December 2021

QCAM MONTHLY

QCAM Special ++ QCAM Insight ++ Economy and Interest Rates ++ FX Markets
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QCAM®
Currency
Asset
Management

QCAM Special

One year of FX BIAS

A year-ago QCAM launched the FX BIAS certificate. The performance so far is promising and validates the features of the prior back-tests: solid return, moderate volatility, and no significant cross-correlations. Our goal is to strengthen these features further by adding more currencies and business surveys to the FX BIAS model.

On December 10th 2020, we launched the newly developed QCAM FX BIAS via a UBS certificate. One year later it is time to assess the performance of the QCAM FX BIAS certificate. This QCAM Special starts with a brief introduction of the FX BIAS model, followed by an analysis of the market environment and the performance of the FX BIAS certificate over the last 12 months and concludes with an outline of future model expansions.

What is FX BIAS?

FX BIAS stands for Business Intelligence Alpha Strategy and is a rule-based long-short FX trading strategy that relies on business surveys. At QCAM, we are convinced that economic fundamentals are the most important drivers of currency trends. We find that business surveys reveal the relative business cycle performance between two countries and shape markets' expectations on relative economic growth and monetary policy. Business surveys have important features that make them suitable for rule-based FX trading strategies. In particular, they are widely available for all major economies, timely, regular and based on large and independent samples.

FX BIAS includes currently eight currencies: USD, EUR, JPY, GBP, AUD, CAD, CHF and SEK. Given the role of the US as global business cycle leader and the USD's dominant role in FX markets, we compare the business surveys of individual currencies with the US business surveys. Currencies whose business surveys have a stronger directional momentum versus the US get a positive signal and vice versa.

We weight the resulting FX positions of each currency versus the USD using the BIS foreign exchange trading data (currently 40.0% EUR, 20.8% JPY, 15.9% GBP, 8.4% AUD, 6.2% CAD, 6.2% CHF and 2.5% SEK). The idea behind the weighting is that more liquid currencies are more likely to respond to the survey results and less to idiosyncratic factors or large order flows. The possible outcomes range from 100% net long or short USD positions versus the other seven currencies or any combination in-between.

In practice, trading signals are calculated each time new business surveys become available and the FX positions are adjusted accordingly at the end of the trading day. Currency positions are held until new business survey results become available. This strictly rule-based approach allows for a seamless transition from business survey results to FX trading positions. There is no interference except for strict risk management rules (stop-loss triggers). The QCAM FX BIAS certificate issued via UBS implements the strategy using FX forwards and a 1.5 leverage factor.

A challenging market environment

It is helpful to recapitulate FX market and economic conditions over the last 12 months before analyzing the performance of the FX BIAS. The USD appreciated over the last 12 months: +5.5% USD DXY and +5.6% versus the weighted basket of the other seven FX BIAS currencies. However, the USD rally did not start as a clear trend. Until February, the USD traded in a side-way range, then rallied in March, but lost all gains subsequently in April and May. Only from June onwards did the USD consistently appreciate. FX volatility was relatively low (see page 12) but market views on the direction of exchange rates diverged significantly.

The Pandemic played an important role in shaping FX market and business conditions. The USD benefitted initially from the faster deployment of Corona vaccines in the US and harsher lockdowns elsewhere. This support faded in spring as others made more vaccination progress and eased lockdown measures. The Delta variant changed the dynamic again in summer. The situation was further complicated by the emergence of severe supply bottlenecks. Business surveys weakened although demand conditions remained strong (eroding supplier delivery times versus strong new orders). The discovery of the Omicron variant added further uncertainty lately.

Live performance confirms test results

Against this background, the FX BIAS certificate performed very well. Over the last 12 months it produced a total return of 6.0% with a volatility of 5.1% and a Sharpe ratio of 1.2 (see Table). Importantly, the FX BIAS returns showed little to no correlation with the S&P500, the VIX, the 10-year US Treasury yield, G10 implied FX option volatility and commodity prices. The overall performance of solid returns, moderate volatility, a Sharpe ratio above 1 and low correlations validates the prior back-testing results.

On average, the FX BIAS certificate was about 27% long USD over the last 12 months, but with significant changes. The FX BIAS certificate started out 30% short USD last December (see Chart 1 next page). In January, the certificate switched to neutral and then to a net long USD position of over 90%, positioning it well for the USD rally in March. The certificate held and further expanded its gains while the USD fell in April and May by shifting first to a near neutral USD position and subsequently to a 25% net short USD position.

The net short USD position was maintained through August in a range of 20% to 35%, while the USD appreciated, depressing the accumulated return. The certificate switched again in September, initially to a small and subsequently to a large net long USD position of over 90%. Since then, the USD appreciated versus all of the other seven basket currencies. At the end of November, the net long USD position declined to around 55% and fell further to around 35% in early December, just when the emergence of the Omicron variant unsettled financial markets.

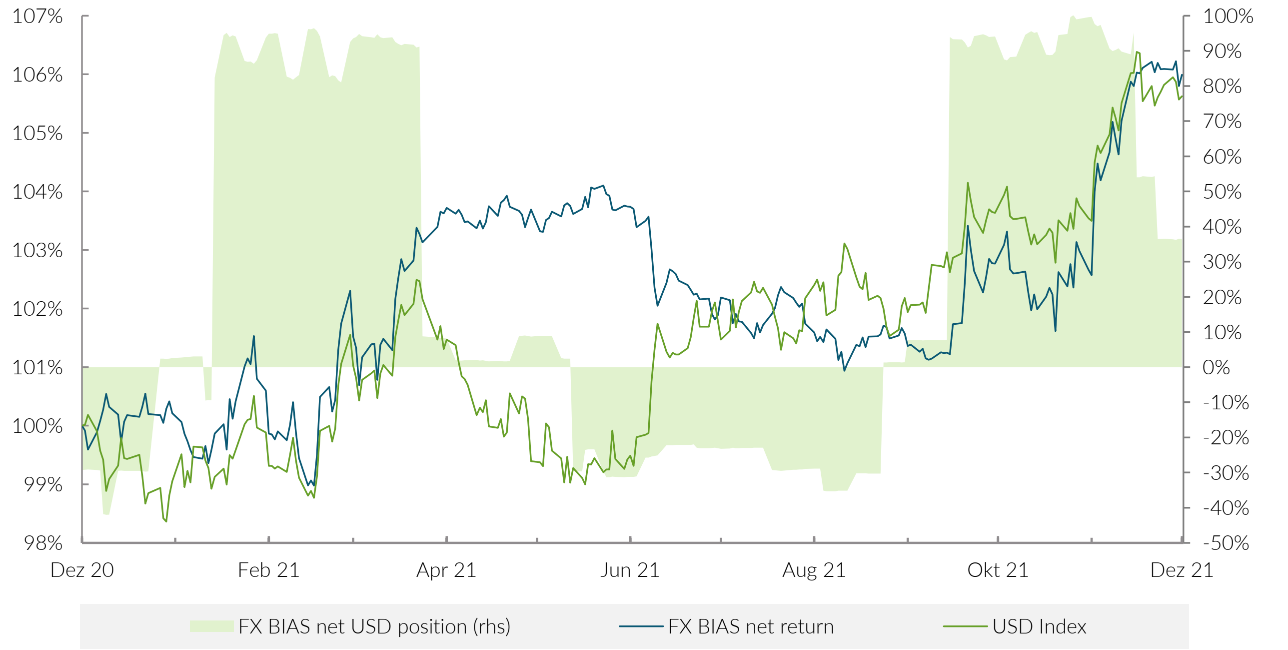
Performance of the QCAM FX BIAS certificate since launch

In % except for Sharpe ratio, December 10th 2020 to December 9th 2021

	FX BIAS	FX BIAS single currency components						
	Total	EUR	JPY	GBP	AUD	CAD	CHF	SEK
FX change vs USD[1]	-5.6	-6.8	-8.2	-0.8	-4.6	0.5	-3.8	-6.7
FX BIAS weights[2]	100.0	40.0	20.8	15.9	8.4	6.2	6.2	2.5
Long/short position[3]	-26.7	19.3	-90.6	-31.4	-94.6	-63.9	4.2	44.1
Return	6.0	7.0	11.8	-0.8	7.2	-1.1	-1.8	1.4
Volatility	5.1	5.8	5.6	6.9	9.1	6.2	5.5	8.8
Sharpe ratio	1.2	1.2	2.1	-0.1	0.8	-0.2	-0.3	0.2
Correlation coefficients with								
S&P 500	-11.1	13.1	-13.4	-8.0	-45.9	-36.0	12.8	20.7
VIX	10.4	-14.9	16.6	3.5	40.8	36.3	-16.4	-14.7
10-year US Tsy. Yield	16.1	7.3	36.8	5.6	-0.7	15.2	-1.0	-2.2
G10 FX implied volatility	17.1	-0.4	11.8	1.7	43.9	32.1	-11.0	-9.8
Commodity price index	-6.9	15.2	-10.6	-0.1	-51.1	-36.6	11.5	22.9

