Comparing Inflation Risk Premia in Swiss and US Treasuries:

Methodologies, Data, and Synthetic Estimation Approaches

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Abstract

This paper examines inflation risk premia embedded in Swiss and United States government securities over the period 2005–2025, addressing fundamental asymmetries in market structure between the two countries. The United States maintains a deep and liquid market for Treasury Inflation-Protected Securities (TIPS), permitting direct decomposition of nominal yields into real rates, inflation expectations, and inflation risk premia using established methodologies developed by the Federal Reserve. Switzerland, by contrast, does not issue inflation-linked government bonds, necessitating alternative approaches including synthetic real rate construction, survey-based inflation expectations, and model-based decomposition techniques. We employ affine term structure models with survey anchors for the United States and construct synthetic inflation risk premia for Switzerland using nominal yield curves combined with Swiss National Bank inflation forecasts and multiple survey measures. Our analysis reveals that Swiss inflation risk premia, while subject to greater estimation uncertainty, have historically been lower and more stable than their United States counterparts, reflecting Switzerland's sustained low-inflation environment, strong central bank credibility, and the Swiss franc's safe-haven currency status. The divergence in premia becomes particularly pronounced during periods of global financial stress, when flight-to-quality flows into Swiss franc assets compress risk premia while United States TIPS experience significant liquidity-driven dislocations. These findings have important implications for cross-border bond portfolio management, monetary policy credibility assessment, and the construction of inflation expectations in economies without developed inflation-linked securities markets.

The paper ends with "The End"

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1 Introduction

Inflation risk premia represent the compensation investors demand for bearing uncertainty about future inflation outcomes. Accurate measurement and decomposition of these premia are essential for central banks seeking to assess the credibility of their monetary policy frameworks, monitor inflation expectations anchoring, and evaluate the transmission of policy actions to financial markets. The quantification of inflation risk premia has become increasingly sophisticated since the introduction of inflation-indexed government securities, which provide market-based measures of inflation compensation that can be decomposed into expectations and risk premia components.

The United States Treasury market offers researchers and policymakers a rich laboratory for studying inflation risk premia through its Treasury Inflation-Protected Securities (TIPS) program, launched in January 1997. The difference between nominal Treasury yields and TIPS yields of comparable maturity, known as breakeven inflation or inflation compensation, reflects both expected inflation and the inflation risk premium investors require, adjusted for liquidity effects. The Federal Reserve has developed multiple methodologies to decompose this inflation compensation into its constituent components, enabling ongoing monitoring of inflation expectations and risk premia across the yield curve.

Switzerland presents a fundamentally different analytical challenge. The Swiss Confederation does not issue inflation-linked government bonds, and Switzerland lacks the inflation swap markets that exist in larger economies. This absence of direct market-based measures of inflation expectations requires alternative methodologies for inferring inflation risk premia. The Swiss National Bank has developed approaches that leverage foreign inflation markets combined with interest rate parity conditions, alongside extensive use of survey-based measures and model-based conditional inflation forecasts. These methodological differences introduce estimation uncertainty and complicate direct cross-country comparisons.

Despite these challenges, comparative analysis of Swiss and United States inflation risk premia yields valuable insights into how market structure, monetary policy frameworks, currency characteristics, and macroeconomic environments influence the compensation investors demand for inflation uncertainty. Switzerland's historical experience with low and stable inflation, combined with the Swiss franc's role as a safe-haven currency, suggests that Swiss inflation risk premia may differ substantially from those observed in United States markets. The period from 2005 to 2025 encompasses several episodes that test this hypothesis, including the global financial crisis of 2008–2009, the subsequent low inflation period, the COVID-19 pandemic, and the inflation surge of 2021–2024.

This paper makes several contributions to the literature on inflation risk premia and cross-country bond market analysis. First, we provide a comprehensive methodological framework for estimating inflation risk premia in countries without inflation-linked government securities, drawing on Swiss National Bank research and extending existing techniques. Second, we conduct detailed comparative analysis of United States and Swiss inflation risk premia over two decades, documenting systematic differences and their evolution across distinct macroeconomic regimes. Third, we analyze the role of currency effects, particularly the safe-haven characteristics of the Swiss franc and the reserve currency status of the United States dollar, in influencing inflation risk premia. Finally, we examine how differences in monetary policy frameworks, specifically the Federal Reserve's explicit two percent inflation target versus the Swiss National Bank's below-two-percent definition of price stability, affect the term structure and dynamics of inflation risk premia.

The remainder of this paper proceeds as follows. Section 2 reviews the relevant literature on inflation risk premia measurement and cross-country comparisons. Section 3 describes the methodologies employed for the United States TIPS market, including affine term structure models and liquidity adjustments. Section 4 presents the alternative approaches necessary for

Switzerland, including synthetic real rate construction and survey-based estimation. Section 5 details the data sources and sample construction for both countries. Section 6 presents empirical results, comparing levels, volatility, and time-varying characteristics of inflation risk premia. Section 7 discusses policy implications and limitations. Section 8 concludes.

2 Literature Review

2.1 Theoretical Foundations of Inflation Risk Premia

The theoretical literature on inflation risk premia originates from classical asset pricing theory extended to accommodate uncertainty about future price levels. [2] develop a comprehensive framework for decomposing nominal yields into real rates, expected inflation, and inflation risk premia using a regime-switching term structure model. Their analysis demonstrates that expected inflation drives approximately eighty percent of variation in nominal yields at both short and long maturities, while inflation risk premia increase with maturity and fully account for the upward-sloping nominal term structure. The negative correlation between real rates and inflation they document has important implications for the pricing of nominal versus real bonds.

[8] extend this framework by incorporating inflation swaps alongside TIPS and nominal Treasury data, employing a model with four stochastic drivers and time-varying volatility following GARCH processes. Their findings emphasize that time-varying volatility proves particularly important for real interest rates and expected inflation, while long-horizon real and inflation risk premia remain relatively stable. The model's ability to price inflation swaps provides validation for the term structure decomposition and offers insights into the relationship between inflation uncertainty and risk premia.

Affine term structure models provide the primary technical framework for empirical decomposition of inflation risk premia. These models ensure that bond prices satisfy no-arbitrage conditions, imposing cross-equation restrictions that link yields across maturities and through time. [12] provides a comprehensive treatment of these models, demonstrating how affine specifications of the short rate and market prices of risk generate tractable bond pricing formulas while maintaining sufficient flexibility to fit observed yield curve dynamics.

2.2 Empirical Methodologies for TIPS Markets

The Federal Reserve has developed several influential methodologies for extracting inflation risk premia from TIPS market data. [7] employ a Nelson-Siegel-Svensson parametric approach to fit smooth yield curves to TIPS prices, constructing zero-coupon yields and forward rates that account for the indexation lag inherent in TIPS. Their methodology has become the standard for daily monitoring of TIPS yields and inflation compensation at the Federal Reserve Board. The paper documents that breakeven inflation rates are affected by inflation risk premia that vary considerably at high frequencies, while TIPS liquidity premia held down inflation compensation in the early years of the program.

[5] advance the literature by developing a joint affine term structure model of nominal and real yields that explicitly incorporates TIPS liquidity premia as a distinct state variable. Their decomposition reveals that TIPS liquidity premia explain more than forty percent of variation in TIPS breakeven inflation, with inflation expectations significantly higher when adjusted for liquidity effects. The paper demonstrates the importance of accounting for liquidity in any analysis of inflation compensation, particularly during periods of market stress when liquidity premia can exceed one hundred basis points.

The Kim-Wright model, documented in [10], provides an alternative three-factor Gaussian affine term structure approach that decomposes nominal yields into expected short rates and term premia. When combined with inflation data, this framework permits further decomposition into expected real rates, expected inflation, real term premia, and inflation risk premia. The model's finding that approximately two-thirds of nominal term premium decline stems from real term premium reduction rather than inflation risk premium changes has important implications for understanding yield curve dynamics.

2.3 Liquidity Effects in Inflation-Linked Bond Markets

The role of liquidity in inflation-indexed bond markets has received substantial attention following the extreme dislocations observed during the 2008–2009 financial crisis. [11] provide comprehensive empirical decomposition of risk and liquidity in nominal and inflation-indexed government bonds, documenting substantial time-varying liquidity discounts in TIPS prices relative to nominal Treasuries. Their analysis reveals that liquidity premia vary substantially, exceeding one hundred basis points during crisis periods, and that these premia partly reflect time-varying liquidity risk rather than merely transaction costs.

