CURRENCY VIEWS AND VALUATIONS





Key Points

- Backed by US growth outperformance and its safe-haven qualities, the US dollar can continue to defy its elevated valuation in the near term. However, over longer horizons, the greenback seems destined for depreciation once global growth reaccelerates, risk appetite increases, and rate differentials narrow.
- Europe and the dollar bloc nations (CAD, AUD, and NZD) are suffering from a similar malady, low growth but with the maintenance of interest rates at restrictive levels due to sticky inflation. These circumstances may see their currencies remain pressured in the near term and require the onset of a fresh economic expansion to appreciate materially.
- The yen has consistently weakened as the Bank of Japan (BOJ) has swum against the tide of monetary tightening. We may be approaching an inflection point whereby a policy pivot is more likely than not. Risks appear skewed toward JPY appreciation.

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Summary of Currency Views

This chart book examines historical currency momentum, valuation, and fundamentals in nine key currencies—US dollar (USD), British pound (GBP), euro (EUR), Swiss franc (CHF), Japanese yen (JPY), Australian dollar (AUD), New Zealand dollar (NZD), Canadian dollar (CAD), and Singapore dollar (SGD)—to help investors understand how these currencies behave against other major currencies.

This latest iteration of the chart book is based on data through August 31, 2023.

| USD | The extremities of the dollar smile may prevail in the near term. The USD is likely |
|-----|---|
| | to outperform while US growth is outpacing peers, as currently, or in a slowdown. |
| | A medium-term decline is likely, once rate differentials narrow and growth |
| | accelerates. |

| GBP | A challenging growth environment for the United Kingdom, and existing long GBP |
|-----|--|
| | positioning, provide headwinds for sterling in the near term. A weaker dollar in the |
| | medium term would be supportive but broader appreciation looks difficult. |

| Like the GBP, weak growth and long positioning augur fo | or softness in the EUR in |
|---|----------------------------|
| the short run. A weaker dollar would help over longer ho | orizons, while progress on |
| coordinated fiscal policy offers hope for stronger future g | growth. |

The CHF remains expensive to its peers and growth has stagnated. Nonetheless, with meagre growth in most other economies, its current account surplus and safehaven status keep the franc supported. A global expansion may see the CHF soften.

EUR

CHF

Summary of Currency Views (continued)

| JPY | The BOJ's commitment to accommodative policy has driven the yen to record cheapness. The likelihood of a policy pivot is increasing as inflation remains above target. An inflection to a stronger yen may be coming. |
|-----|--|
| AUD | Sensitivity to global growth, and China in particular, may prove to be a headwind in the near term. The eventual onset of a fresh economic cycle should see the AUD outperform on the back of higher growth and risk appetite. |
| NZD | The NZD will always trade with a beta to commodities and its trans-Tasman peer; however, the relatively weaker domestic growth impulse and more vulnerable external position may see it underperform in the near term |
| CAD | Low domestic growth and a weakening labour market present headwinds, possibly exacerbated by a hawkish central bank. Given relative valuations, the CAD can still appreciate versus the USD in the medium term. |
| SGD | With the Monetary Authority of Singapore expecting below-trend growth this year, and with inflation softening, any appreciation of the SGD is likely to be limited. |

USD: Near-term support but a medium-term decline looks likely

- The COVID-era strength of the USD has been driven by outperformance of economic growth, higher interest rates than its peers, and several episodes of risk aversion in financial markets.
- The US economy emerged from COVID-19 with more momentum than its peers, which also resulted in an earlier tightening of monetary policy. The shocks of COVID-19 and the war in Ukraine also lent support to the greenback.
- In the short run, there is room for the dollar to remain supported. A recession in the coming quarters is still a distinct possibility due to the delivered monetary tightening and the resultant risk aversion should place a floor under the dollar. Relatively stronger growth and stickier inflation in the United States may also see some near-term rates support.
- However, from a big picture perspective, the dollar's elevated valuation sees it looking vulnerable. Medium-term weakness is likely to result from an eventual narrowing of interest rate differentials and an improvement in global growth and risk sentiment.
- An eventual rate-cutting cycle will likely see interest rate differentials between the United States and its peers compress. Upon entering an economic recovery, elevated growth and risk appetite should see currencies outside of the United States outperform.
- US-based investors can once again earn material carry from hedging back some foreign currency exposures into USD. This is particularly the case for the yen, where the interest rate spread is large.

USD NOMINAL EXCHANGE RATES

June 30, 1971 - August 31, 2023 • June 30, 1971 = 100



Sources: Bank for International Settlements and Thomson Reuters Datastream.

USD CONSENSUS FORECASTS

As of August 31, 2023

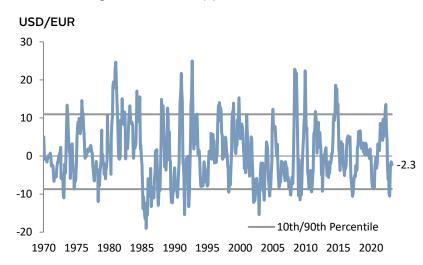
| | USD/EUR | USD/GBP | USD/JPY | USD/CHF |
|-------------------------------|---------|---------|---------|---------|
| Current | 0.92 | 0.79 | 146 | 0.88 |
| Year-End 2023 Median Forecast | 0.91 | 0.79 | 139 | 0.89 |
| Percent Change | -1.1% | 0.0% | -4.8% | 1.1% |
| | | | | |

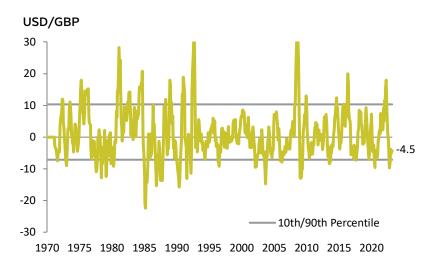
Source: Bloomberg L.P.

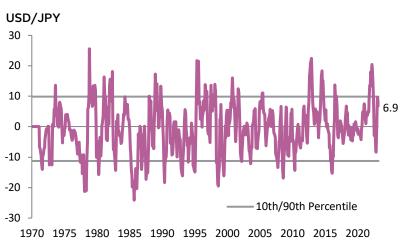
The dollar bounced back from oversold conditions in April, with momentum now looking somewhat stretched against the yen once more

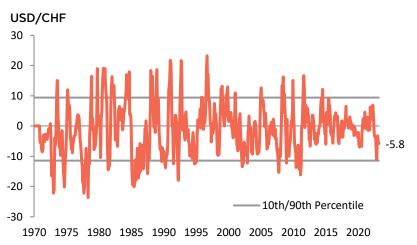
USD ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 - August 31, 2023 • Percent (%)





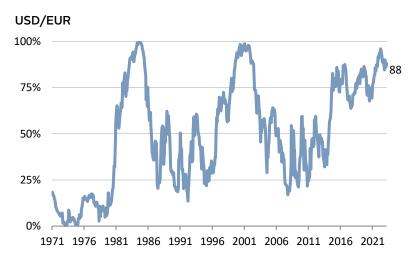


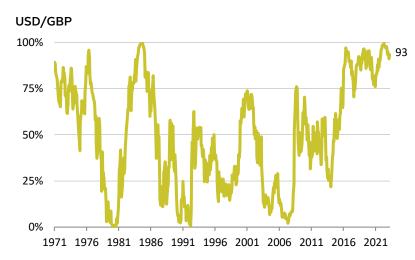


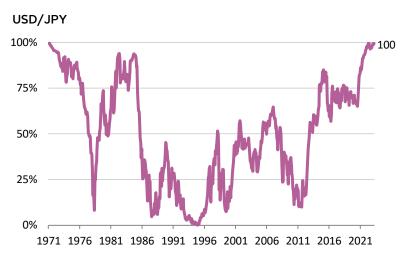
USD valuations are elevated vs the EUR, JPY, and GBP but closer to median vs the CHF

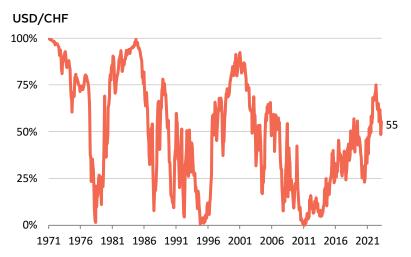
USD VALUATION: REAL EXCHANGE RATE PERCENTILE

June 30, 1971 - August 31, 2023 • Percentile (%)









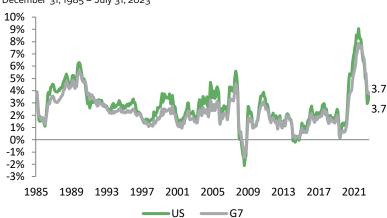
Fed rate hikes have mostly increased the USD's positive carry, save for vs GBP

Negative correlation to equity markets implies volatility benefit in hedging most DM currencies, particularly the GBP

USD FUNDAMENTALS

Inflation (Year-Over-Year %)