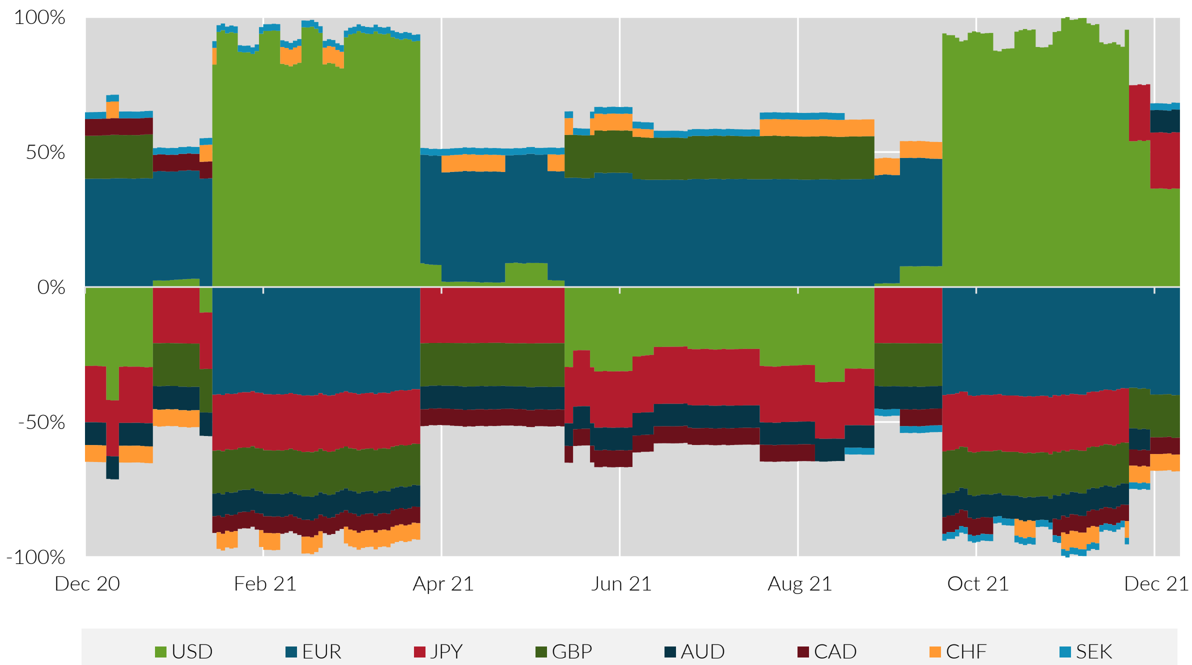
Source: QCAM; The performance data refers to the USD based certificate of the QCAM FX BIAS implemented by UBS. There is also a EUR based certificate, which has similar performance features but a roughly 50 basis points lower return due to the difference in EUR and USD deposit rates. All returns are net of costs and fees.
1) This is the change of each currency (basket) versus the USD, (–) is a depreciation versus the USD.
2) The weights are 100% USD versus the sum of all other currency weights.
3) (–) is short the currency (basket) and long the USD and (+) is long the currency (basket) and short the USD.

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



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

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



Source: QCAM

Individual currency positions

The changing net USD positions are the outcome of individual currency position changes versus the USD over the last 12 months (see Chart 2 and individual currency performances in the table).

- The **EUR** position was basically a mirror image of the USD position. It performed well through May, was negative in June through the first half of September and then performed well again. Overall, the EUR position has a similar return and volatility profile as the overall FX BIAS certificate.
- The **JPY** position was consistently short except for the last two weeks. The JPY also fell consistently versus the USD, making the JPY position the star performer of the FX BIAS portfolio, with a double digit return and a Sharpe ratio above two.
- The **GBP** like the AUD, the CAD and the SEK followed a somewhat different pattern over the last 12 months, appreciating in the first half and depreciating in the second half. The GBP position, which switched twice from long to short and back, struggled to capture this pattern and ended with a small loss. This was partly due to particular distortions in the UK (infection gloom versus vaccination euphoria and supply shocks).
- The **AUD** position was consistently short except for the last week. As a result, performance was negative through May, but then turned positive and ended the 12 months with a total return of over 7%. Noteworthy is the relatively high negative correlation of the AUD returns with commodities, which suggests that the business surveys have not captured the commodity trends, which are important for the AUD.
- The **CAD** position was more mixed and on balance less short than the AUD position. The performance followed a similar profile but ended the 12 months with a small loss. CAD returns have also a negative correlation with commodities, but less significant as for the AUD.
- The **CHF** pattern was similar to the EUR, but the CHF position (unlike the EUR position) was less consistently short since September and failed to end the 12 months period in positive territory.
- The **SEK** position was long until August, then shifted to short and a week ago back to long. The performance ended the 12 months with a small gain but was more volatile than most others.

Noteworthy is the fact, that the overall portfolio produced a lower volatility than any of the individual currency positions, underscoring the benefit of currency diversification. The average return of the individual currency positions is also lower than the portfolio return, due to the high weight of the two best performers. An equal-weighted portfolio, however, would also have resulted in lower volatility and a Sharpe ratio above one. Thus, the weighting is not critical for volatility-adjusted returns and the current-weighting does not have an optimization bias.

The way forward

Going forward, we plan to strengthen the overall product feature of solid returns, moderate volatility and low correlations by adding more currencies and business surveys. The scope to add more currencies is limited to smaller liquid currencies, which limits the diversification benefits. Second, adding more currencies also means finding relevant business surveys. We also seek to diversify the portfolio by adding more business surveys to the existing portfolio currencies. We have already done so in two cases with positive results.

Overall, we are encouraged that the performance since the launch of the certificate has validated the concept and structure of the FX BIAS model. Of course, special events like a geo-political crisis could break the link between business surveys and currency trends, but we think such disruptions would be temporary. We believe the concept and structure of FX BIAS offers an interesting alternative for investors who look to diversify their portfolios with uncorrelated investment products that produce risk-adjusted returns above one.

For further information and the fact sheet please contact us.

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QCAM Insight

2022 sneak preview

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The USD outstripped expectations in 2021. The US economy outperformed amid a bumpy global recovery and the Fed turned hawkish earlier. The two main themes for 2022 will be a smoother global recovery and Fed interest rate lift-off. We believe the USD has more upside but the pattern may not be smooth and the list of possible risks is long.

The USD was the winner of 2021, appreciating 6,9% year-to-date versus other major currencies (DXY) and 11% versus EM currencies. However, USD performance was mixed both over time as well as versus individual currencies. The USD rallied in late February and March while the US led in the deployment of vaccines and many other economies struggled with lockdowns. In April and May, however, the USD lost all prior gains as vaccination in other countries accelerated. The USD only started to appreciate consistently after the hawkish Fed turn in June.

Among major currencies, the USD appreciated the most versus the JPY, followed by the EUR and the SEK. In contrast, the CAD appreciated slightly versus the USD and the GBP fell only marginally. Both currencies did well through May, but lost their leads after the Fed meeting in June. Among EM currencies, the spread was even wider, with the TKY down 45% year-to-date versus the USD followed by the ARS (-17%), while the CNY actually gained nearly 2% and the RUB was flat.

Less bumpy

Corona did not derail the global recovery, but it was still a disruptive force. The Delta variant depressed sentiment and delayed reopenings to varying degrees across countries. This was compounded by the supply-side problems which resulted from stronger goods demand and lagging production and shipping capacities.

It is still unclear how the new Omicron variant will play out. Corona will remain a risk factor but we are convinced that the pandemic will gradually become endemic and social and economic activity will increasingly decouple from the virus dynamic. Second, we believe supply-side bottlenecks will gradually recede. Indeed, there is already some evidence of stronger output in the fourth quarter as well as improving shipping conditions.

In terms of regions, Europe currently looks to be a laggard, suffering from both a new Corona wave and more severe supply constraints. Similar to the pattern this year, however, we do not expect that condition to last beyond the first quarter. A risk factor for the global outlook is China. The policy shifts this year have produced lower growth and more regulatory interventions, while the property sector has become a risk for the financial sector and the economy. The risk is that current efforts to stabilize the financial sector and the economy stumble.

Different speeds

The easing of supply-side bottlenecks and favorable-base effects should help dampen inflation in 2022. On the other hand, a return to the low inflation days before the Pandemic is unlikely, given labor, energy and housing shortages. As a result, central banks will focus more on inflation control, but to different degrees.

The Fed is likely to lead with a first rate hike probably before the middle of next year and more to follow. On the other end of the spectrum is the BoJ, which will most likely keep policy unchanged throughout the year. The BoC and the RBA should be able to follow the Fed, while the ECB and the BoE will probably struggle to balance the growth/inflation trade off and ultimately do little or nothing.

Not just monetary policy

The different speeds of monetary policy adjustments are likely to be a key driver of FX movements among major currencies in 2022. However, monetary policy is not the only thing that matters.