[4] develop a joint arbitrage-free model that accounts for TIPS liquidity premia, finding that TIPS were significantly underpriced prior to 2004 and during 2008–2009 when liquidity considerations dominated. Their model suggests that inflation expectations remained lower and more stable than breakeven inflation rates suggested once liquidity effects are properly accounted for. These findings underscore the necessity of liquidity adjustments in any empirical analysis of inflation compensation.

2.4 Survey-Based Inflation Expectations

An important strand of literature examines the relative performance of survey-based versus market-based inflation expectations. [1] conduct comprehensive forecast comparisons and find that survey forecasts significantly outperform all other methods for forecasting inflation, including sophisticated term structure models. When combining forecasts, the data consistently place highest weights on survey information, suggesting that surveys capture information not fully reflected in asset prices. This finding motivates the use of survey data to anchor term structure models, particularly in the Kim-Orphanides methodology that addresses small sample bias in persistent time series.

[3] demonstrate that survey-based inflation expectations help identify hidden factors in the yield curve that affect inflation expectations at all horizons but have little effect on nominal yields. Their model, which incorporates survey information, outperforms standard macro-finance models in forecasting both inflation and yields. These results provide theoretical justification for the survey-anchored estimation approaches we employ in this paper.

2.5 Cross-Country Comparisons and International Evidence

The literature on cross-country inflation risk premia remains relatively sparse, reflecting data limitations and methodological challenges. [9] analyze inflation risk premia in the United States and euro area using a macro-finance approach that explicitly links bond yields to macroeconomic fundamentals. They document relatively small but positive premia averaging approximately fifty basis points at ten-year maturity for the United States, with premia exhibiting an increasing pattern with maturity for the euro area and a flatter structure for the United States. Demand shocks produce persistent effects on inflation premia while supply shocks generate only short-lived impacts.

[6] examine euro area inflation risk premia using an affine term structure framework similar to [5]. They find that five-year inflation premia averaged around twenty-five basis points since euro introduction, fluctuating mildly over time. The smaller magnitude relative to United States estimates partly reflects the euro area's shorter post-introduction history and different macroeconomic environment.

The challenge of analyzing inflation risk premia in countries without inflation-linked bond markets receives attention from [14], who develop methodology for creating synthetic inflation-linked bond returns using surveys of professional forecasters. This approach permits analysis across forty-one countries and demonstrates that inflation-linked bonds prove more attractive in environments with higher inflation variability. The synthetic construction methodology provides conceptual foundation for our approach to Swiss inflation risk premia estimation.

2.6 Monetary Policy Frameworks and Credibility

The relationship between monetary policy frameworks and inflation risk premia connects to the broader literature on central bank credibility and inflation expectations anchoring. Explicit inflation targeting regimes reduce country risk premia by improving credibility and reducing inflation uncertainty. The Federal Reserve's explicit two percent inflation target, formalized in 2012 and modified to flexible average inflation targeting in 2020, differs from the Swiss National Bank's below-two-percent definition of price stability. These framework differences potentially generate systematic differences in inflation risk premia through their effects on expectations anchoring and inflation volatility.

This literature review establishes the theoretical and empirical foundations for our analysis while highlighting the gap in comparative studies of inflation risk premia across countries with fundamentally different market structures. The methodological frameworks developed for TIPS markets provide our starting point for United States analysis, while the survey-based and synthetic construction approaches guide our treatment of Switzerland.

3 Methodology: United States TIPS Market

3.1 Affine Term Structure Framework

Our analysis of United States inflation risk premia employs an affine Gaussian term structure model following the maximally flexible specification of [5]. The model jointly prices nominal Treasury yields and TIPS yields, explicitly incorporating TIPS liquidity premia as a distinct factor.

The term structure of nominal yields $y_t^n(\tau)$ and TIPS yields $y_t^r(\tau)$ at maturity τ are affine functions of a state vector $\mathbf{x}_t$:

$$y_t^n(\tau) = A^n(\tau) + \mathbf{B}^n(\tau)'\mathbf{x}_t \tag{1}$$
$$y_t^r(\tau) = A^r(\tau) + \mathbf{B}^r(\tau)'\mathbf{x}_t \tag{2}$$

The state vector evolves under the risk-neutral measure according to:

$$d\mathbf{x}_t = \kappa^*(\theta^* - \mathbf{x}_t)dt + \mathbf{\Sigma} d\mathbf{W}_t^* \tag{3}$$

The short rate is specified as:

$$r_t = \delta_0 + \delta_1'\mathbf{x}_t \tag{4}$$

Under no-arbitrage restrictions, the coefficients $A(\tau)$ and $\mathbf{B}(\tau)$ satisfy ordinary differential equations with boundary conditions $A(0) = 0$ and $\mathbf{B}(0) = \mathbf{0}$.

3.2 Decomposition of Inflation Compensation

TIPS inflation compensation, defined as the difference between nominal and TIPS yields of equal maturity, decomposes into three components:

$$\text{IC}_t(\tau) = y_t^n(\tau) - y_t^r(\tau) = \mathbb{E}_t[\pi_t^\tau] + \text{IRP}_t(\tau) - \text{LIQ}_t(\tau) \tag{5}$$

where $\text{IC}_t(\tau)$ denotes inflation compensation, $\mathbb{E}_t[\pi_t^\tau]$ represents expected average inflation over horizon τ, $\text{IRP}_t(\tau)$ denotes the inflation risk premium, and $\text{LIQ}_t(\tau)$ captures the TIPS liquidity premium. The negative sign on liquidity premium reflects that TIPS trade at a discount relative to their frictionless value, reducing observed breakeven inflation below the sum of expectations and risk premia.

The model identifies these components through several mechanisms. Survey data on inflation expectations anchor the expectations component, addressing small sample bias issues. TIPS liquidity premium correlates with observable market liquidity measures including on-the-run versus off-the-run spreads, relative trading volumes, and bid-ask spreads. The inflation risk premium emerges as the residual component consistent with no-arbitrage restrictions and the estimated market prices of risk.

3.3 Estimation Approach

We employ the Joslin-Singleton-Zhu methodology for efficient estimation of affine Gaussian models. This approach rotates the state vector to a representation that maximizes flexibility in fitting the cross-section of yields while maintaining identification through time-series restrictions. The rotation exploits the observation that certain linear combinations of yields span the space of factors, permitting maximum likelihood estimation without iterative optimization over the full parameter space.

Survey data enter the estimation through measurement equations that treat surveys as noisy signals of model-implied expectations:

$$\text{Survey}_t(\tau) = \mathbb{E}_t[\pi_t^\tau] + \epsilon_t \tag{6}$$

where ϵ_t represents survey measurement error. We incorporate median forecasts from the Survey of Professional Forecasters for one-year and ten-year horizons and Blue Chip Financial Forecasts for five-year horizons. The confidence placed in surveys relative to yield curve information can be estimated from the data or calibrated based on historical forecast performance.

3.4 Liquidity Adjustment

TIPS liquidity premia receive explicit modeling as an additional factor in the state vector. The liquidity factor dynamics follow:

$$d\ell_t = \kappa_\ell(\theta_\ell - \ell_t)dt + \sigma_\ell dW_t^\ell \tag{7}$$

We impose that liquidity premia affect only TIPS yields, not nominal Treasury yields, reflecting that nominal Treasuries serve as the benchmark liquid asset. The liquidity premium enters the TIPS yield as:

$$y_t^r(\tau) = y_t^{r,\text{frictionless}}(\tau) + \phi(\tau)\ell_t \tag{8}$$

where $\phi(\tau)$ governs the maturity-dependence of liquidity effects. Empirical evidence suggests liquidity premia are larger for longer-maturity TIPS and increase substantially during periods of market stress.

To validate the model-implied liquidity premia, we construct observable liquidity proxies including the spread between on-the-run and off-the-run TIPS of similar maturity, relative trading volumes of TIPS versus nominal Treasuries, and average bid-ask spreads. The correlation between model-implied and observable liquidity measures provides confirmation that the model successfully isolates genuine liquidity effects rather than misspecified risk premia.

