January 2023

QCAM MONTHLY

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QCAM Special

«FX BIAS» Review 2022

2022 was a turbulent year for FX BIAS after a promising start in 2021. The Ukraine war, the rapid changes in monetary policy and the rise and fall of risk aversion created fast moving dynamics that were impossible to capture accurately with business surveys. Still, the addition of new surveys and currencies as well as more balanced weightings have helped improve the performance of FX BIAS. As a result, we think that FX BIAS remains well positioned to generate attractive returns at moderate volatility and low correlations with other asset classes over time.

2022 was unusual

The performance of FX BIAS in 2021 was promising and validated the value of business surveys in FX trading[1]. In 2022, FX markets were dominated by unusual dynamics that were much more difficult to navigate with business surveys. The Russian attack on the Ukraine and its global political and economic ramifications triggered a broad-based rise in risk aversion which was further aggravated by the rapid hawkish shift in Fed policy. In response, the USD rallied nearly 20% versus all other currencies in the FX BIAS portfolio from the start of the Ukraine war through the end of September. In the final quarter of last year, however, the dynamic suddenly turned and the USD lost roughly half of its earlier gains as better US inflation figures prompted markets to expect a Fed pivot and global risk aversion suddenly started to fade.

Overall, the FX BIAS USD certificate lost 3.2% in 2022 after a gain of 4.5% in 2021. The performance can be divided into three periods: 1) a decline of 3.8% until early June, 2) a rebound of 5.1% until September and 3) a loss of 4.3% in the final quarter of last year (see Chart 1 next page).

Adjusting to the shock

The emerging global growth optimism at the start of 2022 spurred business surveys and prompted FX BIAS to go long most basket currencies versus the USD. The Russian attack on the Ukraine was unanticipated by business surveys and caught most FX BIAS positions on the wrong foot. In response, the QCAM Risk Committee decided to suspend some positions temporarily and to reduce the leverage ratio[2]. Eight weeks after the start of the Ukraine war, FX BIAS had changed its net USD position from short to long (see Chart 2 next page). From June, FX BIAS benefitted from the USD rally, although not fully as not all currency positions had turned long USD and the leverage ratio was not yet back to normal[3]. Still, by the end of September, the FX BIAS USD certificate had made up all earlier losses and was up 1.1% since the start of the year.

The USD pivot

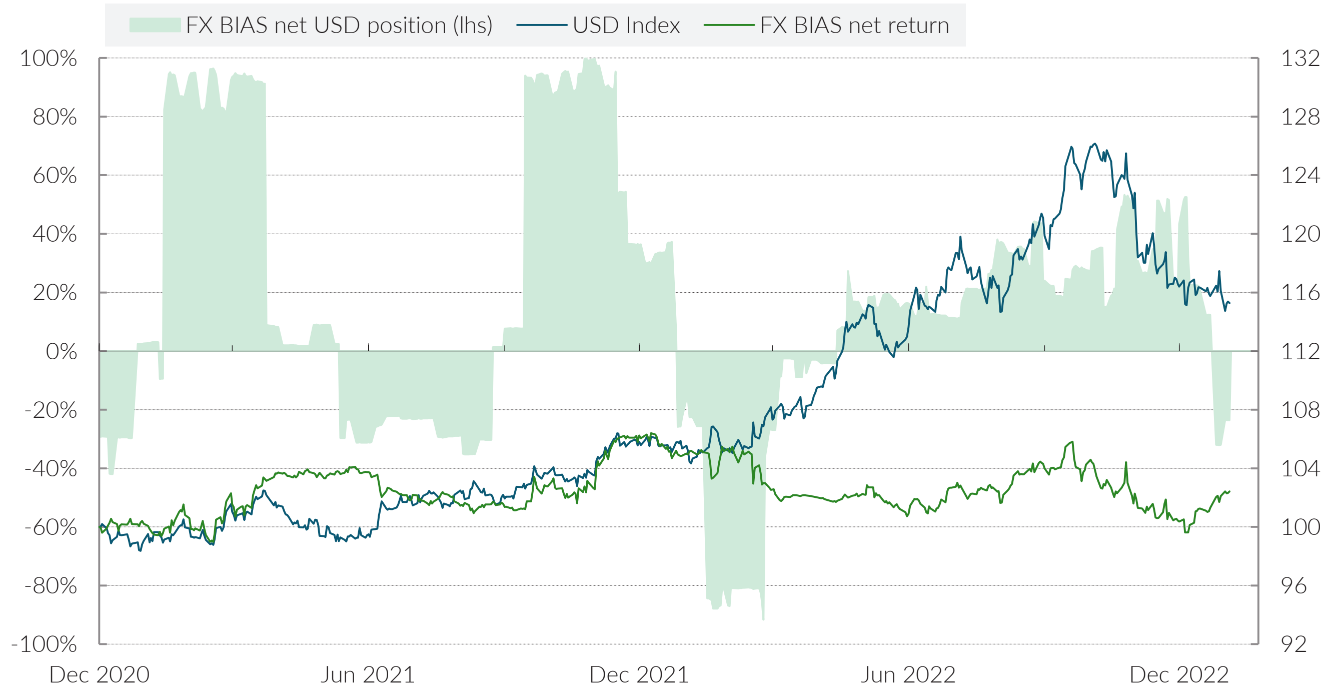
The trigger of the USD pivot was lower than expected US inflation figures in early November. This coincided with a broad shift in risk sentiment. Energy prices had started to fall and the fear that the Ukraine war would lead to a deep global recession faded. Suddenly, the key drivers of the USD rally – a hawkish Fed and global risk aversion – lost weight. The rapid shift of the USD tide was negative for the FX BIAS portfolio. However, FX BIAS was not fully long USD with important USD short positions, for example versus the JPY. This blend of long and short USD positions helped cush-

1 See QCAM Special – One year of FX BIAS; QCAM Monthly; December 2021.

2 For more detail see QCAM Special – Expanding FX BIAS; QCAM Monthly; August 2022.

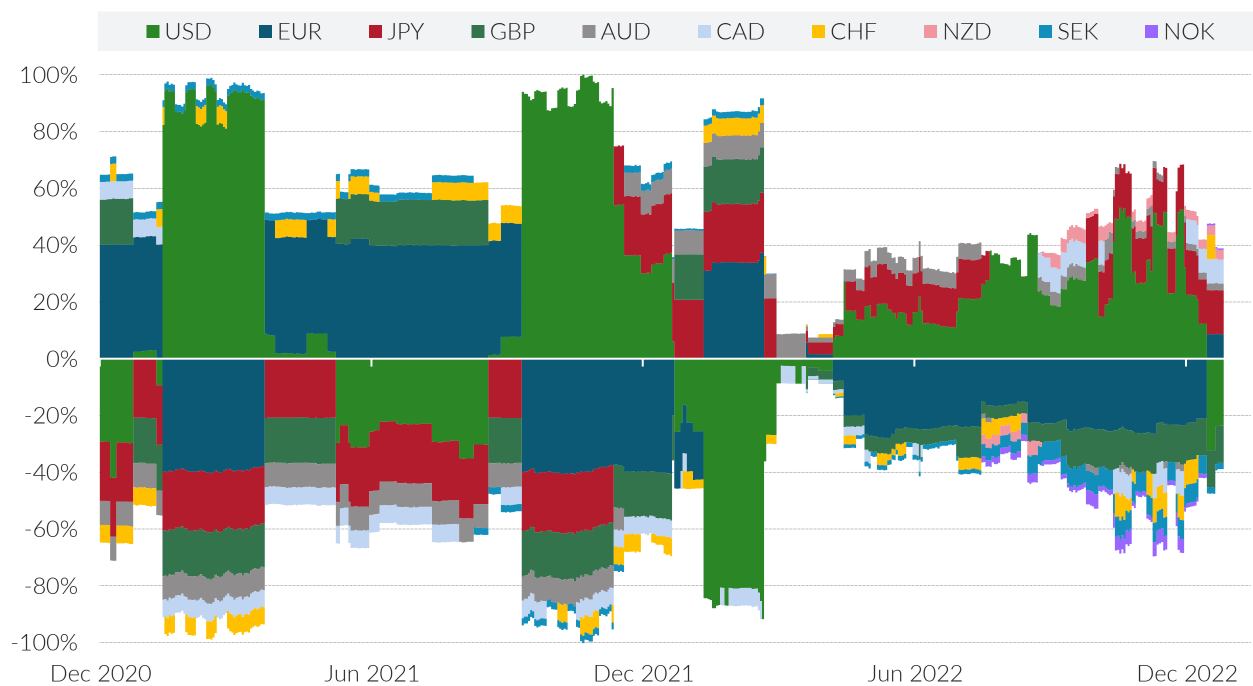
3 The leverage ratio was fully restored to 1.5 as of September 1st 2022.

Chart 1: QCAM FX BIAS net USD position and return versus USD index since launch



Source: QCAM; The returns refer to the USD based FX BIAS certificate and are net of costs and fees.

Chart 2: QCAM FX BIAS individual currency positions since launch of certificate



Source: QCAM

ion the negative impact of the USD decline.

Moreover, the net long USD position declined towards year end to below 20% as new business surveys showed more resilience in currency areas outside of the US, most notably the Euro-area. In fact, the latest round of surveys in early January swung the pendulum to a net short USD position of 25% with long positions in all other currencies except for the GBP and the SEK.

The model still works

The rationale behind FX BIAS is that business surveys capture business cycle trends between two countries and shape markets' expectations on relative economic performance and monetary policy, which in turn drive exchange rates. This has worked well in 2021 but not in 2022. The normal business cycle trends were superseded by events and dynamics that business surveys could not anticipate in advance. Still, business surveys and the FX BIAS algorithm have adjusted relatively quickly limiting the downside.

In our view, 2022 was unusual and not the new normal. Thus, we expect that the principle and mechanism behind FX BIAS will perform well over time. However, 2022 was also a lesson that rule-based FX trading models have limitations and that they need to be well diversified to limit the downside in adverse circumstances. Over the last two years, we have continuously modified FX BIAS by adding new business surveys and currencies and balancing the weight distribution.