- We believe that the **USD** has generally more upside than downside potential given the outlook on Fed policy. The first uncertainty is the Fed itself. On the one hand, the Fed could turn even more hawkish (next week's FOMC meeting could already be a surprise). On the other hand, the Fed has a track record of bending quickly if financial market and economic conditions slip, given the economy's high public and private debt burden. USD support should also fade if the global economy picks up more speed than currently expected. The US twin deficits played less of a role this year but could come to haunt the USD in a different environment. Finally, the outcome and impact of the midterm elections in November 2022 remain a wildcard.
- The **EUR** will lack monetary support as the ECB is likely to be reluctant to tighten policy soon. However, the EUR has also support and upside potential. The main support comes from the current account surplus. The EUR has also upside potential if its own economy together with the global economy recovers stronger. A possible risk for the EUR is the victory of an extremist candidate in the French presidential election. An escalation of the conflict between the Ukraine and Russia would probably also hurt the EUR.
- The **JPY** is a clear short given the monetary policy outlook, especially with rising carry outflows. However, three factors will probably moderate JPY weakness and could even create an upside surprise. First, the Japanese economy was a laggard since the outbreak of Corona, but the recovery momentum has started to rise recently. Second, Japan's current account surplus remains stubbornly high. Third, the JPY has kept its safe haven quality as its recent bounce after the Omicron news showed.
- The **GBP** is caught between economic downside risk (late impact of BREXIT) and inflation upside risk (energy, housing and labor). What the BoE will do with the dilemma is probably a muddle, which is not helpful for the GBP, especially given a still sizeable current account deficit. Separation movements in Ireland and Scotland are additional risks. The main upside potential for the GBP is its undervaluation in PPP terms, which could be unleashed if nothing turns out as bad as it currently seems.
- The **AUD** and the **CAD** have the most potential to keep up with the USD or even exceed it. Both economies are recovering well from the Corona downturn. The BoC and the RBA have no reason to drag their feet. Both countries have managed to become current account surplus economies. Finally, commodity prices should remain a support, although less so than in 2021. The main risk for the AUD and the CAD is a global downturn or a market sell-off, which could also be the result of too aggressive Fed tightening.
- The **CHF** follows the EUR due to its economic links and the SNB's policy focus. However, this link has softened this year as the SNB allowed the CHF to appreciate more versus the EUR. We think the SNB will allow more SNB strength as long as this is not causing acute economic problems. This should mute the negative impact of a EUR depreciation versus the USD.
- The **SEK** has also the chance to outperform the EUR, but the Riks Bank seems less inclined to tighten policy before the ECB. Still, the SEK has a chance to beat the EUR on stronger economic momentum and positive payback for the recent sell-off caused by the political crisis.
- Fed tightening is generally bad news for EM currencies with large external and fiscal deficits, high debt levels and inconsistent policy responses. Thus, the usual suspects are vulnerable: **ARS, BRL, MXN, TKY** and **ZAR**. The **RUB** seems protected by higher commodity prices, but economic sanctions in response to Russian aggression could offset that support. The **CNY** has performed well this year despite falling growth. Whether that trend continues will depend on the government's success in reviving the economy.

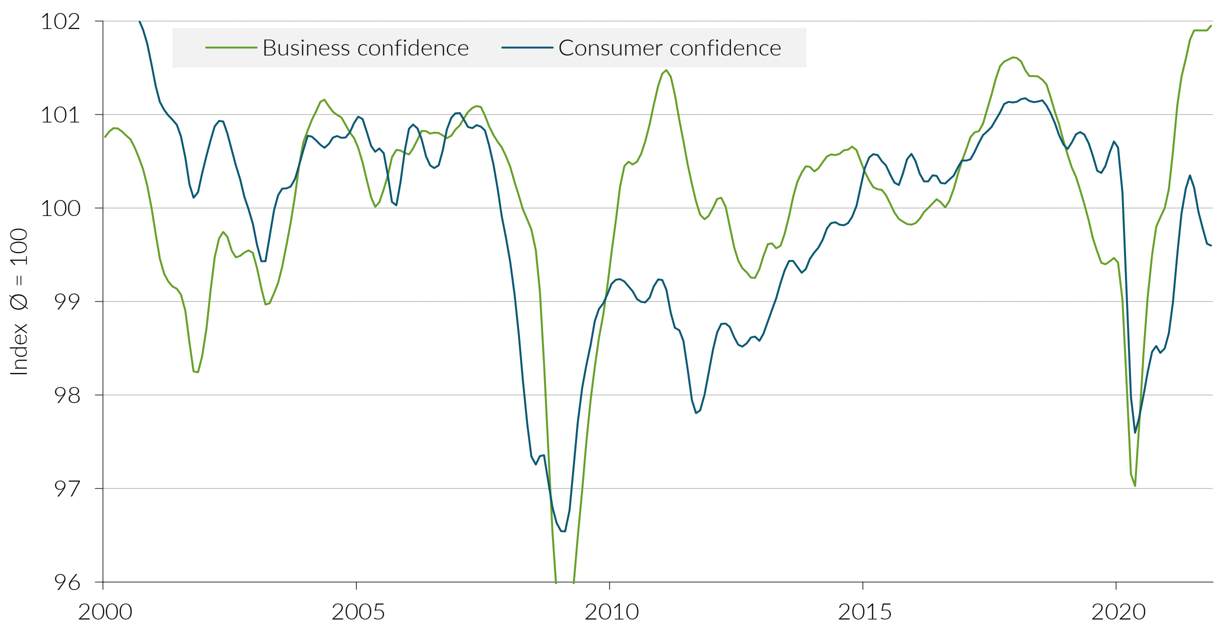
Economy & Interest Rates

First figures point to a pick-up in global growth in the fourth quarter, confirming that the Delta-variant and supply bottlenecks have hurt but not derailed the recovery. The Omicron variant creates new uncertainty and a Corona winter wave is building. Still, social and economic mobility continues to decouple from Corona cases. We believe the Corona and supply disruptions will fade next year. Inflation should also moderate but remain higher than before the pandemic. Fiscal policy is adjusting as the pandemic fades but debt levels remain high. Central banks are starting to normalize policy, yet at different speeds and a shift to outright restrictive monetary conditions still seems distant.

	Real GDP growth[1]		Unemployment rate[1]		Inflation rate[1]		Current account[2]		Fiscal balance[2]		Public debt[2]	
	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022	2021	2022
Global	5.9	4.5	n.a.	n.a.	3.2	3.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Developed	5.2	4.2	n.a.	n.a.	3.3	3.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
USA	5.5	4.0	5.5	3.5	4.5	4.0	-3.5	-2.5	-11.0	-6.0	133	131
Canada	5.0	3.5	7.5	5.0	3.5	3.0	0.2	0.0	-6.5	-7.5	110	105
Euro-area	5.0	5.0	7.5	7.0	2.5	2.5	2.7	2.7	-7.7	-4.0	99	97
Sweden	4.0	4.0	9.0	7.5	2.0	2.0	4.0	5.0	-3.0	-1.0	40	40
Switzerland	3.5	3.5	3.0	3.0	0.5	0.5	4.3	3.0	-2.5	-0.5	43	42
UK	7.0	5.0	4.5	4.0	2.5	4.0	-3.4	-3.0	-12.0	-6.0	109	107
Japan	2.0	3.5	2.8	2.5	0.0	1.0	3.3	3.2	-9.0	-4.0	257	254
Australia	4.0	3.5	5.5	4.5	3.0	2.0	1.3	0.5	-8.5	-6.0	62	66
Emerging	6.8	4.5	n.a.	n.a.	3.3	3.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
China	8.0	5.0	4.1	4.0	1.0	2.0	1.5	0.5	-7.5	-7.0	69	72
India	9.5	8.5	n.a.	n.a.	5.5	4.5	-1.5	-2.5	-11.5	-10.0	91	90
Russia	4.5	2.5	5.0	4.5	6.5	6.5	4.5	3.0	-1.0	0.0	18	18
Brazil	5.0	1.0	14.0	13.5	8.0	8.0	-1.7	-3.0	-7.0	-7.5	91	92

Source: OECD, IMF World Economic Outlook and QCAM estimates 1) In percent 2) In percent of GDP

OECD business and consumer confidence*



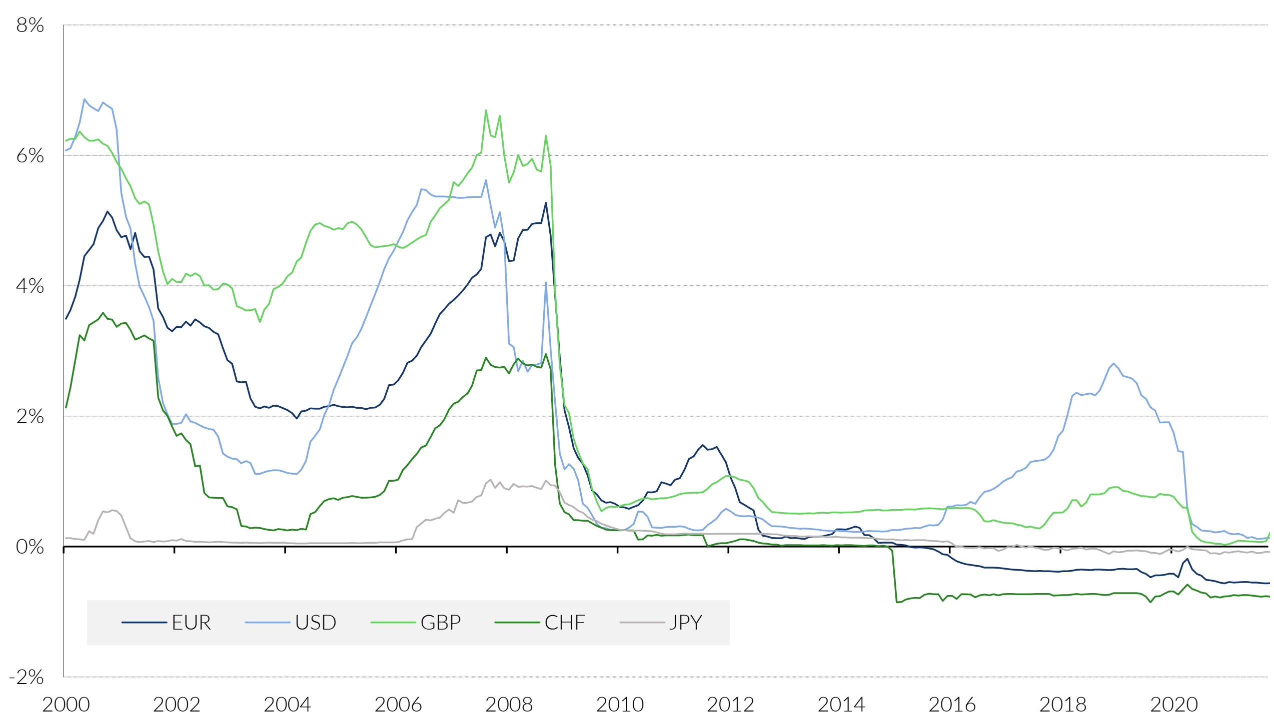
Source: OECD and QCAM, *the last observations are QCAM estimates based on other surveys