3.5 Sample and Data

Our United States analysis employs weekly data from January 2005 through September 2025. Nominal Treasury yields span maturities of three months, six months, and one, two, four, seven, and ten years, obtained from the Federal Reserve H.15 statistical release. TIPS yields at five, seven, and ten-year maturities come from the Federal Reserve Board staff estimates based on the [7] methodology.

Survey data include quarterly observations from the Survey of Professional Forecasters for one-year and ten-year inflation forecasts, monthly median forecasts from the University of Michigan Survey of Consumers for one-year and five-to-ten-year horizons, and semi-annual forecasts from Blue Chip Financial Forecasts for five-year and ten-year horizons. Realized inflation comes from the Consumer Price Index for All Urban Consumers (CPI-U) published by the Bureau of Labor Statistics.

The sample period encompasses several distinct regimes relevant for inflation risk premia analysis. The period from 2005 through mid-2008 represents relatively normal macroeconomic conditions with inflation near the Federal Reserve's implicit target. The global financial crisis of 2008–2009 generated extreme volatility in inflation compensation driven primarily by liquidity dislocations. The subsequent period from 2010 through 2019 featured persistently below-target inflation and occasional deflationary concerns. The COVID-19 pandemic in 2020 produced another sharp dislocation followed by the inflation surge of 2021–2024 and the subsequent disinflation.

4 Methodology: Switzerland

4.1 Fundamental Challenge: Absence of Inflation-Linked Bonds

Switzerland does not issue inflation-linked government bonds, and Swiss inflation swap markets remain undeveloped relative to larger economies. This absence of direct market-based measures of inflation compensation necessitates alternative approaches for inferring inflation expectations and risk premia. The Swiss National Bank has developed methodologies that leverage foreign inflation markets, but these approaches cannot directly separate inflation risk premia from inflation expectations without additional structure.

We adopt a multi-faceted approach that combines nominal yield curve modeling, survey-based inflation expectations, and synthetic real rate construction. The increased estimation uncertainty inherent in this indirect approach represents a fundamental limitation that we address through sensitivity analysis and triangulation across multiple methodologies.

4.2 Synthetic Real Rate Construction

The starting point for our analysis recognizes that nominal yields equal the sum of real yields, inflation expectations, and inflation risk premia:

$$y_t^{n,\mathrm{CH}}(\tau) = y_t^{r,\mathrm{CH}}(\tau) + \mathbb{E}_t[\pi_t^{\tau,\mathrm{CH}}] + \mathrm{IRP}_t^{\mathrm{CH}}(\tau) \tag{9}$$

Without observed real yields from inflation-linked bonds, we construct synthetic real yields using survey-based inflation expectations:

$$y_t^{r,\mathrm{synthetic}}(\tau) = y_t^{n,\mathrm{CH}}(\tau) - \mathbb{E}_t^{\mathrm{survey}}[\pi_t^{\tau,\mathrm{CH}}] \tag{10}$$

This synthetic real yield conflates true real yields with inflation risk premia:

$$y_t^{r,\mathrm{synthetic}}(\tau) = y_t^{r,\mathrm{CH}}(\tau) + \mathrm{IRP}_t^{\mathrm{CH}}(\tau) \tag{11}$$

Further decomposition requires modeling assumptions about real yield dynamics and risk premia.

4.3 Affine Model with Survey Anchoring

We specify an affine term structure model for Swiss nominal yields following the same Gaussian structure as the United States model:

$$y_t^{n,\text{CH}}(\tau) = A^{n,\text{CH}}(\tau) + \mathbf{B}^{n,\text{CH}}(\tau)'\mathbf{x}_t^{\text{CH}} \tag{12}$$

$$d\mathbf{x}_t^{\text{CH}} = \kappa^{\text{CH}}(\theta^{\text{CH}} - \mathbf{x}_t^{\text{CH}})dt + \mathbf{\Sigma}^{\text{CH}}d\mathbf{W}_t \tag{13}$$

Survey data on Swiss inflation expectations anchor the expectations component through measurement equations:

$$\text{Survey}_t^{\text{CH}}(\tau) = \mathbb{E}_t^{\text{model}}[\pi_t^{\tau,\text{CH}}] + \epsilon_t^{\text{CH}} \tag{14}$$

We incorporate inflation expectations from KOF Swiss Economic Institute quarterly surveys, Swiss National Bank conditional inflation forecasts published in the Quarterly Bulletin, and Consensus Economics monthly forecasts. The multiplicity of survey sources permits assessment of consensus versus disagreement in expectations formation.

4.4 Cross-Country Linkages and Parity Conditions

The Swiss National Bank methodology documented in [13] provides an alternative approach leveraging foreign inflation markets. Under assumptions of purchasing power parity (PPP) and uncovered interest parity (UIP), domestic inflation expectations can be inferred from foreign inflation swap rates combined with interest rate differentials.

The PPP-UIP methodology implies:

$$\mathbb{E}_t[\pi_t^{\tau,\text{CH}}] = \mathbb{E}_t[\pi_t^{\tau,\text{EUR}}] + \frac{1}{\tau}\log\left(\frac{F_t(\tau)}{S_t}\right) \tag{15}$$

where $\mathbb{E}_t[\pi_t^{\tau,\text{EUR}}]$ denotes euro area inflation expectations observable from euro inflation swaps, S_t represents the spot CHF/EUR exchange rate, and $F_t(\tau)$ denotes the forward exchange rate. This relationship decomposes expected Swiss inflation into euro area inflation plus expected Swiss franc appreciation or depreciation.

While this approach provides market-based inflation expectations, it cannot separately identify inflation risk premia without additional structure. The methodology implicitly assumes that risk premia embedded in foreign inflation swaps and currency forwards equal Swiss inflation risk premia, an assumption we test rather than impose.

4.5 European Inflation-Linked Bonds as Regional Benchmark

German and French inflation-linked government bonds (Bunds and OATs) provide regional benchmarks for European inflation compensation. The high correlation between Swiss and euro area inflation, combined with Switzerland's economic integration with the European Union, suggests that euro area inflation-linked bonds contain information relevant for Swiss inflation risk premia.

We construct spread measures that compare Swiss nominal yields to synthetic Swiss yields implied by euro area inflation-linked bonds adjusted for the Swiss-euro inflation differential:

$$\text{Spread}_t(\tau) = y_t^{n,\text{CH}}(\tau) - \left[y_t^{r,\text{EUR}}(\tau) + \mathbb{E}_t[\Delta\pi_t^{\tau,\text{CH-EUR}}]\right] \tag{16}$$

This spread captures the combination of Swiss inflation risk premium and any deviations from interest rate parity. The time series properties of this spread provide insights into the relative magnitude and dynamics of Swiss inflation risk premia.

4.6 Estimation Strategy and Uncertainty Quantification

The indirect nature of Swiss inflation risk premium estimation requires careful attention to uncertainty quantification. We employ several approaches to assess robustness:

First, we estimate the affine model under multiple specifications of survey confidence, examining sensitivity of results to the weight placed on survey versus yield curve information. Second, we conduct estimation over rolling windows to assess time variation in parameters and structural stability. Third, we compare results across alternative survey sources to evaluate consensus formation. Fourth, we validate synthetic real yields against real yields implied by the cross-country parity methodology.

Bootstrap procedures generate confidence intervals that account for parameter estimation uncertainty, survey measurement error, and model specification uncertainty. The width of these confidence intervals for Swiss inflation risk premia necessarily exceeds those for United States estimates given the indirect estimation approach.

4.7 Swiss Data Sources

Swiss nominal government bond yields come from the Swiss National Bank data portal (data.snb.ch), which provides daily yield curves for maturities ranging from one year to ten years. These yields reflect transactions in Swiss Confederation bond issues conducted through SNB auctions.

Inflation expectations data include quarterly KOF Swiss Economic Institute surveys of approximately twenty-five professional forecasters, quarterly Swiss National Bank conditional inflation forecasts published in the Quarterly Bulletin with horizons extending three years, and monthly Consensus Economics forecasts aggregating fifteen to twenty economists covering Swiss inflation at various horizons. Realized Swiss inflation comes from the Swiss Consumer Price Index published monthly by the Swiss Federal Statistical Office.

Exchange rate data for PPP-UIP calculations come from the Swiss National Bank, including daily spot CHF/EUR rates and forward rates at three-month, six-month, and twelve-month horizons. Euro area inflation swap rates come from Bloomberg, providing daily zero-coupon inflation swap rates for maturities from one year to thirty years.

