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Managing currency risk in investment funds

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QCAM Currency Asset Management AG
Huobstrasse 9
8808 Pfäffikon SZ
Schweiz

Wellershoff & Partners Ltd.
Zürichbergstrasse 38
8044 Zürich
Schweiz

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QCAM Currency Asset Management

QCAM Insight

Managing currency risk in investment funds

Guest contributor
Marc Eigenheer, CFA, FRM
CEO ICADIA Ltd.

Investing internationally is well established in the institutional environment, although the share of foreign-currency investments varies greatly from country to country. With a rate of 70 to 80 percent, Swiss investors lead the pack. For these investors, selecting the right currency-hedged investment products is vital. We take a closer look at foreign currency management in the fund business, so-called share class hedging.

Relative to their investable capital, institutional investors in Switzerland are hard pressed to find a wide enough range of highly capitalized and thus liquid investment opportunities. They necessarily expand their search abroad. The result is high demand for currency-hedged investment products. And these in turn give rise to a variety of concerns that we will discuss in the following sections.

The basics

In the following, a foreign currency position is called an *exposure*. An exposure is established through a transaction – a purchase or a sale – in a foreign currency. Accordingly, the sum of exposure is the total of all investor-relevant transactions. As trivial as this statement may seem, so complex can situations become in the fund business with share class hedging. This is because these investors do not invest directly in the fund, but rather via a share class in the fund. In the transaction phase this means an investor invests in a share class, thus investing in a fund and finally in individual assets.

It should be borne in mind with foreign currency hedging that each of the three entities (investor, share class and fund) can use currency hedges – and can do so independently of the others. This is because each entity has its own reference currency. Only in this way can each entity fulfill its responsibilities.

There are four recognized approaches to managing currency risks in funds but only share class hedging offers an investor a nearly currency-risk-free investment. Consider as an example a Swiss-franc holder who invests in his reference currency, here the CHF share class of a global bond fund. The investor thus makes no currency transaction when buying this share class.

Unhedged share class

For the sake of completeness at the start, the unhedged share class is mentioned. Here, the investor remains unhedged against the investment currencies of the fund.

Portfolio hedging

Portfolio hedging is another alternative. In contrast to the first method, here a portfolio manager hedges part of a portfolio's investments against a fund's reference currency, for example, for tactical allocation purposes. In sum, exposure here is the unhedged part of the investment currencies as well as the fund's positions in its own reference currency. These hedges thus shift the investor's exposure from the investment currency to the fund's reference currency.

NAV hedging

Using NAV hedging a share class can now be hedged against fluctuations in the fund's reference currency, enabling comparable outcomes for the share class. The only remaining disparity then is the difference between the interest rate of the share class's reference currency and that of the fund. The sum of exposure for an investor comprises all the fund's investment currencies, and the investor is not hedged against the investment currencies of the fund.

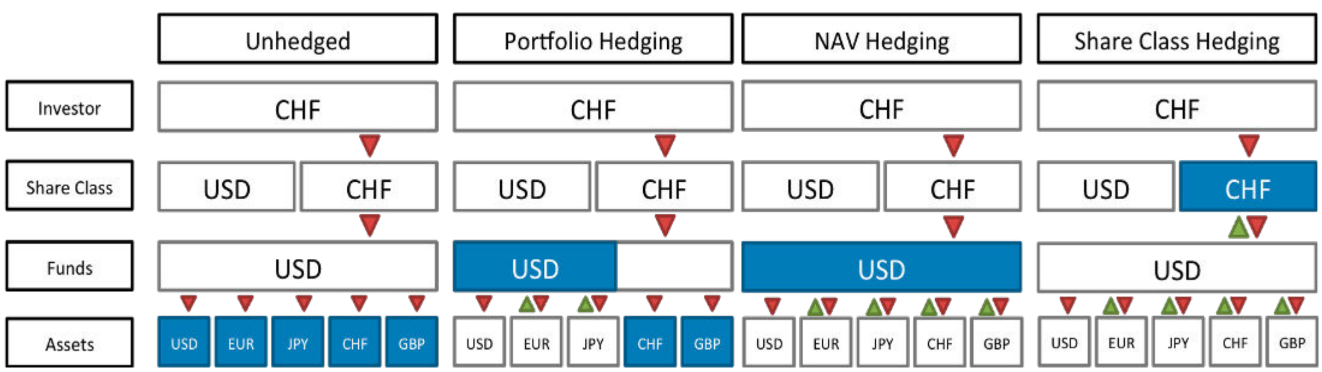
Share class hedging

Our variants thus far leave the investor unhedged or only partially hedged. That is not the case with share class hedging. The aim is to hedge the currency risks of share class investors. Attentive readers have noted that the difficulty is that the potentially highly variable share of a fund in the investment currency shares needs to be known when hedging and any changes have to be continuously taken into account. The second case can lead to frequent adjustments of the FX hedging amount. To avoid too great an adjustment frequency and its accompanying high transaction costs for the share class, an adjustment tolerance of +/- 5 percent versus the targeted hedging rate is implemented. To hedge 100 percent, a hedge of 95 to 105 percent can be expected.

Bottom line

To effectively manage the currency aspects of a fund investment it is crucial to examine the types of hedging the fund employs and which currency risks are connected with the fund.

Handling currency risk in investment funds



Legend: Green indicates hedging, red exposure and blue the final currency risk

Source: ICADIA Ltd., QCAM Currency Asset Management

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The macro perspective

On over- and under-estimating the Swiss economy

The latest Swiss growth data look encouraging. But we think some of the growth is coming from the "wrong" places and we warn against excessive optimism. We can, however, confirm that almost two years after the SNB pulled its euro peg, the effects of the Swiss franc's strength on exports and inflation are fading. So now the question is, how long will the SNB maintain its negative interest rate policy?

Spring 2016 was a vibrant one for the Swiss economy as second-quarter growth of 0.6 percent catapulted it into the ranks of the world's fastest-growing industrialised nations. Of all the larger industrialised nations, only Spain posted a higher annual growth rate. "Frankenshock is over," proclaimed the rapid-response media. However, there are quite a few uncertainties concerning the sustainability of some sources of the recent growth. At the same time, the slippage in some traditional growth drivers for the Swiss economy, as well as the latest sentiment indicators, signal that rather subdued growth can be expected for the second half of this year.

Consider the sources

All GDP growth is not equal. The increased government spending and significant inventory build-ups that fuelled the second-quarter expansion in Swiss economic output are unsustainable. We note that other important growth sources like private consumption and fixed-asset investments are still prone to weakness. Private consumption stagnated for the second time in the past three quarters, growing by just 1.0 percent year-over-year. Investment levels in construction and equipment are also cheerless. Construction investment declined for the third time in a year, and the sector's annual growth rate has now entered negative territory. Meanwhile corporate investments in machines and software contracted for the second time in three quarters. Frankenshock may be over but its effects clearly are not.

Less than great expectations

The anaemic development of corporate investment in Switzerland leads, in our view, back to the franc's appreciation. And when companies are slow to invest, labour demand also slackens. The second-quarter data shows that when full-time-equivalent positions are calculated, the employment rate has declined year-over-year for two consecutive quarters now. Since new workers are often recruited abroad, this slowdown is reflected in immigration and population statistics. This year, net immigration has only been at half the pace of recent years. The slowdown in overall population growth in Switzerland should lead to somewhat weaker construction investment and slower private consumption growth over time.

And as sentiment has declined in industry and construction over recent quarters, Wellershoff & Partners' own leading indicator for the overall Swiss economy is also tipping downward. So the growth outlook has to markedly improve before we see any grounds for celebration.