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	0.09%	0.08%	0.07%	0.08%	0.87%	1.60%	1.52%	1.37%	0.93%	1.50%
EUR	-0.50%	-0.49%	-0.49%	-0.49%	-0.45%	0.15%	0.14%	0.04%	-0.27%	0.07%
JPY	-0.04%	-0.03%	-0.03%	-0.04%	-0.06%	0.10%	0.11%	0.08%	0.04%	0.07%
GBP	0.17%	0.14%	0.06%	0.04%	0.32%	1.04%	1.10%	0.93%	0.44%	0.85%
CHF	-0.74%	-0.72%	-0.72%	-0.75%	-0.75%	-0.04%	0.05%	-0.12%	-0.37%	-0.21%
AUD	0.11%	0.03%	0.03%	0.04%	0.47%	1.99%	2.03%	1.40%	0.98%	1.43%
CAD	0.22%	0.22%	0.20%	0.21%	0.83%	2.10%	2.08%	1.69%	1.26%	1.70%
SEK	-0.05%	-0.04%	-0.04%	-0.07%	-0.10%	0.84%	0.90%	0.69%	0.34%	0.59%
RUB	8.52%	7.89%	6.84%	4.10%	6.01%	8.90%	8.89%	7.31%	6.21%	7.37%
BRL	8.78%	8.66%	6.45%	0.98%	3.90%	10.84%	12.00%	10.94%	7.56%	8.47%
CNY	2.29%	2.29%	2.29%	2.55%	2.39%	2.65%	2.65%	2.69%	3.10%	2.91%
TRY	15.75%	16.69%	19.95%	16.27%	17.04%	21.62%	18.69%	16.81%	12.50%	15.03%
INR	3.69%	3.67%	3.47%	3.45%	4.50%	5.68%	5.85%	5.72%	5.22%	5.47%

3-month Libor



Source: QCAM Currency Asset Management, as of December 8th, 2021

FX Markets

FX Performance vs. PPP

The USD rallied in November across the board. Among major currencies the AUD was the worst performer, while the JPY held up well. The TRY fell the most among EM currencies, while the CNY gained slightly. Speculative long USD positions increased further but are not yet overextended. Interest rate differentials are rising but forward hedging remains cheap by past standards. Actual and implied FX volatilities increased further, but remain low by past standards. PPP estimates continue to crawl against the USD. Among major currencies, the JPY is most undervalued followed by the GBP and the EUR.

Overview

	Current Exchange Rate	Performance[1]				Purchasing Power Parity[2]		
		YTD	1M	12M	5 years	PPP	Neutral Range	Deviation[3]
EURUSD	1.135	-7.17%	-2.05%	-6.32%	6.98%	1.28	1.14 - 1.42	-11%
USDJPY	113.660	10.03%	0.37%	9.15%	-0.46%	94.24	83.6 - 104.8	21%
GBPUSD	1.324	-3.03%	-2.37%	-0.94%	5.31%	1.60	1.42 - 1.77	-17%
EURCHF	1.045	-3.43%	-1.29%	-2.94%	-3.12%	1.04	0.99 - 1.10	0%
USDCHF	0.921	4.01%	0.77%	3.61%	-9.43%	0.84	0.75 - 0.94	10%
GBPCHF	1.219	0.86%	-1.61%	2.64%	-4.63%	1.23	1.12 - 1.34	-1%
CHFJPY	123.462	5.80%	-0.38%	5.36%	9.91%	93.75	82.8 - 104.7	32%
AUDUSD	0.718	-6.71%	-3.27%	-3.22%	-3.65%	0.77	0.68 - 0.86	-7%
USDCAD	1.264	-0.97%	1.51%	-1.37%	-4.36%	1.20	1.12 - 1.29	5%
USDSEK	9.034	9.93%	5.27%	6.72%	-1.25%	8.07	7.14 - 9.00	12%
EURSEK	10.251	2.03%	3.09%	-0.05%	5.62%	8.67	8.13 - 9.20	18%
USDRUB	73.537	-0.88%	3.23%	0.30%	16.17%	54.83	46.4 - 63.2	34%
USDBRL	5.544	6.73%	-0.01%	8.30%	63.83%	3.64	3.00 - 4.28	52%
USDCNY	6.336	-2.55%	-0.82%	-2.80%	-8.37%	6.96	6.74 - 7.17	-9%
USDTRY	13.671	83.98%	41.24%	74.99%	296.57%	5.88	4.64 - 7.12	132%
USDINR	75.413	3.23%	2.08%	2.33%	11.85%	69.79	64.8 - 74.8	8%

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

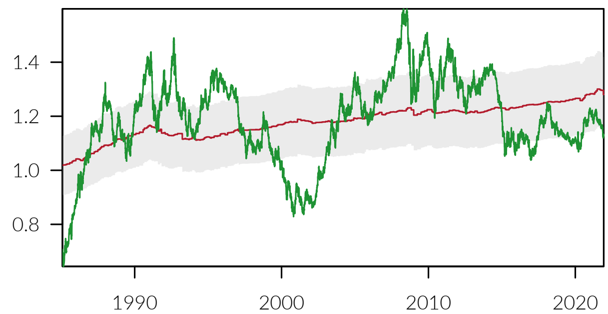
[2] Purchasing power parity (PPP) is estimated based on the relative development of inflation rates in two currency markets; the neutral range is determined by ± 1 standard deviation of the historical variation around the PPP value.

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

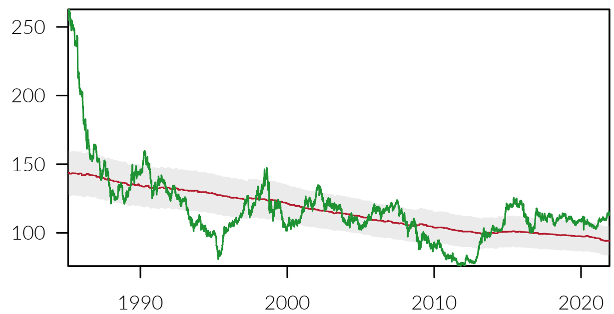
Source: QCAM Currency Asset Management, as of December 8th, 2021