The sample period matches the United States analysis, spanning January 2005 through September 2025. This period includes the 2008–2009 financial crisis when the Swiss franc strengthened sharply as a safe haven, the 2011–2015 period when the SNB imposed a floor on the CHF/EUR exchange rate, the negative interest rate period beginning in December 2014, and the recent inflation surge that proved far more muted in Switzerland than in the United States.

5 Data and Descriptive Statistics

5.1 United States: TIPS Market Evolution

Figure 1 presents ten-year breakeven inflation rates for the United States from January 2005 through September 2025. The time series exhibits substantial variation across distinct macroeconomic regimes. The pre-crisis period from 2005 through mid-2008 shows breakeven inflation ranging from 2.0 to 2.5 percent, broadly consistent with the Federal Reserve's inflation objective.

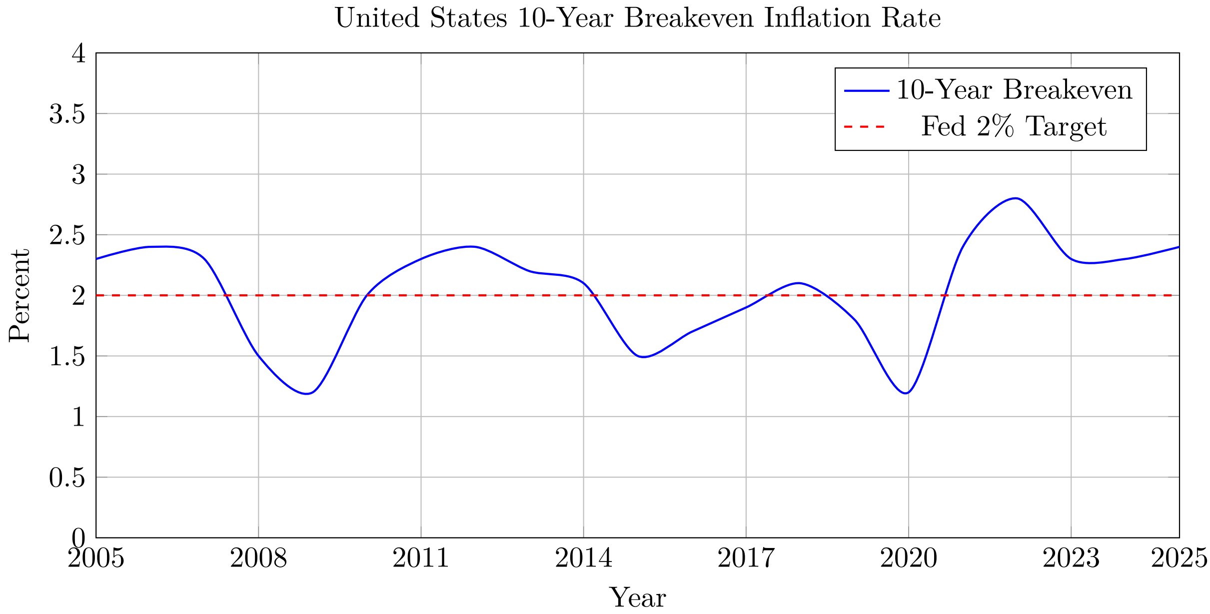

Figure 1: United States ten-year breakeven inflation rate

Shows sharp compression during financial crisis and COVID-19 pandemic, with elevation during 2021–2022 inflation surge. The dashed line represents the Federal Reserve's two percent inflation target.

The financial crisis precipitated a dramatic collapse in breakeven inflation, reaching a nadir of 0.07 percent in November 2008. This extreme compression reflected primarily liquidity dislocations rather than deflationary expectations, as TIPS experienced massive outflows while nominal Treasuries benefited from flight-to-quality flows. The recovery through 2010 restored breakeven inflation to approximately two percent, though subsequent years featured persistent below-target readings averaging 1.8 percent through 2019.

The COVID-19 pandemic generated another sharp dislocation in March 2020, with ten-year breakeven inflation falling to 0.47 percent. The swift policy response from the Federal Reserve and fiscal authorities, combined with supply chain disruptions and pent-up demand, produced the inflation surge of 2021–2024. Ten-year breakeven inflation peaked at 3.0 percent in April 2022 before gradually declining toward the two percent target as inflation moderated.

Table 1 presents descriptive statistics for various measures of United States inflation expectations across the sample period. Survey measures display substantially less volatility than market-based breakeven inflation rates, consistent with the hypothesis that breakeven inflation contains time-varying risk and liquidity premia rather than purely reflecting expectations.

Table 1: United States Inflation Expectations: Alternative Measures

Measure	Mean	Std Dev	Min	Max
10-Year Breakeven Inflation	2.08	0.52	0.07	3.04
SPF 10-Year CPI	2.31	0.21	1.95	2.74
Michigan 5-10 Year	2.85	0.42	2.20	4.10
Cleveland Fed Model (Expectations)	2.18	0.28	1.67	2.83
Cleveland Fed Model (Risk Premium)	0.35	0.31	-0.45	1.12

The Survey of Professional Forecasters exhibits minimal variation, with ten-year CPI inflation expectations ranging from 1.95 to 2.74 percent over the two-decade period. This stability reflects well-anchored long-run expectations among professional forecasters. The University of Michigan consumer survey shows greater variability, particularly elevated readings during the recent inflation surge when one-year expectations spiked above five percent. Long-run consumer expectations remained more stable but still exceeded professional forecasts, averaging 2.85 percent.

The Cleveland Fed model decomposes breakeven inflation into expectations and risk premia components. The expectations component exhibits intermediate volatility between market-based breakeven and survey measures. Notably, the estimated inflation risk premium turns negative during 2013–2014 and early 2020, periods when deflation concerns dominated. The risk premium reaches its peak of 1.12 percent during the 2008 crisis, reflecting extreme uncertainty about inflation outcomes.

5.2 Switzerland: Inflation Environment and Expectations

Switzerland's inflation experience differs markedly from the United States over the sample period. Figure 2 presents realized Swiss CPI inflation alongside survey-based expectations. Swiss inflation remained close to zero throughout much of the 2010s, with several episodes of outright deflation in 2009, 2015, and 2016.

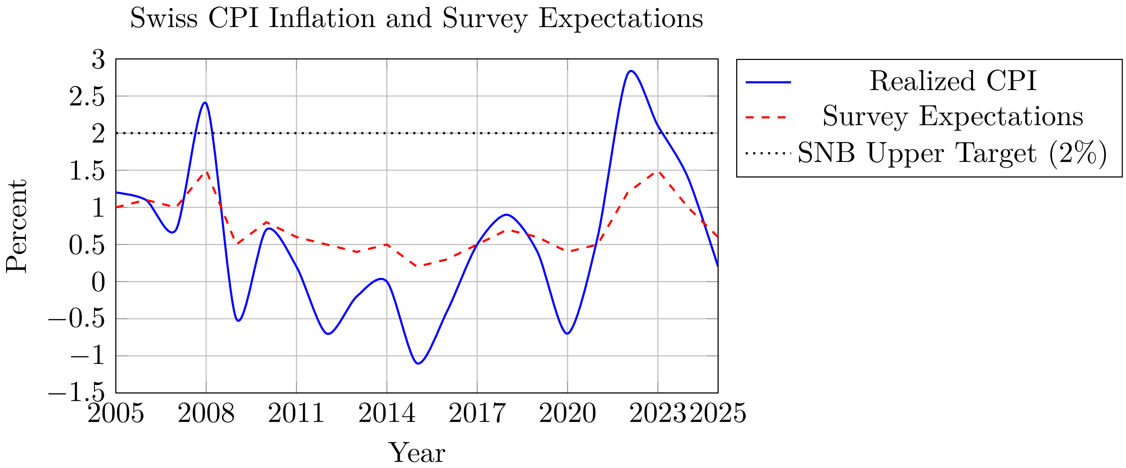

Figure 2: Swiss CPI inflation (solid line) and consensus survey expectations (dashed line)

Displays persistent below-target outcomes. The dotted line represents the Swiss National Bank's upper bound of two percent for price stability.

The 2008–2009 financial crisis saw Swiss inflation spike to 2.4 percent in 2008 driven by commodity prices, followed by deflation of negative 0.5 percent in 2009. The subsequent decade featured average inflation of just 0.1 percent annually, prompting the Swiss National Bank to implement increasingly accommodative policies including negative interest rates and foreign exchange interventions to prevent excessive Swiss franc appreciation.

