that local tax policy uncertainty can significantly reduce investment levels, emphasizing the importance of stable and predictable local economic policies.

Using a dynamic factor model, Sauer et al. (2018) examined the time-series predictability of the risk premium. He found that exposure to regional EPU commands a significant premium in the global equity market. However, he discovered that exposure to global EPU does not carry a premium.

However, Gong et al. (2023) discovered using a multivariate quantile model to analyze EPU spillovers across 23 economies from 2003 to 2019 that EPU spillovers significantly increase local bond market volatility, particularly when these spillovers originate from developed markets and during financial crises. This finding underscores the importance of closely monitoring foreign economic uncertainties, which can influence domestic financial stability.

Overall, these findings underscore that investors need to closely monitor local and global EPU, especially in small, open economies like Sweden. By understanding the distinct impacts of various EPU scales, investors can make more informed decisions to protect and potentially enhance their investment returns amidst economic uncertainties.

Chapter 3: Methodology

This chapter outlines the methodology used to investigate the impact of economic policy uncertainty on institutional investments in Sweden. It describes the data sources, statistical analyses, and challenges encountered during data processing.

3.1 Institutional Fund Data in Sweden

3.1.1 Descriptive Statistics

Our analysis utilizes Bloomberg's Funds Data Solution (BFDS) and Refinitiv Lipper's Investment Management (LIM) databases. These databases are renowned for providing comprehensive fund-level information on both active and liquidated/non-active funds worldwide, including for funds in Sweden. We chose to include both the Bloomberg and LIM databases to be able to cover the most funds possible. We ensure that the same metrics are consistently observed and calculated to avoid potential biases. We also ensure that our data is extensive and uniform across different funds and timeframes.

For the analysis period, we consider data from January 1997 to December 2023, aligning with the availability of the Global Economic Policy Uncertainty (GEPU) Index developed by Baker et al. (2016), which starts in January 1997. It is important to note that the EPU indices (global, European, and Swedish) are updated regularly to reflect the latest economic, political, and policy changes, ensuring that our analysis remains relevant and timely.

Our study focuses exclusively on Swedish-domiciled funds and funds using the Swedish Krona (SEK) as the currency.

Initially, our monthly dataset included 1865 funds, but after filtering out those with incomplete data, the final sample includes 1225 funds. Of these, 857 funds are active, and 368 have either been liquidated or merged. The active funds have a total AUM of about SEK 7 263 billion as of April 2024, with the top ten funds accounting for 18% of the Swedish market.

The fund data we extracted from the databases includes monthly returns, assets under management, risk-adjusted return metrics (such as the Sharpe Ratio and Information Ratio), geographical focuses, and asset type, among other metrics.

To better understand the performance of these funds, we start by conducting a detailed analysis of their returns and attributes. As seen in Table 1, the equal-weighted average monthly returns for Swedish funds from 1997 to 2023 show significant fluctuations, especially during periods of economic instability like the 2008 financial crisis and the Covid-19 crisis, also shown by Hoang (2015) and Pastor and Vorsatz (2020).

Table 1: Descriptive statistics: Equal weighted average monthly returns (%) for Swedish Funds from 1997-2023

	Mean	Median	SD	Min	Max
1997	-2,42	.1,63	30,21	-12,88	5,62
1998	-1,88	-1,46	32,16	-12,78	11,32
1999	-1.18	-1.20	35.29	-12.85	12.78
2000	-1.20	-1.52	38.14	-14.92	11.45
2001	-1.68	-1.98	40.03	-15.98	10.21
2002	-0.75	0.45	36.45	-11.82	12.65
2003	0.15	0.70	39.36	-7.45	14.01
2004	1.24	1.71	31.63	-6.82	12.34
2005	1.45	1.25	34.02	-6.04	8.99
2006	1.78	1.32	46.57	-11.36	11.87
2007	2.33	1.98	52.65	-15.24	15.03
2008	2.90	2.56	50.05	-30.50	30.98
2009	3.95	3.16	37.78	-34.12	33.45
2010	4.25	3.47	37.85	-33.34	29.98
2011	3.25	3.51	39.54	-26.54	22.34
2012	2.88	3.12	38.68	-24.12	19.99
2013	2.98	3.22	37.25	-17.48	22.61
2014	2.61	3.13	42.54	-18.98	23.99
2015	2.05	2.46	44.75	-20.88	26.15
2016	2.43	2.01	42.33	-18.94	21.45
2017	3.15	3.60	34.64	-14.83	17.86
2018	3.08	3.36	36.85	-18.98	19.86
2019	2.58	3.18	38.07	-20.18	21.25
2020	1.24	3.76	41.92	-29.39	18.65
2021	3.32	3.05	55.89	-26.58	37.96

2022	2.88	1.97	27.65	-27.72	26.98
2023	2.78	2.52	29.34	-24.84	34.02

Table 2 offers insights into the characteristics and performance of institutional investments in Sweden. The average monthly return of 0.92% reflects steady performance despite significant variability between maximum (54.9%) and minimum returns (-31.4%). The average fund size is SEK 6,49 billion, with the AP7 Aktiefond being the largest fund with total assets of SEK 1287,81 billion. The average fund age of approximately 13 years (157.64 months) indicates a stable and experienced investment environment. This is significant for investor confidence, especially when compared to the average age of a US mutual fund, which is 8.6 years (Mooney, 2018). The average Sharpe ratio of 1.29 and tracking error of 4.94% indicates moderate risk-adjusted performance and active management.

Table 2: Descriptive cross-sectional summary statistics of Institutional Investments in Sweden

"Average monthly return" is in %; "Fund Size" is presented as total assets in billion SEK; "Fund Age" represents the average duration of a fund's existence in months; The "Average Sharpe ratio" is calculated by taking the fund's excess returns over the risk-free rate and dividing it by the standard deviation of returns over the past 24 months. The "Average Tracking Error" measures the standard deviation of the difference between the fund's monthly returns and the SWE index returns, also calculated over the past 24 months.

	Max	Min	Mean	Median	SD
Average monthly return	54.9	-31.4	0.92	0.84	6.70
Fund Size	1287.81	0.013	11.71	7.02	202.16
Fund Age	418.17	0.033	157.64	121.02	124.21
Average Sharpe Ratio	22.83	-2.14	1.29	1.12	10.74
Average Tracking Error	39.74	0.05	4.94	3.61	5.26

Table 3 provides a detailed breakdown of various fund types and geographical focuses. Equity funds, making up 51% of the Swedish funds, manage more assets than non-equity funds, including fixed-income and money market funds, constituting 37% of the sample. Additionally, 10% of the funds are funds of funds, and 2% fall into other categories. Global-focused funds also manage more assets than locally focused ones, with approximately 53% of Swedish funds globally-focused, 26% Sweden-focused, and 12% Nordic-focused. This distribution highlights Swedish

funds' diverse strategies to navigate local and international markets. Equity funds achieve higher average monthly returns (1.43%) than non-equity funds (0.64%). Similarly, globally focused funds achieve higher returns (0.87% monthly) than locally focused funds (0.71% monthly).