At the launch in December 2020, FX BIAS consisted of 7 currency pairs versus the USD with only one business survey for each currency (i.e. a total of 8 surveys, see Table on next page). Moreover, the weighting was heavily tilted toward EURUSD followed by USDJPY and GBPUSD. Currently, FX BIAS consists of nine currency pairs with a total of 22 business surveys and a more balanced weighting of the currency components (see Table again). Importantly, this means that currency positions are no longer binary (100% long or short) but can take positions in-between including neutral and that a long or short USD position versus one of the big three currencies is more likely to be moderated or offset by opposite positions in other currencies versus the USD.

The Table next page further shows the back-tested performance since the launch of FX BIAS in December 2020 assuming 1) the initial setting was maintained until now and 2) the current setting was used from the launch. The performance of the portfolio with the current setting is noticeable better than the performance of the portfolio with the initial setting (significantly higher return at moderately lower volatility). Interestingly, the overall performance of the initial setting and the current setting are relatively similar until the start of the Ukraine war and then diverge sharply (see Chart 3). This highlights the value of diversification at times when normal business cycle trends are superseded by exceptional shocks or policy changes.

Looking at the performance figures by currency pairs, the addition of more surveys has improved most notably the performances of USDJPY, GBPUSD and AUDUSD. At the same time, there are still significant performance differences. The new additions of NZDUSD and USDNOK have been clearly positive. On the other hand, USDCHF, GBPUSD and USDCAD still lag significantly behind. These three currency pairs are on the low side in terms of the number of business surveys. In case of GBPUSD, idiosyncratic dynamics that supersede the business cycle trends, such as last years fiscal policy and political leadership drama, also play a role.

We will continue to refine FX BIAS, looking for additional suitable surveys or combinations of existing surveys and possibly add more currencies. At this point, however, we believe that FX BIAS has already been sufficiently improved to better handle unanticipated events and to deliver attractive returns at modest volatility and low correlations with other assets classes over time.

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Table: FX BIAS currency pairs, surveys, weights and performance in two settings *

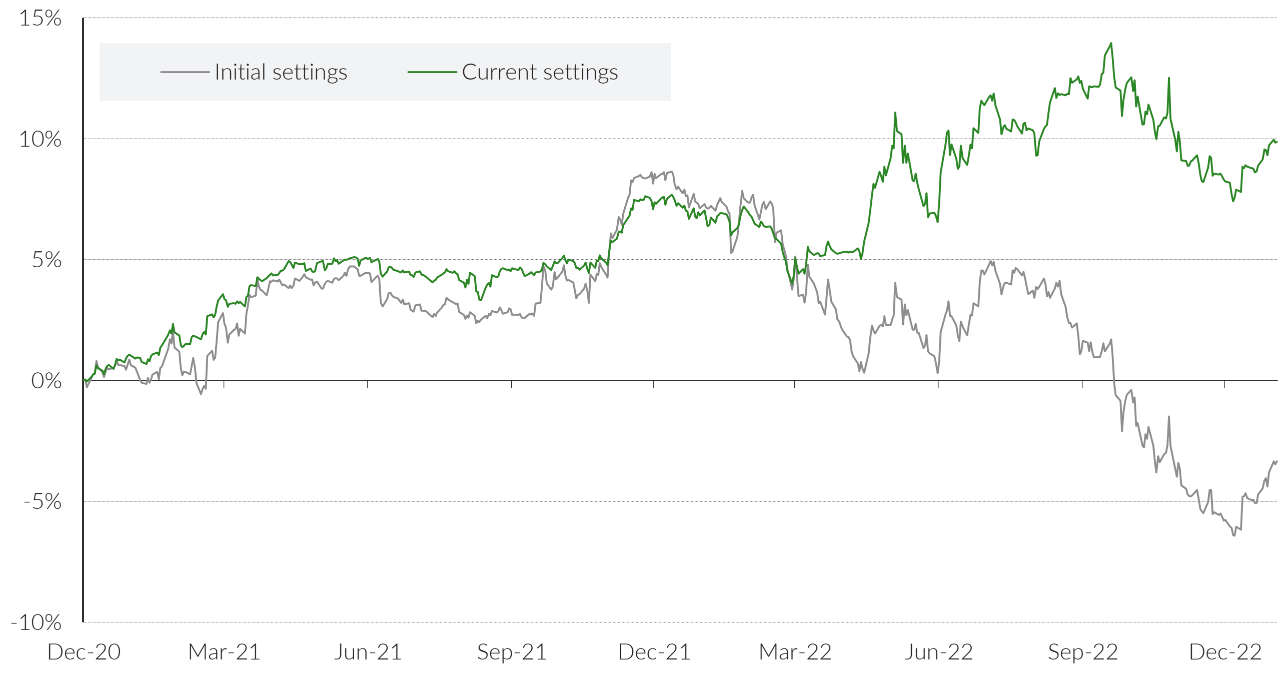
	EURUSD	USDJPY	GBPUSD	AUDUSD	USDCAD	USDCHF	NZDUSD	USDSEK	USDNOK	Total
Back-tested performance based on initial setting December 10th 2020 to January 11th 2023										
Initial surveys	2	2	2	2	2	2	0	2	0	8**
Initial weights	40.0%	20.8%	15.9%	8.4%	6.2%	6.1%	0.0%	2.5%	0.0%	100.0%
Return a.r.	4.4%	-2.1%	-16.7%	1.3%	-0.6%	-3.2%		6.4%		-1.3%
Volatility a.r.	12.6%	14.7%	15.5%	17.4%	11.6%	11.7%		17.7%		6.3%
Sharpe ratio	0.35	-0.14	-1.08	0.07	-0.05	-0.27		0.32		-0.20
Backtested performance based on current settings December 10th 2020 to January 11th 2023										
Current surveys	6	4	3	6	3	4	5	7	8	22**
Current weights	24.6%	15.5%	13.1%	9.6%	8.5%	8.5%	6.8%	6.8%	6.6%	100.0%
Return a.r.	2.8%	11.0%	-1.9%	5.8%	0.6%	-1.4%	9.4%	9.3%	12.3%	4.7%
Volatility a.r.	10.6%	12.5%	12.0%	7.0%	9.6%	8.4%	9.5%	15.2%	9.0%	5.4%
Sharpe ratio	0.26	0.88	-0.16	0.83	0.06	-0.17	0.99	0.62	1.36	0.87

* The performance figures are spot-based gross returns in USD with 1.5 leverage (excluding costs and fees and QCAM risk management measures). The performance data is based on the fixed maintenance of the two settings over the entire period, while the actual performance of the FX BIAS certificate has gradually shifted over time from the initial setting to the current setting.

** The total number of surveys is consolidated excluding multiple applications.

Source: QCAM

QCAM FX BIAS gross returns – initial versus current settings*



* Same as the first asterisk at the table above.

Source: QCAM

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QCAM Insight

Soft or Hard Landing?

Bernhard Eschweiler, Economic Advisor
QCAM Currency Asset Management AG

The USD is down nearly 10% since the peak in late September. The key drivers of the shift were the expected pivot in Fed policy and a broad decline in global risk aversion. The latest data supports the market's view of an economic soft landing. Thus, the USD has probably more downside. However, hard-landing later in the year remains a significant risk and could lead to a USD rebound.

The USD slipped further since the December issue of the QCAM Monthly. From the peak in late September, the USD DXY is down 9.8% which is more than a temporary correction. The JPY has made the most eye-catching rebound supported by the BoJ's relaxation of its yield curve policy. The GBP came second, boosted by the decline in global risk aversion and the relief following the fiscal and political woes. The EUR did also well, up more than 10% versus the USD thanks in part to better than feared economic figures. The CAD has been the main laggard, up just 3% versus the USD, due largely to the decline in oil prices.

Among Emerging Markets, exchange rate dynamics have been mixed. Overall, EM currencies regained 4.9% versus the USD since the low in early October. The CNY staged the biggest turnaround thanks to the relaxation of the no-COVID policy. The RUB, on the other hand, fell 8% versus the USD as oil and gas prices declined and Russia suffered more setbacks in the war against the Ukraine. The TRY also continued to weaken as the central bank cut interest rates amid high double digit inflation.

Soft-landing for now

In our 2023 Sneak Preview in the December QCAM Monthly, we argued that the outlook for this year remains uncertain and that soft-landing and hard-landing are both possible outcomes. At this point, it seems that the soft-landing scenario has gained the upperhand for now and is the preferred market narrative. In our view, soft-landing will dominate for at least a couple more months. The main pillars are softening but not collapsing economic activity reports, declining inflation figures and indications that monetary tightening is coming to an end. This should lead to a further unwind of risk aversion. The spread of COVID in China could create some volatility but the market is expecting a strong bounce in Chinese activity after the Lunar-New-Year holidays.

Hard-landing possibly later

The main uncertainty is whether the soft-landing theme will last through the whole year or whether a hard-landing will follow towards the summer. First, monetary policy works with lags. So far, the impact of tightening is visible in the most-interest-rate-sensitive sectors, notably housing. The risk is that the impact of tightening will spread further and start to drag down consumption and investment more broadly. We believe the Fed will pause hiking interest rates after the March meeting, but we do not expect the Fed to cut interest rates later this year as the market does. Moreover, we see a risk that the Fed may resume tightening if the labor market stays strong and core inflation fails to come close enough to the Fed's target.

Second, energy prices have come down a lot, but remain well above the levels before the outbreaks of Corona and the Ukraine war. The adjustment to structurally higher energy prices also takes time and could lead to more weakness, especially in Europe. Finally, expecting a strong bounce in China as the economy re-opens is reasonable but not assured. China's property sector remains in trouble despite some relief measures and the crack-down on private IT firms has also negative ramifications for the economy.