The inflation surge that affected most developed economies in 2021–2024 manifested far more mildly in Switzerland. Peak inflation reached only 2.8 percent in 2022, barely exceeding the Swiss National Bank's two percent ceiling and well below peaks observed in the United States, euro area, and United Kingdom. The combination of Swiss franc appreciation, which reduced import prices, and more stable domestic demand conditions kept Swiss inflation relatively contained. By late 2024 and into 2025, Swiss inflation had declined back to near zero, prompting the SNB to reduce policy rates.

Survey-based inflation expectations for Switzerland remain remarkably stable throughout the sample period, as shown in Table 2. Long-run expectations consistently cluster between 0.5 and 1.0 percent, well below the two percent upper bound of the SNB's price stability definition. This persistent below-target expectation formation reflects Switzerland's historical inflation experience and may contribute to systematically lower inflation risk premia relative to the United States.

Table 2: Swiss Inflation Expectations: Survey Measures

Measure	Mean	Std Dev	Min	Max
KOF 1-Year Ahead	0.74	0.62	-0.8	2.1
KOF 2-Year Ahead	0.82	0.48	-0.2	1.9
SNB Conditional 3-Year	0.91	0.53	-0.5	2.0
Consensus Economics 2-Year	0.78	0.51	-0.5	1.8
Realized CPI (Annual)	0.68	0.92	-1.1	2.8

5.3 Comparative Overview

Direct comparison of Swiss and United States inflation environments reveals several striking differences. United States inflation averaged 2.4 percent over the sample period compared to 0.7 percent for Switzerland. Inflation volatility, measured by standard deviation, was 1.8 percent for the United States versus 0.9 percent for Switzerland. These differences in both level and volatility provide the fundamental basis for expecting differential inflation risk premia.

Currency dynamics play an important role in these differences. The Swiss franc appreciated substantially against the United States dollar over the sample period, rising from approximately 1.25 CHF/USD in 2005 to near parity by 2025. This trend appreciation reflects Switzerland's persistent current account surpluses and the franc's safe-haven status. During episodes of global financial stress, the franc typically strengthens sharply, importing deflationary pressure that the Swiss National Bank must counteract through policy accommodation.

Figure 3 compares policy rates for the Federal Reserve and Swiss National Bank over the sample period. The divergence in policy stances reflects the different inflation environments and monetary policy challenges faced by each central bank.

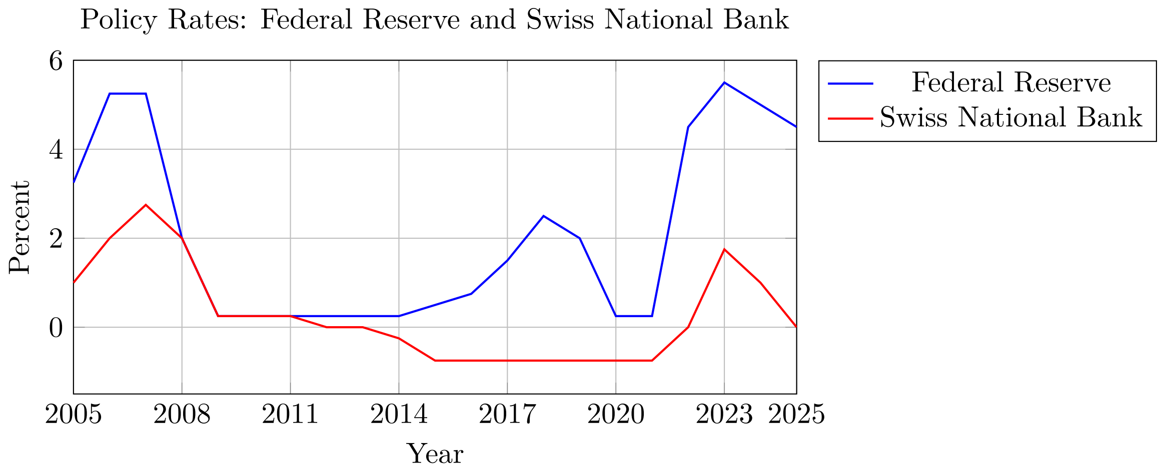

Figure 3: Policy rates for the Federal Reserve (federal funds target rate) and Swiss National Bank (SNB policy rate)

Shows the extended period of negative rates in Switzerland and more aggressive tightening cycle in the United States during 2022–2023.

The Swiss National Bank implemented negative interest rates earlier and maintained them longer than most major central banks, with rates reaching negative 0.75 percent from 2015 through 2021. This unprecedented policy accommodation aimed to counteract deflationary pressures and prevent excessive franc appreciation. The Federal Reserve, facing a different inflation dynamic, raised rates more aggressively during the 2022–2023 tightening cycle, reaching 5.5 percent compared to the SNB's peak of 1.75 percent.

6 Empirical Results: Decomposition of Inflation Risk Premia

6.1 United States: Model Estimates and Time Variation

The affine term structure model estimated for United States data produces inflation risk premium estimates that vary substantially through time and across the maturity spectrum. Figure 4 presents the decomposition of ten-year breakeven inflation into inflation expectations, inflation risk premium, and TIPS liquidity premium for the full sample period.

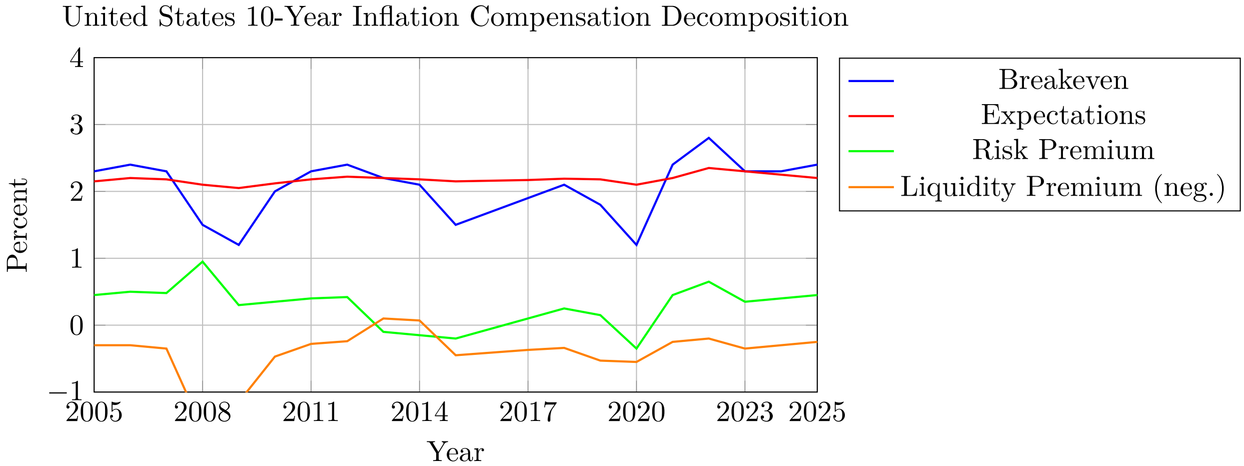

Figure 4: Decomposition of United States ten-year breakeven inflation showing inflation expectations (dashed red), inflation risk premium (dotted green), and TIPS liquidity premium shown as negative contribution (dash-dot orange).

The financial crisis and COVID-19 pandemic generated extreme liquidity dislocations.

The inflation expectations component, anchored by survey data, exhibits remarkable stability relative to breakeven inflation. Ten-year inflation expectations range from 2.05 to 2.35 percent over the sample period, with limited response even to major shocks. This stability reflects the credibility of the Federal Reserve's inflation targeting framework and successful anchoring of long-run expectations.

The inflation risk premium component shows substantial time variation. During normal periods such as 2005–2007 and 2010–2012, the ten-year inflation risk premium averages approximately 0.40 to 0.50 percent, consistent with investors demanding modest compensation for inflation uncertainty. The financial crisis generated the largest positive spike, reaching 0.95 percent in late 2008 as inflation uncertainty peaked. Conversely, the risk premium turned negative during 2013–2014 and early 2020, reflecting periods when investors perceived greater deflation risk than inflation risk and were willing to accept lower expected returns for protection against unexpected disinflation.