Exports beginning to recover

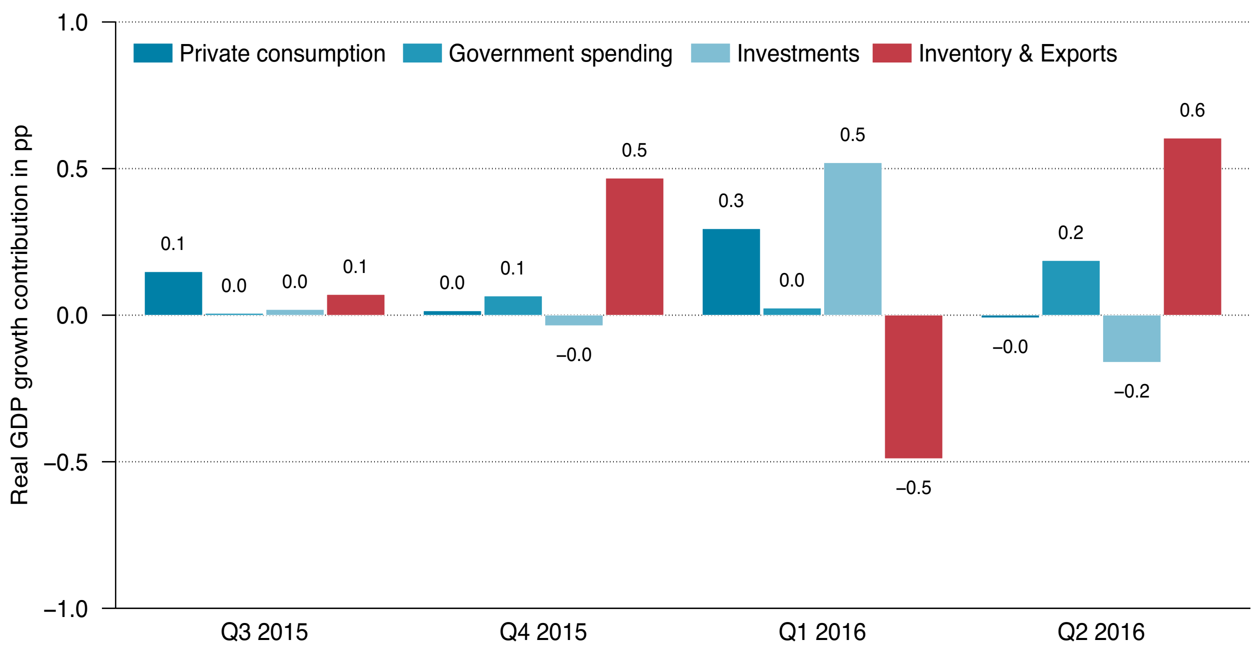
Amid these economic clouds, there are some more optimistic signals emerging from the export sector. After many quarters burdened by the franc's surge of January 2015, in recent months exports have shown clear signs that recovery tendencies are solidifying. One particularly positive development is that that recovery is now broadly visible in almost all export industries. It's been a while since anyone besides pharma and chemicals companies could record decent growth, but lately the metal, machine and electronic industries have made positive growth contributions. In fact, only the watch industry continues to see its foreign revenues decline.

How long will crisis mode continue at the SNB?

In all, we expect that Switzerland's annual growth rate, currently at 2 percent, will fade a bit in the final quarter of the year. But despite this slippage, we reckon that thanks to revived exports the Swiss economy will remain comfortably in positive growth territory at the end of the year. In addition, we expect year-over-year inflation also to return to positive levels.

In view of these normalising tendencies, the question confronting the Swiss National Bank is, how long should it maintain its negative interest rate policy? The longer negative rates persist, the clearer it is that the franc's overvaluation is the only justification for this policy. But given that exchange rates anyway, sooner or later, revert to levels in line with their purchasing power parity, we find this argument rather wobbly.

Tracking contributions to Swiss GDP growth



Source: Seco, Wellershoff & Partners

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FX market talk

After the shock, Brexit creates some investment opportunities

The first wave of post-Brexit turbulence has subsided, and so has the value of the British pound versus the Swiss franc. Based on purchasing power parity, the pound currently trades close to its neutral range with the franc. For franc-holders, the investment opportunities now emerging with the pound are attractive.

Begin with this simple fact: Great Britain is still a member of the European Union. Given the avalanche of commentary, often ill-informed, it is probably wise to remember this blank truth from time to time. British voters expressed their desire to leave the EU on June 23 but wish has not yet become deed. And the many questions generated by the vote remain unanswered, starting with when the voters' intention will actually come into force. Few observers expect Britain to take the formal first step of officially notifying the EU of its intention to withdraw from the Union before late 2017. And that declaration will merely set in motion a process that itself will need another couple of years to complete. In other words, implementing Brexit will take time.

Breaking up is hard to do

Besides its uncertain arrival, Brexit raises fundamental questions about how relations between Britain and the EU will proceed – with no answers evident as yet. One variant in discussion could take the Swiss-EU legal framework, with its bilateral agreements, as a prototype. At the other end of the spectrum, a simple free trade agreement, without further access to the EU's single market, is also a possibility. In any case, it's futile at present to guess which arrangements will prevail. Most probably the British government itself doesn't know the course it will take. We think it's realistic to expect many adjustments and much fine-tuning as structures emerge, which will only prolong the nagging uncertainties of the transition.

Mild, not wild reactions

The uncertainty about Brexit's consequences frayed nerves before, during and after the vote. The simple fact of the matter is that until there is some clarity about British-EU relations, no serious conclusions can be drawn about Brexit's longer-term economic consequences. One of Wellershoff & Partners' more recent studies finds that the growth effects of post-Brexit sentiment shocks will be stronger for Britain than for the EU, unsurprisingly.

This analysis presumed that outright panic would not materialize after the vote, and it did not. The post-Brexit deterioration in sentiment seen in individual Eurozone countries depends on the country's share of exports to the UK. This shows that both the Eurozone's consumers and its producers are taking Brexit in their stride.

Brits also buck Brexit

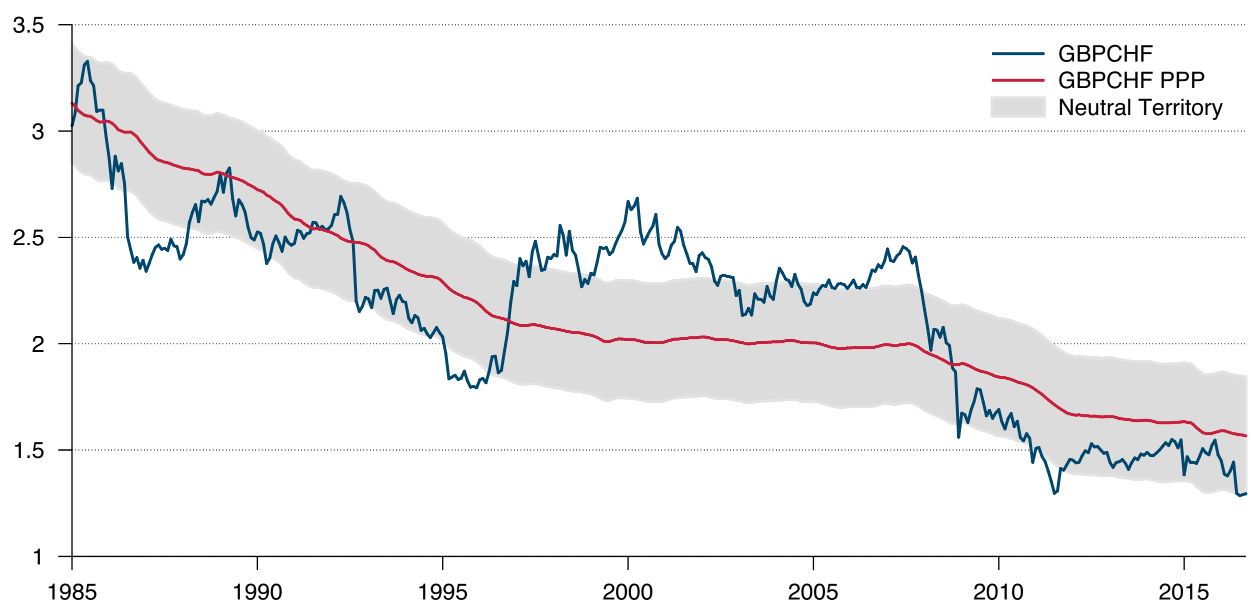
It is important to note that Brexit has so far had little if any economic impact, also in Britain itself. After the sharp decline in business sentiment in July, falling to 48.2 points, August bounced back briskly with a muscular 53.3 reading. Consumer sentiment in the UK also reversed most of July's retreat with an August surge. Such sentiment data is at odds with the arguments behind the Bank of England's post-Brexit enlargement of its already expansive monetary policy. The BoE painted a most bleak picture of the British economy, earning it heavy criticism in the country's media.

Sterling opportunities

Many observers expected a cascade of political and economic turmoil following the Brexit vote. But the country's politicians have managed the challenges well so far. And the economy has displayed quite remarkable resilience. The Brexit vote did leave some tire marks on the pound, however.

The GBPCHF exchange rate rapidly depreciated after the vote and now hovers near its neutral zone, according to purchasing power parity. Meanwhile signs are gathering that GBPCHF is forming a floor, which supports our view, above, that much ado about Brexit is receding. Therefore, from a Swiss franc-holder's point of view, we think the pound offers an attractive investment opportunity. It has to be noted, however, that although the central bank relented from taking any further measures in August, it is pointedly keeping its future options open.

Tracking the GBPCHF exchange rate



Source: Thomson Reuters Datastream, Wellershoff & Partners

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Economic activity

The economic news from the US was mostly negative over the past month. The ISM Manufacturing Index fell from 52.6 points to 49.4 points while the ISM Non-Manufacturing Index tumbled by more than 4 points. In recent weeks, US private consumption has lost momentum and the economy added 300 000 fewer jobs in the first eight months of this year than in the same period a year ago. Add the slow fade of the stimulus effect from low energy prices expected in the coming months and the outlook has grown decidedly cloudier for the US economy. The risk of a US recession still needs to be taken seriously, in our view. And if bad economic news wasn't enough, we are in the midst of a rough presidential election that is adding uncertainty to America's economic outlook.

The Eurozone is also facing several important political decisions, we note, with the upcoming constitutional referendum in November 2016 in Italy being the most concerning one. Economic growth in the EU leveled off in the second quarter, holding at 1.6 percent year-over-year. Somewhat surprisingly, Brexit's economic consequences have thus far been limited, hardly weighing on Eurozone sentiment at all.