The metrics reveal that equity funds outperform non-equity funds, consistent with the higher risk and potential returns associated with equity investments. Equity funds have a higher market beta (0.94) than non-equity funds (0.62), indicating greater sensitivity to market movements. Sweden-focused and non-equity funds have lower market beta values, reflecting less sensitivity to broader market fluctuations. Additionally, idiosyncratic risk is highest for equity funds at 3.13, aligning with higher returns and market sensitivity.

These findings align with expectations, as equity investments typically carry higher risks and rewards than fixed-income or mixed-allocation funds. The substantial presence of globally focused funds underscores the importance of international diversification in Swedish institutional investment strategies.

Table 3: Descriptive Asset type & Geographical focus statistics for sample

"Fund Size" represents the average total assets by the funds in billion SEK; "Monthly Return" shows the average monthly return for each fund type; "Fund Age" indicates the average duration of a fund's existence in months; "Idiosyncratic Risk" measures the standard deviation of residuals from a market model, reflecting the fund-specific risk; "Value at Risk (VaR) 5Y" represents the potential loss in value over five years under normal market conditions; "Market Beta" measures the sensitivity of fund returns to market movements, with values indicating the level of market risk exposure; "Information Ratio" evaluates the fund's performance relative to a benchmark, considering both returns and risk.

	Non-equity	Equity	SWE focused	Global Focused
Fund Size	16.31	37.46	24.82	31.63
Monthly Return (in %)	0.64	1.43	0.71	0.87
Fund Age	140.52	145.67	159.7	136.8
Idiosyncratic Risk	2.84	3.13	3.06	2.79
Value at Risk 5Y	-4.34	-5.87	-5.12	-5.31
Market Beta	0.62	0.94	0.54	0.68
Information Ratio	1.05	1.17	0.96	1.07

3.1.2 Methodological Challenges and Data Handling

During our research, we faced several methodological challenges that required specific strategies to ensure data integrity and robustness. These challenges stemmed from issues with the databases, which, despite their extensive coverage, presented cases of missing, incorrect, and outlier values.

We encountered significant concerns with missing data, particularly when multiple metrics were missing for a fund, potentially compromising our analysis. Extensive data omissions led to excluding such funds from our dataset to maintain overall robustness. For funds missing minor data points, we used statistical imputation techniques, such as the mean or mode of the respective metric across similar funds, to address gaps without skewing the data's fundamental characteristics.

Outliers were another critical issue, as they could distort the performance and characteristics of the funds. Visual analysis methods, such as plotting distributions, helped to identify and scrutinize these anomalies. Values that deviated significantly from the expected range were double-checked for accuracy and excluded to ensure they did not adversely affect the overall analysis.

Currency fluctuations posed a challenge given the international investments of some funds. Using prevailing exchange rates, we standardized all financial metrics to the Swedish Krona (SEK).
Selecting appropriate benchmarks was crucial; we chose benchmarks that matched each fund's investment style and asset composition to reflect relative performance accurately. For equity funds, we used the OMX Stockholm 30 Index. For non-equity funds, we used the OMRX Treasury Bill Index.

To address survivorship bias, we included active and inactive funds in our dataset, ensuring a performance evaluation that reflected the complete lifecycle of funds. This approach provided a comprehensive view of the investment landscape over time.

3.2 EPU index in Sweden

The construction of the Swedish EPU Index developed by Armelius et al. (2016) follows a methodology adapted from Baker et al. (2016), specifically tailored to measure Sweden's economic policy uncertainty. This process commenced with extracting articles from the National Library of Sweden's online archive, focusing on content from four major Swedish newspapers: Aftonbladet, Expressen, Dagens Industri, and Svenska Dagbladet. These sources were selected based on their broad readership and depth of economic reporting. Articles were identified through a search for those containing the Swedish equivalents of the keywords "economic," "policy," and "uncertainty," ensuring the relevance to economic policy uncertainty. The gathered data underwent a standardization process to harmonize the information from the different newspapers, followed by a normalization step. In normalization, the counts of relevant articles were adjusted by the total number of articles mentioning the keyword "economic" for each month. This approach mitigates the impact of fluctuating news volumes and maintains the index's focus on shifts in economic policy uncertainty. This methodology enables the Swedish EPU Index to serve as a nuanced tool for analyzing Sweden's specific contours of economic policy uncertainty.

While the index by Armelius et al. (2016) provides an invaluable local perspective, other indices also offer insights into Swedish economic uncertainty with different scopes and methodologies.

Among these, the Financial Stress Index, developed by Johansson and Bonthron (2013), measures distress in the Swedish bond, stock, money, and foreign currency swap markets, offering an immediate view of current financial stress levels.

Additionally, the systemic risk indicator by Krygier and van Santen (2020) merges five sector-specific indicators—banking, household, non-financial corporate, property market, and external environment—into a single, equally-weighted measure.

The Financial Fragility Indicator, developed by Giordani et al. (2017), tracks financial system risks by analyzing metrics like private sector credit as a percentage of GDP, housing prices relative to disposable income, and the balance between stable and unstable funding sources. Collectively, these indices provide a robust framework for addressing Sweden's complex financial dynamics.

The World Uncertainty Index, developed by the Federal Reserve of Saint Louis (FRED, 2024), measures global uncertainty based on the frequency of the word 'uncertainty' in the Economist Intelligence Unit's quarterly reports. Alongside, the Scandinavian EPU Index by Ifwarsson et al. (2021) assesses policy uncertainty in Sweden, Denmark, and Norway. Both indices offer broad regional and global perspectives but may not fully capture the immediate policy impacts within Sweden as effectively as indices that are more localized.

The decision to adopt the Swedish EPU Index by Armelius et al. (2016) over these alternatives was informed by several critical factors. Primarily, it is uniquely designed to align with Sweden's specific economic policy environment and employs a proven methodology that comprehensively captures local nuances—nuances that more generalized indices might miss. Additionally, this index draws upon established and trusted data sources, enhancing its reliability and depth. While other indices provide valuable perspectives, the ready-made, accurate, and regularly updated Swedish EPU Index presented itself as the most efficient and effective choice for our analysis. Lastly, creating our index would require significant resources, while the Swedish EPU Index offers a ready-made, accurate measure of economic policy uncertainty.