Purchasing Power Parity

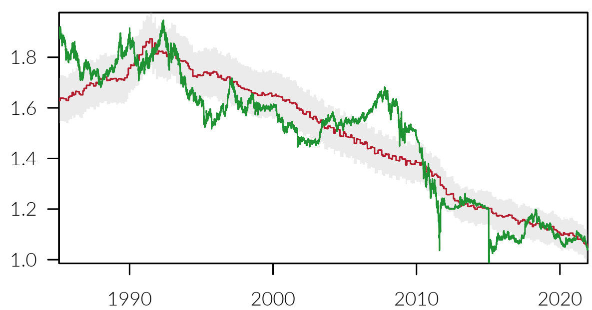
EURUSD



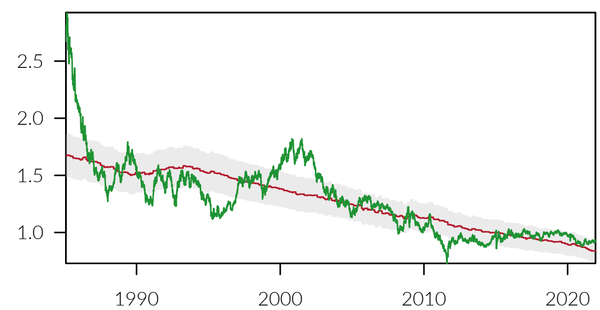
USDJPY



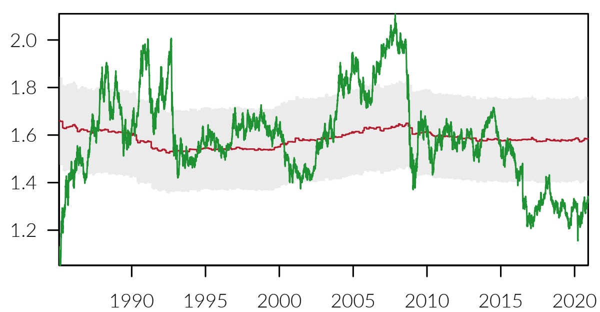
EURCHF



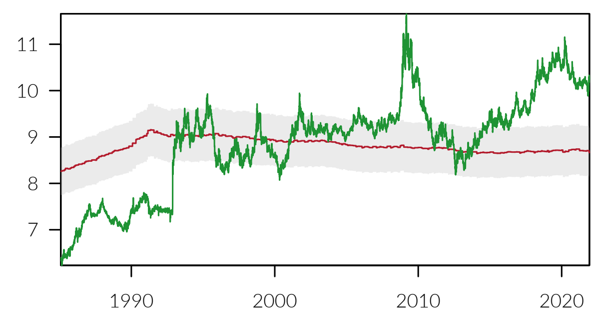
USDCHF



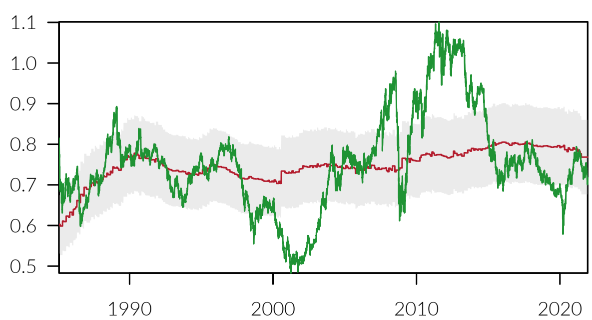
GBPUSD



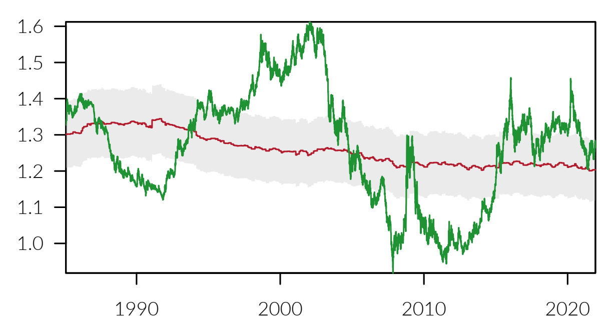
EURSEK



AUDUSD



USDCAD



PPP Spot Neutral Range

Source: QCAM Currency Asset Management, as of December 8th, 2021

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Currency
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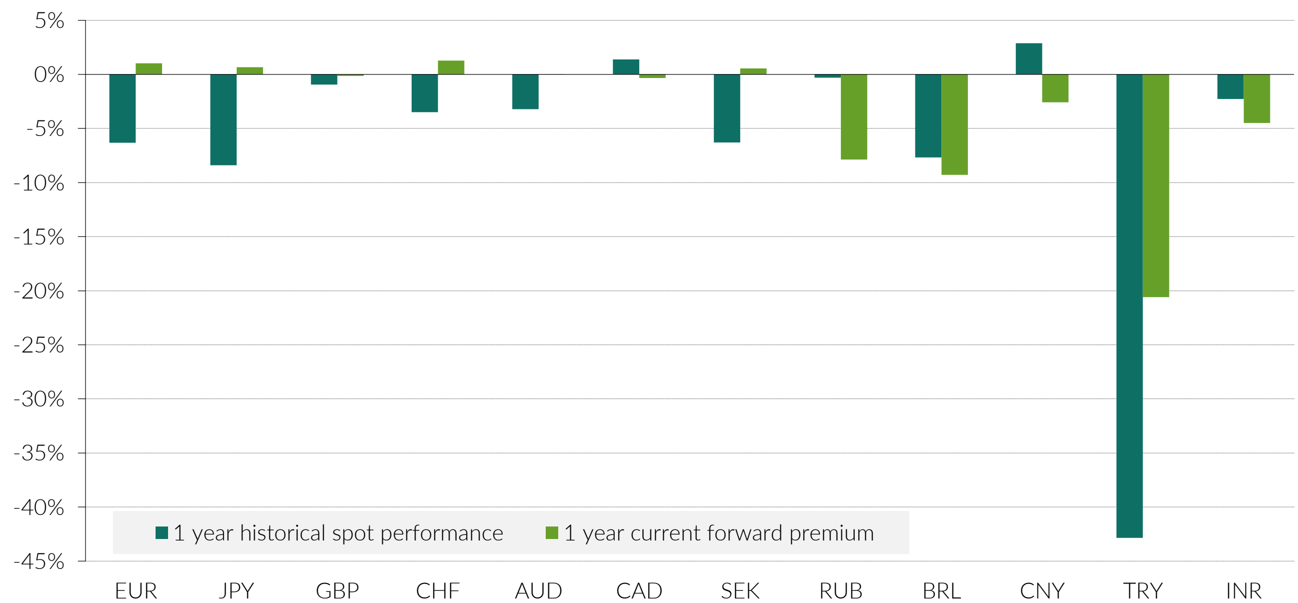
Management

FX Spot vs Forwards

FX Forwards Level and Premium

	Current Exchange Rate	Forward Level			Premium p.a.		
		1M	3M	12M	1M	3M	12M
EURUSD	1.135	1.1361	1.1375	1.1466	1.26%	0.92%	1.01%
USDJPY	113.660	113.5908	113.5404	112.9072	-0.68%	-0.42%	-0.65%
GBPUSD	1.324	1.3244	1.3242	1.3218	0.59%	0.16%	-0.14%
EURCHF	1.045	1.0448	1.0444	1.0425	-0.18%	-0.21%	-0.22%
USDCHF	0.921	0.9196	0.9181	0.9092	-1.44%	-1.13%	-1.22%
GBPCHF	1.219	1.2178	1.2157	1.2017	-0.85%	-0.97%	-1.36%
CHFJPY	123.462	123.5435	123.6806	124.1927	0.74%	0.71%	0.58%
AUDUSD	0.718	0.7181	0.7182	0.7179	0.56%	0.24%	0.02%
USDCAD	1.264	1.2640	1.2641	1.2686	-0.36%	-0.09%	0.33%
USDSEK	9.034	9.0228	9.0180	8.9842	-1.41%	-0.70%	-0.54%
EURSEK	10.251	10.2492	10.2562	10.2994	-0.15%	0.22%	0.47%
USDRUB	73.537	74.0496	75.0119	79.8111	7.84%	8.02%	8.41%
USDBRL	5.544	5.5802	5.6581	6.1102	7.65%	8.26%	10.02%
USDCNY	6.336	6.3504	6.3786	6.5025	2.74%	2.72%	2.59%
USDTRY	13.671	13.9184	14.4330	17.2188	20.37%	22.30%	25.60%
USDINR	75.413	75.6527	76.1552	78.9628	3.70%	3.94%	4.62%

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



Source: QCAM Currency Asset Management, as of December 8th, 2021

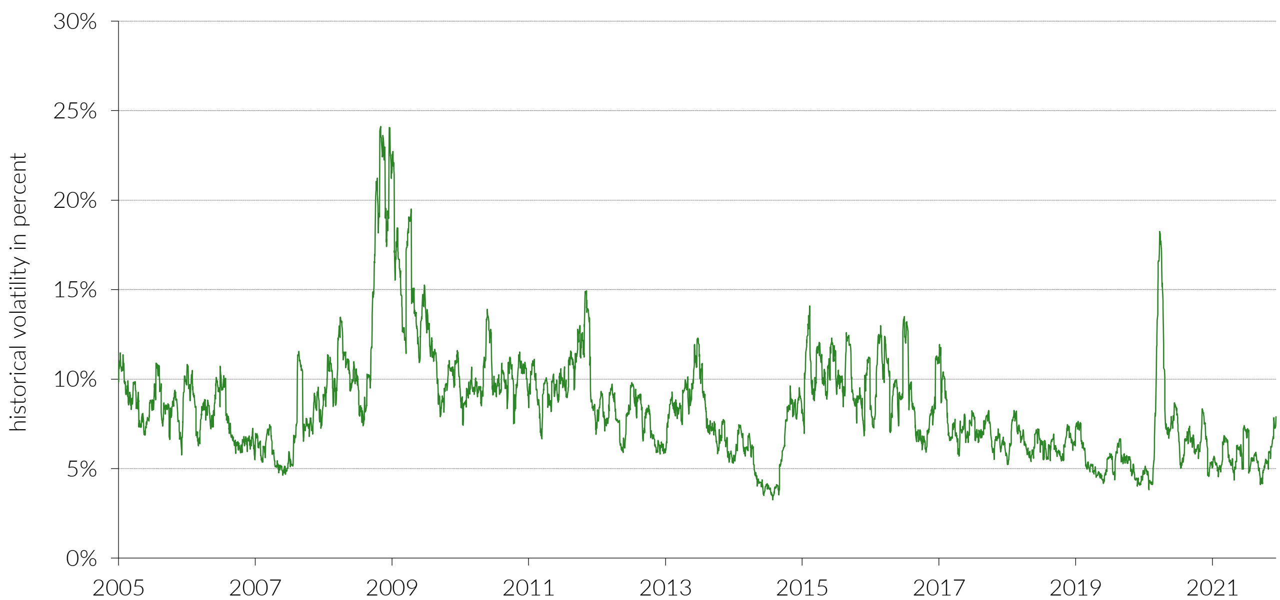
FX Volatility

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	1.135	5.83%	4.79%	6.14%	6.33%	6.28%	5.13%	6.70%	6.74%
USDJPY	113.660	7.30%	5.24%	6.52%	6.83%	7.10%	6.18%	6.45%	7.45%
GBPUSD	1.324	6.76%	7.15%	9.07%	8.32%	7.93%	7.43%	10.15%	8.83%
EURCHF	1.045	4.04%	4.37%	2.89%	4.10%	4.88%	4.40%	4.40%	5.07%
USDCHF	0.921	6.57%	5.93%	6.57%	6.40%	6.67%	6.03%	6.75%	6.63%
GBPCHF	1.219	7.61%	6.97%	8.36%	7.84%	7.73%	7.08%	9.73%	8.32%
CHFJPY	123.462	5.51%	5.04%	5.74%	6.03%	6.73%	6.08%	6.45%	6.86%
AUDUSD	0.718	8.23%	8.73%	9.18%	8.49%	9.68%	8.68%	9.35%	8.88%
USDCAD	1.264	6.30%	7.10%	6.09%	6.57%	6.68%	6.18%	6.83%	6.71%
USDSEK	9.034	8.18%	7.78%	9.10%	8.46%	9.28%	8.03%	9.18%	8.75%
EURSEK	10.251	6.26%	4.75%	6.11%	5.52%	6.38%	5.00%	5.93%	6.00%
USDRUB	73.537	10.93%	8.37%	12.90%	11.92%	14.58%	10.76%	14.04%	12.49%
USDBRL	5.544	13.61%	14.19%	15.32%	14.49%	16.18%	17.45%	18.68%	15.39%
USDCNY	6.336	3.31%	3.31%	5.15%	4.46%	4.40%	4.00%	6.08%	5.19%
USDTRY	13.671	31.53%	11.22%	19.54%	15.77%	43.66%	19.26%	18.07%	17.24%
USDINR	75.413	3.93%	4.10%	4.16%	5.43%	5.25%	5.05%	6.55%	6.25%

[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 December 8th, 2021

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 principle 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 Sentiment component is a rule-based framework built on economic sentiment surveys and complemented with risk sentiment estimates.