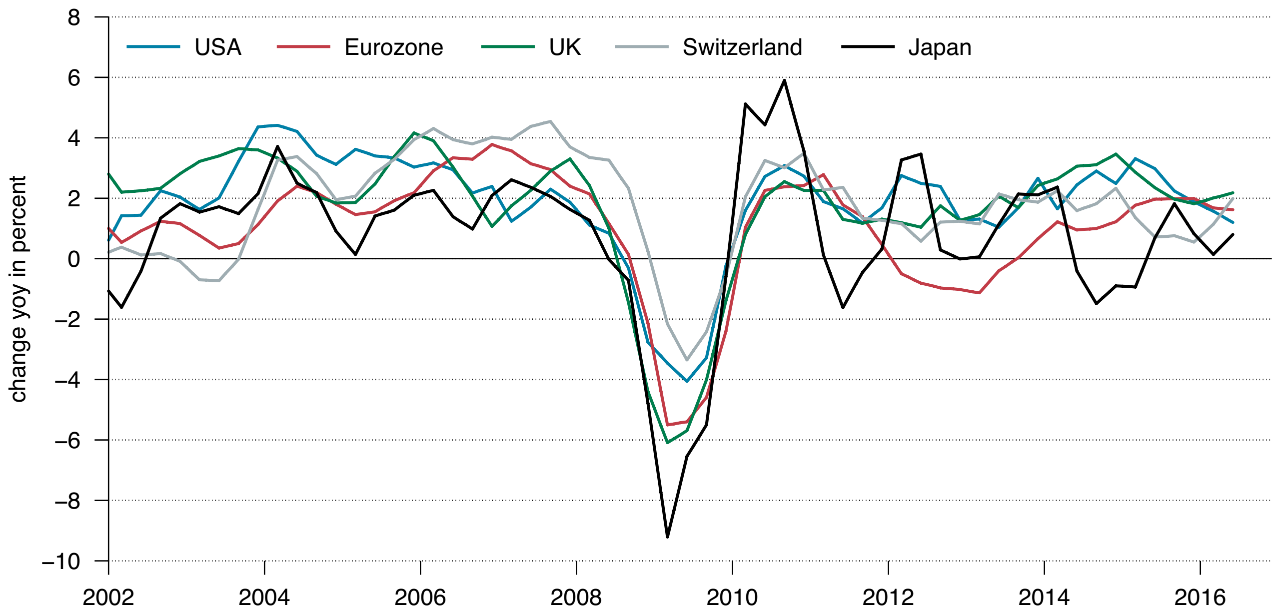
Growth overview

	Trend growth[1]	Real GDP growth[2]				W&P economic sentiment indicators[3]			
		Q3/2015	Q4/2015	Q1/2016	Q2/2016	5/2016	6/2016	7/2016	8/2016
United States	1.7	2.2	1.9	1.6	1.2	2.4	3.2	2.9	1.9
Eurozone	1.0	2.0	2.0	1.7	1.6	2.2	2.1	2.1	2.0
Germany	1.4	1.7	1.3	1.8	1.7	2.3	2.6	2.6	2.4
France	0.7	1.1	1.3	1.4	1.4	1.8	1.5	1.4	1.5
Italy	0.2	0.8	1.1	1.0	0.8	2.0	1.2	1.3	0.8
Spain	1.6	3.4	3.5	3.4	3.2	3.1	3.3	3.2	2.8
United Kingdom	1.8	2.0	1.8	2.0	2.2	2.7	2.9	2.2	2.4
Switzerland	1.5	0.8	0.6	1.1	2.0	1.2	1.2	1.0	0.6
Japan	0.4	1.8	0.8	0.1	0.8	1.8	1.9	1.8	1.9
Canada	1.6	1.0	0.3	1.2	0.9	0.9	1.3	1.5	1.1
Australia	2.4	2.6	2.8	3.0	3.3	3.5	3.4	3.5	3.5
Brazil	1.4	-4.5	-5.9	-5.4	-3.8	-3.2	-2.1	-0.3	-0.5
Russia	0.1	-3.7	-3.8	-1.2	-0.6	-0.2	1.7	-0.3	1.0
India	7.7	7.6	7.2	7.9	7.1	6.0	6.5	6.5	6.9
China	7.4	6.9	6.8	6.7	6.7	8.1	7.7	8.9	8.6
Advanced economies[4]	1.4	2.1	2.0	1.5	1.6	2.4	2.8	2.5	2.0
Emerging economies[4]	6.0	4.6	4.5	4.8	4.8	4.8	4.7	5.5	5.5
World economy[4]	3.5	3.4	3.2	3.2	3.2	3.2	3.3	3.6	3.3

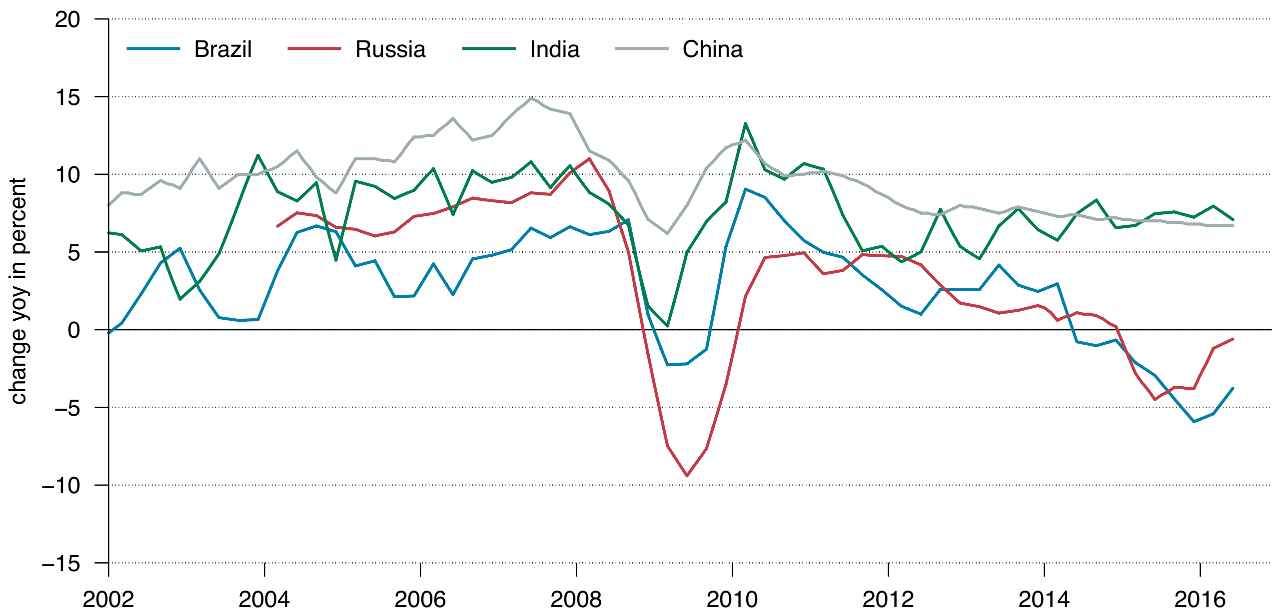
[1] Current year-on-year trend growth rate of real GDP, in percent, according to the proprietary trend growth model of Wellershoff & Partners.
[2] Year-on-year growth rate, in percent.
[3] Wellershoff & Partners economic sentiment indicators are based on consumer and business surveys and have up to 6 months lead on the year-on-year growth rate of real GDP.
[4] Calculations are based on nominal GDP weights derived from purchasing power parity exchange rates.

Source: European Commission, Penn World Table, Thomson Reuters Datastream, Wellershoff & Partners