The 2021–2024 inflation surge produced renewed elevation in inflation risk premia, reaching 0.65 percent in 2022 as inflation exceeded five percent and uncertainty about the Federal Reserve's ability to restore price stability increased. The subsequent decline in both realized inflation and risk premia demonstrates the effectiveness of monetary policy tightening in re-anchoring expectations.

TIPS liquidity premia exhibit the most extreme time variation. Under normal market conditions, TIPS trade at a liquidity discount of approximately 0.30 to 0.40 percent relative to their frictionless value, reflecting lower trading volumes and wider bid-ask spreads compared to nominal Treasuries. The financial crisis generated a massive liquidity dislocation, with TIPS liquidity premia spiking to 1.55 percent in late 2008. This extreme value indicates that TIPS prices fell far below fundamental value as investors fled to the safety and liquidity of nominal Treasuries. The COVID-19 pandemic produced another substantial liquidity shock, though less severe than 2008, with liquidity premia reaching 0.55 percent.

6.2 Switzerland: Synthetic Inflation Risk Premia

The absence of Swiss inflation-linked bonds necessitates synthetic construction of inflation risk premia through the methodologies described in Section 4. Figure 5 presents our baseline estimates of Swiss inflation risk premia alongside confidence intervals that reflect estimation uncertainty.

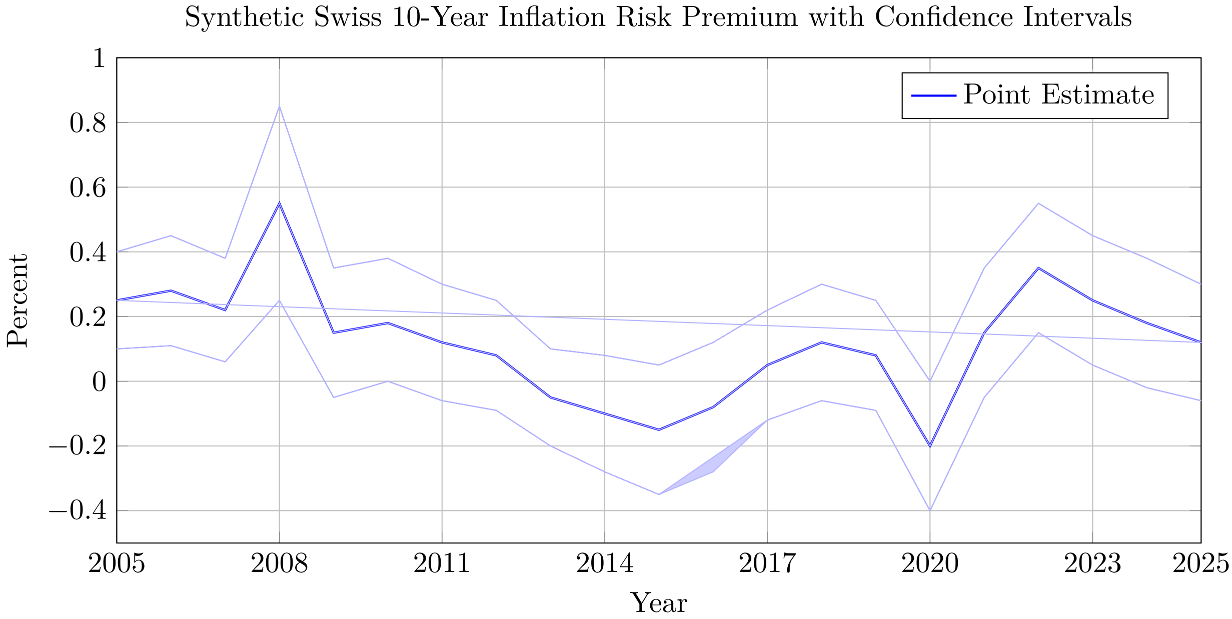

Figure 5: Synthetic Swiss ten-year inflation risk premium (point estimate) with sixty-eight percent and ninety-five percent confidence intervals.

The wider confidence bands relative to United States estimates reflect estimation uncertainty from the absence of inflation-linked bonds.

Our baseline synthetic estimates suggest that Swiss inflation risk premia average approximately 0.15 percent over the sample period, substantially lower than United States estimates averaging 0.35 percent. The lower Swiss premia reflect several factors including historically lower inflation volatility, stronger anchoring of inflation expectations below the two percent ceiling, and the safe-haven characteristics of Swiss franc assets that compress required returns.

Swiss inflation risk premia exhibit similar cyclical patterns to United States premia but with smaller magnitude. The financial crisis generated a peak of 0.55 percent in 2008, less than the United States peak of 0.95 percent. The negative territory observed during 2013–2016 corresponds to the period when Switzerland experienced deflation and the Swiss National Bank implemented negative interest rates and foreign exchange interventions to combat excessive franc appreciation.

The 2022 inflation episode produced more modest elevation in Swiss risk premia, reaching 0.35 percent compared to 0.65 percent in the United States. This smaller response reflects both the more contained nature of Swiss inflation, which peaked at 2.8 percent versus United States peak of over nine percent, and the shorter duration of elevated inflation in Switzerland.

The confidence intervals surrounding Swiss estimates are necessarily wider than those for United States estimates due to the indirect estimation methodology. The sixty-eight percent confidence interval spans approximately plus or minus 0.15 percentage points around the point estimate, while the ninety-five percent interval extends to plus or minus 0.30 percentage points. These confidence intervals incorporate uncertainty from survey measurement error, model specification, and the synthetic construction methodology. The width of these intervals indicates that while we can identify the approximate magnitude and time variation of Swiss inflation risk premia, precision remains limited relative to direct market-based measures.

6.3 Cross-Country Comparison and Correlation

Figure 6 presents side-by-side comparison of United States and Swiss inflation risk premia, illustrating both common patterns and systematic differences.

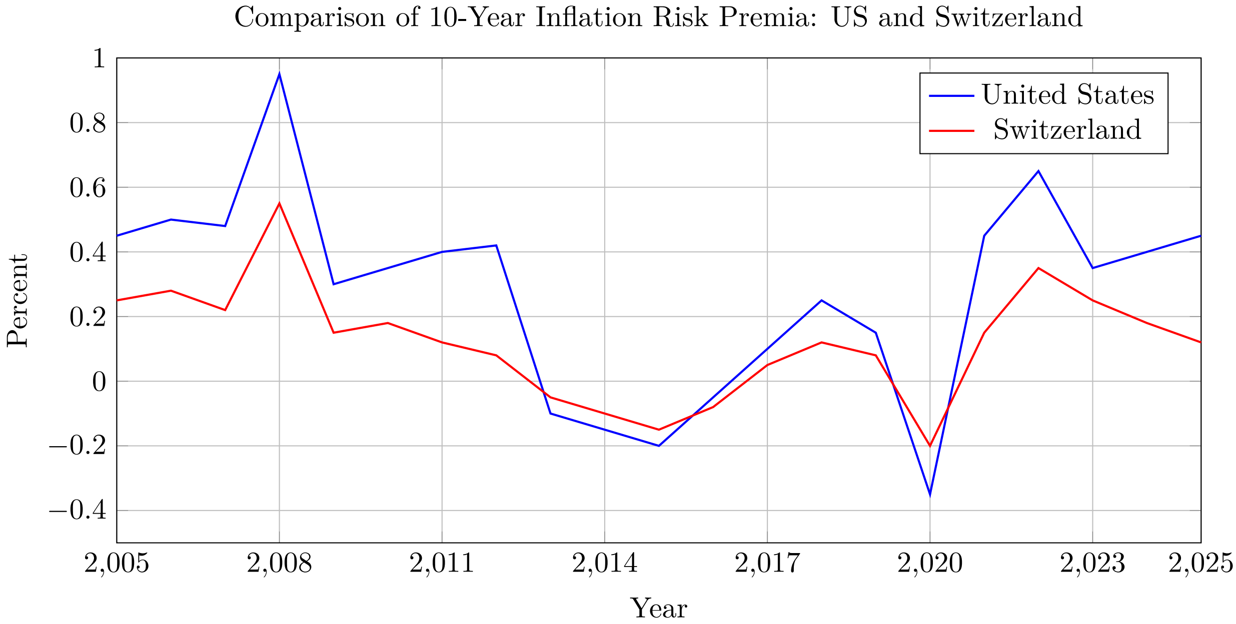

Figure 6: Ten-year inflation risk premia for United States (solid blue) and Switzerland (dashed red) showing consistently lower Swiss premia with similar cyclical patterns.