December 31, 1985 - July 31, 2023



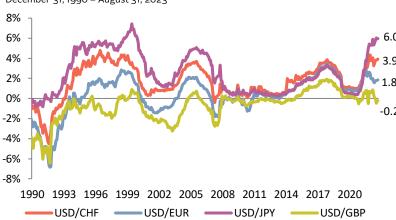
Current Account % GDP

Fourth Quarter 1980 - Third Quarter 2023



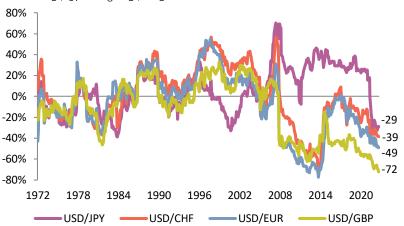
Implied Carry

December 31, 1990 - August 31, 2023



Rolling 36-Month Correlation With MSCI World

December 31, 1972 - August 31, 2023



GBP: No obvious catalyst for imminent appreciation

- On a trade-weighted basis, the sterling has continued to trade in a narrow-range since its post-Brexit referendum decline. It has however, rallied against the dollar since the latter's blow-off top in 2022, on the back of moderating energy prices which helped remove the worst-case scenario for growth in Europe.
- The outlook for the sterling is somewhat mixed. The domestic growth picture is weak, which is a headwind. Additionally, even if a recession materialises on a global basis, the pro-cyclical pound will likely decline if its typical historical reaction persists. However, over a longer horizon, if the dollar eventually enters a cyclical decline, as we expect, then the sterling should appreciate on this cross. The narrowing current account deficit is also a broader support.
- Appreciation against a broader basket of currencies looks more difficult, given the economic headwinds facing the United Kingdom. In the short run, growth may be crimped by elevated rates in the face of stubbornly high inflation. Longer term, a lack of investment over the past decade may also see UK growth capped at low levels.
- The sterling continues to exhibit a high degree of pro-cyclicality (i.e., the currency has maintained a materially positive correlation to equity markets). This suggests there are still volatility-dampening benefits for GBP-based investors in leaving overseas exposures at least partially unhedged.
- In certain instances, however, hedging back FX exposure to GBP generates meaningful positive carry. This is particularly true in the case of JPY and somewhat less so for CHF and EUR, while the carry on hedging the dollar is flat.

GBP NOMINAL EXCHANGE RATES

June 30, 1971 – August 31, 2023 • June 30, 1971 = 100



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

GBP CONSENSUS FORECASTS

As of August 31, 2023

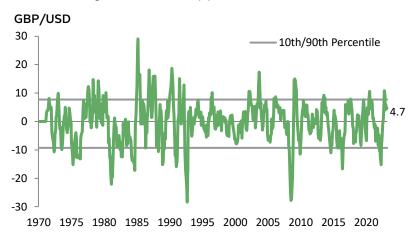
| | GBP/USD | GBP/EUR | GBP/JPY | GBP/CHF |
|-------------------------------|---------|---------|---------|---------|
| Current | 1.27 | 1.17 | 184.5 | 1.12 |
| Year-End 2023 Median Forecast | 1.27 | 1.15 | 176.5 | 1.13 |
| Percent Change | 0.0% | -1.7% | -4.3% | 0.9% |
| | | | | |

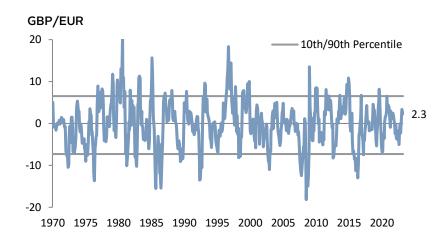
Source: Bloomberg L.P.

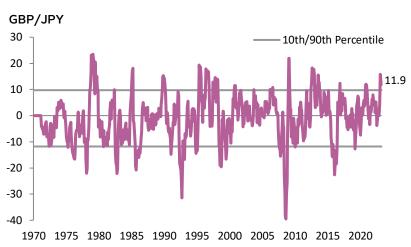
GBP momentum has rebounded from deeply oversold conditions late last year

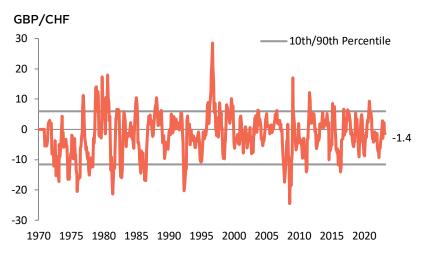
GBP ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 - August 31, 2023 • Percent (%)





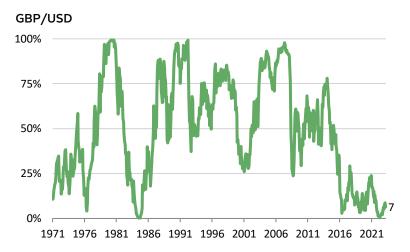


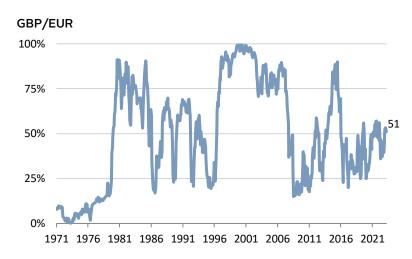


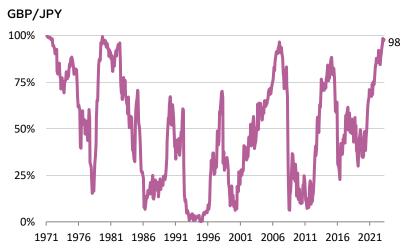
Valuations remain depressed vs the USD and CHF, elevated vs the JPY but neutral vs the EUR

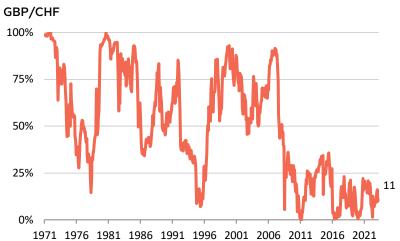
GBP VALUATION: REAL EXCHANGE RATE PERCENTILE

June 30, 1971 - August 31, 2023 • Percentile (%)





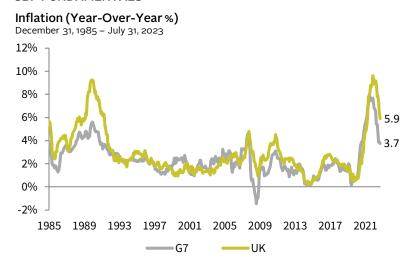




GBP less vulnerable than recent years due to an improved current account and positive carry

For GBP investors, a high positive correlation to global equities implies unhedged foreign currency exposures lower portfolio volatility. However, elevated rates versus several peers, notably Japan, provides positive carry to hedged positions

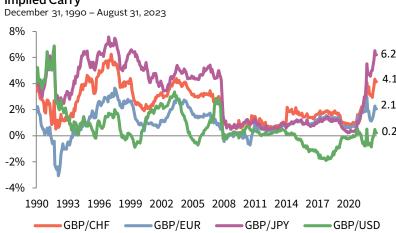
GBP FUNDAMENTALS



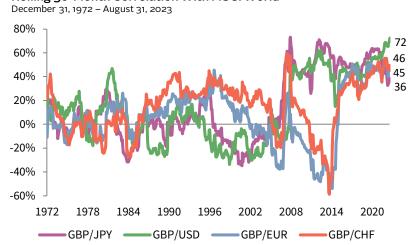
Current Account % GDP



Implied Carry



Rolling 36-Month Correlation With MSCI World

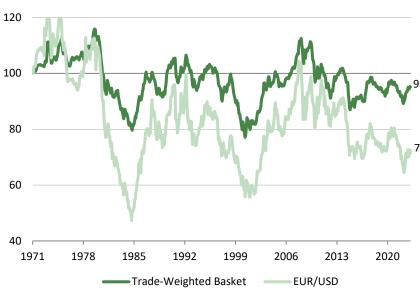


EUR: Anaemic growth amid high interest rates to keep the currency capped in near term

- The EUR reached a local low at the end of third quarter last year, primarily as a result of cyclical dollar appreciation and the European energy crisis. It has recovered materially since then as energy prices have normalised.
- A likely continuation of low, or negative, growth in the coming quarters should present a headwind to the cyclical, exportoriented EUR in the short term, particularly against safe havens such as the USD, CHF, and JPY. Continued long positioning in the EUR may exacerbate this.
- The EUR's real valuation versus USD remains quite depressed. If the dollar enters a cyclical decline in the coming quarters, upon the onset of a fresh global economic expansion, this will act as a tailwind to EUR performance in the medium term.
- There is a higher bar to medium-term outperformance versus non-US currencies when we consider there has been structurally lower growth in the eurozone region. However, there are some bright spots that suggest this is possible. Record low unemployment and increased use of fiscal space to support capital investment can increase domestic demand and productivity.
- The negative correlation of EUR/GBP to global equities suggests that there is volatility-dampening benefits to EUR-based investors in hedging some GBP exposure. However, higher short rates in the United Kingdom means this is a negative carry position. Similarly, leaving USD exposure unhedged should also dampen volatility.