Figure 1 illustrates the monthly Economic Policy Uncertainty (EPU) index for Sweden built by Armelius et al. (2016) from 1976 to 2023. The graph shows significant spikes coinciding with major events such as the Swedish/Nordic Financial Crisis from 1990 to 1994, the IT bubble burst, the September 11 attacks, the 2008-2009 financial crisis, the European sovereign debt crisis in 2010, and the invasion of Ukraine in 2022.

Currency fluctuations posed a challenge given the international investments of some funds. Using prevailing exchange rates, we standardized all financial metrics to the Swedish Krona (SEK).
Selecting appropriate benchmarks was crucial; we chose benchmarks that matched each fund's investment style and asset composition to reflect relative performance accurately. For equity funds, we used the OMX Stockholm 30 Index. For non-equity funds, we used the OMRX Treasury Bill Index.

To address survivorship bias, we included active and inactive funds in our dataset, ensuring a performance evaluation that reflected the complete lifecycle of funds. This approach provided a comprehensive view of the investment landscape over time.

Figure 1: Swedish EPU index

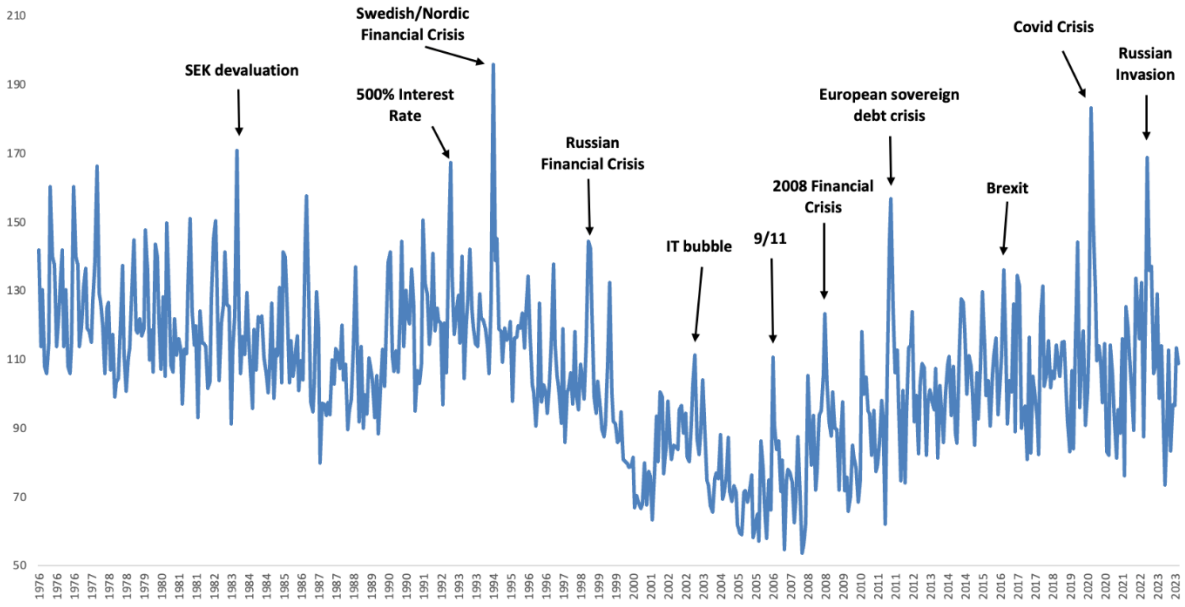
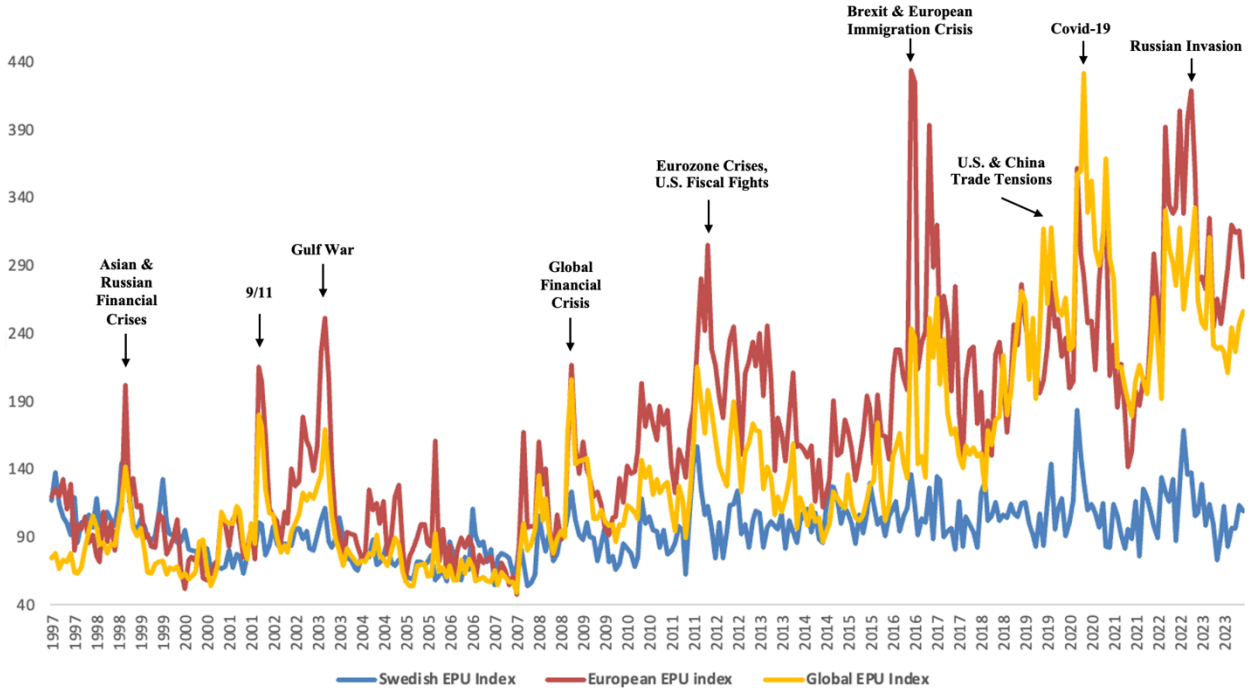


Figure 2 compares the Swedish EPU index with the global GEPU and European EPU indexes. The Global EPU index, developed by Baker et al. in 2016, is based on data from 21 countries representing approximately 71% of the world's GDP on a PPP basis and about 80% on market exchange rates. Similarly, the European EPU index, created by Baker et al. in 2016, is derived from the two largest newspapers in each of the five major European economies: France, Italy, Spain, Germany, and the UK.