Economic growth in advanced economies



Economic growth in emerging economies



Source: Thomson Reuters Datastream, Wellershoff & Partners

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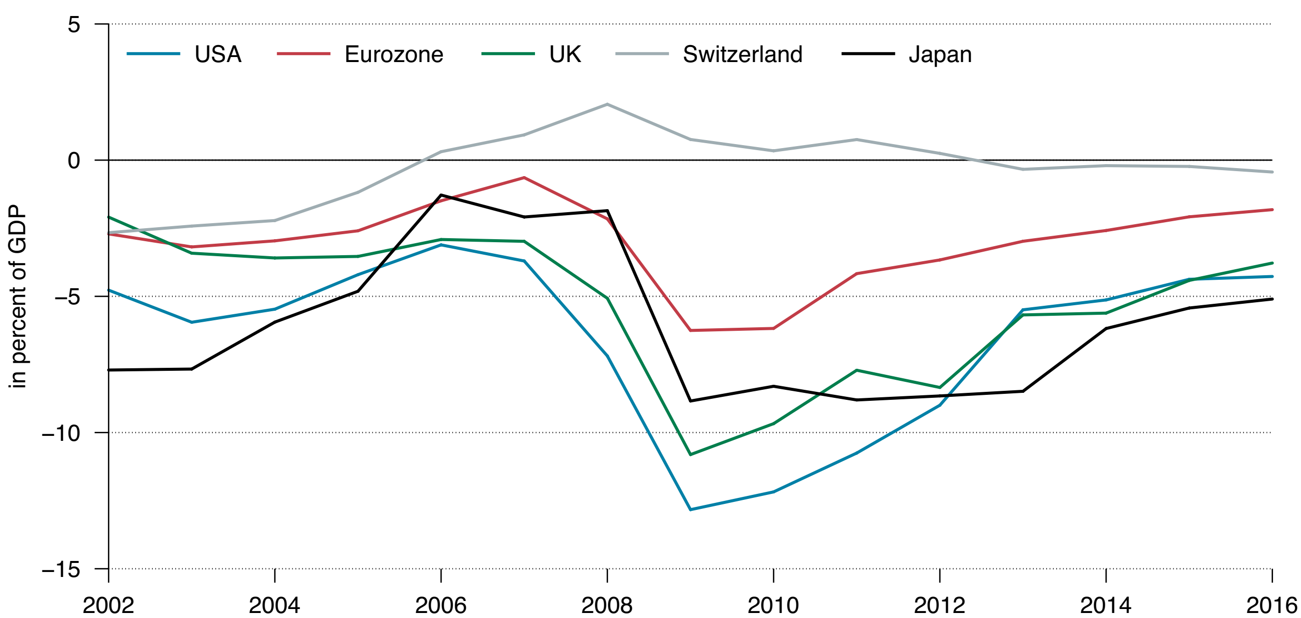
Economic indicators

Overview

	Global GDP share[1]		Current account[2]		Public debt[2]		Budget deficit[2]		Unemployment rate[3]	
	Ø 5 years	Current	Ø 5 years	Current	Ø 5 years	Current	Ø 5 years	Current	Ø 5 years	Current
United States	22.4	25.1	-2.6	-2.5	111.3	114.2	-7.0	-4.3	7.2	4.9
Eurozone	17.2	16.0	2.6	3.8	105.1	109.6	-3.1	-1.8	11.2	10.1
Germany	4.9	4.7	7.2	9.2	82.4	75.2	0.0	0.3	6.8	6.1
France	3.6	3.3	-0.8	-0.7	112.6	121.6	-4.3	-3.4	9.6	9.6
Italy	2.8	2.5	0.3	2.1	144.5	160.3	-3.0	-2.3	11.1	11.5
Spain	1.8	1.7	0.1	1.1	101.6	117.4	-7.6	-3.7	23.8	19.6
United Kingdom	3.7	3.7	-3.9	-5.9	110.9	115.3	-6.4	-3.8	6.8	4.9
Switzerland	0.9	0.9	9.9	10.6	45.6	46.2	0.0	-0.4	3.0	3.2
Japan	6.8	6.0	1.5	3.4	220.8	233.1	-7.5	-5.1	4.0	3.0
Canada	2.4	2.0	-3.0	-3.5	86.0	92.3	-2.0	-2.4	7.1	7.0
Australia	1.9	1.6	-3.7	-3.6	30.8	39.1	-3.3	-2.4	5.6	5.6
China	12.5	15.4	2.1	2.6	39.3	46.8	-1.1	-3.1	4.1	–
Brazil	3.1	2.1	-3.3	-2.0	64.2	76.3	-4.9	-8.7	7.4	11.6
India	2.6	3.1	-2.7	-1.5	67.3	66.5	-7.5	-7.0	–	–
Russia	2.6	1.5	3.5	4.2	14.0	18.4	-0.8	-4.4	5.7	5.3

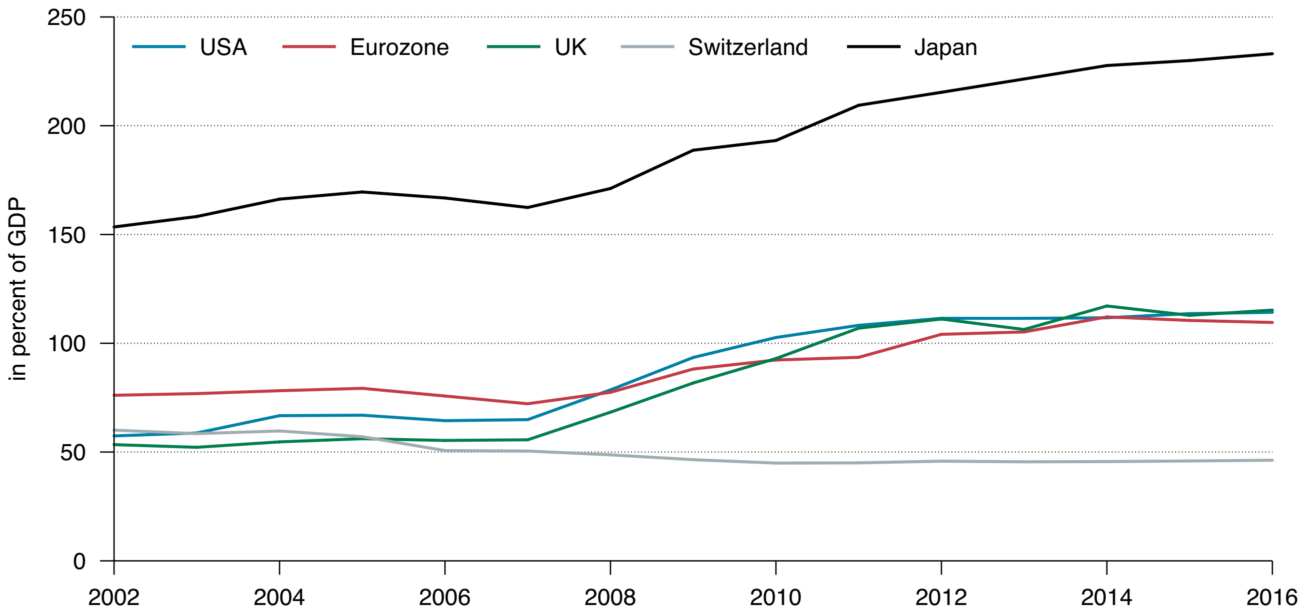
[1] In percent; calculations based on market exchange rates. [2] In percent of nominal GDP. [3] In percent.

Budget deficits in advanced economies

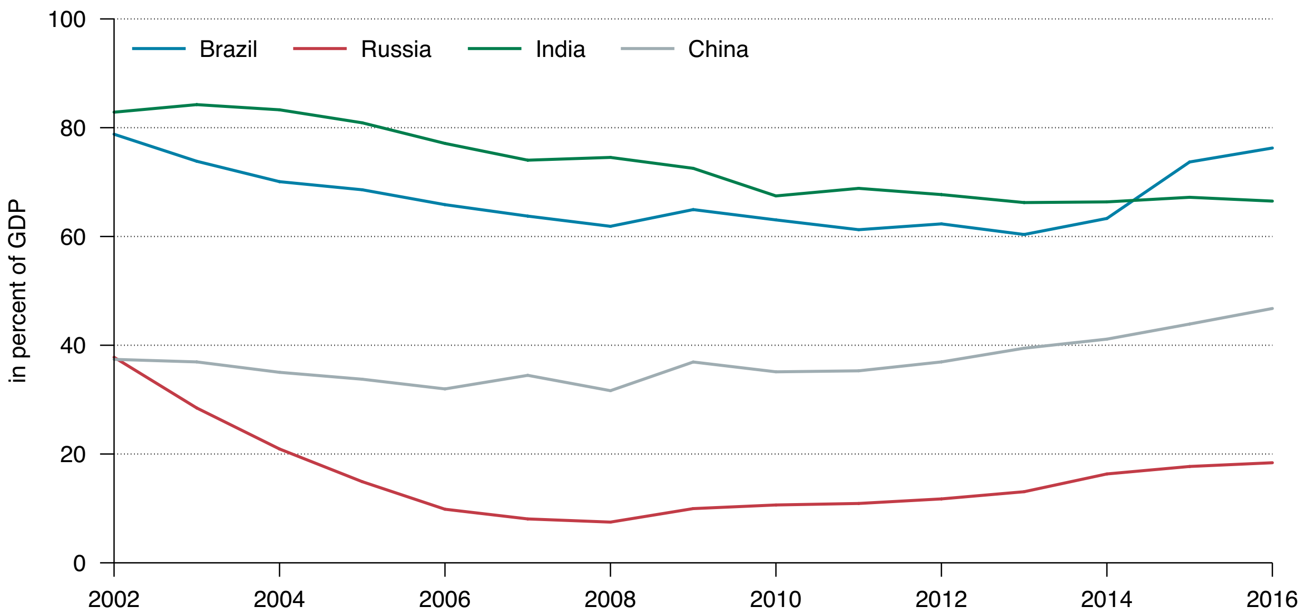


Source: Thomson Reuters Datastream, Wellershoff & Partners

Public debt in advanced economies



Public debt in emerging economies



Source: Thomson Reuters Datastream, Wellershoff & Partners

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Inflation

In Switzerland the overall inflation rate in July was still at -0.2 percent compared to a year earlier. In August it was at -0.1 percent. Core inflation posted a flat 0.0 percent year-over-year rate in both of these months. Given the likely reduction in the price-suppressing effects of low energy and the strong Swiss franc, we expect to see Swiss inflation rates return to positive territory in the coming months. Wellershoff & Partners calculates that these base effects will help the year-over-year overall inflation rate rise to 0.5 percent by the spring of 2017.