EUR NOMINAL EXCHANGE RATES

June 30, 1971 – August 31, 2023 • June 30, 1971 = 100



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

EUR CONSENSUS FORECASTS

As of August 31, 2023

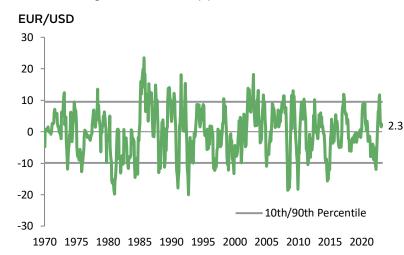
| | EUR/USD | EUR/GBP | EUR/JPY | EUR/CHF |
|-------------------------------|---------|---------|---------|---------|
| Current | 1.09 | 0.86 | 158 | 0.96 |
| Year-End 2023 Median Forecast | 1.1 | 0.87 | 152 | 0.97 |
| Percent Change | 0.9% | 1.2% | -3.8% | 1.0% |
| | | | | |

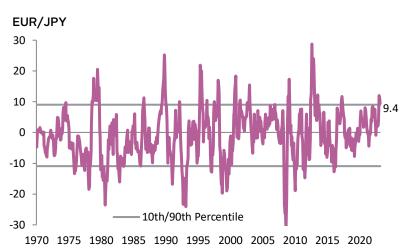
Source: Bloomberg L.P.

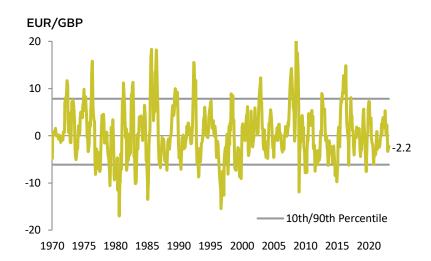
Momentum is stretched vs JPY, as is the case with most currencies; more neutral elsewhere

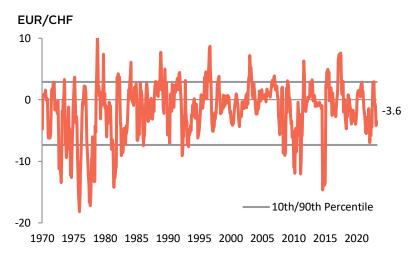
EUR ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 - August 31, 2023 • Percent (%)





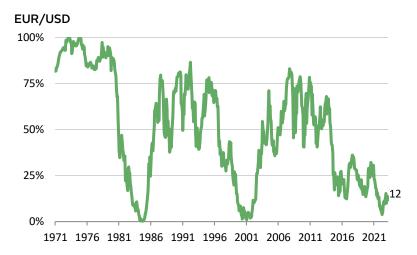


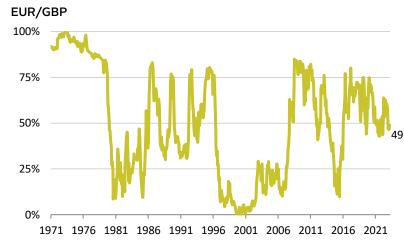


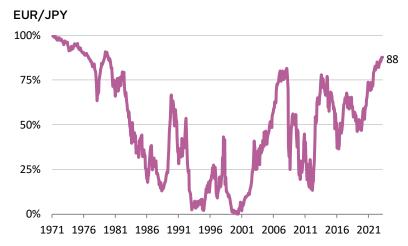
EUR valuations are low vs the CHF and USD, but near median versus GBP

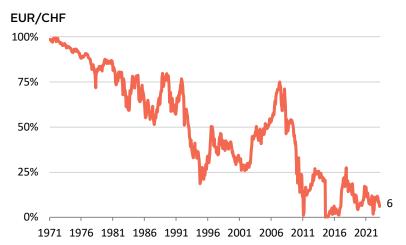
EUR VALUATION: REAL EXCHANGE RATE PERCENTILE

June 30, 1971 - August 31, 2023 • Percentile (%)





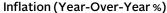




Current account moving back into surplus provides some succour to the EUR amid weak growth

A generally positive correlation to equities suggests there is volatility benefits for EUR investors in leaving equities, particularly those in the US, unhedged. By contrast, a similar benefit occurs by hedging UK equities, albeit at the cost of negative carry

EUR FUNDAMENTALS

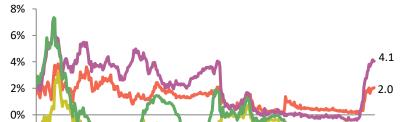




Implied Carry December 31, 1990 – August 31, 2023

-2%

-4%

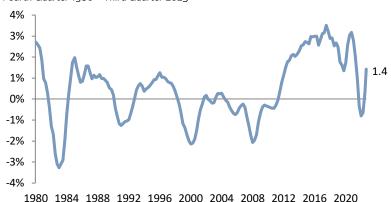


1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020

EUR/CHF ——EUR/JPY ——EUR/GBP ——EUR/USD

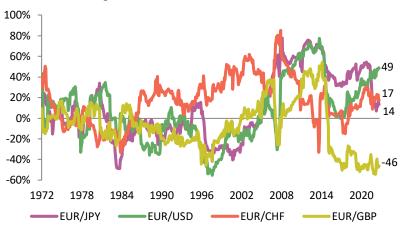
Current Account % GDP

Fourth Quarter 1980 – Third Quarter 2023



Rolling 36-Month Correlation With MSCI World

December 31, 1972 – August 31, 2023



CHF: Low growth, but safe-haven status keeps the franc supported

- The CHF has continued to trend upward in recent months, continuing a path higher that has persisted over most lookback periods, interspersed with occasional declines.
- A structural reason explains this persistent strength. The Swiss National Bank (SNB) essentially targets inflation in the o%–2% range, a lower target than that employed by peers. To maintain any given real effective exchange rate (REER), the Swiss franc must appreciate in nominal terms.
- As a result, the franc tends to perform strongly in periods of high inflation, such as we have had. In practice, the CHF has done this and more over the last 15 years, with its REER at very elevated levels against most currencies. The dollar is an exception, against whom its REER is still below median.
- The franc also acts as a safe haven in times of stress, aided by its persistent current account surplus. Therefore, if we enter a recession in the coming quarters, this should see continued support for the CHF.
- Recent growth in Switzerland has been weak, not helped by the performance of its dominant partner, the eurozone. Low sequential inflation will give the SNB room to support growth without risking reaccelerating prices.
- In the medium term, more pro-cyclical currencies may outperform the franc once a fresh expansion begins, with valuations a supportive factor. The dollar could again be an exception, where a moderate CHF valuation and broad dollar weakness should see relative CHF strength.

CHF NOMINAL EXCHANGE RATES



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

1999

2006

2013

CHF/USD

2020

1992

Trade-Weighted Basket

CHF CONSENSUS FORECASTS

1978

1985

As of August 31, 2023

1971

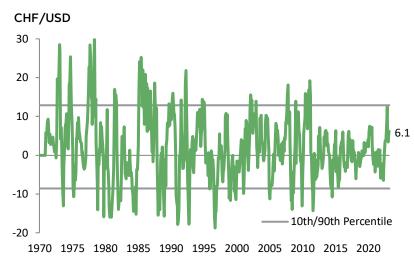
| | CHF/USD | CHF/EUR | CHF/JPY | CHF/GBP |
|-------------------------------|---------|---------|---------|---------|
| Current | 1.13 | 1.04 | 164.8 | 0.89 |
| Year-End 2023 Median Forecast | 1.12 | 1.03 | 156.2 | 0.88 |
| Percent Change | -0.9% | -1.0% | -5.2% | -1.1% |
| | | | | |

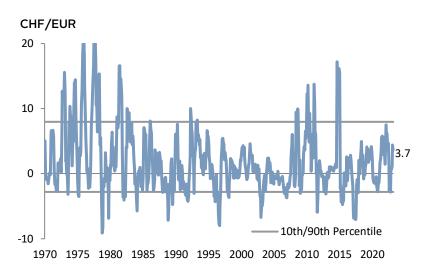
Source: Bloomberg L.P.