Figure 2: EPU Index Comparison



We observe visually that the Swedish EPU Index shows a correlation with both the European and global EPU indices as we often observe spikes and downfalls at the same periods, particularly during significant global events such as the dot-com bubble, the COVID-19 crisis and the recent geopolitical tensions following Russia's invasion (see Table 3, Section 3.3, Risk Factors for a statistically significant correlation between the EPU indices). This synchronization indicates that the Swedish EPU mirrors the fluctuations seen in broader indices and reacts simultaneously to major international events. This highlights Sweden's interconnectedness with the global economic system.

However, we notice that the scale of the spikes in the Swedish EPU Index is less pronounced than those in the European and Global EPU indices. This difference is attributed to several methodological differences in how the Swedish EPU index by Armelius et al. (2016) is constructed. Firstly, it employs specific local Swedish terms related to economy, policy, and uncertainty, capturing a narrower set of articles than the broader terms used in the Global EPU Index. Additionally, the emphasis is on domestic policy terms like "riksbank" or "regering," which results in a stronger sensitivity to local policy changes rather than global uncertainties. The

normalization and standardization techniques also contribute to this difference, as the Swedish index scales article counts by those satisfying the "economic" criterion within the same newspaper and month, effectively dampening the impact of high volumes of economic reporting. These factors cause the Swedish index to have less dramatic fluctuations than the global or European indices during international crises, which are better captured by the broader and more diverse set of newspapers included in the global measure.

3.3 Risk factors

This section of the thesis examines how systematic financial risks interact with EPU through established factors like the Fama/French European 5 Factors and the Momentum factor. It also analyses how Swedish-specific macroeconomic indicators correlate with EPU indices.

3.3.1 Financial risk factors

To effectively explore the impact of EPU on institutional investment returns, it is essential to incorporate recognized systematic risk factors from financial research. These factors, defined by Kenneth French's database and the academic work of Fama and French (2015) and Carhart (1997), include the Fama/French European 5 Factors and the Momentum factor. The purpose of the factors is to provide a more comprehensive framework for understanding and explaining returns by accounting for multiple dimensions of risk (Fama & French, 1995). They include:

- The Market (MKT) factor captures the overall market risk premium.
- The Size (SMB, Small Minus Big) factor measures the excess returns of small-cap stocks over large-cap stocks.
- The Book-to-Market (HML, High Minus Low) factor distinguishes between value firms and growth firms, capturing variability in returns due to investment style.
- The Momentum (WML, Winners Minus Losers) factor reflects the tendency of well-performing stocks to continue performing well and poorly performing stocks to continue underperforming.

- The Operating Profitability (RMW, Robust Minus Weak) factor measures returns between companies with strong and weak profitability, indicating how well firms can withstand economic fluctuations.
- Investment (CMA, Conservative Minus Aggressive) factor contrasts firms with conservative versus aggressive investment policies, reflecting different risk tolerances and strategies.

These six factors provide a framework for analyzing investment returns under economic policy uncertainty. We include these factors in our regression to ensure our findings are linked exclusively to policy uncertainty, not other systematic risk factors, which is crucial for understanding how EPU affects returns.

3.3.2 Macroeconomic risk factors

We incorporate specific macroeconomic factors to evaluate the impact of local and global uncertainties on Sweden's economic indicators and investment returns. These factors include:

- Sweden's OMXS30 (DIV_YLD_SW): Reflects the aggregate dividend yield of Sweden's leading market index to gauge investor expectations and market sentiment.
- Monthly Swedish GDP Growth Rate (GDP_GRATE_SW): Correlates Sweden's economic growth with EPU and investment returns, clarifying domestic economic impacts on financial markets.
- Swedish Consumer Price Index (CPI_SW): Measures inflation to analyze how shifts in purchasing power and living costs affect investment returns under policy uncertainty.
- Yield Spread (YIELD_SPRD_SW): Indicates economic outlook and investor risk appetite by comparing yields of long-term government bonds to short-term treasury bills, focusing on the spread between selling 2-year and buying 10-year Swedish government bonds.
- Swedish Unemployment Rate (UNEMP_RATE_SW): Assesses Sweden's economic health and labor market conditions, influencing consumer confidence and spending.
- OMXS 40 Equal Weighted Excess Return Index (OMXS40_EWERI): Tracks the OMXS 40 performance with equal weighting per component, assuming reinvestment of dividends to reflect total investment returns.

3.3.3: Correlation between EPU indices, financial, and macroeconomic factors in Sweden

This analysis from January 1997 to December 2023 explores correlations between EPU indices, macroeconomic metrics, and Fama-French risk factors, highlighting how EPU influences Sweden's market dynamics. Table 4 illustrates these relationships, showing a strong positive correlation (0.72) between Global EPU and European EPU, suggesting shared global uncertainties. Swedish EPU correlates positively with Global (0.28) and European EPU (0.36).

We also observed correlations between the Swedish EPU and various Swedish economic indicators. Specifically, Swedish EPU correlates with the dividend yield (0.23), indicating that higher uncertainty might lead to increased dividend yields, potentially as companies try to attract or retain investors amidst uncertain conditions. With Swedish GDP growth (-0.19), the negative correlation suggests that increased uncertainty typically dampens economic growth. A positive correlation for the Consumer Price Index (0.21) implies that higher EPU could be associated with rising prices, possibly due to market volatility affecting costs and economic forecasts. The unemployment rate shows a weak positive correlation (0.09), hinting that higher uncertainty might slightly increase unemployment rates, though this relationship is not as strong.

While the Swedish EPU correlates with these factors, its correlation is generally weaker compared to the Global and European EPU indices. This observation suggests that regional or global uncertainties have a more pronounced impact on Swedish macroeconomic factors than local uncertainties. However, the Swedish EPU index, constructed by Armelius et al. (2016), correlates with key macroeconomic factors such as GDP growth, yield spread, and unemployment rates, confirming that it behaves as expected by aligning with variables typically influenced by EPU.

Table 4: Correlation Matrix of EPU Indices, Macroeconomic Variables, and Risk Factors

This table shows the correlations between the Global, European, and Swedish Economic Policy Uncertainty (EPU) indices and various macroeconomic variables and systematic risk factors, including the Fama-French factors. The bold values indicate statistically significant correlations at the 5% level. The table highlights the relationships among economic uncertainty, market performance, and key financial metrics.

	Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Global EPU	1														
2	European EPU	**0.72**	1													
3	Swedish EPU	**0.28**	**0.36**	1												
4	DIV_YLD_SW	0.48	**0.19**	**0.23**	1											
5	GDP_GRATE_SW	**-0.25**	-0.11	**-0.19**	**0.43**	1										
6	CPI_SW	**0.48**	**0.50**	**0.21**	-0.04	0.15	1									
7	YIELD_SPRD_SW	**-0.59**	**-0.51**	-0.08	0.12	-0.02	**-0.90**	1								
8	UNEMP_RATE_SW	**0.18**	-0.06	**0.09**	**-0.77**	-0.17	0.16	**-0.29**	1							
9	OMXS40_EWERI	**0.25**	0.17	-0.12	**-0.36**	**0.35**	**0.67**	**-0.58**	**0.45**	1						
10	SMB	-0.07	**-0.18**	0.14	**-0.22**	-0.18	**-0.20**	0.09	0.07	-0.13	1					
11	HML	-0.02	0.10	**-0.20**	-0.12	0.12	0.17	-0.12	0.01	**0.24**	-0.03	1				
12	RMW	0.02	-0.04	0.07	0.13	0.00	-0.09	0.10	0.04	-0.12	-0.04	**-0.79**	1			
13	CMA	-0.08	**0.18**	-0.07	0.08	**0.20**	0.16	-0.06	-0.09	**0.22**	**-0.35**	**0.75**	**-0.57**	1		
14	WML	-0.03	-0.04	**0.24**	0.04	0.03	-0.07	0.08	-0.05	0.00	-0.04	**-0.44**	**0.27**	-0.17	1	
15	MKT	0.15	-0.00	**-0.24**	-0.15	-0.12	0.04	-0.06	-0.11	-0.09	**0.22**	-0.15	-0.04	**-0.23**	**-0.43**	1

Chapter 4: Results and Analysis

4.1 Regression Analysis

4.1.1 Univariate Regression Analysis

The preliminary analysis stage will involve estimating the sensitivity of the fund returns to the Swedish EPU index using a rolling regression framework. This method involves running successive regressions over a moving window of observations to analyze how the relationship between fund returns and the Swedish EPU index evolves between January 1997 and December 2023. Like, Li et al. (2020), Zhenghui et al. (2019), and Nonejad (2021), we adopt a 24-month rolling window. This duration is chosen because it strikes a good balance between providing enough data to ensure statistical reliability and being short enough to reflect more recent trends and changes. It also helps to smooth out short-term volatility and seasonal effects, providing a clearer picture of long-term relationships.

In this framework, the excess returns of each fund will be regressed on the Swedish EPU index to calculate the EPU beta for each fund:

$$R_{it} = \alpha_i + \beta_{i,EPU} \times EPU_t + \in_{it}$$

Here, R_{it} represents the excess return of fund i at time t, EPU_t is the EPU index, $\beta_{i,EPU}$ is the EPU beta for fund i, and ε_{it} is an error term. The EPU beta quantifies how sensitive a fund's returns are to changes in economic policy uncertainty and provides a measure of the fund's exposure to such changes.

To analyze this relationship, we sort the funds into equal-weighted quintile portfolios based on their sensitivity to Swedish EPU, like what was done by Bhootra et al. (2015), Ali et al. (2022), and Gong et al. (2023). The funds are divided into five groups, ranging from low to high sensitivity according to how strongly their returns react to fluctuations in the EPU index. This classification

allows for an exploratory examination of the relationship between policy uncertainty exposure and fund performance, facilitating insights into how different levels of EPU impact fund returns.

4.1.2 Multivariate Regression Analysis

After the univariate analysis, we employ a multivariate framework to control for established risk factors. We conduct a panel data regression analysis to investigate the association between fund returns and their EPU betas while adjusting for other risk factors, including Swedish-specific economic indicators. This stage will determine if EPU retains its explanatory significance for fund returns while accounting for systematic risk factors. Note that in this analysis, we do not explicitly account for time effects.

$$R_{it} = \alpha_i + \beta_{i,MKT} \times MKT_t + \beta_{i,SMB} \times SMB_t + \beta_{i,HML} \times HML_t + \beta_{i,RMW} \times RMW_t + \beta_{i,CMA} \times CMA_t + \beta_{i,WML} \times WML_t + \beta_{i,EPU} \times EPU_t + \in_{it}$$

where, $\beta_{i,FCT}$ (where FCT represents the used risk factors) denotes the sensitivity of the returns to each respective factor for fund i, allowing us to isolate the effect of the EPU on fund returns, controlling for other known risk factors.

4.1.3 Fama-MacBeth Two-Step Regression

The Fama-MacBeth two-step regression is a robust method for determining whether specific factors, such as EPU, are systematically priced in the cross-section of asset returns. In the contex of this thesis, asset returns refers to the returns of Swedish funds.

<u>Step 1: Time-Series Regression</u>

In the first step of the Fama-MacBeth procedure, we perform time-series regressions for each asset. Specifically, we perform a time-series regression of the SWE EPU index on each fund's succeeding month's excess returns to determine the sensitivity (beta) of fund returns to policy uncertainty:

$$R_{it} = \alpha_i + \beta_{i,EPU} \times EPU_t + \in_{it}$$

Here,

- R_{it} is the excess return of fund i at time t.
- a_i is the intercept, representing the average return unexplained by market and EPU influences.
- $\beta_{i,EPU}$ quantifies the impact of the Swedish EPU index (EPUtEPUt) on the fund's returns.
- ε_{it} is the idiosyncratic error term, capturing the unexplained variability in returns.

Step 2: Cross-Sectional Regression

In the second step, we conduct cross-sectional regressions for each time period using the beta estimates obtained from the first step. This part of the analysis assesses how much of the returns can be attributed to exposures to EPU and other fund-specific risks. We compute the cross-sectional averages of the slope coefficients to see if the observed trends are consistent across funds:

$$R_{it} = \gamma_0 + \gamma_{EPU} \times \beta_{i,EPU} + \gamma_1(Control\ Variable\ 1) + \gamma_2(Control\ Variable\ 2) + \cdots + \mu_{it}$$

where:

- R_{it} is again the excess return on fund i in month t.
- γ_0 is the average expected return not explained by risk.
- γ_k is the coefficient for the control variables.
- γ_{EPU} is the risk premium for EPU beta.
- u_{it} is the error term.

The sign and significance of the coefficient γ_{EPU} are critical, with a negative and significant γ_{EPU}

indicating that EPU is indeed a priced risk factor.

We use a Shanken correction (Shanken, 1992) to compensate for the bias in the estimated standard errors of the risk premia in the Fama-MacBeth regression.

4.2 Results

In this section, we aim to address our hypotheses through relevant regressions.

4.2.1 Fund portfolio construction and descriptive statistics

We first conducted a univariate regression analysis using a rolling window of 24 months to examine the between the EPU beta, derived from the Swedish EPU index constructed by Armelius et al. (2016), and fund returns. To analyze this relationship, we sorted the funds into equal-weighted quintile portfolios based on their sensitivity to Swedish EPU, following the methodology of Bhootra et al. (2015), Chen et al. (2022), and Ali et al. (2022). Portfolios Q1 and Q5 represent the equal-weighted portfolios of funds with the lowest and highest EPU beta quintiles, respectively.