When it comes to inflation, Japan is simply astounding. In June it recorded an inflation rate of -0.3 percent, in July of -0.5 percent, the lowest level since mid-2013. Given the Bank of Japan's massive stimulus programs, these negative inflation levels are mind-boggling. At its September meeting, the BoJ expressed its firm commitment to "more of the same" monetary expansion as it pledged to continue buying assets. It not only wants to reach its 2-percent inflation target, but indicated that it would accept an even higher inflation rate for a time.

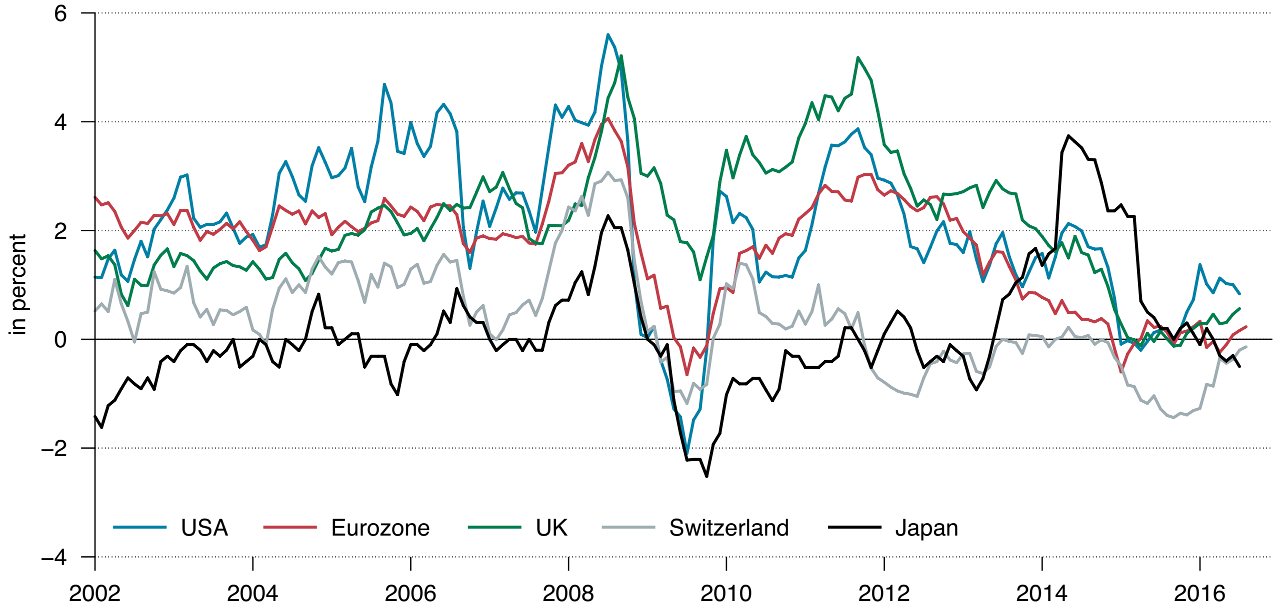
Inflation overview

	Ø 10 years[1]	Inflation[2]				Core inflation[3]			
		5/2016	6/2016	7/2016	8/2016	5/2016	6/2016	7/2016	8/2016
United States	1.8	1.0	1.0	0.8	–	2.2	2.3	2.2	–
Eurozone	1.5	-0.1	0.1	0.2	0.2	0.8	0.9	0.9	0.8
Germany	1.4	0.1	0.3	0.4	0.4	1.1	1.2	1.3	1.1
France	1.2	0.0	0.2	0.2	0.2	–	–	–	–
Italy	1.5	-0.3	-0.4	-0.1	-0.1	0.6	0.5	0.6	0.4
Spain	1.5	-1.0	-0.8	-0.6	-0.1	0.7	0.6	0.7	–
United Kingdom	2.4	0.3	0.5	0.6	–	1.2	1.4	1.3	–
Switzerland	0.1	-0.4	-0.4	-0.2	-0.1	-0.1	-0.2	0.0	0.0
Japan	0.3	-0.4	-0.3	-0.5	–	0.6	0.5	0.3	–
Canada	1.6	1.5	1.5	1.3	–	2.1	2.1	2.1	–
Australia	2.5	1.1	1.0	–	–	1.6	1.6	–	–
Brazil	6.0	9.3	8.8	8.7	9.0	8.2	7.7	7.3	–
Russia	9.3	7.3	7.5	7.2	6.8	7.5	7.5	7.4	7.0
India	8.1	5.8	5.8	6.1	–	–	–	–	–
China	2.9	2.0	1.9	1.8	1.3	1.6	1.6	1.8	1.6
Advanced economies[4]	1.5	0.5	0.5	0.5	0.5	1.5	1.5	1.5	1.5
Emerging economies[4]	5.3	4.1	4.0	4.0	3.6	3.1	3.1	3.2	2.9
World economy[4]	3.1	2.2	2.2	2.1	2.0	1.9	1.9	1.9	1.9

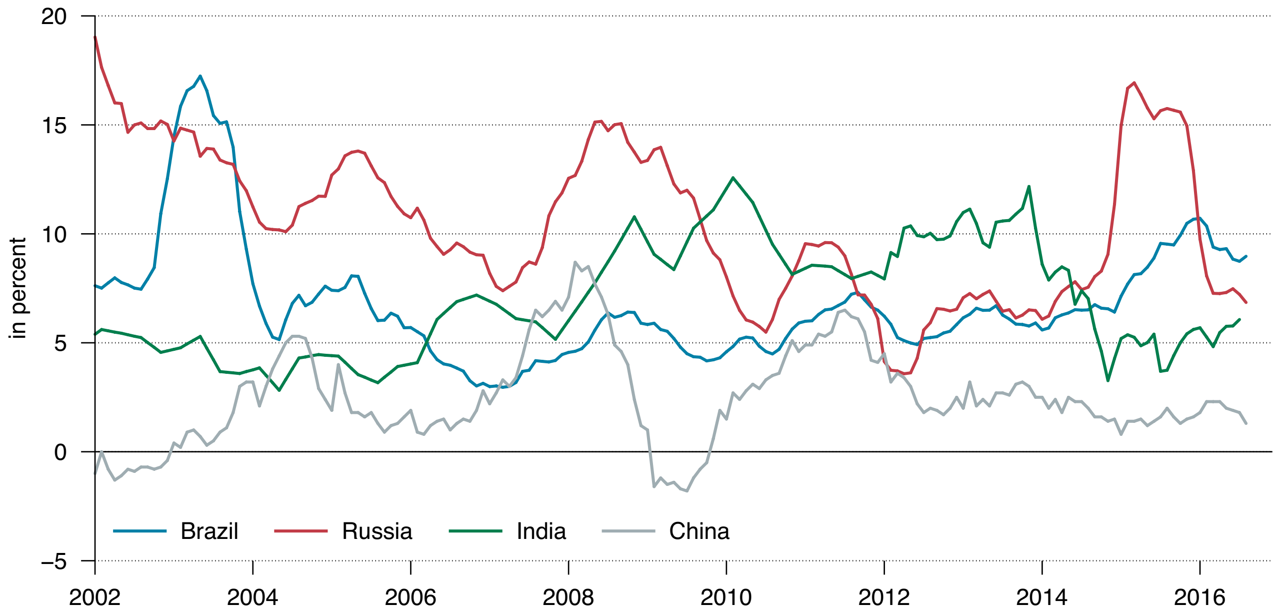
[1] Average annual consumer price inflation, in percent.
[2] Year-on-year change of the consumer price index (CPI), in percent.
[3] Core inflation is a measure of inflation that excludes certain items that can experience volatile price movements, such as energy and certain food items; year-on-year change of the core consumer price index, in percent.
[4] Calculations are based on nominal GDP weights derived from purchasing power parity exchange rates.