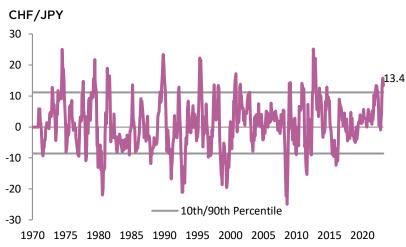
CHF momentum is broadly neutral, but looking overbought against the weak JPY

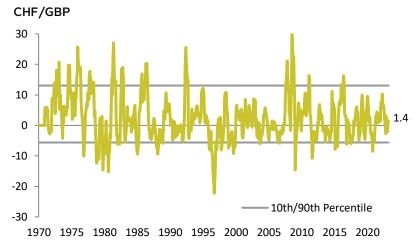
CHF ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 - August 31, 2023 • Percent (%)





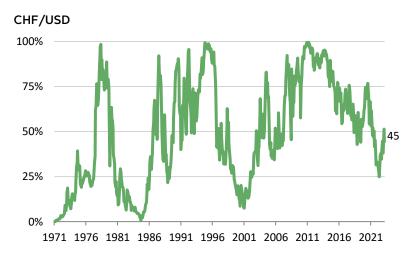




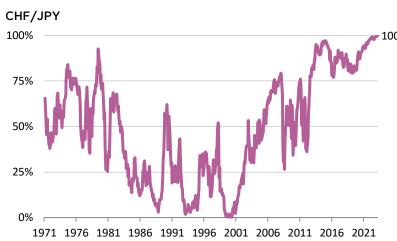
CHF valuations are elevated vs the EUR, JPY, and GBP, and near median vs the USD

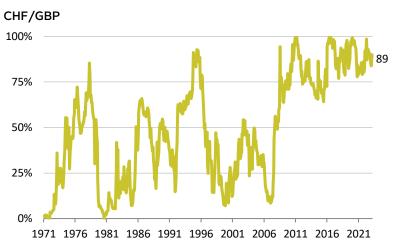
CHF VALUATION: REAL EXCHANGE RATE PERCENTILE

June 30, 1971 - August 31, 2023 • Percentile (%)





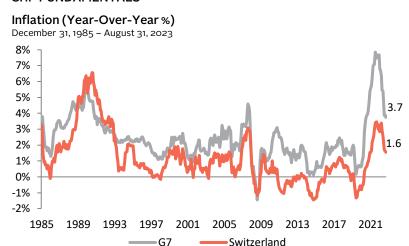




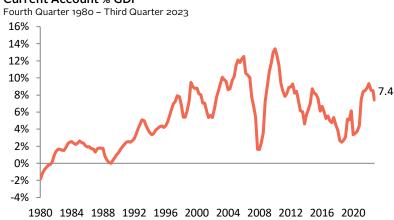
A very substantial current account surplus is a tailwind and underscores the safe-haven status of the CHF

Lower policy rates in Switzerland results in long CHF positions being negative carry against most peers. The currency's safe-have qualities sees its correlation to equities on most crosses being lower than for peers

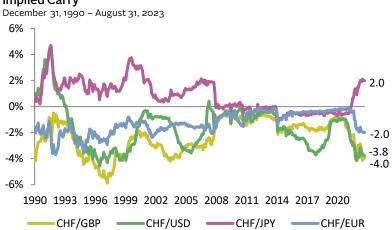
CHF FUNDAMENTALS



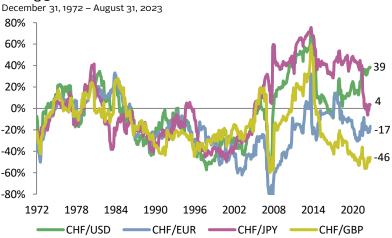
Current Account % GDP



Implied Carry



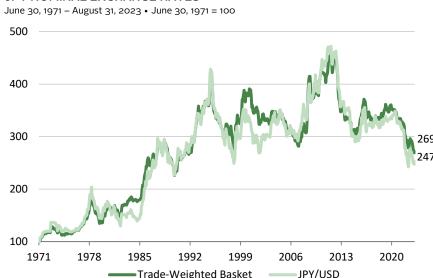
Rolling 36-Month Correlation With MSCI World



JPY: A BOJ policy pivot is likely to be the driver of the next material move in the currency

- The yen has been in a downtrend against most peers since late 2020. Monetary policy divergence has been the major driver, with the BOJ maintaining a maximally easy policy even as peers have tightened to levels last seen prior to the Global Financial Crisis.
- However, inflationary pressures are building in Japan. The three-month annualised change in core inflation is now 3.9%, greater than the rate seen amongst several peers. For now, the BOJ wishes to see more evidence that such price pressures are entrenched, but a policy pivot may not be far off.
- The REER of the yen stands at very depressed levels. A policy pivot from the BOJ and a cyclical decline in the dollar look like they could precipitate an appreciation of the yen in the medium term.
- Market-based measures of sentiment show that investors are bearish towards the yen. Speculative futures positioning remains quite short the JPY, as it has for some time, while momentum is showing the currency as oversold. Forecasts, by contrast, remain more bullish, expecting appreciation of 4%– 5% by year end.
- The persistent negative correlation between JPY on most crosses, and global equities, suggests volatility-dampening benefits of leaving Japanese assets partially unhedged. Japan's idiosyncratic monetary policy has seen this relationship recently break down versus USD, as both are counter-cyclical currencies. However, a BOJ exit from emergency policy settings should see this relationship re-establish in time.

JPY NOMINAL EXCHANGE RATES



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

JPY CONSENSUS FORECASTS

As of August 31, 2023

| | USD/JPY | EUR/JPY | GBP/JPY | CHF/JPY |
|-------------------------------|---------|---------|---------|---------|
| Current | 146 | 158 | 184.5 | 164.8 |
| Year-End 2023 Median Forecast | 139 | 152 | 176.5 | 156.2 |
| Percent Change | -4.8% | -3.8% | -4.3% | -5.2% |
| | | | | |

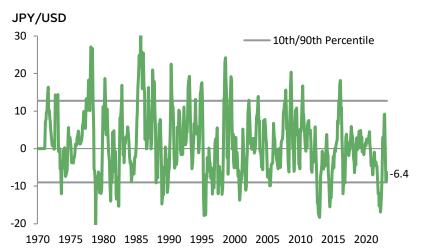
Source: Bloomberg L.P.

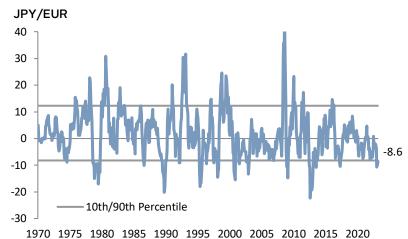
Note: JPY exchanges rates are shown from the foreign currency perspective, and the percent change reflects the appreciation of the foreign currency.

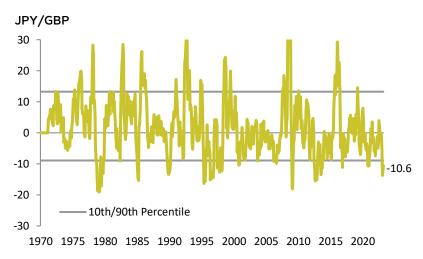
JPY momentum returned to oversold conditions after a brief reprieve earlier this year

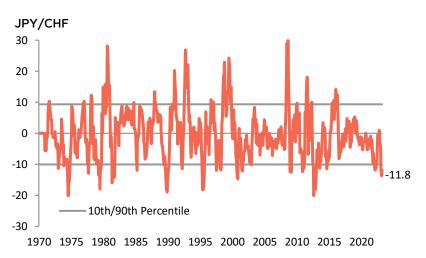
JPY ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 - August 31, 2023 • Percent (%)





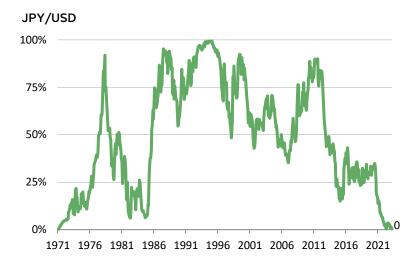


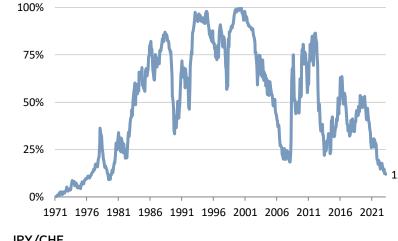


JPY valuations have plunged to historical lows

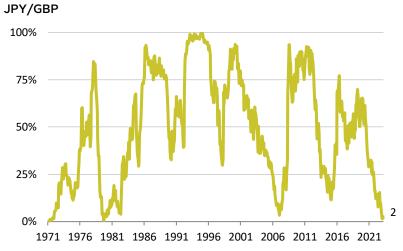
JPY VALUATION: REAL EXCHANGE RATE PERCENTILE

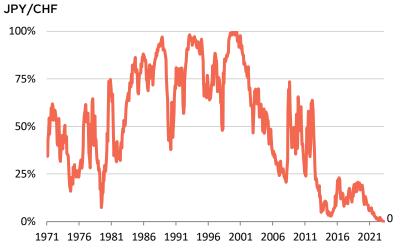
June 30, 1971 - August 31, 2023 • Percentile (%)