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 divide 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

We maintained all neutral discretionary macro positions going into the year-end holiday season. Overall long USD Business Sentiment positions declined with the shift of the JPY from short to long. Technical positions are all long USD with the exception of neutral in the CHF. The long Technical position of the CHF vs. the EUR has stayed in place.

Overview[1]

	Macro	Business Sentiment	Technical	Comment
EURUSD	0	–	– –	All strategy components remained unchanged, resulting on balance in a modest short EUR position.
USDJPY	0/–	– –	+	Discretionary Macro remained neutral, Macro interest rates and Business Sentiment switched to long JPY, Technical stayed short JPY.
EURCHF	0	+	– –	All positions remained unchanged only Business Sentiment shifted to short CHF vs. EUR. The balance of CHF strategy positions is slightly long versus the EUR and modestly short versus the USD.
USDCHF	0	++	0	
GBPUSD	0	– –	–	All strategy components remained unchanged, resulting on balance in a short GBP position.
EURSEK	0/0	++	– –	Business Sentiment and Technical switched to short and long SEK respectively. Overall position stays neutral.
USDCAD	0/+	++	++	Technical has turned from long to short CAD, while all other strategy positions remained unchanged.

[1] The signs relate to the first currency of the exchange rate pair

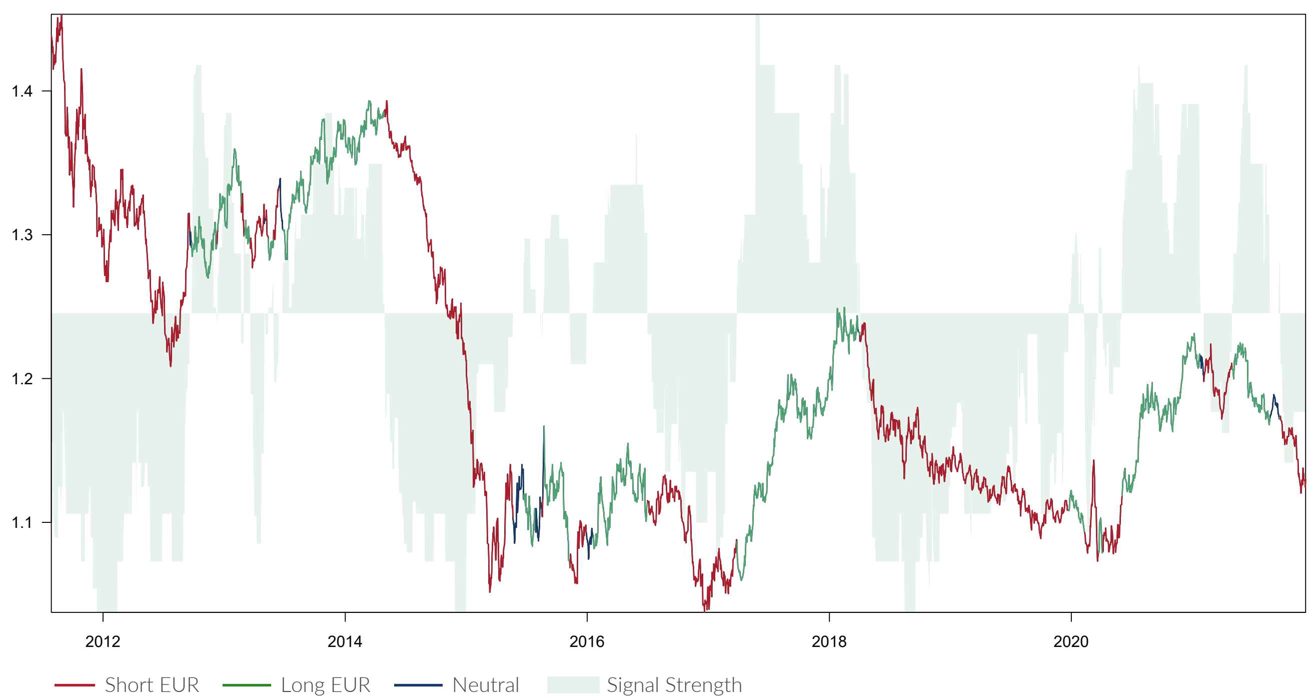
Source: QCAM Currency Asset Management

EURUSD

We maintained the neutral discretionary Macro position for the year-end holiday period. The EUR remains supported by favorable balances but the USD has higher and rising interest rate expectations on its side. The Fed meeting on December 15th could surprise on either side. Business Sentiment and Technical stayed both short EUR. The balance of our strategy positions is about 50% short EUR.

	FX Factors	EUR Impact	Comment
Macro	Current Account Balances	+	The gap between the US deficit the Euro-area surplus is consolidating
	Fiscal Balances	+	The US deficit has declined after the surge at the start of the year but remains high versus the EUR deficit
	Interest Rate Differentials	– –	Interest rate differentials are a positive for the USD and likely to widen further
	Oil prices	0	Oil prices are consolidating at higher levels
Sentiment	Business Sentiment	–	The momentum in Euro-area surveys continues to lag the US surveys
	Risk Sentiment	+/–	Global growth concerns are declining but the fallout of the new Omicron variant is not clear yet
Technical	Price Action	–	Price technicals are firmly short EUR
	Spec Positions	0	The EUR is net oversold but not at extreme levels
	PPP Valuation	+	EUR undervaluation is around 11%

EURUSD and QCAM Strategic Positioning



Source: Bloomberg, QCAM Currency Asset Management

USDJPY

We maintain the neutral discretionary Macro position going into the year-end holiday period. The interest rate differential of the JPY to the USD is rising and increasingly hurting the JPY (carry outflows). On the other hand, the JPY has solid current account support and is undervalued and oversold. Moreover, Business Sentiment is picking up momentum. Technical remained short JPY. The overall JPY position has shifted to a small long.

	FX Factors	JPY Impact	Comment
Macro	Current Account Balances	+	The Japanese surplus has returned to the levels before Corona, while the US deficit has widened
	FDI Flows	0/–	Net outflows have increased again, but not to the pre-Corona level not offsetting the current account surplus fully
	Interest Rate Differentials	– –	Japanese short-term rates remain zero-bound, while short-term rates rise elsewhere, especially in the US
Sentiment	Business Sentiment	++	Momentum of Japanese Business Sentiment has picked up
	Risk Sentiment	+	Omicron concerns support the JPY (safe haven)
Technical	Price Action	–	Price action remains short JPY
	Spec Positions	0/+	Net short JPY position increased further approaching potential
	PPP Valuation	+	The JPY is currently about 20% undervalued

USDJPY and QCAM Strategic Positioning

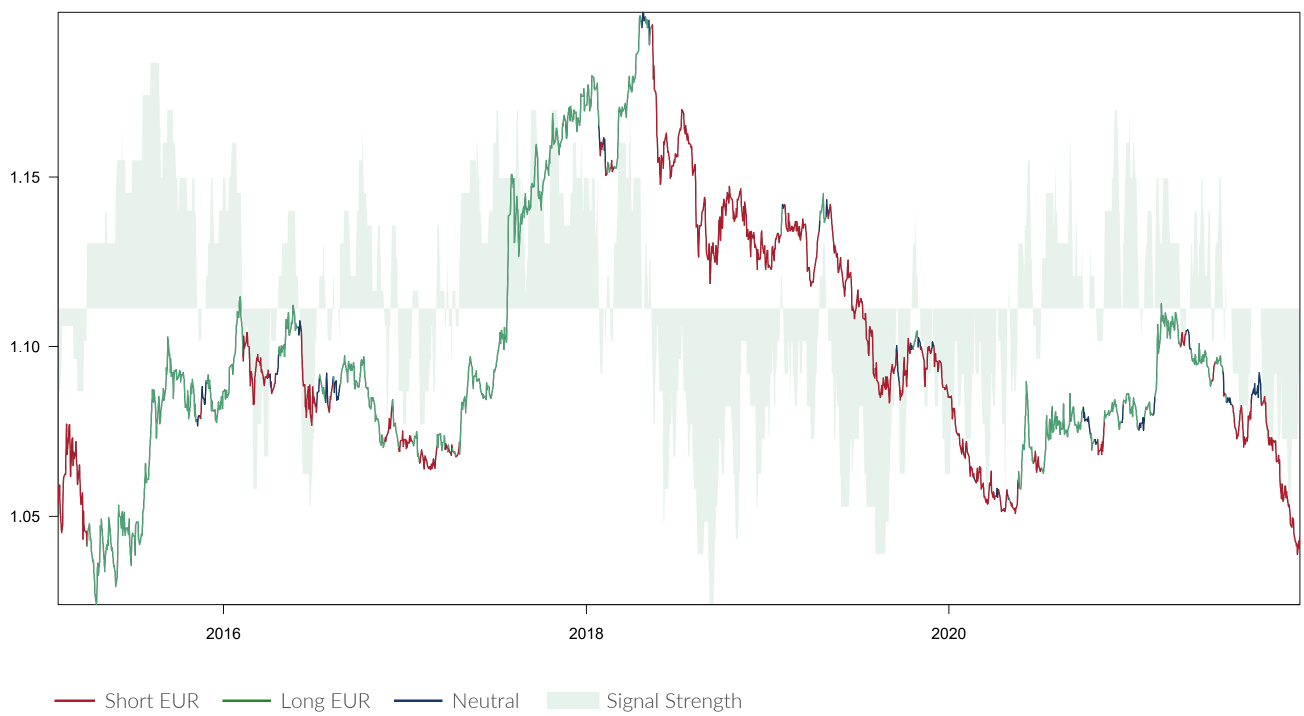
Source: Bloomberg, QCAM Currency Asset Management