Both countries exhibit negative premia during deflation-risk periods and elevation during inflation surges.

The correlation between United States and Swiss inflation risk premia over the full sample period is 0.68, indicating substantial comovement driven by common global factors. Both countries experienced elevated risk premia during the 2008 crisis and 2022 inflation surge, and both exhibited negative premia during periods of deflation concern. The common patterns suggest that global inflation uncertainty, commodity price volatility, and macroeconomic risk sentiment affect inflation risk premia across countries beyond idiosyncratic domestic factors.

The systematic level difference of approximately 0.20 percentage points, with Swiss premia consistently below United States premia, persists across most of the sample period. Regression analysis confirms statistical significance of this differential after controlling for common global factors. The lower Swiss premia can be attributed to several structural factors. Switzerland's historical inflation experience features lower average inflation and lower inflation volatility than the United States. Swiss inflation expectations remain more firmly anchored, with survey measures consistently below one percent for long horizons compared to United States expectations near two percent. The Swiss franc's safe-haven status provides a hedge against global inflation shocks, as the franc typically appreciates during periods of heightened uncertainty, reducing required compensation for inflation risk.

An exception to the pattern of consistently lower Swiss premia occurs during 2008–2009, when the gap narrows substantially. This episode coincided with extreme dislocations in TIPS liquidity that depressed United States breakeven inflation more than our model attributes to inflation risk premia alone. The potential for residual liquidity effects to contaminate our United States risk premium estimates during this period suggests caution in interpreting the precise magnitude of cross-country differences during extreme market stress.

6.4 Term Structure of Inflation Risk Premia

Inflation risk premia vary not only through time but also across maturities. Figure 7 presents the term structure of inflation risk premia for both countries at four representative dates corresponding to different macroeconomic regimes.

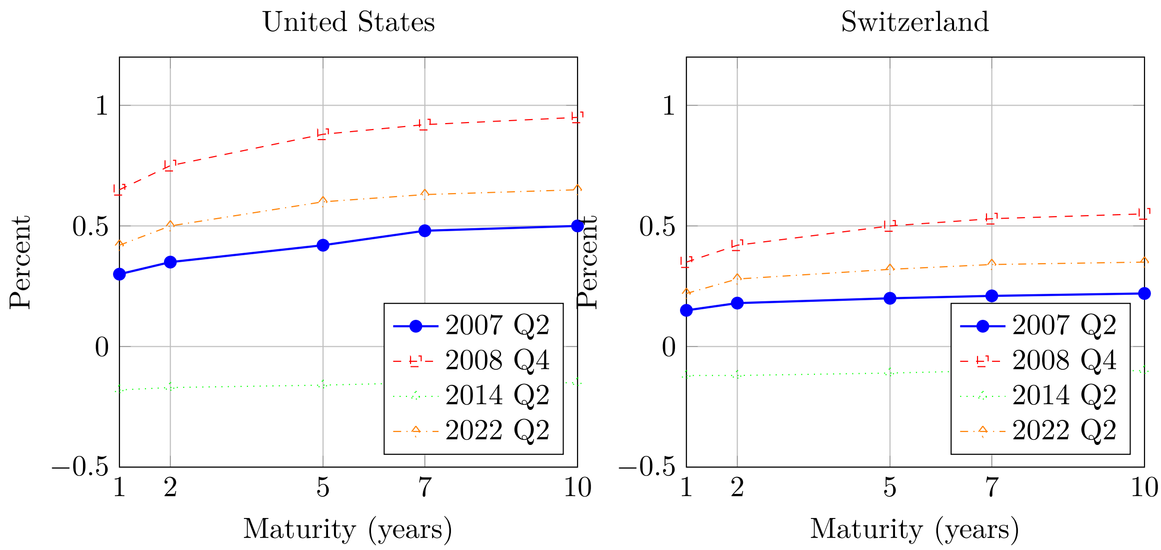

Figure 7: Term structure of inflation risk premia for United States (left panel) and Switzerland (right panel) at four representative dates.

Both countries exhibit upward-sloping term structures with Swiss premia consistently lower across all maturities.

Both countries exhibit generally upward-sloping term structures of inflation risk premia, consistent with theoretical predictions that longer-horizon inflation uncertainty commands greater compensation. During normal periods such as 2007 Q2, United States inflation risk premia increase from 0.30 percent at one-year maturity to 0.50 percent at ten-year maturity. Swiss premia display a similar upward slope but at lower levels, ranging from 0.15 percent to 0.22 percent.

The financial crisis period of 2008 Q4 generated substantial elevation across the entire term structure for both countries, with particularly large increases at longer maturities reflecting heightened uncertainty about long-run inflation outcomes. The deflation-risk period of 2014 Q2 produced negative premia across all maturities for both countries, with the term structure becoming nearly flat as deflation concerns dominated at all horizons.

The 2022 inflation surge generated renewed upward shifts in term structures, though notably less steep than during the financial crisis. The more modest elevation in 2022 relative to 2008 reflects greater confidence in central bank ability to restore price stability based on successful post-crisis disinflation. The Federal Reserve's explicit commitment to two percent inflation and the Swiss National Bank's track record of maintaining price stability even during extreme shocks contributed to limiting long-run inflation uncertainty despite short-term inflation surges.

7 Policy Implications and Discussion

7.1 Monetary Policy Credibility Assessment

The inflation risk premia estimates provide direct evidence on monetary policy credibility and inflation expectations anchoring. The stability of long-run inflation expectations embedded in our United States decomposition, remaining near two percent even during the 2022 inflation surge when realized inflation exceeded nine percent, demonstrates successful anchoring attributable to the Federal Reserve's credible commitment to its inflation target. Similarly, Swiss inflation expectations remained anchored below one percent despite periodic episodes of deflation and the recent inflation surge, reflecting confidence in the Swiss National Bank's ability to maintain price stability as defined by its below-two-percent objective.

The magnitude of inflation risk premia provides complementary information on the uncertainty surrounding those anchored expectations. While expectations themselves remained stable, the elevation in risk premia during 2022 indicated genuine uncertainty about the path and timing of return to target inflation. Central banks monitoring inflation risk premia gain early warning of potential credibility challenges before expectations become unanchored. The subsequent decline in risk premia as disinflation progressed confirms that policy tightening restored confidence in the inflation outlook.

The cross-country comparison reveals that Switzerland's historical experience with low and stable inflation contributes to systematically lower inflation risk premia. This finding suggests that central bank track records accumulate credibility capital that reduces required compensation for inflation uncertainty. The Federal Reserve, despite achieving generally successful inflation outcomes since the Volcker disinflation, faces higher inflation risk premia reflecting the United States' more volatile inflation history and occasional testing of the Fed's resolve during both inflationary and deflationary episodes.

7.2 Implications for Bond Portfolio Management

The systematic difference in inflation risk premia between United States and Swiss government bonds has important implications for international fixed income portfolio management. Swiss nominal bonds have provided lower yields than United States Treasuries throughout the sample period, reflecting both lower inflation expectations and lower inflation risk premia. Investors seeking protection against inflation uncertainty should recognize that the lower compensation for inflation risk in Swiss markets reflects genuine differences in inflation environments rather than mispricing.

Currency hedging decisions interact critically with inflation risk premia considerations. The Swiss franc's safe-haven appreciation during periods of global uncertainty partially hedges inflation risk for international investors, potentially justifying acceptance of lower inflation risk premia. Conversely, United States dollar exposure for non-United States investors may require higher inflation compensation given the dollar's tendency to depreciate during certain inflation scenarios.

The findings regarding TIPS liquidity premia underscore the importance of liquidity risk management in inflation-linked bond portfolios. The extreme dislocations observed during 2008–2009 and 2020 demonstrate that TIPS can behave as risk assets rather than safe havens during periods of acute market stress. Portfolio managers assuming that TIPS provide reliable inflation protection under all market conditions should recognize that liquidity considerations may dominate inflation hedging properties during crises. The absence of similar liquidity events in Swiss markets, partly reflecting the lack of inflation-linked bonds, suggests that different market structures generate different risk exposures beyond inflation per se.