Table 5 presents the descriptive statistics for these portfolios. The average fund size, measured as total assets in billions of SEK, is the lowest for Q1 and highest for Q3, which contains five of the ten most significant funds in total assets. Idiosyncratic volatility is estimated using an AR (2) model inspired by Chua et al. (2010), relative to Carhart's four-factor model (1997). The relationship is examined using Fama-MacBeth (1973) regressions with gross return and the Carhart alpha as dependent variables. Idiosyncratic volatility is found to be the highest for Q5. This is expected, as heightened sensitivity to EPU leads to greater volatility and market deviations (Yang et al., 2021). Conversely, Q1 has a better risk-adjusted return due to its reduced sensitivity to EPU, as indicated by a higher Sortino Ratio (Estrada, 2006); this results in more stable performance and fewer significant losses during periods of policy instability.

Tracking error, defined as the standard deviation of the difference between the monthly returns of the funds and a relevant benchmark—in this case, the OMX Stockholm 30 Index—serves as a metric to understand fund performance (Chen et al., 2017; Dorocáková, 2017). It is the largest for Q5, aligning with its high sensitivity to EPU, which causes significant deviations from the benchmark index. Surprisingly, Q1 also has a high tracking error despite its low sensitivity to the EPU index. Interestingly, Q1 has the lowest information ratio, while Q5 has the highest. The information ratio evaluates returns above the benchmark, divided by the volatility of these excess returns (Gupta et al., 1999). Q1's lower ratio is due to its reduced sensitivity to EPU, leading to lower excess returns relative to its volatility. In contrast, Q5's higher ratio is because its heightened sensitivity, despite increased volatility, generates higher excess returns relative to its benchmark.

We observe consistent values across the portfolios in terms of average age and Sharpe ratio. The Sharpe ratio, determined as the average excess return over risk-free rate divided by the standard deviation of these excess returns (Cvitanić et al., 2008), assesses fund return per unit of risk.

Finally, we observe how different fond categories are distributed across the portfolios Q1 to Q5. Non-equity funds are most prevalent in Q1 (24.61%) and Q2 (23.72%), suggesting diversification away from equities in lower EPU sensitivity portfolios. Equity funds peak in Q5 (24.51%), indicating a higher equity focus in high EPU sensitivity portfolios. Globally focused funds are concentrated in Q2 (30.03%), while locally focused funds dominate in Q4 (27.30%), indicating different strategies in managing EPU sensitivity through fund type allocations.

Table 5: Descriptive Statistics of Quintile Portfolio

Quintile Portfolios	Q1	Q2	Q3	Q4	Q5
Fund Size (SEK billions)	5.46	10.12	18.32	9.28	15.11
Age (months)	142.38	133.12	131.45	145.14	126.01
Idiosyncratic Volatility	2.95	3.02	2.91	2.73	3.71
Sortino Ratio	2.14	1.21	1.08	1.57	0.90
Tracking Error	2.56	2.16	1.92	2.20	2.73
Sharpe Ratio	0.038	0.041	0.042	0.036	0.031
Information Ratio	1.04	1.16	1.08	1.19	1.34
% Non-Equity funds	24.61	23.72	20.12	17.12	14.43
% Equity funds	23.12	14.95	16.17	21.25	24.51
% Global focused	12.52	30.03	26.42	16.32	14.71
% Local focused	18.21	22.32	12.54	27.30	19.63

4.2.2 Institutional returns and EPU exposure

To address our first three hypotheses, we use the rolling-horizon approach and analyze the average monthly returns across five portfolios sorted by their EPU exposure. The portfolio construction for the Swedish EPU was described above, and we use the same methodology to construct equal-weighted quantile portfolios for the European and Global EPUs. Table 6 shows the estimated betas and mothtly returns with their t-statistics in parentheses. The row labelled "Q5 - Q1" shows the difference in returns between Portfolio 5 (most sensitive) and Portfolio 1 (least sensitive).

Table 6.1 shows that the average Swedish EPU Beta increases consistently from -0.0327 in Q1 to 0.0119 in Q5. At the same time, the average value-weighted monthly return decreases from 0.987% in Q1 to 0.508% in Q5, suggesting that lower sensitivity to local policy uncertainty is associated with higher succeeding month returns. This supports our *first hypothesis* that local EPU in Sweden significantly negatively impacts the returns of institutional investments.

Table 6.1 Portfolios return of funds sorted based on Swedish EPU beta.

Returns are monthly percentages, adjusted using Newey-West t-statistics. Significance levels are marked as *, **, *** for 10%, 5%, and 1% respectively.

Portfolios	Swedish EPU beta	Return % (t-stats)
Q1	-0.0327	0.987*(2.543)
Q2	-0.0134	0.863* (2.467)
Q3	-0.0024	0.509* (1.954)
Q4	-0.0041	0.557** (2.167)
Q5	0.0119	0.508* (2.102)
Q5 – Q1	0.0263	-0.479** (-2.022)

The return spread between Q5 and Q1, reported in the "Q5 - Q1" row, is -0.479%, and both economically and statistically significant. This indicates that EPU risk is priced into the cross-section of Swedish fund returns, commanding a risk premium of about 5.748% annually for funds with negative exposure to policy uncertainty. Our findings suggest that investors require extra compensation for investing in funds with negative EPU exposure, while they are willing to pay

more for funds with positive EPU exposure. This finding confirms our *third hypothesis*, indicating that EPU is a priced risk factor in Sweden's cross-section of fund returns. It shows that a statistically significant risk premium is linked to a fund's exposure to policy uncertainty.

These results align with previous studies, such as Bali et al. (2017) on U.S. stock returns, Ali et al. (2022) on New Zealand pension funds, and Tao et al. (2022) on North American corporate bonds confirming that the impact of local policy uncertainty on return dynamics extends to institutional investment returns in Sweden.

Additionally, we observe in Table 6.2 a statistically significant annual risk premium of approximately 2.496% for funds with negative exposure to the global EPU index. We also find in Table 6.3 an annual risk premium of around 5.122% for funds with negative exposure to the European EPU index, though these results are not statistically significant. This supports our *second hypothesis* that local uncertainty plays a more dominant role as a driver of Swedish institutional investment returns than global or European uncertainty.

Table 6.2 Portfolios return of funds sorted based on European EPU beta.

Returns are monthly percentages, adjusted using Newey-West t-statistics. Significance levels are marked as *, **, *** for 10%, 5%, and 1% respectively.

Portfolio ranks	European EPU beta	Return % (t-stats)
Q1	-0.0128	0.787 (3.675)
Q2	-0.0312	0.721 (1.290)
Q3	-0.0094	0.809* (2.182)
Q4	0.0071	0.457* (1.972)
Q5	0.0082	0.361 (1.675)
Q5 – Q1	0.0129	-0.426 (-3.651)

Table 6.3 Portfolios return of funds sorted based on European EPU beta.