Source: Thomson Reuters Datastream, Wellershoff & Partners

Consumer price inflation in advanced economies



Consumer price inflation in emerging economies



Source: Thomson Reuters Datastream, Wellershoff & Partners

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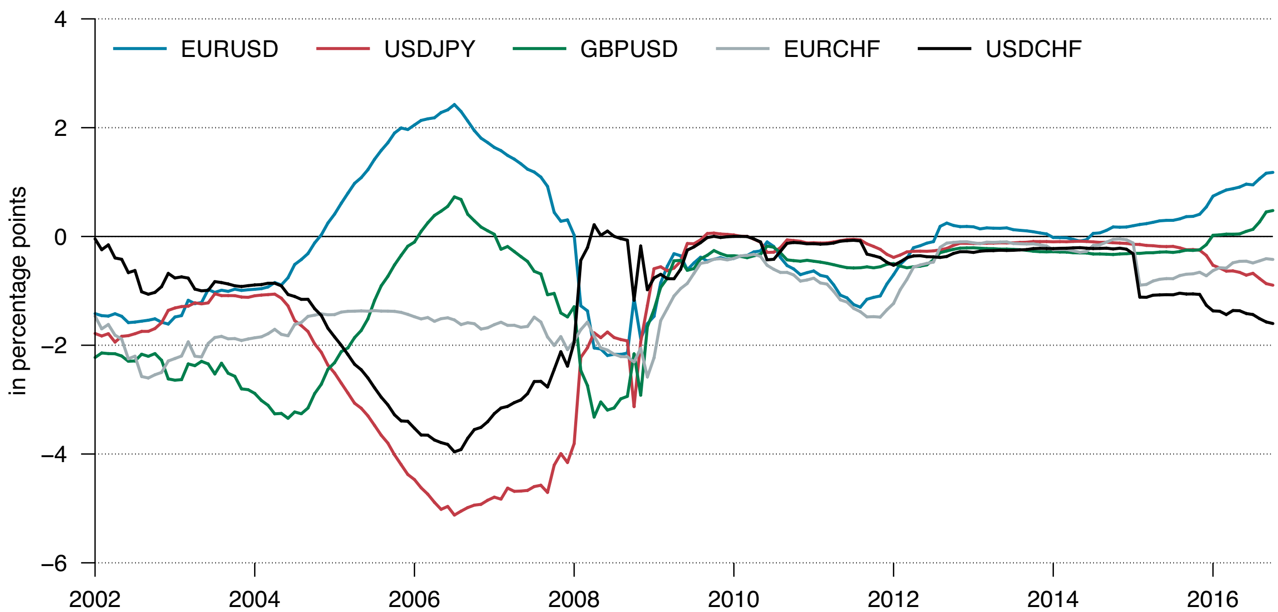
Interest rates

Interest rate differentials overview

	Current exchange rate	Interest rate differentials 3 months[1]				Interest rate differentials 12 months[1]			
		Current	1 year ago	Ø 5 years	Ø 10 years	Current	1 year ago	Ø 5 years	Ø 10 years
EURUSD	1.116	1.18	0.38	0.18	-0.09	1.62	0.71	0.33	-0.03
USDJPY	102.3	-0.90	-0.24	-0.25	-0.95	-1.46	-0.59	-0.49	-1.10
GBPUSD	1.308	0.48	-0.27	-0.25	-0.58	0.80	-0.23	-0.28	-0.61
EURCHF	1.093	-0.42	-0.67	-0.43	-0.85	-0.40	-0.67	-0.55	-0.93
USDCHF	0.979	-1.60	-1.05	-0.61	-0.77	-2.02	-1.38	-0.87	-0.91
GBPCHF	1.281	-1.12	-1.31	-0.86	-1.35	-1.22	-1.61	-1.15	-1.52
CHFJPY	104.4	0.70	0.80	0.36	-0.18	0.56	0.79	0.38	-0.19
AUDUSD	0.748	-0.60	-1.64	-2.25	-2.60	0.15	-1.02	-1.61	-2.18
USDCAD	1.322	0.04	0.45	0.78	0.44	-0.43	0.02	0.53	0.26
USDSEK	8.569	-1.48	-0.66	0.35	0.34	-1.75	-0.90	0.18	0.27
USDRUB	65.2	9.29	11.23	8.92	7.40	8.66	11.91	8.48	7.65
USDBRL	3.302	13.16	14.08	10.50	9.81	11.36	14.58	10.24	9.72
USDCNY	6.671	1.93	2.82	3.83	2.42	1.47	2.59	3.49	2.19
USDTRY	2.983	8.25	11.39	8.93	9.70	8.03	10.93	8.74	9.95
USDINR	67.01	7.47	7.48	8.79	7.11	5.46	6.28	6.34	4.54

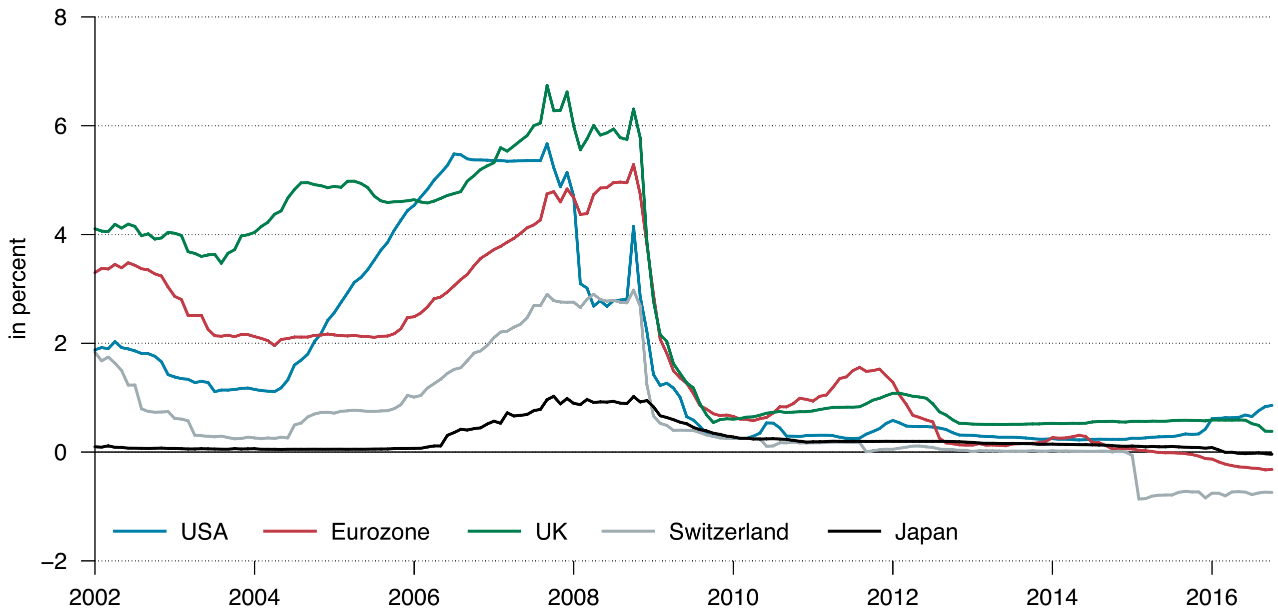
[1] The gap in interest rates between the second currency and the first one, in percentage points; e.g. US dollar minus euro for EURUSD.

Interest rate differentials

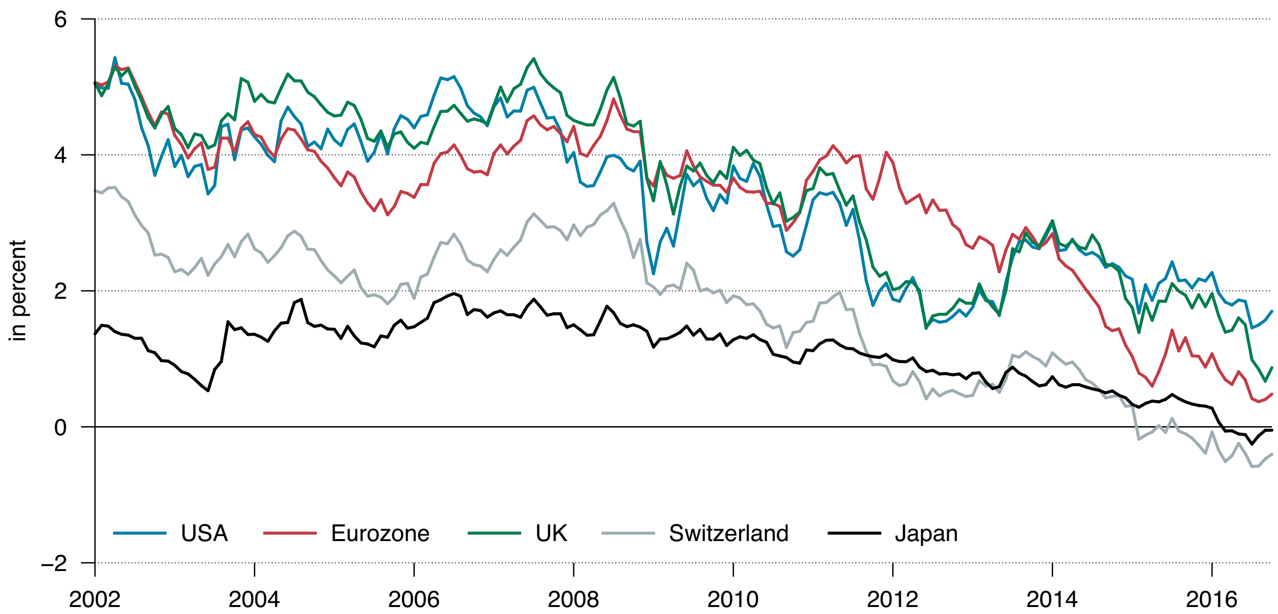


Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

3-month Libor



10-year government bond yields



Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

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FX markets

The major currencies have confirmed their valuation patterns in recent weeks. According to Wellershoff & Partners purchasing power parity calculations, the Swiss franc and the US dollar remain overvalued while the British pound, the euro and the Japanese yen are undervalued. Despite all the speculation about a possible interest rate hike by the Fed, EURUSD has moved mostly sideways, in a narrow band from 1.11 to 1.13.