EURCHF

The CHF gained further versus the EUR on safe-haven flows and the absence of the SNB to prevent the appreciation. Fundamentally, CHF and EUR are in balance but the CHF has gained significantly versus the EUR since September. We maintain a neutral Macro position over the year-end holiday period. Business Sentiment switched to short CHF and Technical stayed long CHF. The balance of all strategies is slightly long CHF versus the EUR.

	FX Factors	CHF Impact	Comment
Macro	Current Account Balances	+	Surplus likely to remain stable
	Capital Flows (Safe Haven)	0/+	Some inflows on global growth concerns
	Interest Rate Differentials	0	No significant change expected
	SNB Policy Intervention	+	The SNB has not intervened despite EURCHF approaching 1.04, signalling a possible policy shift
Sentiment	Business Sentiment	0	Swiss economy is catching up with the Euro-area in the surveys
	Risk Sentiment	0/+	Risk conditions look more balanced going forward but the CHF seems to benefit from risk aversion in FX
Technical	Price Action	+	The undeterred move toward 1.04 has been a positive technical signal
	Spec Positions	0	Net short CHF position declined a bit well below reversal levels
	PPP Valuation	0/–	CHF is around fair-value versus the EUR

EURCHF and QCAM Strategic Positioning



Source: Bloomberg, QCAM Currency Asset Management

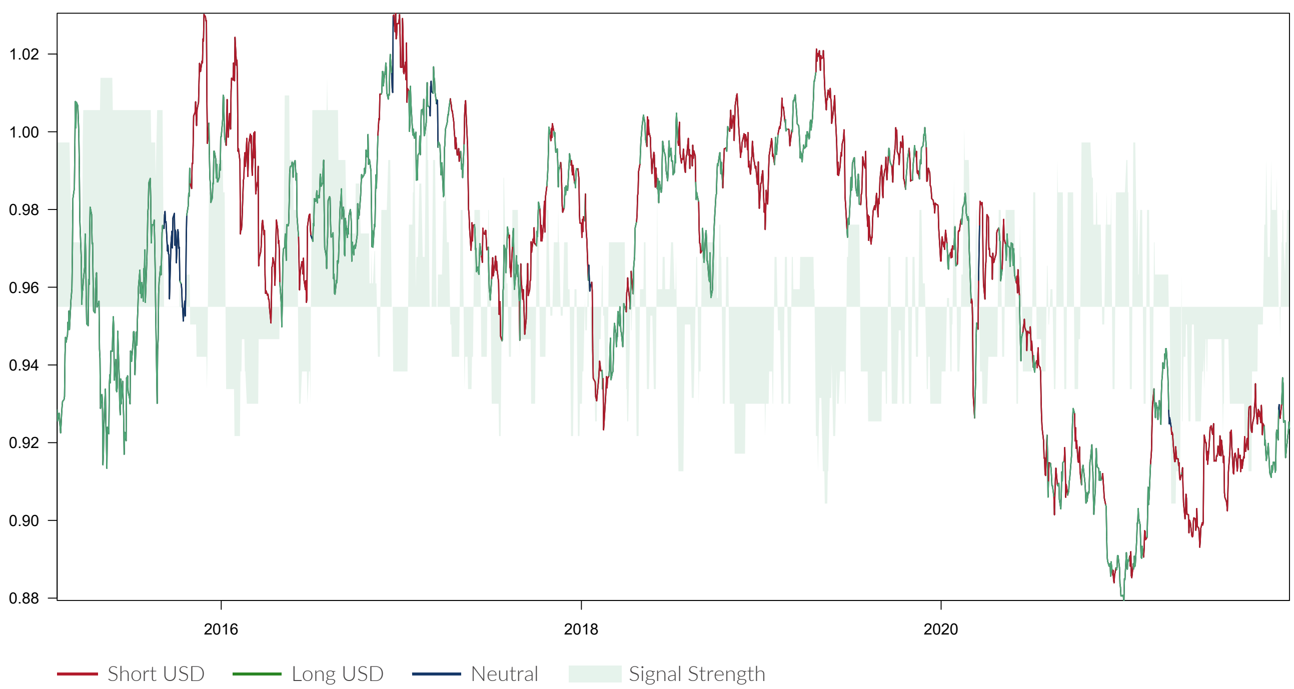
QCAM® Currency Asset Management

USDCHF

Our Macro position remains neutral CHF versus the USD (same as EURCHF and EURUSD). The CHF is fundamentally strong, but rising USD interest rates make the CHF less attractive. Business Sentiment stayed short CHF and Technical remain neutral. The balance of all three strategies is modestly short CHF.

	FX Factors	CHF Impact	Comment
Macro	Current Account Balances	+	Surplus likely to remain stable
	Capital Flows (Safe Haven)	0/+	Some inflows on global growth concerns
	Interest Rate Differentials	–	Rising USD interest rates have widened the rate differential
	SNB Policy Intervention	0/+	Tied to EURCHF intervention risk
Sentiment	Business Sentiment	– –	Swiss surveys still lag US surveys
	Risk Sentiment	0	CHF benefits somewhat from Omicron concerns
Technical	Price Action	0	Price action is in a range and remained neutral
	Spec Positions	0	Net short CHF position declined a bit well below reversal levels
	PPP Valuation	0/+	CHF is about 10% undervalued versus USD

USDCHF and QCAM Strategic Positioning



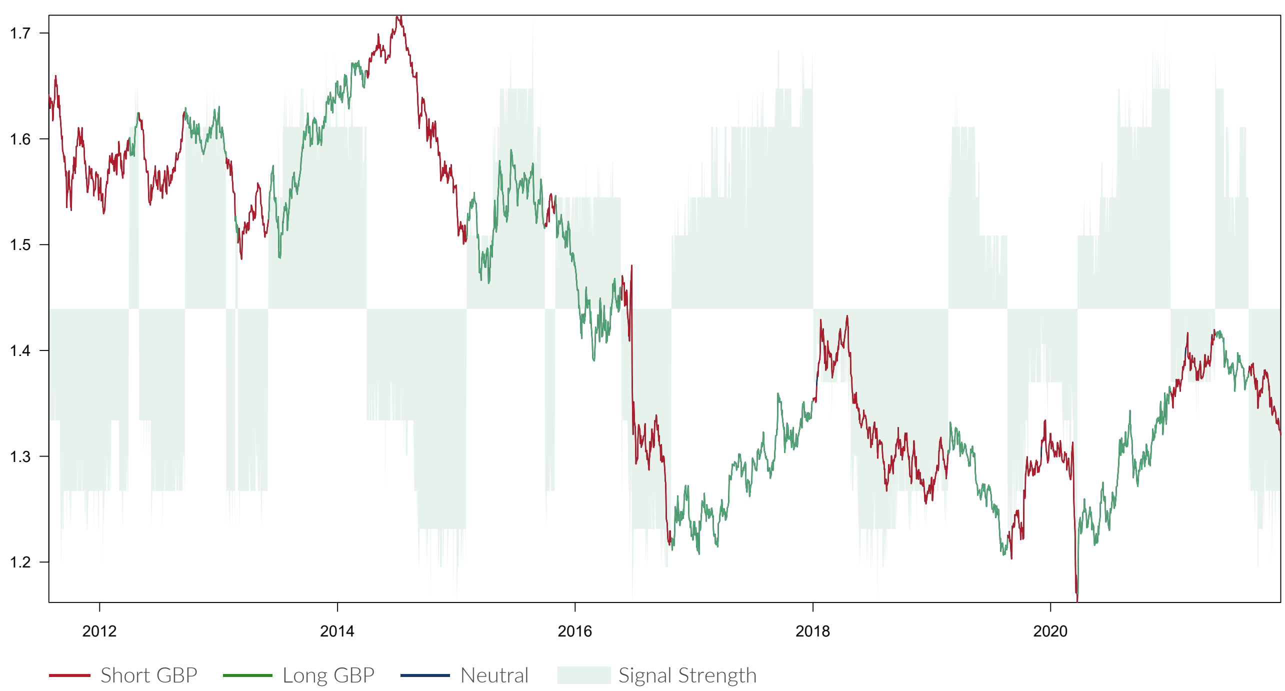
Source: Bloomberg, QCAM Currency Asset Management

GBPUSD

We maintain the neutral discretionary Macro position over the year-end holiday period. We remain fundamentally negative on the GBP as we believe the damage caused by BREXIT has not yet fully played out, while the UK remains a deficit economy. The worst of the Delta variant seems over, but Corona cases remain high and energy and logistics shortages are still present. Business Sentiment and Technicals both remain short GBP. The balance of our strategies is about 50% short GBP.