Returns are monthly percentages, adjusted using Newey-West t-statistics. Significance levels are marked as *, **, *** for 10%, 5%, and 1% respectively.

Portfolio ranks	Global EPU beta	Return % (t-stats)
Q1	-0.0031	0.619* (4.130)
Q2	-0.0211	0.871* (0.926)
Q3	-0.0087	0.601** (1.285)
Q4	0.0192	0.563* (2.091)
Q5	0.0072	0.411* (1.254)
Q5 – Q1	0.0018	-0.208* (-1.908)

4.2.3 EPU exposure across different fund types and geographical focuses

We analyze the risk premium associated with exposure to policy uncertainty by categorizing the entire sample of funds based on their investment and geographical focus. Table 7 shows the average returns for the following month for each Swedish EPU beta quintile, categorized by asset type and geographical focus.

The results indicate that the EPU premium is more common among equity-focused managed funds, aligning with the findings for stock returns reported by Bali et al. (2017), Xu et al. (2021), global institutional funds by Alok et al. (2022) and pension funds returns by Ali et al. (2022). Equity funds with low exposure to the Swedish EPU outperform those with high exposure by a monthly return spread of -0.411%. However, Table 7.2 reveals that this pattern does not hold for non-equity funds. Furthermore, Table 7.3 highlights that the EPU premium is more prevalent in globally focused managed funds, with a significantly negative return spread of -0.270% between high and low SWE EPU exposure funds. In contrast, Table 7.4 shows that this return spread is insignificant for funds focused on Sweden. This supports our *fourth hypothesis*: that the relationship between returns and exposure to the Swedish EPU varies by asset type and geographical focus of the funds.

This suggests that investors view globally focused managed funds as a hedge against local market uncertainty, driving up the prices of assets that positively covary with local uncertainty, resulting in a negative risk premium between funds with high and low SWE EPU exposures. Conversely, local-focused funds do not provide the same hedge against local uncertainty shocks, so EPU risk is not priced into local fund returns.

Table 7: Average Monthly Returns by Asset Type and Geographical Focus

Returns are monthly percentages, adjusted using Newey-West t-statistics. Significance levels are marked as *, **, *** for 10%, 5%, and 1% respectively.

Table 7.1 Equity focus

Portfolio ranks	SWE EPU beta	Excess returns (t-stats)
Q1	-0.008	0.539* (1.376)
Q2	-0.027	1.523* (3.864)
Q3	0.006	0.223** (2.981)
Q4	0.008	0.342* (1.874)
Q5	0.002	0.128** (1.982)
Q5 – Q1	0.019	-0.411* (-1.632)

Table 7.2 Non-Equity focus

Portfolio ranks	SWE EPU beta	Excess returns (t-stats)
Q1	-0.008	0.871** (2.845)
Q2	-0.005	0.422* (3.873)
Q3	-0.010	0.813 (1.762)
Q4	0.007	0.231* (2.872)
Q5	0.002	0.613* (2.091)
Q5 – Q1	0.009	-0.258 (-1.241)

Table 7.3 Global focus

Portfolio ranks	SWE EPU beta	Excess returns (t-stats)
Q1	-0.009	0.941* (3.913)
Q2	-0.008	0.980** (1.928)
Q3	-0.012	0.571 (1.071)
Q4	0.010	0.912* (3.513)
Q5	0.004	0.671** (2.469)
Q5 – Q1	0.021	-0.270* (-1.951)

Table 7.4 Local focus

Portfolio ranks	SWE EPU beta	Excess returns (t-stats)
Q1	-0.019	0.742* (2.729)
Q2	-0.020	0.612** (2.761)
Q3	-0.014	0.713** (0.980)
Q4	0.015	0.341* (3.150)
Q5	0.008	0.589 (4.590)
Q5 – Q1	0.001	-0.153 (-0.924)

4.2.4 Risk premium of Swedish EPU exposures

Finally, we use the multivariate regression methodology described in Section 4.1.2 to analyze the monthly risk-adjusted returns (alphas) of a zero-investment portfolio, incorporating Fama-French risk factors while accounting for uncertainty betas. This analysis aims to determine whether the excess returns observed in Tables 6 and 7 stem from other systematic risk factors rather than being exclusively linked to exposure to policy uncertainty.

Drawing on the methodologies from previous studies such as Buchner (2016), Mosoeu et al. (2022), Shalaei et al. (2017), and Ali et al. (2022), we have chosen to calculate risk-adjusted returns using the Capital Asset Pricing Model the Fama-French three-factor model, the Carhart four-factor model and the Fama-French five-factor model. These models include market, size, book-to-market ratio, momentum, operating profitability, and investment.

To contextualize these results further, we also analyze the fund returns sorted by their global and European EPU betas. This involves using a multivariate regression model to evaluate the excess returns of the Q5-Q1 portfolio across the risk models.

The results are reported in Table 8. We observe that the CAPM alpha (-0.429) and the CH-4 alpha (-0.531) estimates for funds sorted by global EPU betas are significantly negative. Additionally, all alpha values based on the Swedish EPU index betas are significantly negative. The FF-3 alpha (-0.409) is statistically negative for funds sorted by the European EPU index. Hence, the risk premium observed in Table 6 is indeed associated with strong fund exposure to Swedish EPU. This confirms that Swedish economic policy uncertainty is a significant risk factor in institutional investment returns, supporting our *fifth hypothesis* that the risk premium remains significant even after accounting for other systematic risk factors.

We also observe that the global and European EPUs present a risk factor for Swedish fund returns.

Table 8: Risk adjusted returns (alpha)

Adjusted using Newey-West t-statistics (in parentheses). Significance levels are marked as *, **, *** for 10%, 5%, and 1% respectively.

	Alphas - Global EPU	Alphas - SWE EPU	Alphas - European EPU
CAPM alpha	-0.429* (-0.702)	-0.284* (-2.937)	-0.278 (-2.971)
FF-3 alpha	-0.168 (-0.861)	-0.327* (-3.041)	-0.409* (-1.98)
CH-4 alpha	-0.531* (-0.712)	-0.398** (-3.123)	-0.411 (-2.52)
FF-5 alpha	-0.247 (-0.108)	-0.423* (-3.219)	-0.421 (-1.59)

Thus far, we have analyzed how fund exposure to Swedish EPU significantly impacts portfolio-level returns. Using portfolio-level analysis is beneficial because it does not force us to assume a specific pattern between uncertainty beta and returns. This approach looks at the actual data without assuming it must fit a certain model. However, by grouping funds, this method may miss crucial details and overlook fund-specific and other key variables.