JPY/EUR

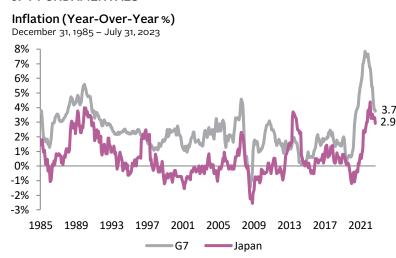




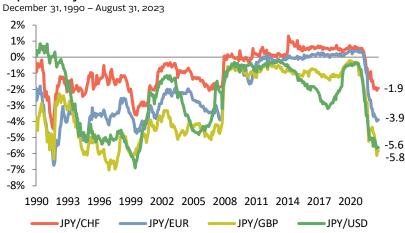
Negative correlations with equities imply volatility dampening from leaving JPY exposure unhedged, except for USD-based investors

Hedging the JPY now generates positive carry for all major currency pairs, particularly the USD and GBP, as monetary policy has diverged, and rate differentials widened

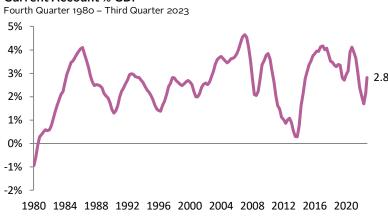
JPY FUNDAMENTALS



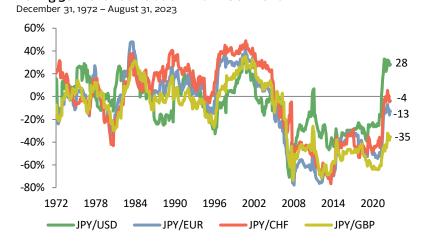
Implied Carry



Current Account % GDP



Rolling 36-Month Correlation With MSCI World

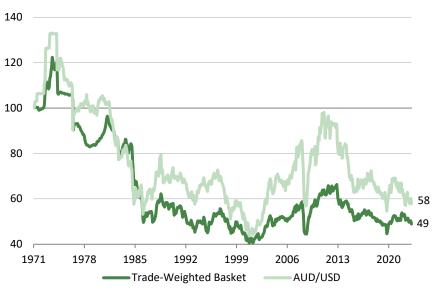


AUD: Sensitive to global growth and exposed to China

- The AUD rallied for two years after its COVID low on the back of economic outperformance, more moderate rates of inflation, and, perhaps most importantly, surging commodity prices.
- Since early to mid-2022; however, most of these factors have gone into reverse. The commodity prices most relevant to Australia have declined on slowing global growth, impacting domestic growth. Inflation has also proved sticky, with recent surprise rate increases impacting future growth expectations.
- Because of the exposure of the Australian economy to the natural resources sector, the AUD acts as a pro-cyclical currency. As a result, if the recent globally synchronised tightening of monetary policy results in a further slowdown of world economic growth, the AUD is likely to remain soft.
- From a real valuation perspective, the AUD still enjoys above average valuations against the EUR, GBP, and, especially, JPY. The recent USD rally and AUD decline have combined to result in a depressed valuation against the greenback, resulting in scope for medium-term outperformance if the USD goes into cyclical decline.
- Measures of sentiment toward the AUD are pessimistic overall. The currency is approaching oversold levels against the GBP and EUR. Speculative positioning is also negative. Consensus forecasts are for strength against the USD and GBP but weakness against the JPY.
- The positive correlation of the AUD with risk assets means that an AUD-based investor reduces portfolio volatility by holding their foreign equities at least partially unhedged.

AUD NOMINAL EXCHANGE RATES

June 30, 1971 – August 31, 2023 • June 30, 1971 = 100



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

AUD CONSENSUS FORECASTS

As of August 31, 2023

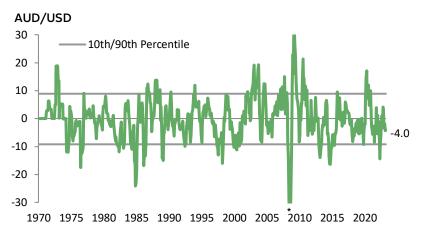
| | AUD/USD | AUD/EUR | AUD/JPY | AUD/GBP |
|-------------------------------|---------|---------|---------|---------|
| Current | 0.65 | 0.6 | 94.3 | 0.51 |
| Year-End 2023 Median Forecast | 0.66 | 0.60 | 91.7 | 0.52 |
| Percent Change | 1.5% | 0.0% | -2.8% | 1.8% |
| | | | | |

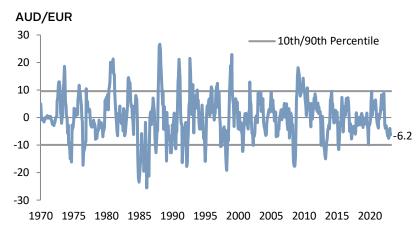
Source: Bloomberg L.P.

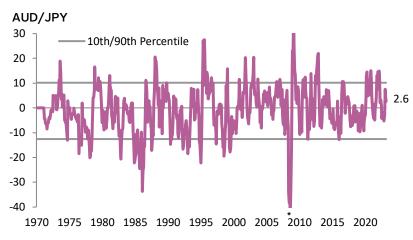
The momentum of the AUD has weakened as commodity prices have come under pressure

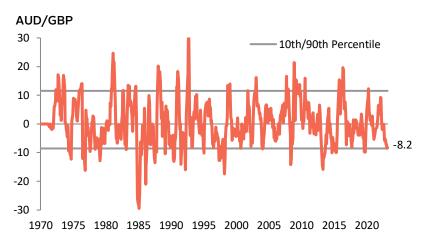
AUD ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 – August 31, 2023 • Percent (%)







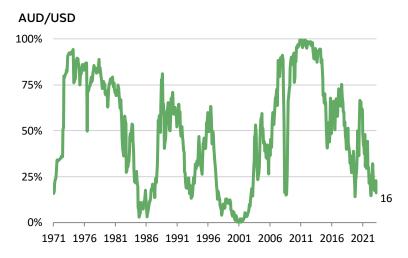


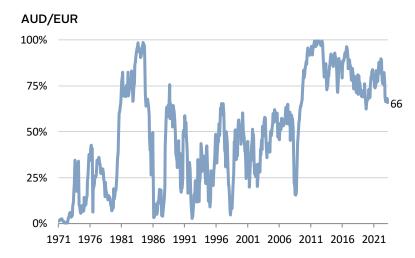
 $^{^{*}}$ Axes capped for scale. AUD/USD and AUD/JPY percent change in 2008 are -31.7% and -43.8%, respectively.

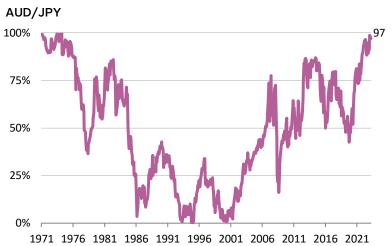
AUD valuations are low vs the USD, but remain somewhat above median vs the EUR and GBP after recent declines

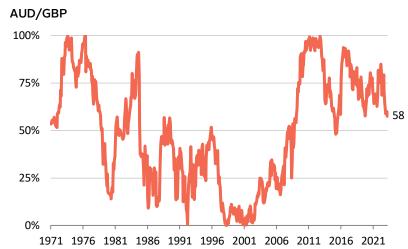
AUD VALUATION: REAL EXCHANGE RATE PERCENTILE

June 30, 1971 - August 31, 2023 • Percent (%)





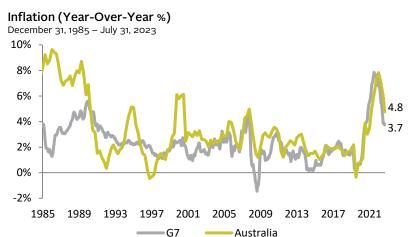


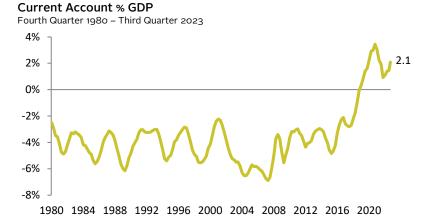


The current account balance has shifted into surplus, which may help support the AUD in the current environment

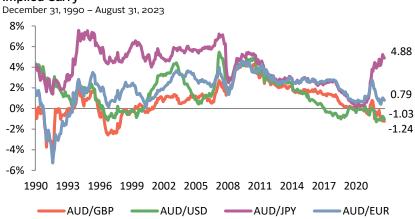
A broadly positive correlation with global equities means AUD-based investors with unhedged exposure could benefit from lower equity volatility

AUD FUNDAMENTALS

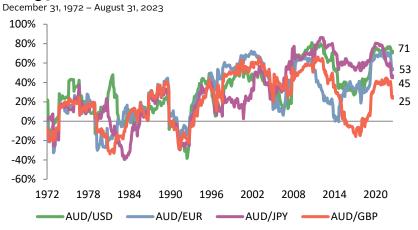




Implied Carry



Rolling 36-Month Correlation With MSCI World



NZD: Exposed to global conditions, but domestic fundamentals look to be a headwind

- The NZD tends to trade with quite a high beta to its trans-Tasman cousin due to the linkages between the markets. As a result, the post-COVID direction of travel has looked broadly similar. While domestic economic trends have shared some similarities, there are some notable differences too.
- The primary commonalities include coming through COVID-19 with higher growth than peers initially, and then seeing a run-up in the nation's terms-of-trade before a subsequent partial reversal.
- However, New Zealand experienced high rates of inflation sooner than in Australia, with the Reserve Bank of New Zealand preceding the Reserve Bank of Australia in raising rates. It has also experienced weaker growth more recently, having narrowly avoided a technical recession in fourth quarter 2022 and first quarter 2023. As a result, New Zealand should see the end of its rate-hiking cycle before its neighbour; indeed, it may already have done so.
- The NZD is also a pro-cyclical currency. Therefore, the prospect of slowing global growth is likely to act as a headwind to the currency. In the medium term, a cyclical USD decline should be a tailwind for the currency if we enter a new sustained economic expansion; however, valuations against the other major currencies may limit the extent of its appreciation potential against non-USD peers.
- A large current account deficit is a further potential headwind to the NZD, even if it should narrow from current levels as services exports continue to recover. However, the current modest carry cushion, in comparison to history, may struggle to attract capital without further depreciation.