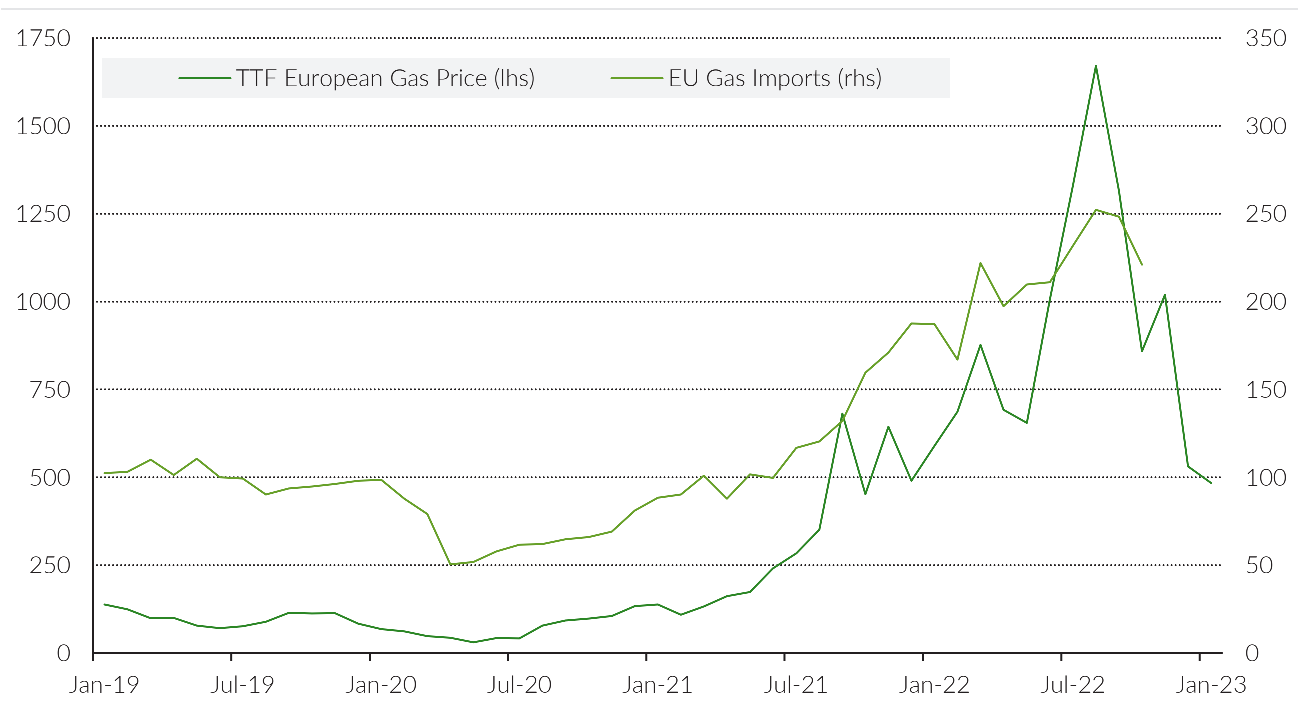
Long EUR and JPY

For FX markets, we think the current soft-landing theme should not be ignored even if hard-landing is the ultimate outcome later in the year. Especially a further unwind of global risk aversion could result in more USD weakness. Our FX BIAS strategy, which is based on business surveys, has shifted around the turn of the year from long USD to short USD. From a discretionary macro perspective, we prefer going long currencies that have improved fundamentals, which in our view excludes for example the GBP.

We already went long the JPY six weeks ago, based on four arguments: 1) the economy is holding up better, 2) inflation is on the rise, 3) the BoJ will start to normalize monetary policy and 4) the current account will begin to recover as energy prices decline. These arguments are still valid in our view and we think the JPY has more upside given its still low valuation and investment positions.

We also decided to go long the EUR versus the USD as well as the CHF and the SEK. First, we expect the recent trend of better-than-expected Euro-area data to last a couple more months. Second, we think the ECB will pause the rate-hiking cycle after the Fed. Third, the Euro-area current account is set to swing back into surplus due to lower energy prices (see chart). Last, the EUR is greatly undervalued and underinvested and should benefit from the unwind of the USD's safe-haven appeal. For this reason, we are also long the EUR versus the CHF, while we think that the local property slump will weigh on the SEK.

EU gas prices and gas import values (2019 = 100)



Source: ECB, investing and QCAM

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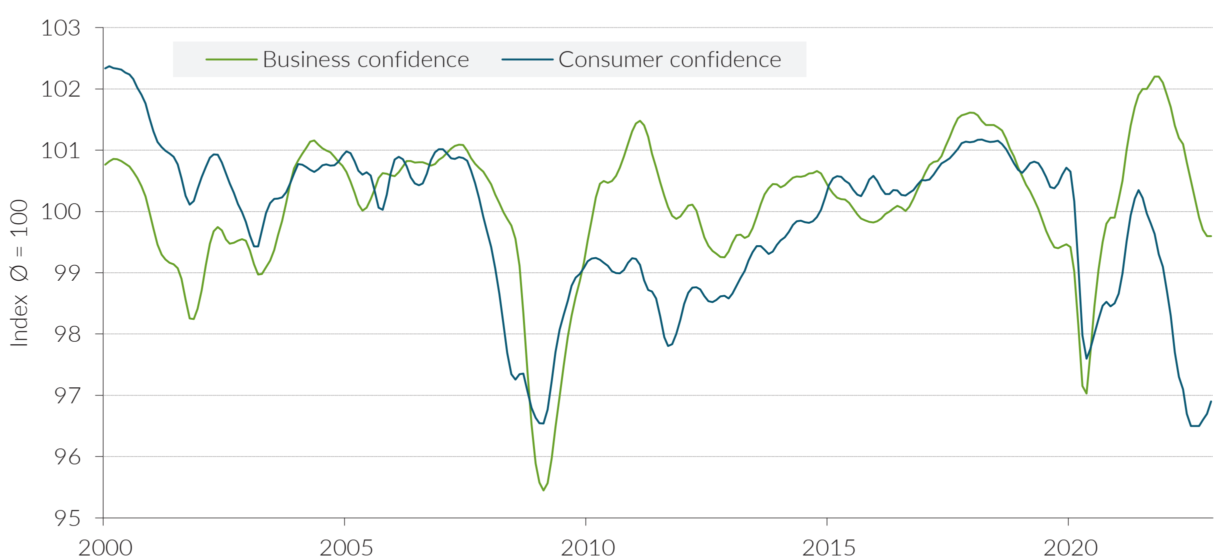
Economy & Interest Rates

Economic activity at the end of last year was firmer, business sentiment is stabilizing, and consumer confidence is recovering, albeit from a low level. The Euro-area surprised on the upside, while the US was a bit softer than expected. Forecasts for 2023 point at lower growth but there have been no further downward revisions. Still, recession remains a risk for later in the year. Signs that inflation has peaked are broadening, but underlying inflation pressures remain thanks to tight labor markets. Central banks led by the US Fed have slowed the pace of monetary tightening and may pause in early 2023, but hopes that central banks may start easing rates before the end of the year are probably premature.

	Real GDP growth[1]		Unemployment rate[1]		Inflation rate[1]		Current account[2]		Fiscal balance[2]		Public debt[2]	
	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023	2022	2023
Global	3.0	2.0	n.a.	n.a.	7.0	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Developed	2.5	1.0	n.a.	n.a.	7.5	4.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
USA	2.0	1.0	3.7	4.0	8.0	3.5	-3.6	-3.5	-4.0	-5.0	122	123
Canada	3.5	1.0	5.5	6.0	7.0	3.0	0.0	-0.5	-1.0	-1.0	102	99
Euro-area	3.0	0.5	6.7	6.7	8.4	5.5	0.0	0.5	-4.0	-3.5	93	91
Sweden	2.5	0.0	7.5	8.0	7.5	6.0	2.0	2.5	0.0	-0.5	33	33
Switzerland	2.5	1.0	2.2	2.0	3.0	2.5	6.0	6.5	0.0	0.0	40	40
UK	4.0	-0.5	3.5	4.0	9.0	7.5	-5.0	-4.5	-7.0	-5.0	90	90
Japan	1.5	1.5	2.5	2.5	2.5	2.5	1.0	1.5	-6.0	-4.5	264	262
Australia	4.0	2.5	3.7	4.0	6.5	4.5	3.5	2.5	-4.0	-3.0	57	59
Emerging	3.0	3.0	n.a.	n.a.	7.0	5.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
China	2.5	4.0	5.5	5.0	2.0	2.0	2.1	1.5	-4.0	-3.5	77	84
India	7.0	5.0	n.a.	n.a.	7.0	5.0	-3.5	-3.0	-10.5	-10.0	83	84
Russia	-3.0	-1.5	4.5	5.0	14.0	6.0	10.0	4.0	-1.0	-2.0	16	17
Brazil	3.0	0.0	9.5	10.0	9.5	4.5	-1.5	-2.0	-6.0	-10.0	90	92

Source: OECD, IMF World Economic Outlook and QCAM estimates [1] In percent annual average [2] In percent of GDP

OECD business and consumer confidence*



Source: OECD and QCAM *The last observations are QCAM estimates based on other surveys