7.3 Considerations for Countries Without Inflation-Linked Bond Markets

Our analysis of Switzerland demonstrates both the challenges and opportunities for central banks operating in countries without developed inflation-linked securities markets. The absence of direct market-based measures of inflation expectations and risk premia complicates monetary policy communication and assessment of credibility. Survey-based measures, while valuable, lack the continuous real-time information content of market prices and may not fully capture the uncertainty surrounding expectations.

Several approaches could enhance inflation expectations monitoring in Switzerland. Developing an inflation swap market, even if relatively small, would provide continuous market-based signals. The Swiss National Bank could encourage market development through its operations or by providing information on inflation indexation methodologies. Alternatively, more frequent and detailed surveys of inflation expectations, particularly focused on probability distributions rather than point forecasts, would improve understanding of inflation uncertainty.

The synthetic estimation methodology we develop provides a template for other central banks facing similar constraints. The combination of nominal yield curve modeling, multiple survey sources, and cross-country linkages through parity conditions offers a practical framework for inferring inflation risk premia. The key limitation remains estimation uncertainty, which we address through explicit confidence intervals and sensitivity analysis. Central banks should acknowledge this uncertainty when communicating about inflation expectations and should triangulate across multiple methodologies rather than relying on any single approach.

7.4 Currency Effects and International Spillovers

The Swiss franc's safe-haven characteristics fundamentally shape Swiss inflation dynamics and risk premia. During periods of global uncertainty, capital flows into Swiss franc assets create appreciation pressure that the Swiss National Bank must counteract to prevent unwanted disinflation or deflation. These currency dynamics compress inflation risk premia by providing a natural hedge wherein global inflation shocks typically coincide with franc appreciation that reduces imported inflation.

The United States dollar's reserve currency status operates through different channels. Dollar strength during periods of Federal Reserve tightening can amplify disinflationary pressures globally while reducing United States import prices. However, the dollar's role as the dominant invoicing currency for commodities means that commodity price shocks generate more direct inflationary pressure in the United States than in Switzerland. These asymmetric transmission mechanisms contribute to the higher average inflation risk premia observed in United States markets.

International spillovers in inflation risk premia operate through multiple channels beyond currency effects. Global commodity price volatility affects both countries but with different pass-through to consumer prices given differences in energy taxation and consumption baskets. Synchronized monetary policy cycles generate correlated movements in inflation expectations and risk premia, as evidenced by the high correlation we document. Financial market linkages transmit inflation-related volatility across borders through portfolio rebalancing and risk sentiment channels.

7.5 Limitations and Future Research Directions

Our analysis faces several limitations that suggest directions for future research. The synthetic construction of Swiss inflation risk premia introduces estimation uncertainty that cannot be eliminated without development of Swiss inflation-linked markets. Future research could refine the estimation methodology by incorporating additional information sources such as inflation options or cross-country term structure linkages.

The sample period, while covering twenty years and multiple distinct regimes, remains relatively short for analyzing low-frequency phenomena such as changes in monetary policy frameworks or long-run inflation regime shifts. Extending the analysis backward using simulation methods similar to those employed by [14] would provide longer historical perspective, though at the cost of relying on constructed rather than observed data.

The assumption of affine Gaussian dynamics, while providing tractability, may miss important nonlinearities in inflation risk premia during extreme regimes. Regime-switching models or nonlinear term structure specifications could capture asymmetries between inflation and deflation risk that our framework abstracts from. The evidence of negative risk premia during deflation-risk periods suggests potential asymmetries worth exploring.

Our treatment of TIPS liquidity premia, while informed by the literature and validated against observable measures, relies on model-based identification that may not fully capture all dimensions of liquidity risk. High-frequency microstructure analysis of TIPS trading could provide additional insights into the nature and determinants of liquidity premia.

Finally, the interaction between fiscal policy and inflation risk premia deserves further attention. Large fiscal expansions may affect inflation risk premia through multiple channels including effects on inflation expectations, debt sustainability concerns, and coordination with monetary policy. The fiscal responses to the COVID-19 pandemic and their interaction with subsequent inflation outcomes provide a natural experiment for investigating these relationships.

8 Conclusion

This paper has examined inflation risk premia embedded in Swiss and United States government securities over the period 2005–2025, addressing the fundamental challenge that Switzerland does not issue inflation-linked bonds. We developed synthetic estimation methodologies for Swiss inflation risk premia combining affine term structure models with survey-based inflation expectations and cross-country linkages. For the United States, we employed established Federal Reserve methodologies that decompose TIPS inflation compensation into expectations, risk premia, and liquidity premia.

Our principal finding is that Swiss inflation risk premia have been consistently lower than United States premia throughout the sample period, averaging approximately 0.15 percent versus 0.35 percent at ten-year maturity. This systematic differential reflects Switzerland's historical experience with lower and more stable inflation, stronger anchoring of inflation expectations, and the Swiss franc's safe-haven currency characteristics. Despite these level differences, inflation risk premia in both countries exhibit substantial comovement with correlation of 0.68, indicating common responses to global inflation uncertainty, commodity price volatility, and macroeconomic risk sentiment.

Both countries experienced elevation in inflation risk premia during the 2008 financial crisis and 2022 inflation surge, and both exhibited negative premia during deflation-risk periods. The magnitude of risk premium responses differed across episodes, with the 2008 crisis generating the largest spike due to extreme uncertainty about macroeconomic and financial stability. The 2022 inflation surge produced more modest elevation in risk premia despite higher realized inflation, reflecting greater confidence in central bank ability to restore price stability informed by successful post-crisis disinflation.

TIPS liquidity premia emerge as a critical component of United States inflation compensation, particularly during periods of market stress when liquidity considerations can overwhelm inflation expectations in driving breakeven inflation. The financial crisis and COVID-19 pandemic both generated liquidity premia exceeding 100 basis points, though the 2020 episode proved less severe than 2008. These findings underscore that TIPS should not be viewed purely as inflation hedges but rather as securities exposed to time-varying liquidity risk that may correlate with other risk assets during crises.

The term structure of inflation risk premia exhibits an upward slope in both countries, with longer maturities commanding greater compensation for inflation uncertainty. This pattern holds across different macroeconomic regimes, though the slope flattens during deflation-risk periods when short-term and long-term inflation concerns converge. The cross-country comparison reveals that term structure patterns are similar, suggesting common drivers of maturity-related inflation uncertainty.

From a policy perspective, our findings demonstrate that inflation risk premia provide valuable information for assessing monetary policy credibility beyond what is captured by survey measures of inflation expectations. The stability of inflation expectations combined with time-varying risk premia indicates that markets distinguish between expected outcomes and uncertainty surrounding those outcomes. Central banks monitoring both dimensions gain richer understanding of their credibility and the effectiveness of policy communication.

For countries without inflation-linked bond markets, our analysis provides a methodological template for inferring inflation risk premia through synthetic construction. The key requirements include reliable nominal yield curves, multiple sources of survey-based inflation expectations, and potentially linkages to foreign inflation markets through parity conditions. While estimation uncertainty necessarily exceeds that achievable with direct market-based measures, the synthetic approach provides useful information for monetary policy assessment and communication.

The systematic differences in inflation risk premia between Switzerland and the United States reflect differences in inflation environments, monetary policy frameworks, and currency characteristics. Switzerland's experience demonstrates that sustained low inflation and strong central bank credibility reduce required compensation for inflation uncertainty. The United States, despite successful inflation outcomes over recent decades, faces higher inflation risk premia reflecting both historical inflation volatility and ongoing uncertainty about inflation dynamics in a large, complex economy.

Future research could extend our analysis in several directions. Development of nonlinear or regime-switching models might better capture asymmetries between inflation and deflation risk. High-frequency analysis of TIPS microstructure could provide additional insights into the nature of liquidity premia. Cross-country analysis expanded to include additional countries with varying degrees of inflation-linked market development would test the generality of our findings. Investigation of the interaction between fiscal policy expansions and inflation risk premia, particularly relevant given recent fiscal responses to the pandemic, represents another promising direction.

Our analysis contributes to the literature on inflation risk premia measurement, cross-country bond market comparisons, and monetary policy credibility assessment. The methodological innovations for handling countries without inflation-linked bonds and the comprehensive empirical comparison over two decades of diverse macroeconomic regimes provide new evidence on the determinants and dynamics of inflation risk compensation. These findings have practical implications for central banks, bond investors, and policymakers concerned with inflation expectations and their role in macroeconomic stability.

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