NZD NOMINAL EXCHANGE RATES



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Note: Data for NZD starts from March 31, 1985, when the currency was allowed to float against all currencies.

NZD CONSENSUS FORECASTS

As of August 31, 2023

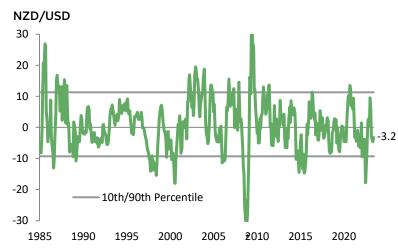
| | NZD/USD | NZD/EUR | NZD/JPY | NZD/AUD |
|-------------------------------|---------|---------|---------|---------|
| Current | 0.6 | 0.55 | 86.7 | 0.92 |
| Year-End 2023 Median Forecast | 0.61 | 0.55 | 84.8 | 0.92 |
| Percent Change | 1.7% | 0.0% | -2.2% | 0.0% |
| | | | | |

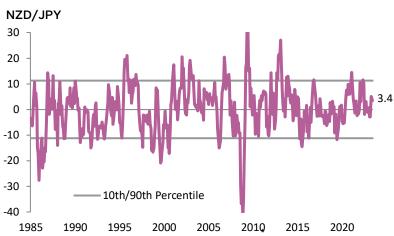
Source: Bloomberg L.P.

NZD momentum is not stretched in either direction in the case of most pairs

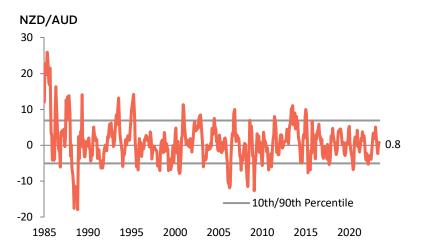
NZD ROLLING 6-MONTH PERCENT CHANGE

March 31, 1985 - August 31, 2023 • Percent (%)





NZD/EUR 30 20 10 -10 -20 10th/90th Percentile -30 1985 2000 2020 1990 1995 2005 2010 2015

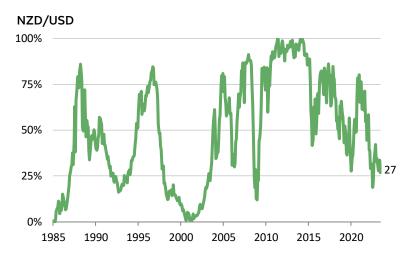


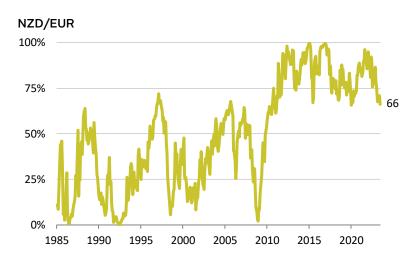
 $^{^{*}}$ Axes capped for scale. NZD/USD and NZD/JPY percent changes in 2009 are -30.9% and -42.6%, respectively.

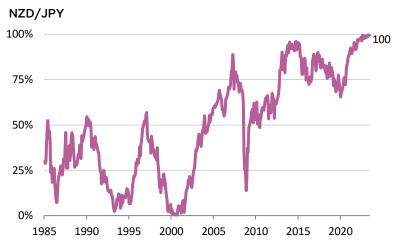
Valuations have moderated but remain above median against all but the USD

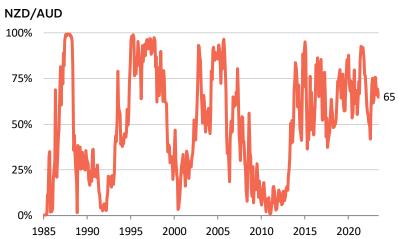
NZD VALUATION: REAL EXCHANGE RATE PERCENTILE

March 31, 1985 - August 31, 2023 • Percent (%)





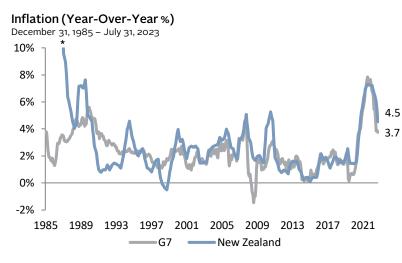




Wide current account deficit and modest carry leave NZD with little external cushion

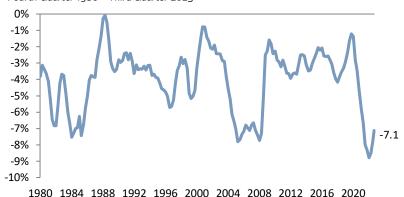
Positive correlations with global equities imply that unhedged exposure for NZD investors lowers volatility, but to a lesser extent for Australian equities

NZD FUNDAMENTALS



Current Account % GDP

Fourth Quarter 1980 - Third Quarter 2023



^{*} Scale capped for graphing purposes. New Zealand CPI reached a peak of 19.0% in June 1987.

Implied Carry

0%

-2%

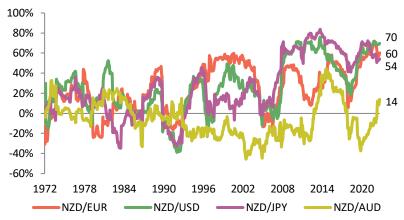
-4%



-6% 1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020 NZD/EUR NZD/JPY NZD/USD NZD/AUD

Rolling 36-Month Correlation With MSCI World

December 31, 1972 – August 31, 2023



CAD: Deteriorating domestic conditions are a headwind in the near term

- Like many of its peers, the USD bull market has seen the CAD decline for much of the past two years. While it enjoyed somewhat of a bounce in the second quarter, further softening in August took the CAD's value back toward the recent post-COVID lows.
- In general, monetary policy has followed a broadly similar template to that of the United States. However, a pause by the Bank of Canada (BOC) earlier this year saw policy rates start to lag those of the United States more recently. An increase in core inflation in August, plus the BOC's pre-existing concern about the stickiness of underlying inflation, means further tightening is now a possibility.
- However, both growth and labour market conditions are easing, suggesting the end of the rate-hiking cycle is close, nonetheless. Further rate hikes may not provide much support in any case against the background of a slowing domestic economy.
- CAD real effective valuations are a mixed bag. Like many currencies, its valuation against the yen is elevated, while against the USD it is very depressed. Against the EUR and GBP, the CAD's valuation is less exceptional.
- The CAD, on crosses with EUR, JPY, and GBP, has seen its correlation with global equities decline. The still-elevated correlation on the USD cross suggests volatility dampening benefits from leaving USD assets unhedged, however. By contrast, the negative correlation on the GBP cross implies volatility may be reduced by partially hedging sterling assets.

CAD NOMINAL EXCHANGE RATES

June 30, 1971 – August 31, 2023 • June 30, 1971 = 100



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

CAD CONSENSUS FORECASTS

As of August 31, 2023

| | CAD/USD | CAD/EUR | CAD/JPY | CAD/GBP |
|-------------------------------|---------|---------|---------|---------|
| Current | 0.74 | 0.68 | 107.6 | 0.58 |
| Year-End 2023 Median Forecast | 0.75 | 0.68 | 104.5 | 0.59 |
| Percent Change | 1.4% | 0.0% | -2.9% | 1.7% |
| | | | | |

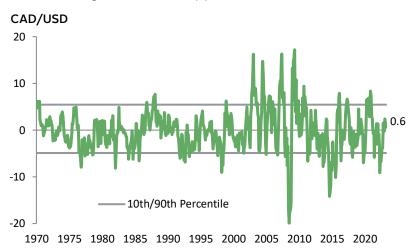
Source: Bloomberg L.P.