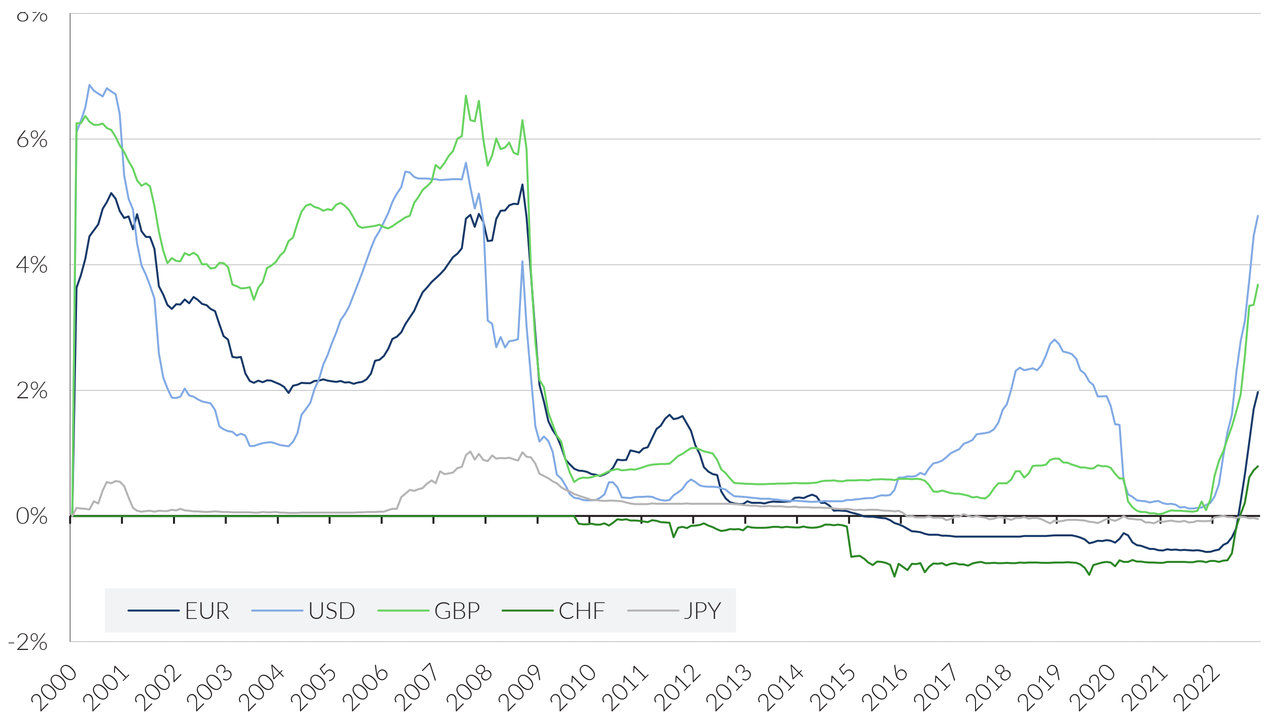
Interest Rates

Interest Rate Level Overview

	Short Term Interest Rate (3month OIS)					Long Term Interest Rate (10year Swap)				
	Current	1M ago	3M ago	12M ago	Ø 3 years	Current	1M ago	3M ago	12M ago	Ø 3 years
USD	4.64%	4.52%	3.83%	0.16%	0.89%	3.56%	3.57%	3.90%	1.84%	1.78%
EUR	2.28%	2.01%	1.32%	-0.57%	-0.19%	2.91%	2.61%	3.33%	0.38%	0.64%
JPY	-0.02%	-0.06%	-0.03%	-0.03%	-0.04%	0.94%	0.66%	0.56%	0.20%	0.21%
GBP	3.84%	3.64%	3.38%	0.38%	0.73%	3.60%	3.34%	4.79%	1.15%	1.18%
CHF	1.03%	0.88%	0.63%	-0.71%	-0.50%	1.81%	1.54%	2.33%	0.25%	0.31%
AUD	3.29%	3.13%	2.84%	0.07%	0.64%	4.32%	3.97%	4.48%	2.16%	2.09%
CAD	4.50%	4.32%	3.84%	0.32%	1.03%	3.54%	3.33%	3.87%	2.20%	2.11%
SEK	2.82%	2.52%	2.07%	-0.05%	0.25%	2.83%	2.54%	3.21%	1.13%	1.17%
RUB	7.54%	7.52%	7.83%	8.72%	7.38%	11.72%	11.13%	8.90%	8.89%	8.36%
BRL	12.61%	12.01%	12.64%	10.09%	6.43%	12.62%	12.91%	11.52%	11.37%	9.87%
CNY	2.09%	2.03%	1.81%	2.19%	2.16%	2.96%	2.96%	2.64%	2.52%	2.73%
TRY	10.20%	10.15%	11.45%	17.24%	0.00%	38.04%	38.04%	38.04%	26.15%	17.85%
INR	6.54%	6.44%	6.35%	3.78%	4.27%	6.47%	6.37%	7.15%	5.96%	5.80%

Source: QCAM Currency Asset Management, as of January 11th, 2023

3-month Libor



Source: QCAM Currency Asset Management, as of end of December 2023

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FX Markets

FX Performance vs. PPP

The USD continued to slide lower in December and early January. The best performer was again the JPY followed by the EUR. EM currencies also gained versus the USD but less than the major currencies and performance was more mixed. The CNY rebounded strongly, while RUB and TRY fell further. Speculative net long USD positions declined modestly. Short-term interest rates rose further and differentials remained largely unchanged leaving forward hedging versus the USD still costly from the perspective of EUR, JPY and CHF. Actual and implied FX volatilities were stable to lower except for the JPY and remain well above their 5-year averages. PPP estimates continued to diverge in line with diverging inflation trends, yet the USD lost some of its overvaluation.

Overview

	Current Exchange Rate	Performance[1]				Purchasing Power Parity[2]		
		YTD	1M	12M	5 years	PPP	Neutral Range	Deviation[3]
EURUSD	1.075	0.34%	1.91%	-5.35%	-10.72%	1.25	1.11 - 1.38	-14%
USDJPY	132.490	1.13%	-2.92%	14.75%	18.99%	94.39	83.7 - 105.1	40%
GBPUSD	1.212	0.19%	-1.35%	-10.99%	-10.51%	1.57	1.40 - 1.74	-23%
EURCHF	1.001	1.36%	1.72%	-4.68%	-14.77%	0.94	0.89 - 0.99	6%
USDCHF	0.931	1.03%	-0.18%	0.71%	-4.52%	0.81	0.71 - 090	15%
GBPCHF	1.129	1.26%	-1.53%	-10.35%	-14.56%	1.10	1.00 - 1.20	3%
CHFJPY	142.254	0.09%	-2.74%	13.95%	24.63%	95.95	84.9 - 107.0	48%
AUDUSD	0.689	1.10%	1.37%	-4.21%	-12.57%	0.75	0.66 - 0.84	-8%
USDCAD	1.343	-0.71%	-1.39%	6.72%	7.24%	1.20	1.12 - 1.29	12%
USDSEK	10.481	0.63%	1.65%	15.75%	28.88%	8.18	7.24 - 9.11	28%
EURSEK	11.263	0.96%	3.58%	9.57%	15.06%	8.76	8.22 - 9.30	29%
USDRUB	69.316	-5.32%	10.86%	-7.08%	22.54%	57.72	45.2 - 70.3	20%
USDBRL	5.166	-2.28%	-1.65%	-7.68%	60.25%	3.80	3.15 - 4.46	36%
USDCNY	6.771	-2.04%	-2.87%	6.17%	4.33%	7.68	7.42 - 7.95	-12%
USDTRY	18.781	0.36%	0.74%	35.65%	397.53%	12.86	10.1 - 15.6	46%
USDINR	81.646	-1.28%	-0.96%	10.56%	28.12%	70.30	65.3 - 75.3	16%

[1] Performance over the respective period of time, in percent

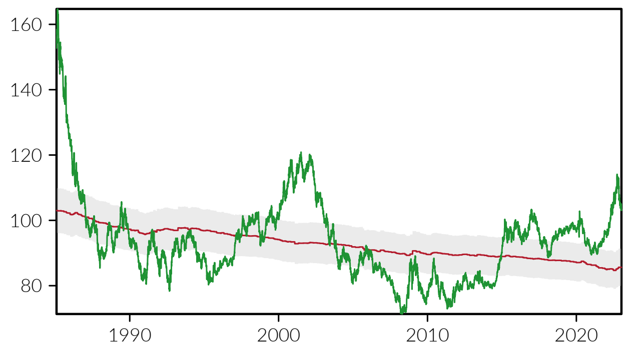
[2] Purchasing power parity (PPP) is estimated based on the relative development of inflation rates in two currency markets; the neutral range is determined by ± 1 standard deviation of the historical variation around the PPP value.

[3] Deviation of the current spot rate from PPP, in percent.

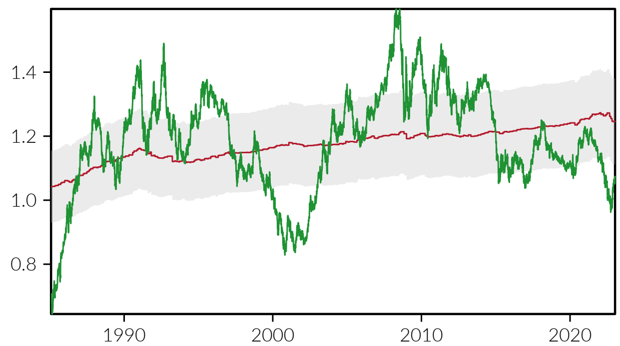
Source: QCAM Currency Asset Management, as of January 11th, 2023