To address these limitations, we next investigate the cross-sectional relationship between EPU betas and expected returns at the individual fund level using the Fama-MacBeth (1973) two-step procedure, similarly to Nartea et al. (2020), Tran et al. (2022), and Ali et al. (2022).

In the first step, we perform a time-series regression of the SWE EPU index on each fund's succeeding month's excess returns. This step helps to see if there is a direct relationship between policy uncertainty and fund returns over time:

$$R_{it} = \alpha_i + \beta_{i,EPU} \times EPU_t + \in_{it}$$

In the second step, we compute the cross-sectional averages of the slope coefficients obtained from the first step. We do this to see if the trends observed are consistent across the board. This step involves performing cross-sectional regressions for each time period using the beta estimates obtained from the first step. This part of the analysis assesses how much of the returns can be attributed to exposures to EPU and other fund-specific risks:

$$R_{it} = \gamma_0 + \gamma_{SWE\ EPU} \times \beta_{i,SWE\ EPU} + \gamma_1(\log(Assets)) + \gamma_2(\log(Age)) + \gamma_3(Idiosyncratic\ Volatility) + \gamma_4(Tracking\ error) + \gamma_5(Information\ Ratio) + \gamma_6(Sharpe\ Ratio) + \mu_{it}$$

In our analysis, Model 1 focuses solely on the impact of SWE EPU on fund returns, while Model 2 extends the analysis by incorporating additional fund-specific control variables. This comprehensive approach helps isolate the effect of SWE EPU by accounting for these other influential factors.

Table 9 shows the average slope coefficients from regressing the next month's excess fund returns on SWE EPU and several fund-specific control variables, following the Fama-MacBeth methodology. The control variables include fund size, age, fund flows (as measured by Rakowski, 2010), idiosyncratic, tracking error, Sharpe ratio, and Information ratio.

The results in Table 9 show that the slope coefficient for SWE EPU is negative and statistically significant, at -0.71 in Model 1 and -1.43 in Model 2. Despite adjusting for fund-specific variables in Model 2, SWE EPU remains significant, highlighting its additional explanatory power in predicting future fund returns beyond individual fund factors. This demonstrates that policy uncertainty effectively predicts the performance of managed assets.

Table 9: Slope Coefficients of Monthly Excess Returns on SWE EPU

Adjusted using Newey-West t-statistics (in parentheses). Significance levels are marked as *, **, *** for 10%, 5%, and 1% respectively.

	Model 1	**Model 2**
	Coefficient	Coefficient
Intercept	-0.64 (-3.97)	5.31 (1.24)
SWE EPU	-0.71**(12.54)	-1.43* (2.05)
Log (Assets / Size)		-5.22 (2.82)
Log(Age)		8.34 (0.48)
Idiosyncratic Volatility		1.21 (1.56)
Tracking Error		0.02 (0.32)
Information Ratio		1.32 (2.96)
Sharpe Ratio		0.12 (3.61)

Chapter 5: Discussion

5.1 Conclusion

This thesis has examined the impact of economic policy uncertainty (EPU) on the returns of institutional investment funds in Sweden, focusing on how global, regional, and local uncertainties influence performance. Using a monthly, news-based Swedish EPU index developed by Armelius et al. (2016), we analyzed the relationship between EPU exposure and fund returns. Our analysis employed various regression models, including univariate, multivariate, and Fama-MacBeth methodologies, to comprehensively understand EPU's role as a risk factor.

Our results indicate that funds' exposure to Swedish EPU significantly impacts portfolio-level returns. Univariate regression analysis reveals that funds with lower sensitivity to EPU exhibit higher following month returns. Specifically, the average monthly return decreases from 0.987% for the least sensitive funds (Q1) to 0.508% for the most sensitive funds (Q5), with a monthly return spread of -0.479%. This suggests that EPU risk is priced into the cross-section of Swedish fund returns, commanding a substantial risk premium for funds with negative EPU exposure.

Further analysis by categorizing funds based on asset type and geographical focus shows that the EPU premium is more prevalent among equity-focused managed funds. Equity funds with low exposure to Swedish EPU outperform those with high exposure by a monthly return spread of -0.327%. However, this pattern is not observed for non-equity funds. Moreover, globally focused managed funds exhibit a significantly negative return spread of -0.620% between high and low EPU exposure funds, indicating that these funds serve as a hedge against local market uncertainty. In contrast, the return spread is insignificant for funds focused on Sweden, suggesting that local EPU risk is not priced into local fund returns.

Our findings are consistent with previous studies on the impact of policy uncertainty on return dynamics. The risk-adjusted returns analysis using CAPM, Fama-French three-factor and five-factor models, and the Carhart four-factor model further supports the conclusion that Swedish EPU is a significant predictor of future returns. Alpha values based on the Swedish EPU index betas are significantly negative, ranging from -0.584% to -0.698% across different models.

To address the possibility that the observed excess return could be attributed to other systematic risk factors, we conducted a detailed analysis using the Fama-MacBeth two-step regression methodology. This approach allows us to control for fund-specific factors and other cross-sectional variables. The results show that the slope coefficient for Swedish EPU remains negative and statistically significant even after accounting for these factors, reinforcing the notion that Swedish EPU provides additional explanatory power for future fund returns.

Our analysis demonstrates that economic policy uncertainty, particularly at the local level, is a critical risk factor for Swedish institutional investment returns. These findings can have important implications for fund managers, suggesting that actively managing EPU exposure can enhance portfolio performance. By creating strategies that consider the impact of policy uncertainty, fund managers can better navigate the complex financial landscape and achieve higher returns.

5.2 Limitations and future research directions

While we believe that this study provides valuable insights into the impact of economic policy uncertainty on Swedish institutional investment returns, it is important to acknowledge certain limitations. First, the analysis is confined to Swedish-domiciled funds, which may limit the generalizability of the findings to other geographical contexts. Second, the availability of comprehensive and consistent fund performance data posed a challenge, leading to the exclusion of some funds from the anaysis. Third, it relies on the Swedish EPU index to be a reliable indicator of local policy uncertainty, and it is possible that even stronger results could be obtained with a more accurate index.

Future research could expand to more regions and fund types, using granular data on fund characteristics and investor behavior. One promising avenue is sector-specific analysis, which investigates EPU impacts on different sectors (e.g., technology, healthcare) within Sweden and develops sector-specific EPU indices to guide better investment decisions. Another area is the impact of EPU on ESG investments, studying whether ESG funds are more resilient to EPU due to their focus on sustainability and examining investor behavior during high EPU periods.

Additionally, using sophisticated models to capture the non-linear effects of EPU and other risk factors could enhance predictive power and improve investment strategies.

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