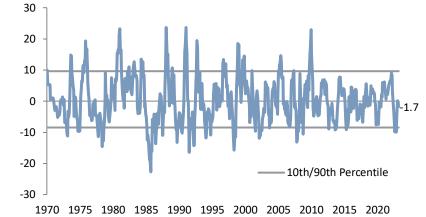
CAD momentum is generally neutral, having bounced off oversold levels vs the USD, EUR, and GBP

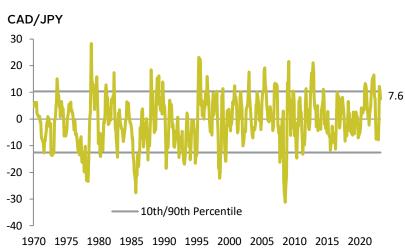
CAD/EUR

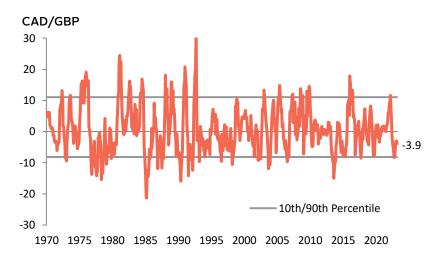
CAD ROLLING 6-MONTH PERCENT CHANGE

June 30, 1970 - August 31, 2023 • Percent (%)









CAD valuations are low vs the USD, but more in line with historical median vs EUR and GBP

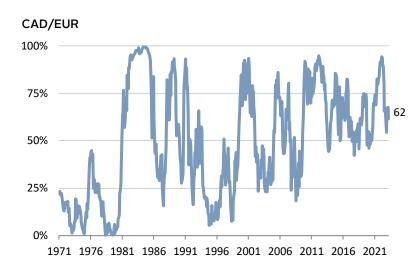
CAD VALUATION: REAL EXCHANGE RATE PERCENTILE

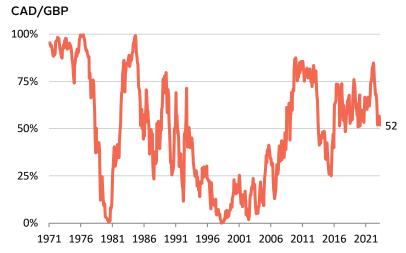
June 30, 1971 - August 31, 2023 • Percent (%)





1971 1976 1981 1986 1991 1996 2001 2006 2011 2016 2021

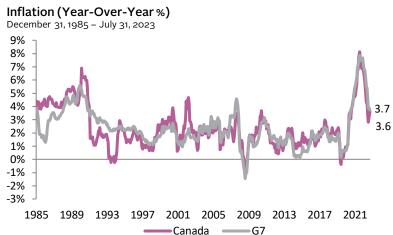




The recent recovery in oil prices should take some pressure of the current account

Correlations with global equities have come down recently, implying unhedged exposure may not lower equity volatility to the same extent for CAD investors. The US is the exception, however

CAD FUNDAMENTALS





Implied Carry

8%

6%

4%

-6%

December 31, 1990 – August 31, 2023



CAD/GBP

1990 1993 1996 1999 2002 2005 2008 2011 2014 2017 2020

-CAD/USD

CAD/JPY

—CAD/EUR

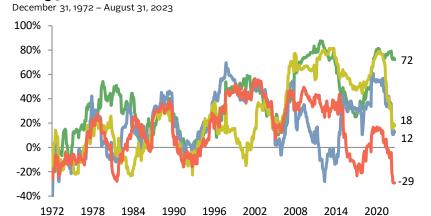
CAD/GBP

Current Account % GDP



Rolling 36-Month Correlation With MSCI World

-CAD/USD



-CAD/EUR

SGD: Nominal appreciation set to remain slow

- The Monetary Authority of Singapore (MAS) executes its monetary policy by targeting the level of the exchange rate, rather than interest rates, usually targeting a slight nominal appreciation within a band.
- The MAS allowed a modest depreciation of the SGD at the onset of COVID-19, then nearly two years of zero slope. This was followed by five consecutive policy tightenings, including at off-cycle meetings. At its April bi-annual meeting, the MAS maintained the existing slope, level, and width of its policy band.
- The MAS expects below-trend growth this year with the output gap turning slightly negative. It also expects core inflation to return to an approximately average rate by year end. In combination, this suggests the MAS may be biased toward its next move being a slowing of the extent of further SGD appreciation.
- SGD REER valuations are elevated versus the JPY, EUR, and GBP. However, its valuation against the USD has now declined below median because of the appreciation of the USD.
- The positive correlation between the SGD and global equities implies volatility dampening benefits from leaving USD assets unhedged, while hedging GBP assets may have the same result. An eventual abandonment of accommodative monetary policy in Japan may see the SGD/JPY correlation to equities increase once more.

SGD NOMINAL EXCHANGE RATES



Sources: Bank for International Settlements, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

SGD CONSENSUS FORECASTS

As of August 31, 2023

| | SGD/USD | SGD/EUR | SGD/JPY | SGD/GBP |
|-------------------------------|---------|---------|---------|---------|
| Current | 0.74 | 0.68 | 107.8 | 0.58 |
| Year-End 2023 Median Forecast | 0.75 | 0.68 | 104.1 | 0.59 |
| Percent Change | 1.4% | 0.0% | -3.4% | 1.7% |
| | | | | |

Source: Bloomberg L.P.

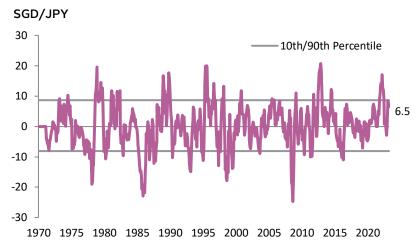
SGD momentum is generally negative and is oversold against the GBP

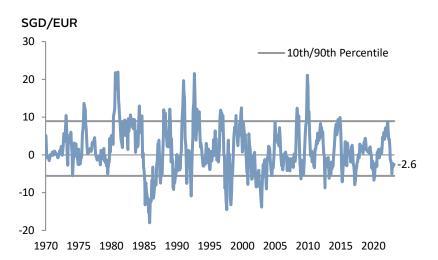
SGD ROLLING 6-MONTH PERCENT CHANGE

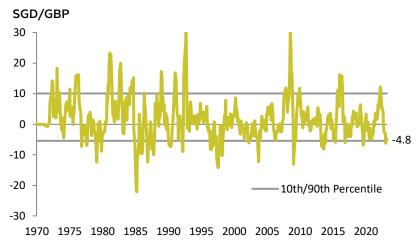
June 30, 1970 - August 31, 2023 • Percent (%)

SGD/USD 15 — 10th/90th Percentile 5 -5 -15





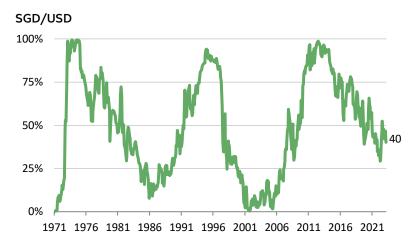


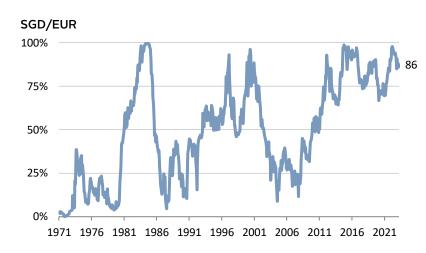


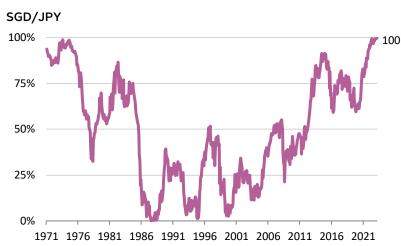
SGD valuations are still elevated relative to history, except for vs the USD

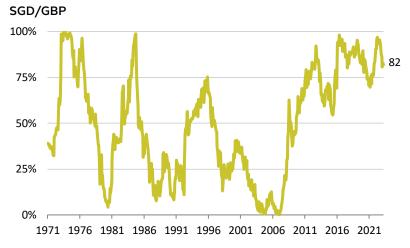
SGD VALUATION: REAL EXCHANGE RATE PERCENTILE

June 30, 1971 - August 31, 2023 • Percent (%)





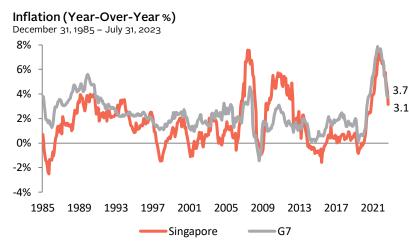




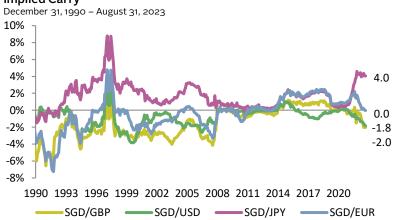
Lower yields have seen SGD become flat-tonegative carry, though pick-up is available vs JPY

SGD has become less correlated with equities, and the deeper negative correlation of the SGD/GBP implies that SGD-based investors seeking volatility reduction should hedge UK equities