Purchasing Power Parity

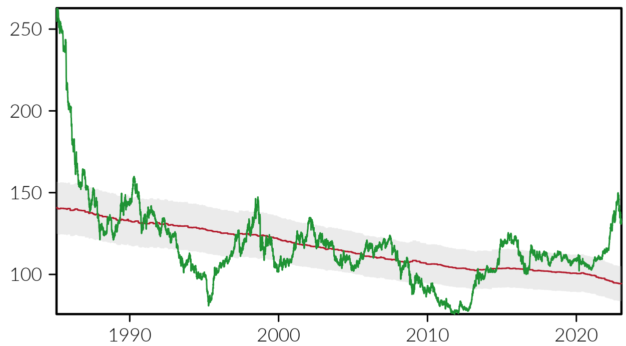
DXY



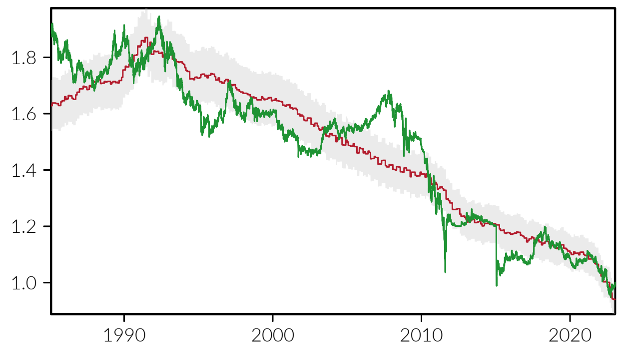
EURUSD



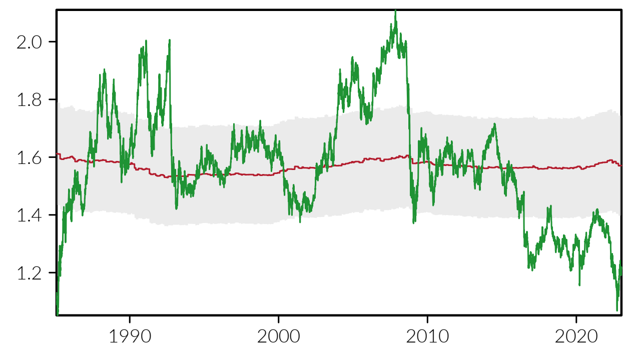
USDJPY



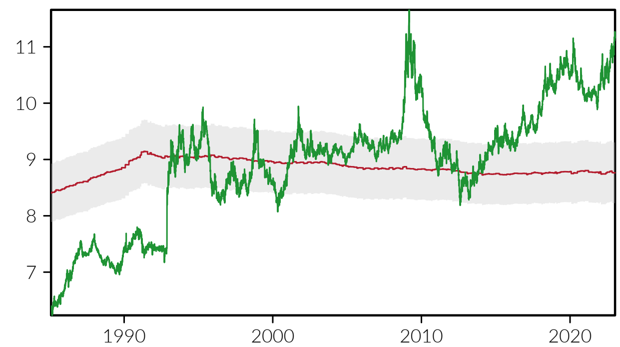
EURCHF



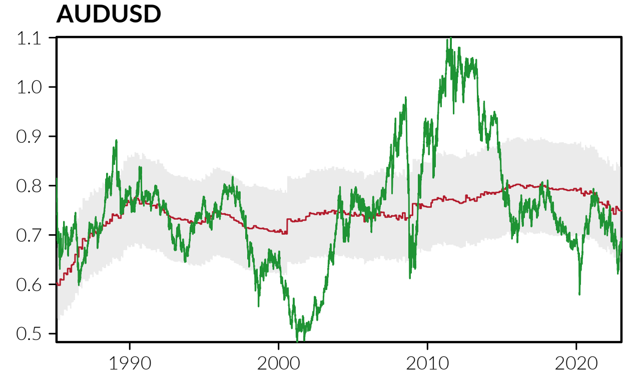
GBPUSD



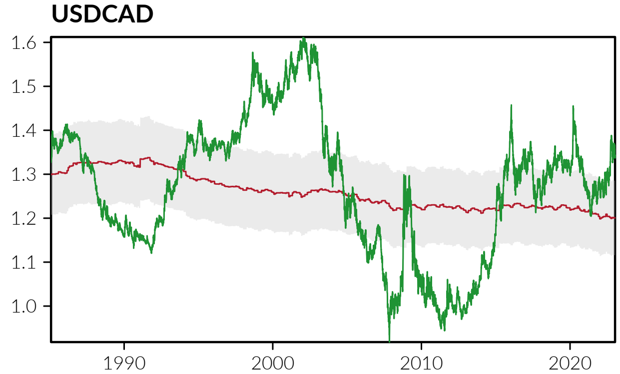
EURSEK



AUDUSD



USDCAD



Source: QCAM Currency Asset Management, as of January 11th, 2023.

PPP — Spot — Neutral Range

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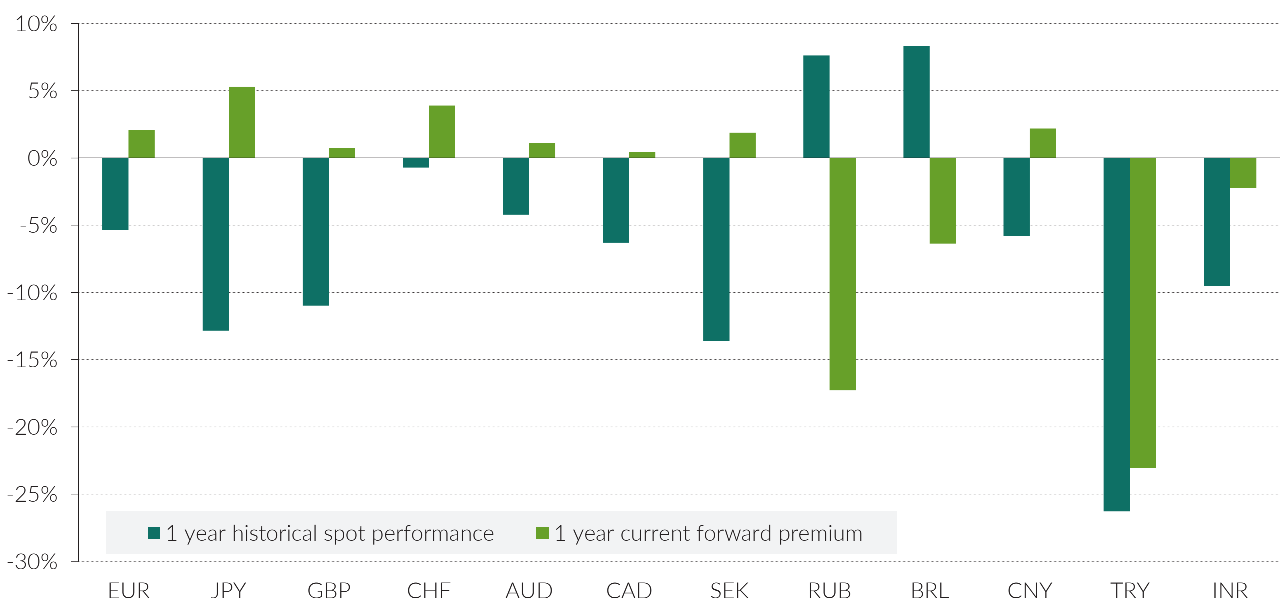
FX Spot vs Forwards

FX Forwards Level and Premium

	Current Exchange Rate	Forward Level			Premium p.a.		
		1M	3M	12M	1M	3M	12M
EURUSD	1.075	1.0771	1.0812	1.0970	2.54%	2.43%	2.03%
USDJPY	132.490	131.9549	130.8734	125.8421	-4.69%	-4.88%	-4.91%
GBPUSD	1.212	1.2131	1.2148	1.2208	0.94%	0.89%	0.71%
EURCHF	1.001	0.9998	0.9972	0.9834	-1.26%	-1.48%	-1.71%
USDCHF	0.931	0.9284	0.9223	0.8966	-3.79%	-3.89%	-3.66%
GBPCHF	1.129	1.1262	1.1205	1.0946	-2.85%	-3.00%	-2.98%
CHFJPY	142.254	142.1432	141.8986	140.3686	-0.90%	-1.00%	-1.30%
AUDUSD	0.689	0.6902	0.6918	0.6972	1.42%	1.42%	1.11%
USDCAD	1.343	1.3432	1.3424	1.3376	-0.20%	-0.31%	-0.43%
USDSEK	10.481	10.4609	10.4280	10.2865	-2.18%	-2.01%	-1.81%
EURSEK	11.263	11.2660	11.2741	11.2833	0.35%	0.41%	0.18%
USDRUB	69.316	70.3447	72.4460	83.7945	16.70%	18.06%	20.60%
USDBRL	5.166	5.1973	5.2545	5.5181	6.95%	6.82%	6.66%
USDCNY	6.771	6.7558	6.7287	6.6257	-2.54%	-2.48%	-2.09%
USDTRY	18.781	19.0139	19.7133	24.4069	13.97%	19.87%	29.55%
USDINR	81.646	81.7709	82.1479	83.5109	1.78%	2.46%	2.23%

Historical Spot Performance and Current Forward Premium vs. the US Dollar



Source: QCAM Currency Asset Management, as of January 11th, 2023

QCAM Currency Asset Management

FX Volatility

Historical vs. Implied Volatility

	Current Exchange Rate	Historical Volatility [1]				Implied Volatility [2]			
		Current	1M	12M	Ø 5 years	Current	1M	12M	Ø 5 years
EURUSD	1.075	10.70%	12.50%	6.45%	6.84%	8.55%	8.95%	5.60%	6.93%
USDJPY	132.490	17.42%	14.19%	6.74%	7.18%	12.61%	11.88%	6.15%	7.60%
GBPUSD	1.212	15.00%	19.05%	6.31%	8.86%	10.68%	10.80%	6.30%	9.18%
EURCHF	1.001	5.19%	7.44%	4.04%	4.65%	6.20%	6.60%	4.43%	5.30%
USDCHF	0.931	11.27%	12.19%	6.70%	6.88%	8.75%	8.47%	6.05%	6.79%
GBPCHF	1.129	9.42%	14.33%	6.96%	7.98%	8.40%	8.65%	6.00%	8.45%
CHFJPY	142.254	14.25%	11.61%	6.34%	6.59%	11.50%	10.10%	6.15%	7.09%
AUDUSD	0.689	16.16%	15.41%	8.67%	9.50%	12.72%	12.80%	8.47%	9.59%
USDCAD	1.343	9.03%	9.53%	6.85%	6.81%	7.80%	8.20%	6.48%	6.83%
USDSEK	10.481	15.92%	16.81%	8.62%	9.61%	13.18%	12.88%	8.43%	9.57%
EURSEK	11.263	7.54%	6.88%	6.46%	5.94%	7.68%	7.38%	5.75%	6.26%
USDRUB	69.316	24.54%	20.38%	11.53%	19.25%	35.87%	28.75%	16.05%	18.73%
USDBRL	5.166	19.00%	21.26%	14.31%	15.40%	19.08%	20.43%	15.58%	16.74%
USDCNY	6.771	10.01%	10.55%	3.19%	4.82%	6.33%	7.30%	3.63%	5.44%
USDTRY	18.781	1.71%	1.92%	70.91%	17.99%	15.40%	13.53%	37.07%	20.43%
USDINR	81.646	5.30%	6.14%	4.22%	5.53%	5.78%	5.90%	4.83%	6.32%

[1] Realised 3-month volatility (annualised)   [2] Market implied 3-month volatility (annualised)

QCAM Volatility Indicator[3]

[3] The QCAM volatility indicator measures general volatility in global FX markets; the indicator is based on historical volatility of the main exchange rates, which are weighted by trading volume.