	FX Factors	GBP Impact	Comment
Macro	Current Account Balances	0	The UK has like the US a twin deficit problem
	Interest Rate Differentials	–	US interest rates are rising above UK rates across all maturities
	Oil Price	0	Stabilizing after fall
Sentiment	Business Sentiment	– –	Momentum in UK surveys remains behind US surveys
	Risk Sentiment	0/–	Risk aversion due to the acute shortages in the UK and the global growth concerns
Technical	Price Action	–	Technicals remain short GBP
	Spec Positions	0	Net GBP position moved back to a small short
	PPP Valuation	+/0	The GBP is still 17% undervalued, but has recovered much of the losses since the BREXIT vote

GBPUSD and QCAM Strategic Positioning



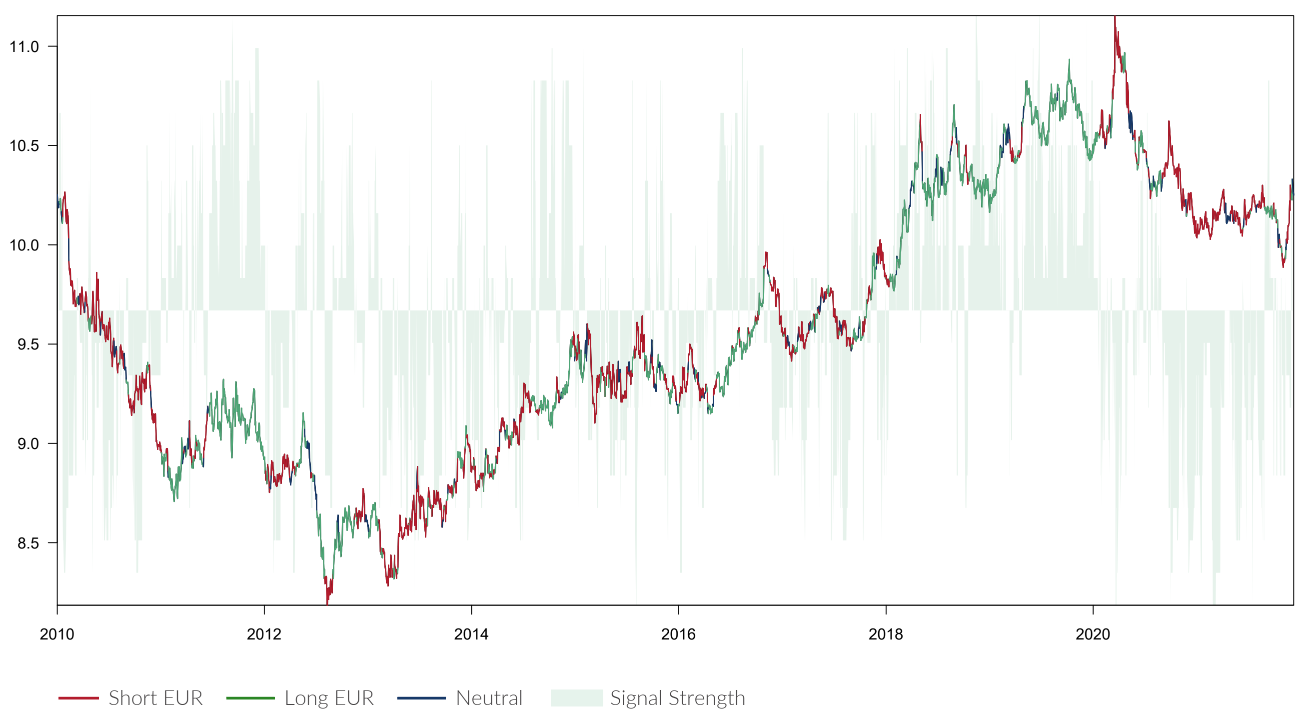
Source: Bloomberg, QCAM Currency Asset Management

EURSEK

Sweden's fundamentals remain sound and the SEK is undervalued (recovery potential as political crisis fades). The Macro position remains neutral over the year-end holiday period. Business Sentiment switched to short SEK and Technical to long SEK, while the interest rate Macro model is neutral. The balance of all strategy positions is neutral.

	FX Factors	SEK Impact	Comment
Macro	Current Account Balances	0/+	Positive, but similar to Euro-Zone
	Interest Rate Differentials	0	The Macro interest rate model shifted to neutral SEK
Sentiment	Business Sentiment	–	Surveys have shifted to short SEK
	Risk Sentiment	0	Balanced risks to both sides, but upside potential for SEK after political crisis is over
Technical	Price Action	+	Technicals shifted to long SEK
	PPP Valuation	+	The SEK is roughly 18% undervalued versus the EUR

EURSEK and QCAM Strategic Positioning



Source: Bloomberg, QCAM Currency Asset Management

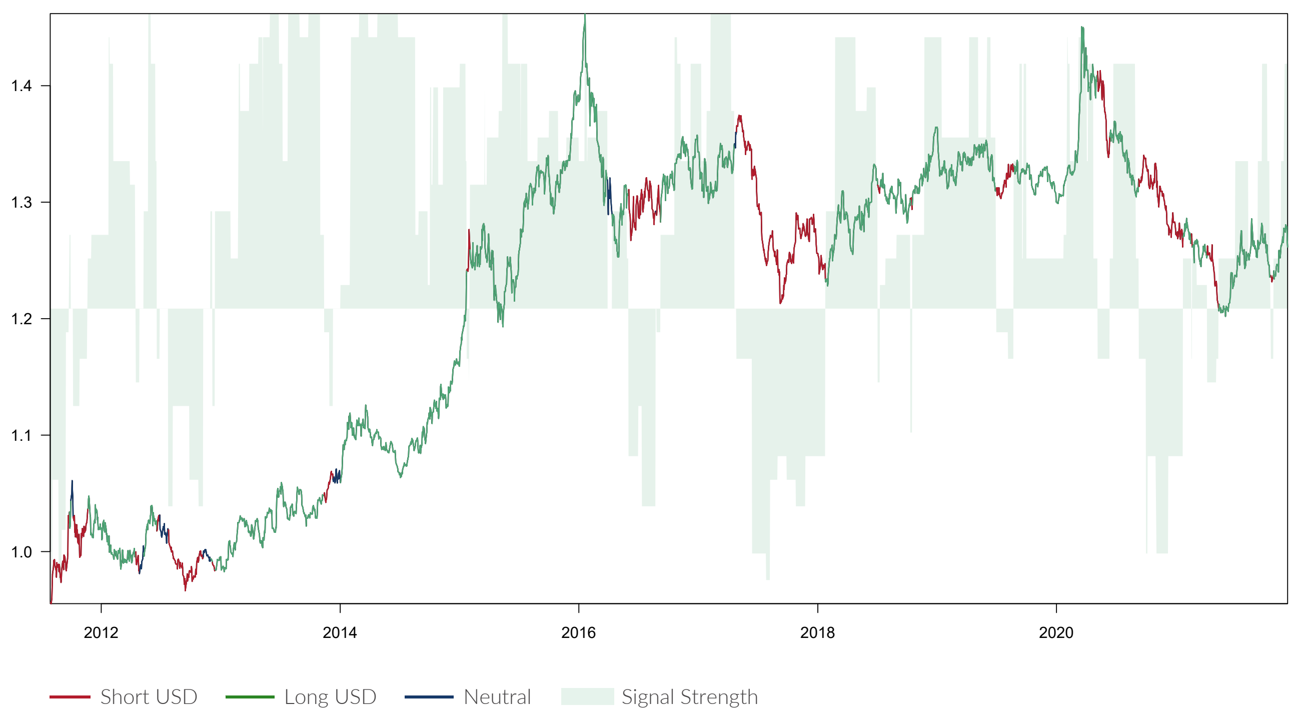
QCAM Currency Asset Management

USDCAD

The overall position of our strategies has again turned outright short CAD as Technical shifted from long to short CAD adding to the short CAD Business Sentiment position. Our Discretionary Macro position remains neutral for the year-end holiday period. The oil-price macro model remains short. The outlook for 2022 is probably brighter than the current positioning suggests (see main story).

	FX Factors	CAD Impact	Comment
Macro	Current Account Balances	+	Canada's current account deficit has turned into a small surplus, while the US deficit remains stubbornly large
	Oil Prices	0	Oil prices fell recently but are expected to stay high
	Interest Rate Differentials	0/+	CAD short-term rates remain above USD rates, while long rates are about equal
	USD DXY Trend	0	No strong direction at the moment
Sentiment	Business Sentiment	–	Canada still trails the US in the surveys
	Risk Sentiment	0/–	Global growth concerns are negative CAD
Technical	Price Action	–	Technicals have shifted from long to short CAD
	Spec Positions	0	Positions remain net long CAD but are not close to inflection levels
	PPP Valuation	0	CAD is about 3% undervalued versus the USD

USDCAD and QCAM Strategic Positioning



Source: Bloomberg, QCAM Currency Asset Management

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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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