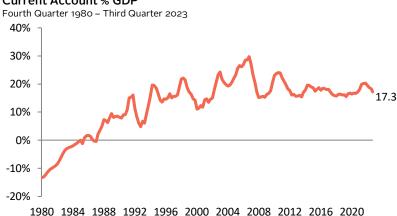
SGD FUNDAMENTALS



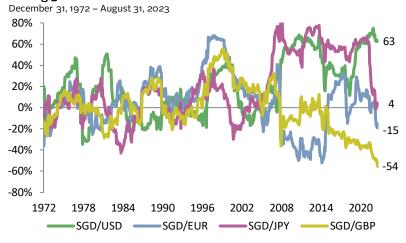
Implied Carry



Current Account % GDP



Rolling 36-Month Correlation With MSCI World



APPENDIX





Currency Valuation Summary

REAL EXCHANGE RATE VALUATION

As of August 31, 2023 • Percent (%)

Real Exchange Rate vs USD - Percentile



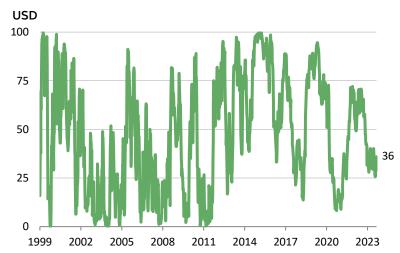
Trade-Weighted Real Exchange Rate - Percentile

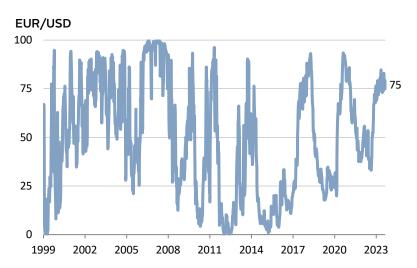


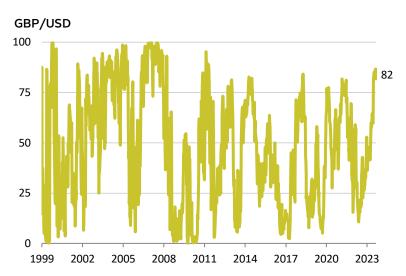
Investor Positioning in the Futures Market

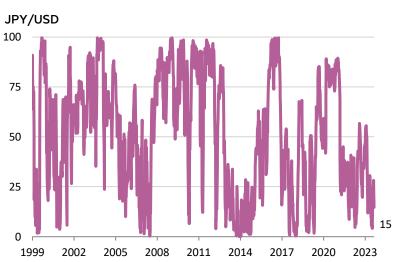
NET SPECULATIVE POSITIONS AS % OF OPEN INTEREST - PERCENTILE

January 5, 1999 - August 29, 2023 • Percentile (%)





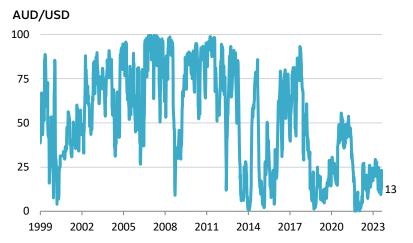


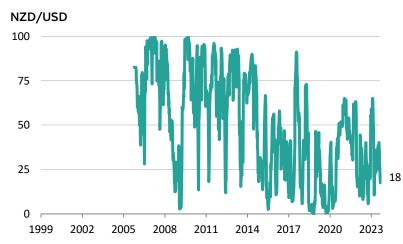


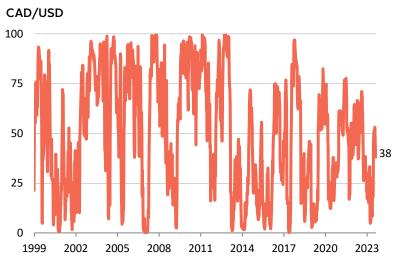
Investor Positioning in the Futures Market

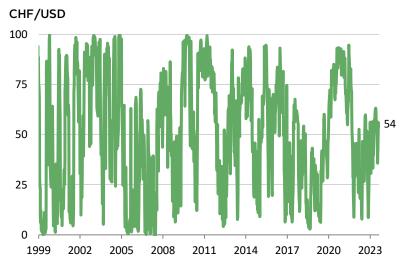
NET SPECULATIVE POSITIONS AS % OF OPEN INTEREST - PERCENTILE

January 5, 1999 - August 29, 2023 • Percentile (%)









Top 3 Constituents of the BIS Trade-Weighted Basket

BIS EFFECTIVE EXCHANGE RATE (NARROW NOMINAL INDEXES) – TRADE WEIGHTS

As of August 31, 2023 • Percent (%)

| | USD | GI | 3P | EU | JR | CI | HF |
|----------|------------|----------|------------|-------------|------------|----------|------------|
| | Weight (%) | | Weight (%) | | Weight (%) | | Weight (%) |
| Eurozone | 35.2 | Eurozone | 62.9 | US | 30.7 | Eurozone | 62.2 |
| Canada | 22.3 | US | 16.8 | UK | 19.9 | US | 16.3 |
| Japan | 13.9 | Japan | 4.5 | Switzerland | 11.4 | UK | 6.1 |
| Others | 28.7 | Others | 15.8 | Others | 38.0 | Others | 15.5 |

| JPY | | NZD | | AUD | | CAD | |
|----------|------------|-----------|------------|----------|------------|----------|------------|
| | Weight (%) | | Weight (%) | | Weight (%) | | Weight (%) |
| US | 32.4 | Australia | 24.1 | Eurozone | 28.1 | US | 74.9 |
| Eurozone | 26.2 | Eurozone | 22.7 | US | 24.4 | Eurozone | 12.0 |
| Korea | 12.1 | US | 16.7 | Japan | 13.7 | Japan | 4.0 |
| Others | 29.4 | Others | 36.5 | Others | 33.7 | Others | 9.1 |

| SGD | | | | |
|----------|------------|--|--|--|
| | Weight (%) | | | |
| Eurozone | 22.0 | | | |
| US | 22.0 | | | |
| Japan | 14.8 | | | |
| Others | 41.2 | | | |

Notes on the Data

Exchange Rates

- Historical exchange rates are provided by Thomson Reuters Datastream, based on Thomson Reuters closing spot rates. Data for the EUR before 1998 are based on a weighted basket of EMU legacy currencies calculated by Thomson Reuters.
- Trade-weighted exchange rates are based on the Bank of International Settlements Nominal Narrow Effective Exchange Rate indexes. The BIS narrow nominal indexes are based on a basket of 26 developed economies with data dating back to 1964.

Consensus Forecasts

• FX forecasts are provided by Bloomberg and based on the median forecast as of August 31, 2023.

Momentum: Six-Month Rate of Change

• The six-month rate of change is a simple momentum measure that provides context on whether recent moves in a currency pair are extreme relative to history. Implicit in this analysis is that short-term movements are mean-reverting, and therefore extreme moves are prone to reversals.

Valuation: Real Exchange Rate Percentile

Our primary valuation metric for currencies is real exchange rates. For each currency pair, we create a real exchange rate history based on nominal exchange rates divided by relative CPI inflation. This is analogous to the purchasing price parity (PPP) approach, which assumes relative inflation is the driver of currencies over the long run. However, our approach avoids reliance on a particular base year for the relative inflation calculation (which can have a meaningful impact on implied PPP) by comparing the real exchange rate to its own history.

Notes on the Data (continued)

Fundamentals

- Inflation. Over the long run, currencies with lower inflation should appreciate, per PPP theory. Rising relative inflation often signals a currency is becoming overvalued, unless offset by nominal FX depreciation.
- Implied carry. The implied interest rate differential priced into one-year FX forwards. Negative carry implies a drag from hedging the currency pair back to the base currency. Economic theory states currencies with high interest rate differentials should depreciate over the long run; this is often not the case in the short run.
- Current account. Countries with current account surpluses are less reliant on foreign inflows and are typically net creditors. Historically, currencies with persistent current account surpluses have appreciated over time.
- Correlation to MSCI World. The rolling 36-month correlation of the percent change in the currency pair and the MSCI World Index of developed markets equities in local currency terms. A negative correlation implies a "counter-cyclical" currency pair that moves inversely to equity markets, thereby increasing the volatility of unhedged exposure (equities down, base currency up/foreign currency down, unhedged return lower). A positive correlation implies a "pro-cyclical" currency pair that moves in line with equities, thereby reducing the volatility of unhedged exposure (equities down, base currency down/foreign currency up, unhedged return higher). In theory, investors should consider hedging countercyclical currency pairs to reduce volatility. However, currency correlations are unstable, and hedging decisions should be made in conjunction with views on carry, desired overall foreign currency exposure, and underlying asset class exposure.

Appendix

• Net Speculative Positions as a % of Open Interest. Based on CFTC weekly position data expressed as a percentile to allow comparison across currencies. This indicates how non-commercial investors (HFs and other investors) are positioned. Extreme positioning indicates potential for market reversal.



Drew Boyer, Stuart Brown, and Guillermo Garcia Montenegro also contributed to this publication.

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