Source: QCAM Currency Asset Management, as of January 11th, 2023

FX Analytics

QCAM has developed an analytical framework to take scalable exchange rate positions. The QCAM exchange rate strategy for each currency pair has three principal components:

- **Macro**
- **Business Sentiment**
- **Technical**

The positioning signals from each component are aggregated into an overall positioning score for each currency pair. This score is used for the dynamic exposure management.

The Macro component consists typically of economic growth, balance of payments, fiscal and monetary policy and in some cases commodity fundamentals. The positions are either discretionary or model driven.

The Business Sentiment component is a rule-based framework built on business surveys.

The Technical component consists primarily of the technical analysis of daily exchange rates (trend following and mean reversion). We also consider speculative futures positions and the deviation of exchange rates from purchasing power parity.

The summary table below and the following pages show the QCAM strategy framework and the positioning for the major currency pairs actively covered by QCAM. The tables break each of the three strategies into subcomponents with an indication of the current impact. The charts show the respective exchange rate with past QCAM positions and their scale

Current positioning

In addition to the long JPY position, Macro went also long the EUR versus USD, CHF and SEK. The balance of the Business Sentiment positions has moved from modestly long USD to modestly short USD. Technical positions are mixed with the balance modestly short versus the USD. The balance of all strategies is short USD versus the EUR and the JPY, long USD versus the GBP and around neutral versus the USD for the CHF and the CAD.

Overview[1]

	Macro	Business Sentiment	Technical	Comment
EURUSD	+	+	+	Macro, Business Sentiment and Technical all shifted to long EUR.
USDJPY	–/–	– –	– –	All positions are now long JPY, including Technical.
EURCHF	+	+	+	Macro, Business Sentiment and Technical shifted to short CHF versus the EUR and USDCHF went neutral in Business Sentiment.
USDCHF	0	0	+	
GBPUSD	0	– –	+	Technical went long GBP, leaving the overall position modestly short GBP.
EURSEK	+/0	++	–	Macro went short SEK and Technical shifted to long SEK, leaving the overall position half short SEK
USDCAD	0/–	– –	++	Business Sentiment went long CAD and Technical short CAD leaving the overall position close to neutral.

[1] The signs relate to the first currency of the exchange rate pair ; ++ or – – mean 100% long or short; */* means split position.

Source: QCAM Currency Asset Management

EURUSD

The Euro-area economy continues to hold up better than feared, while the US economy shows more strain from higher interest rates. We have moved the Macro position to long EUR. Declining global growth uncertainty, improving terms of trade and the Fed probably ahead of the ECB in pausing the tightening are also expected to support the EUR. The Business Sentiment and Technical position both shifted to long EUR as well.

	FX Factors	EUR Impact	Comment
Macro	Current Account Balances	0/+	The surge in energy prices pushed the Euro-area's current account into deficit, but is now starting to recover
	Fiscal Balances	0/–	Energy relief packages are lifting the Euro-area fiscal deficit although the US deficit is rising as well
	Interest Rate Differentials	0	USD rates remain higher than EUR rates but the Fed is expected to pause the tightening earlier than the ECB
	Oil prices	0	Oil price decline likely to stabilize in wider range
Sentiment	Business Sentiment	+	The momentum in Euro-area surveys has improved versus US surveys
	Risk Sentiment	0/+	Uncertainties related to an energy crisis and risk aversion are both declining
Technical	Price Action	+	Price technicals moved from neutral to long EUR
	Spec Positions	0	Net long EUR positions increased further but not extreme
	PPP Valuation	+	EUR undervaluation is around 14%

EURUSD and QCAM Strategic Positioning

Source: QCAM Currency Asset Management

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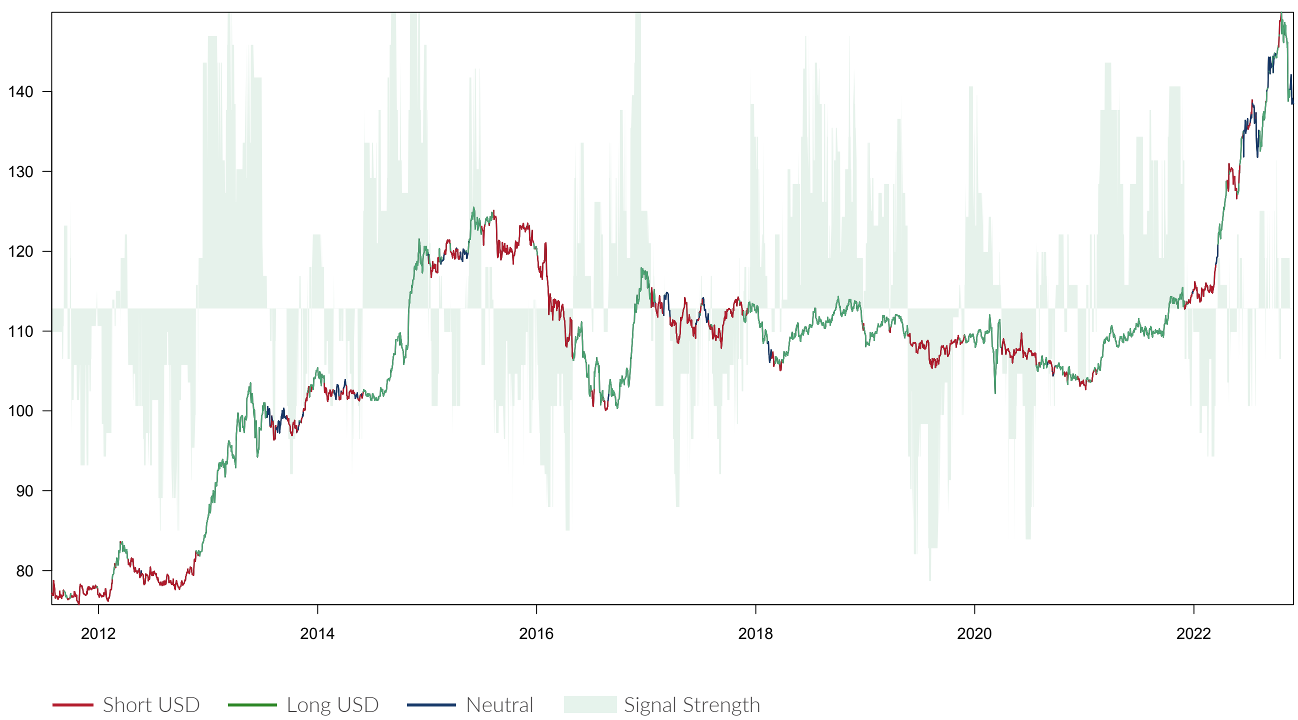
USDJPY

The economy remains on the delayed Corona recovery path, while inflation is rising. Against that background the BoJ made a first step to normalize policy at the end of last year.The current account cushion has declined but we believe will recover next year as energy prices have dropped to levels from before the Ukraine war. All our FX strategies have now moved long JPY including Technical.

	FX Factors	JPY Impact	Comment
Macro	Current Account Balances	0/+	The Japanese surplus has declined on rising energy prices but likely to recover in 2023
	FDI Flows	–	Net outflows have increased to the pre-Corona level
	Interest Rate Differentials	0/+	JPY rates remain low, but pressure on the BoJ to adjust policy more than the first step late last year is mounting
Sentiment	Business Sentiment	++	Momentum of Japanese Business Sentiment remains stronger than in the US
	Risk Sentiment	0	Changes in risk sentiment had little impact so far this year
Technical	Price Action	+	Price action turned JPY positive
	Spec Positions	0/+	Net short JPY positions declined somewhat but are still large
	PPP Valuation	+	The JPY is currently about 40% undervalued

USDJPY and QCAM Strategic Positioning



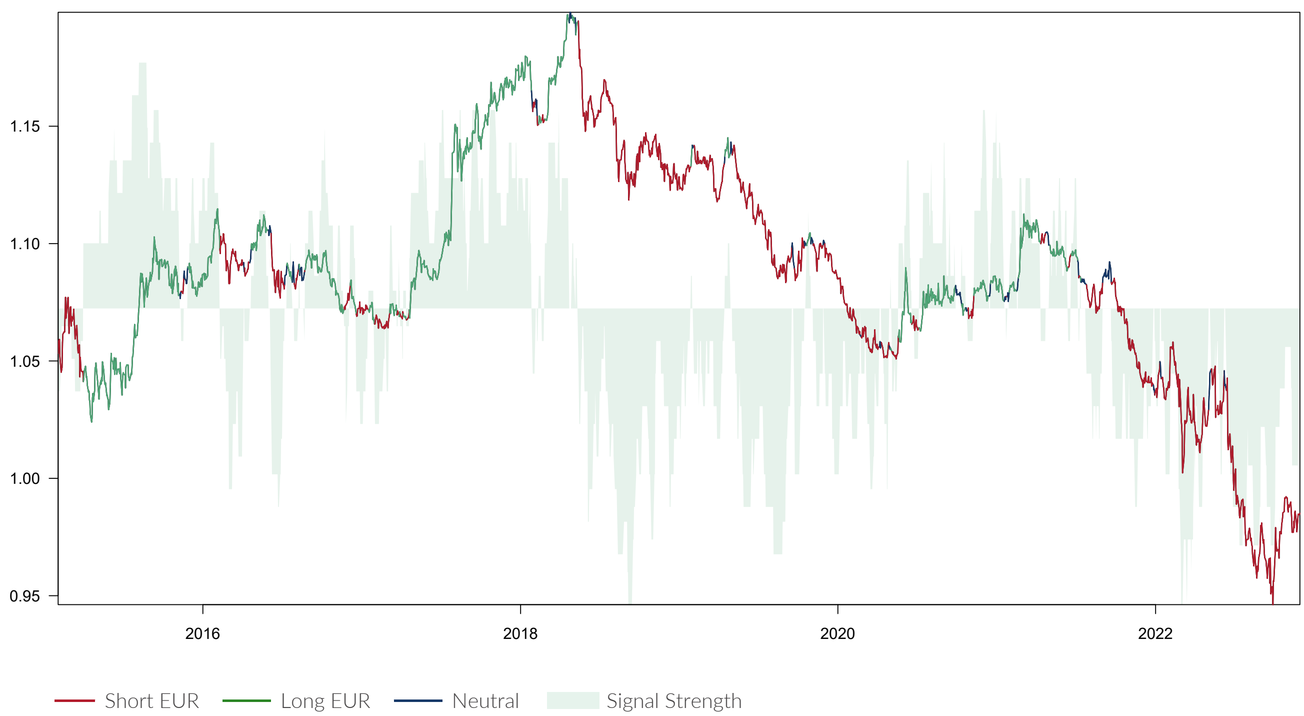
Source: QCAM Currency Asset Management

EURCHF

We moved the Macro position to short CHF versus the EUR. The CHF economy remains fundamentally sound and the SNB stays concerned about inflation. However, just like the CHF outperformed last year when global uncertainty was high, we believe the CHF will underperform as global risk aversion declines. In addition to Macro, Business Sentiment and Technical have also moved short CHF versus the EUR.

	FX Factors	CHF Impact	Comment
Macro	Current Account Balances	+	Surplus remains steady support for CHF
	Interest Rate Differentials	0	SNB rate policy no longer ahead of ECB
	SNB Policy Intervention	0/+	The SNB continues to reduce its foreign currency reserves gradually
Sentiment	Business Sentiment	–	Swiss economy lost momentum versus the Euro-area
	Risk Sentiment	0/–	Better risk sentiment is negative for CHF
Technical	Price Action	–	Technical shifted to short CHF
	Spec Positions	0	Net CHF position close to neutral
	PPP Valuation	0	CHF is around fair-value versus the EUR

EURCHF and QCAM Strategic Positioning



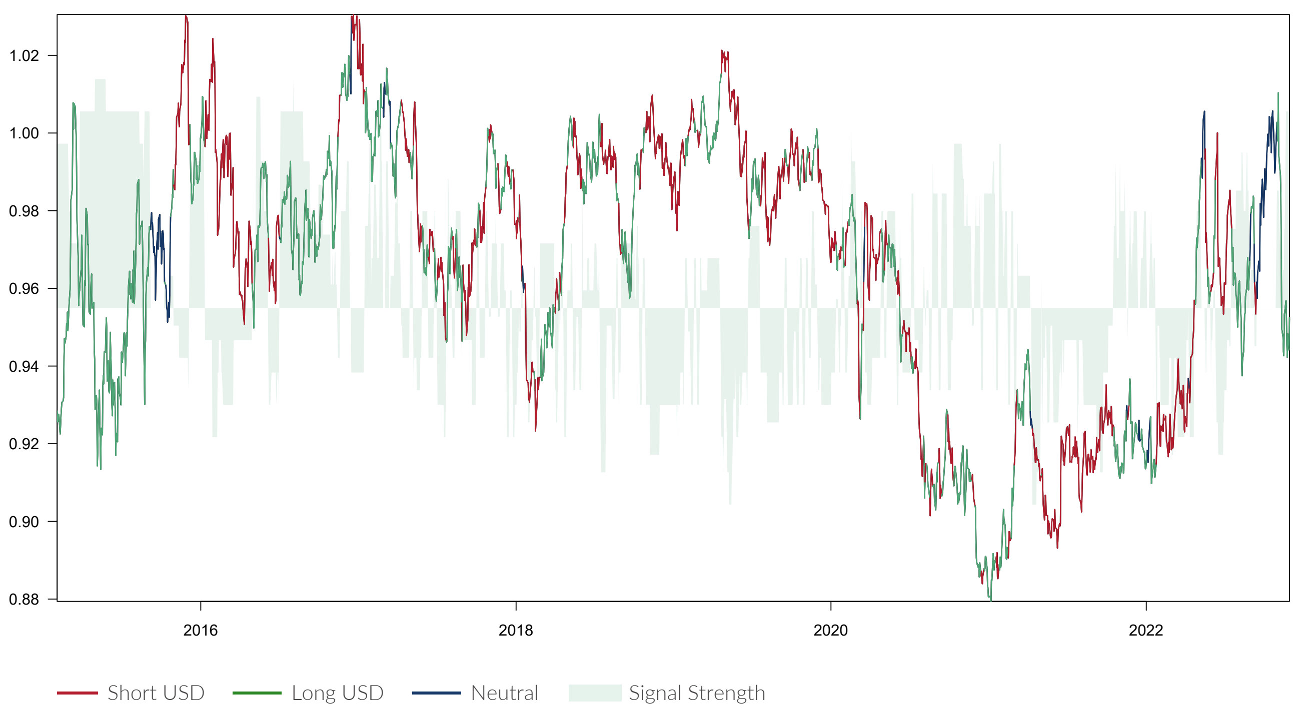
Source: QCAM Currency Asset Management

USDCHF

Our Macro positions in EURCHF (long) and EURUSD (long) imply neutral for USDCHF. However, the CHF is expected to perform better versus the USD as EURCHF is likely to be more sticky than EURUSD. Business Sentiment moved to neutral CHF, while Technical stayed short CHF. The balance of all three strategies is close to neutral.

	FX Factors	CHF Impact	Comment
Macro	Current Account Balances	+	Surplus remains steady support for CHF
	Interest Rate Differentials	0/–	Swiss rates have become positive but the gap to US rates remains large
	SNB Policy Intervention	0/+	The SNB continues to reduce its foreign currency reserves gradually
Sentiment	Business Sentiment	0	Swiss surveys are roughly in line with US surveys
	Risk Sentiment	0	Better risk sentiment is negative for CHF
Technical	Price Action	–	Technical has shifted short CHF
	Spec Positions	0	Net CHF position close to neutral
	PPP Valuation	+	CHF is about 15% undervalued versus USD

USDCHF and QCAM Strategic Positioning



Source: QCAM Currency Asset Management

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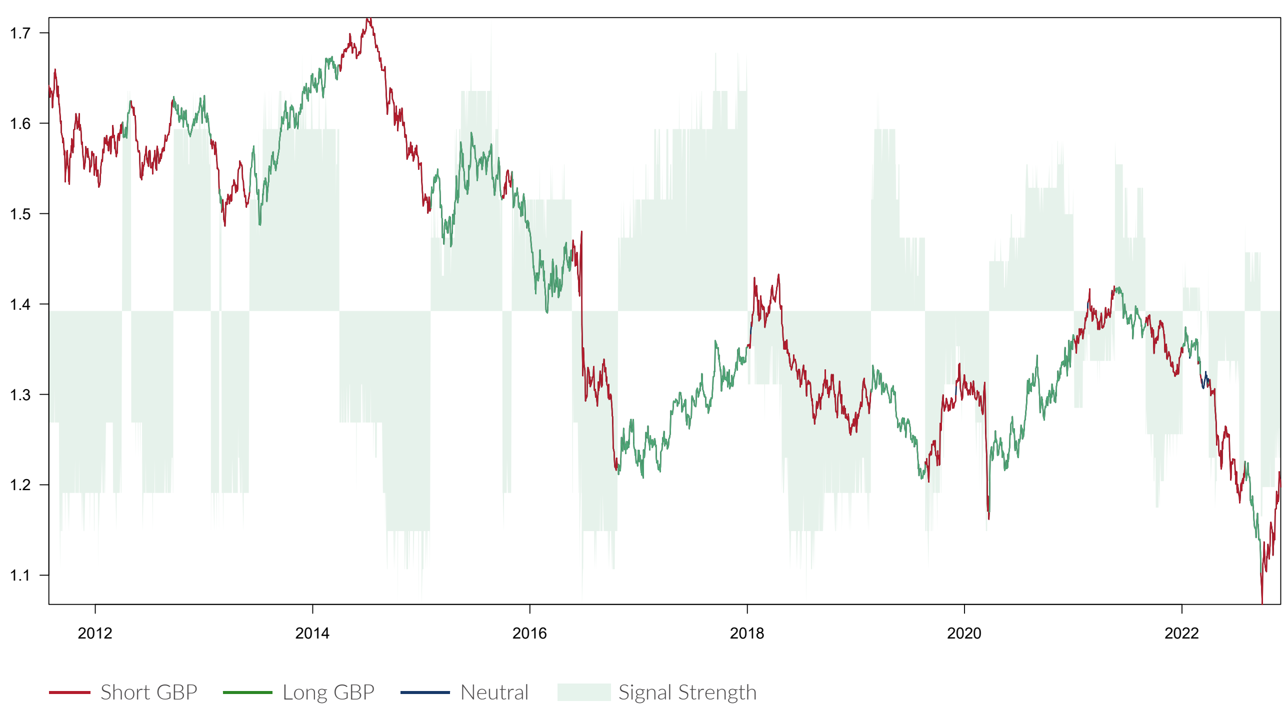
GBPUSD

We remain fundamentally bearish on the GBP given the negative Brexit fallout, growing stagflationary pressures and policy uncertainty. We maintain our neutral Macro position, given the current political relief and the decline in global risk aversion. Business Sentiment remains short GBP but technical moved long GBP. The balance of all our strategies is modestly short GBP.

	FX Factors	GBP Impact	Comment
Macro	Current Account Balances	0/–	The UK has like the US a twin deficit problem, but the current account deficit is widening faster
	Interest Rate Differentials	0/–	UK interest rates remain below US rates
	Oil Price	0	Oil price decline likely to stabilize in wider range
Sentiment	Business Sentiment	–	Momentum in UK surveys remains below US surveys
	Risk Sentiment	–	Political uncertainty remains despite leadership change
Technical	Price Action	+	Technicals shifted to long GBP
	Spec Positions	0	Net GBP position close to neutral
	PPP Valuation	+/0	The GBP is 23% undervalued

GBPUSD and QCAM Strategic Positioning



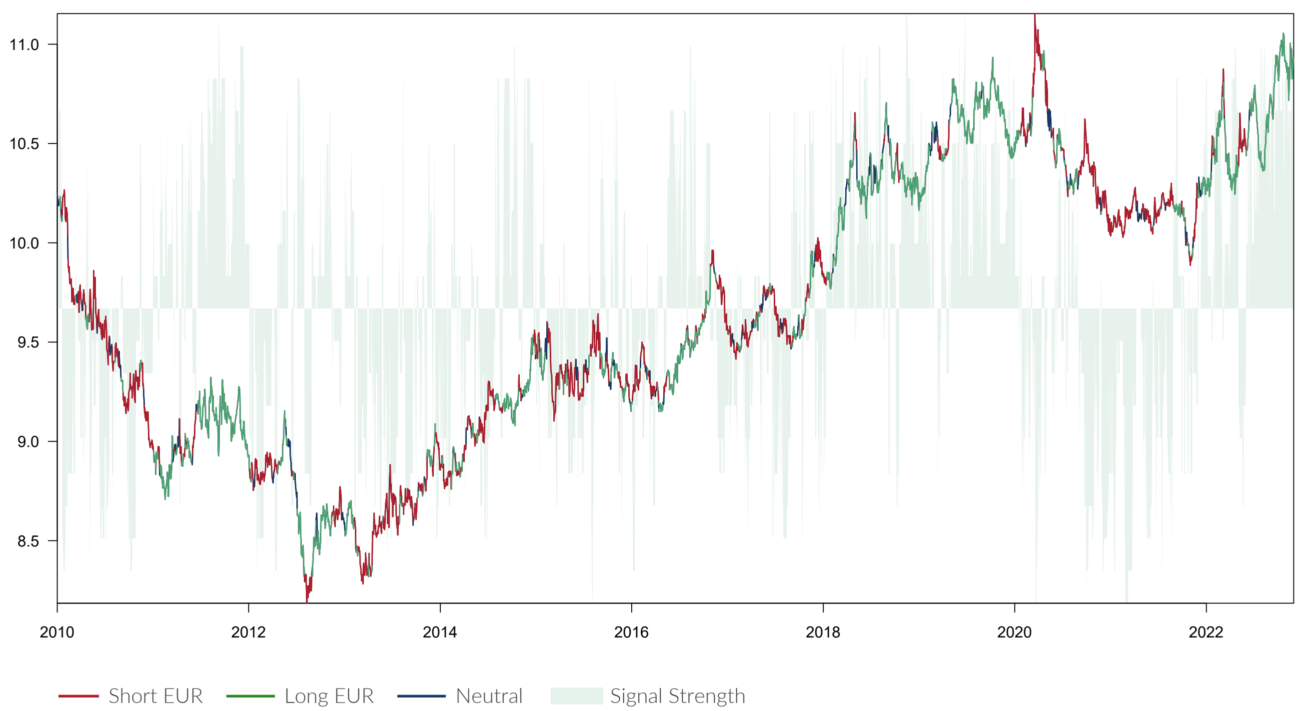
Source: QCAM Currency Asset Management

EURSEK

The Swedish economy is holding up so far, but the property slump is growing and spreading to other parts of the economy. We moved the discretionary Macro position to short SEK versus the EUR. The interest rate Macro model stayed neutral and Business Sentiment remined short SEK, Technical moved to long SEK. The balance of all strategy positions is half short SEK versus the EUR.

	FX Factors	SEK Impact	Comment
Macro	Current Account Balances	0/+	Sweden's surplus suffers less terms of trade losses compared to the Euro area
	Interest Rate Differentials	0	The Macro interest rate model stayed neutral
Sentiment	Business Sentiment	–	Surveys remained short SEK
	Risk Sentiment	–	Concerns over the property slump are rising
Technical	Price Action	+	Technicals shifted to long SEK
	PPP Valuation	+	The SEK is roughly 29% undervalued versus the EUR

EURSEK and QCAM Strategic Positioning



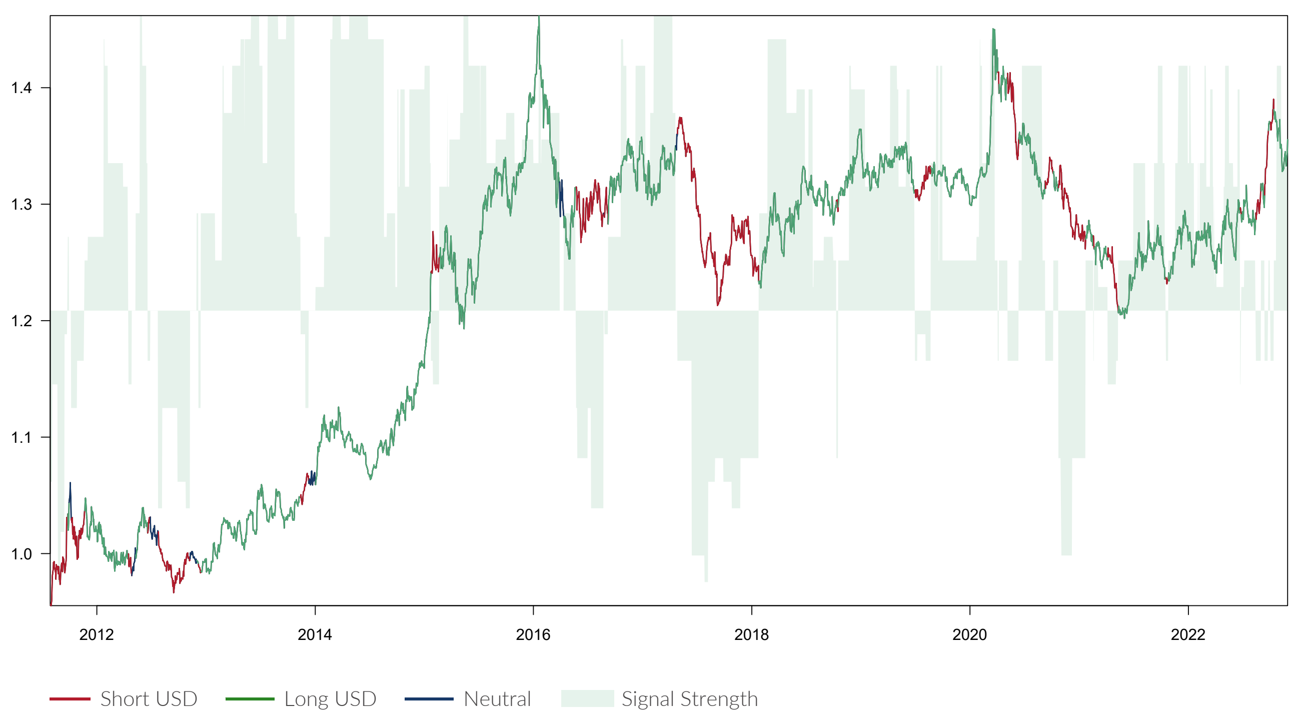
Source: QCAM Currency Asset Management

USDCAD

Canada's fundamental position remains solid although the current account dipped back into deficit and the adjustment in housing to higher interest rates creates some strains. Inflation is a bit lower than in the US and the BoC is moving in line with the Fed. Our discretionary Macro position stays neutral but the Macro oil price model went long CAD as forecasts moved above current prices. Business Sentiment went long CAD, while Technical moved to short CAD. As a result, the overall position is close to neutral.

	FX Factors	CAD Impact	Comment
Macro	Current Account Balances	0	Canada's current account fell back into deficit but remains small versus US deficit
	Oil Prices	0/–	Oil price decline likely to stabilize in wider range
	Interest Rate Differentials	0	CAD short-term and long-term rates are moving closely in line with US rates
	USD DXY Trend	0	Negative correlation with USD is small
Sentiment	Business Sentiment	+	Canada has stronger momentum versus the US in the surveys
	Risk Sentiment	0	No particular risk drivers at the moment
Technical	Price Action	–	Technicals went short CAD
	Spec Positions	0	Net short CAD position declined somewhat
	PPP Valuation	0	CAD is about 12% undervalued versus the USD

USDCAD and QCAM Strategic Positioning



Source: QCAM Currency Asset Management

QCAM Products and Services

Our edge derives from a focus on professional currency management, the absolute transparency and the careful examination of risk. It is our mission to offer our clients innovative transparent solutions, in a thoughtful and risk-controlled environment, and to surpass investment goals.

Currency Overlay

Risks under control – opportunities in sight: QCAM Currency Overlay offers customised solutions for individual needs and investment goals. Our Passive Overlay focuses on risk management, reduction of transaction costs and the customer specific management of resulting cash flows.
Our Dynamic Overlay aims to generate returns based on QCAM´s proprietary FX Analytics, embedded in a strict risk budgeting framework.

FX Best Execution

With larger foreign currency transactions, even a small difference in pricing leads to a major impact on costs and revenues. While it is unattainable for most players to keep the full overview of the deals available in the market, independence and transparency are essential. We carry out a Transaction Cost Analysis for our clients to evaluate potential cost savings. Also, QCAM assists its clients in the design of an optimal mulitbank-setup and conducts clients FX transactions transparently, independently and in the client's best interests.

Money Market Plus

QCAM's Money Market Plus Strategy «MMP» enhances yield via the use of the FX interbank swap-market. Also, we take advantage from excellent conditions which we receive from our large pool of partner banks and highly rated debtors for money market and currency transactions QCAM's MMP strategy has outperformed its peers for many years on a constant basis.

FX Alpha

Currencies as an attractive portfolio diversification via QCAM FX BIAS. The focus on QCAM's Business Intelligence Alpha Strategy is on business indicators which we have successfully used for many years. The strategy is market-neutral, no specific market environment necessary. Diversification via a pool of eight different currencies and their respective trading signals.

QCAM® Currency Asset Management

QCAM Profile

About us

QCAM Currency Asset Management AG is an independent financial services provider with a specific focus on currency and liquidity management. QCAM brings together a team of internationally experienced Currency and Asset Management specialists, who are managing assets of institutional clients of approx. USD 5 billion.

Our core competences are Currency Overlay Services, FX Transaction Execution according to „Best Execution“ principles, FX Alpha and Liquidity Management.

Long-standing customers of QCAM are pension funds, family offices, investment funds, companies, NGOs and HNWIs.

Headquarters

Zug, Switzerland

Founded

2005

Regulation

FINMA since 2007
SEC since 2014

Independent and Transparent

- Interests directly aligned with those of our clients
- Client focused solutions, tailored to each individuals requirements
- Independent selection of suitable external services providers
- No principal-agent conflicts
- Transparent fee model – no hidden costs
- Transparent reporting

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