Financial markets are more concerned about how increasingly ineffectual monetary policy measures have become. The yen is a poster child of official impotence. Comparing the Bank of Japan's balance sheet to the country's economic performance, the BoJ can claim second place among the world's most expansionary central banks – surpassed only by the Swiss National Bank. But neither the existing measures nor the additional expansionary monetary measures undertaken in January and July of this year have managed to halt the recent appreciation of the yen.

At its September 20 policy meeting, the BoJ steadfastly launched new, rather experimental, easing measures. It remains to be seen whether they will produce a lasting effect on the yen. What seems almost certain, however, is that volatility in the USDJPY currency pair is poised to remain high for some time to come.

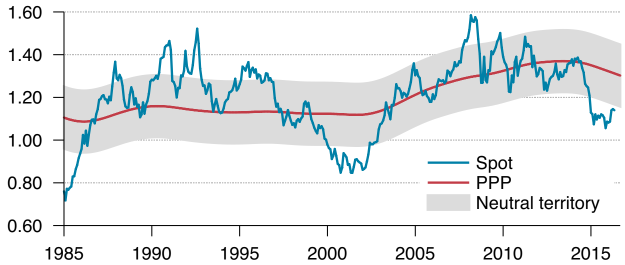
FX overview

	Current exchange rate	Performance[1]				Purchasing Power Parity[2]		
		YTD	3 months	1 year	5 years	PPP	Neutral territory	Deviation[3]
EURUSD	1.116	2.8	-0.8	-1.4	-19.0	1.30	1.16 - 1.45	-14.3
USDJPY	102.3	-15.0	-1.9	-15.4	33.0	97.8	78.0 - 117.6	4.6
GBPUSD	1.308	-11.2	-8.5	-15.7	-17.2	1.63	1.47 - 1.79	-19.7
EURCHF	1.093	0.5	1.1	-0.4	-9.4	1.25	1.15 - 1.35	-12.4
USDCHF	0.979	-2.2	1.8	1.0	11.9	0.99	0.79 - 1.18	-0.7
GBPCHF	1.281	-13.2	-6.8	-14.9	-7.4	1.60	1.32 - 1.87	-19.8
CHFJPY	104.4	-13.1	-3.7	-16.3	18.9	90.9	78.4 - 103.5	14.9
AUDUSD	0.748	2.9	1.3	4.7	-27.8	0.69	0.57 - 0.81	8.4
USDCAD	1.322	-4.9	2.7	0.3	34.4	1.22	1.14 - 1.29	8.7
USDSEK	8.569	1.6	2.8	3.7	29.0	7.09	6.20 - 7.98	20.8
USDRUB	65.2	-10.8	0.4	-1.0	113.3	38.9	31.7 - 46.2	67.4
USDBRL	3.302	-16.5	-3.7	-15.0	93.1	3.01	2.50 - 3.52	9.6
USDCNY	6.671	2.7	1.2	4.8	4.5	6.45	6.24 - 6.66	3.5
USDTRY	2.983	2.2	1.8	-0.9	67.5	2.35	2.09 - 2.61	27.1
USDINR	67.01	1.3	-0.1	0.9	41.8	64.8	61.6 - 67.9	3.5

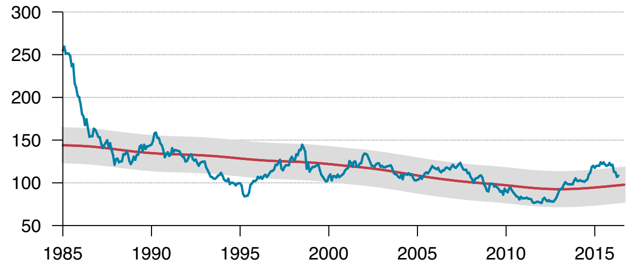
1 Performance over the respective period of time, in percent.
2 Purchasing power parity (PPP) is estimated based on the relative development of inflation rates in two currency markets; the neutral territory is determined by +/- 1 standard deviation of the historical variation around the PPP value.
3 Deviation of the current spot rate from PPP, in percent.

Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

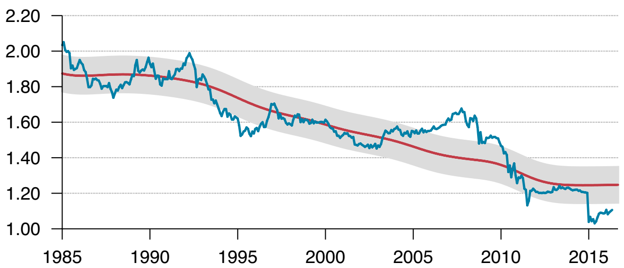
EURUSD



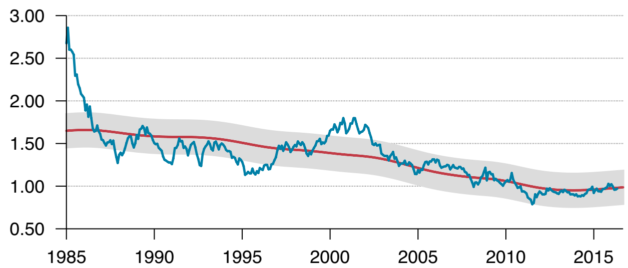
USDJPY



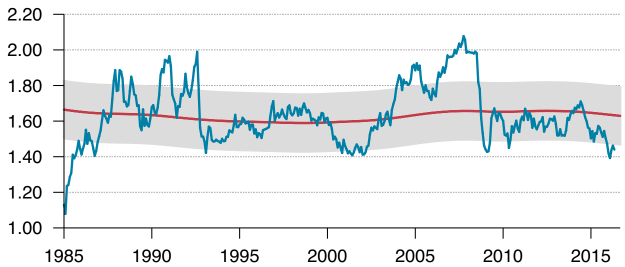
EURCHF



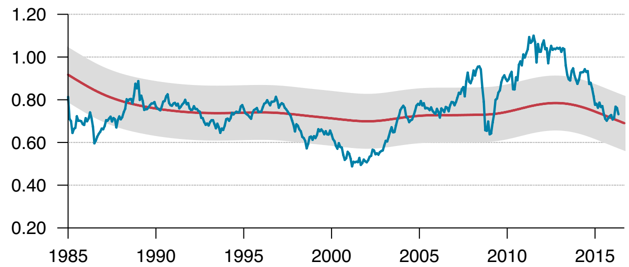
USDCHF



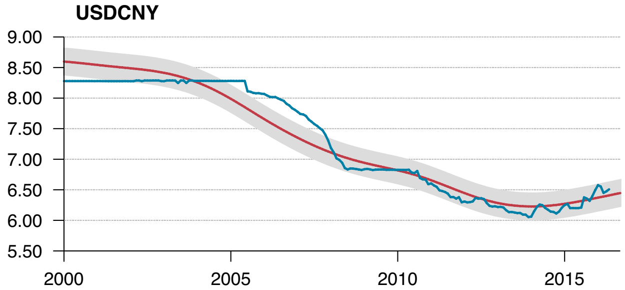
GBPUSD



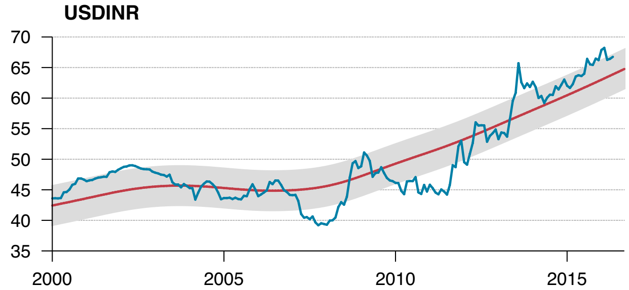
AUDUSD



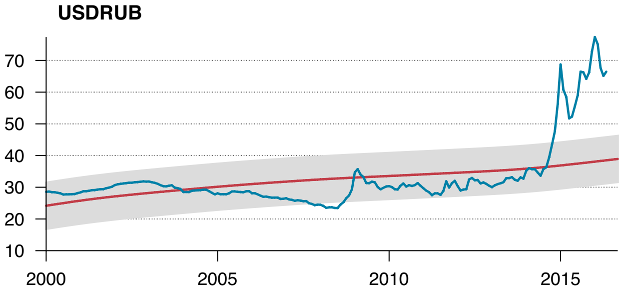
USDCNY



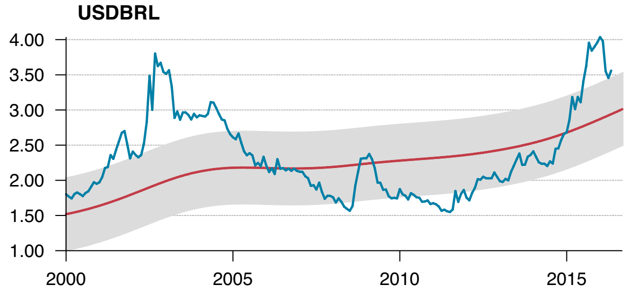
USDINR



USDRUB



USDBRL



Source: Thomson Reuters Datastream, Wellershoff & Partners

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FX volatility

FX volatility overview

	Current exchange rate	Volatility 3 months[1]				Volatility 12 months[1]			
		Historical	Implied	Ø 5 years[2]	Ø 10 years[2]	Historical	Implied	Ø 5 years[2]	Ø 10 years[2]
EURUSD	1.116	8.3	8.5	9.3	10.4	9.2	8.9	9.8	10.7
USDJPY	102.3	13.2	12.4	9.7	10.7	10.8	11.3	10.4	11.1
GBPUSD	1.308	17.9	9.8	8.3	9.7	11.9	10.0	8.9	10.1
EURCHF	1.093	6.5	4.9	5.7	6.2	5.9	6.6	6.7	6.6
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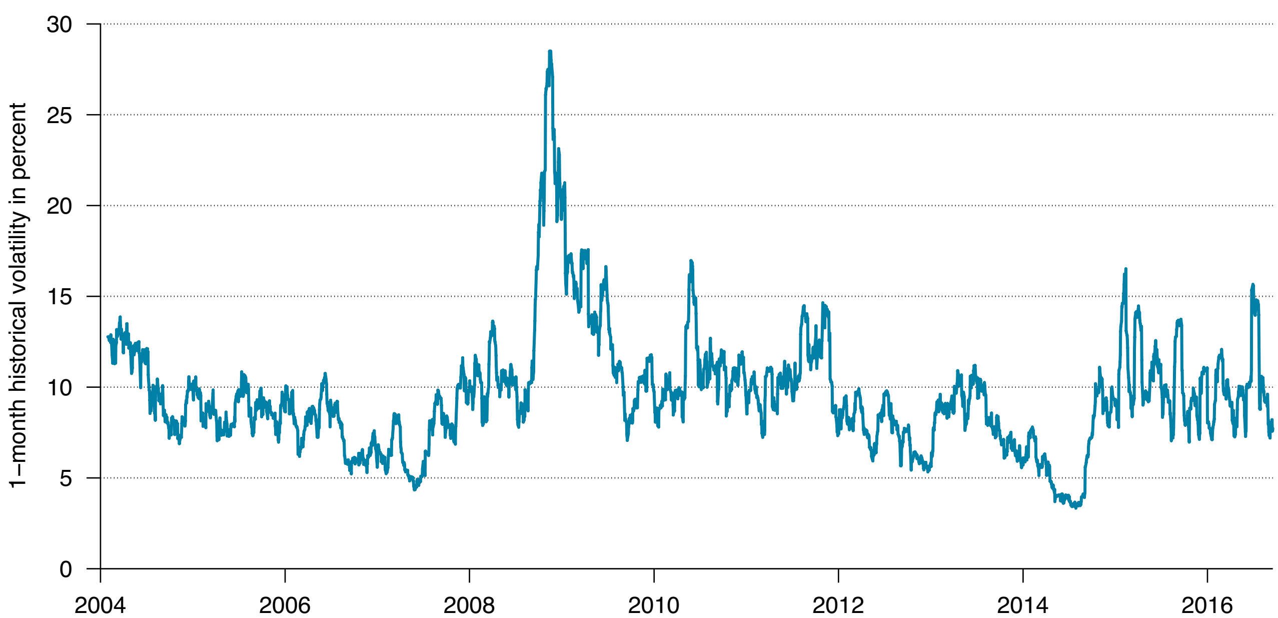
USDCNY	6.671	2.3	5.8	2.9	2.9	2.5	6.8	3.8	4.5
USDTRY	2.983	13.2	11.6	11.7	13.3	11.7	12.8	13.1	14.6
USDINR	67.01	3.8	6.5	9.4	9.5	4.3	7.5	10.4	10.4

[1] Annualized volatility, in percent. [2] Average of implied volatility.

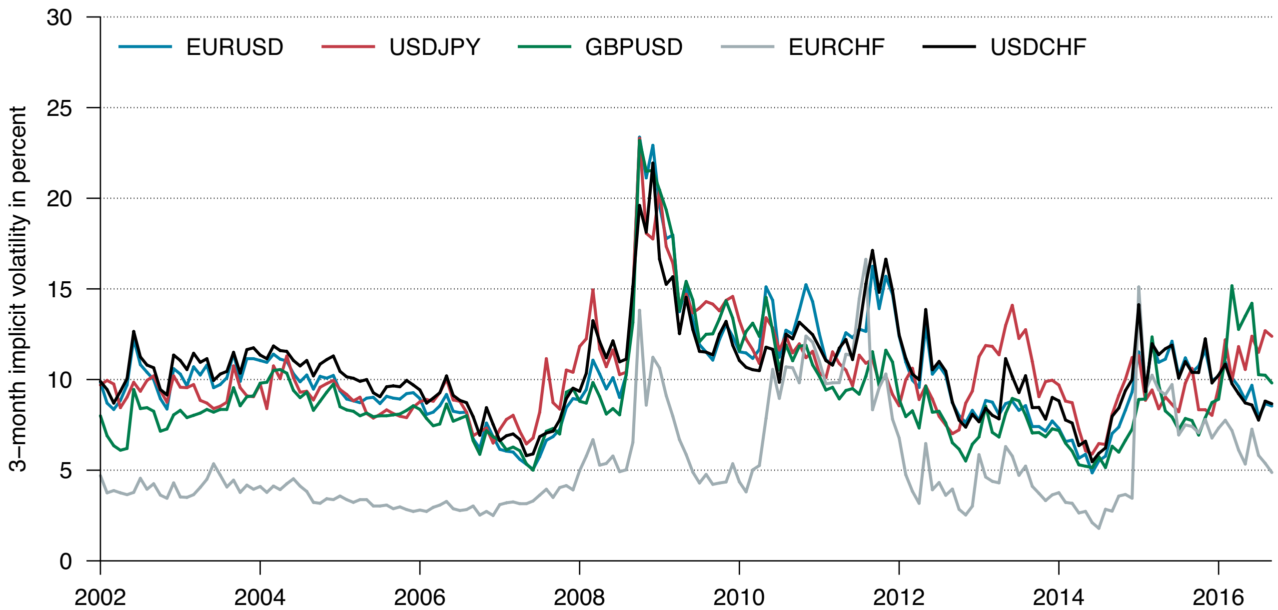
QCAM volatility indicator[3]



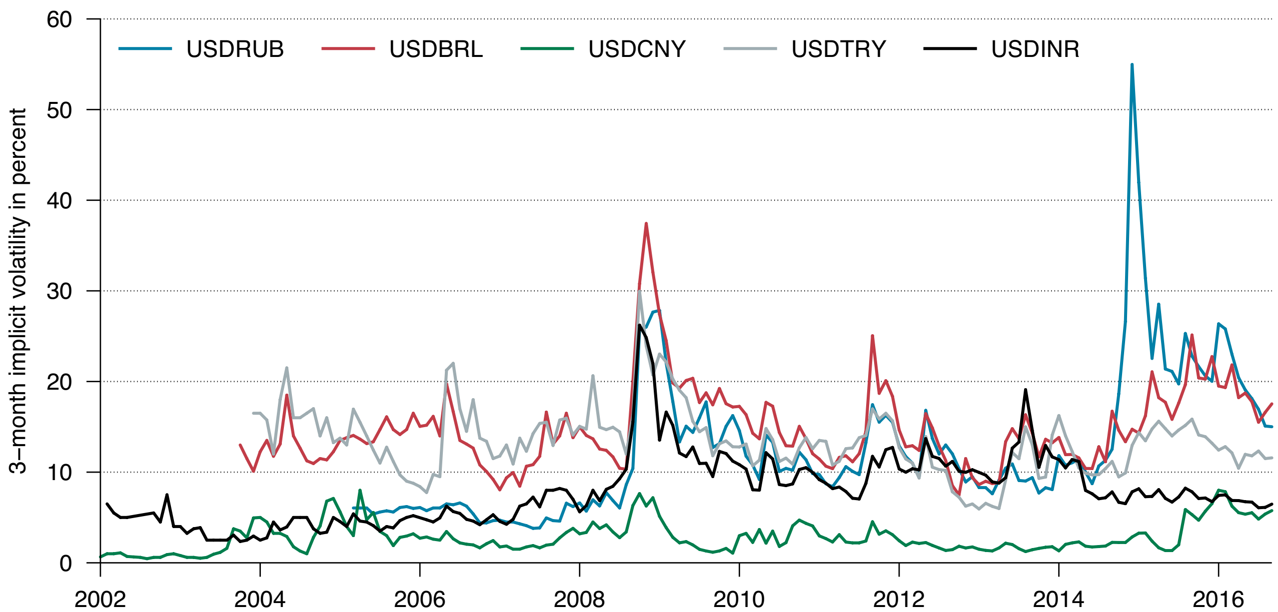
[3] The QCAM volatility indicator measures general volatility in global FX markets; the indicator is based on historical volatility of the main exchange rates, which are weighted by trading volume.

Source: Bloomberg, Thomson Reuters Datastream, QCAM Currency Asset Management, Wellershoff & Partners

Implied volatility



Implied volatility



Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

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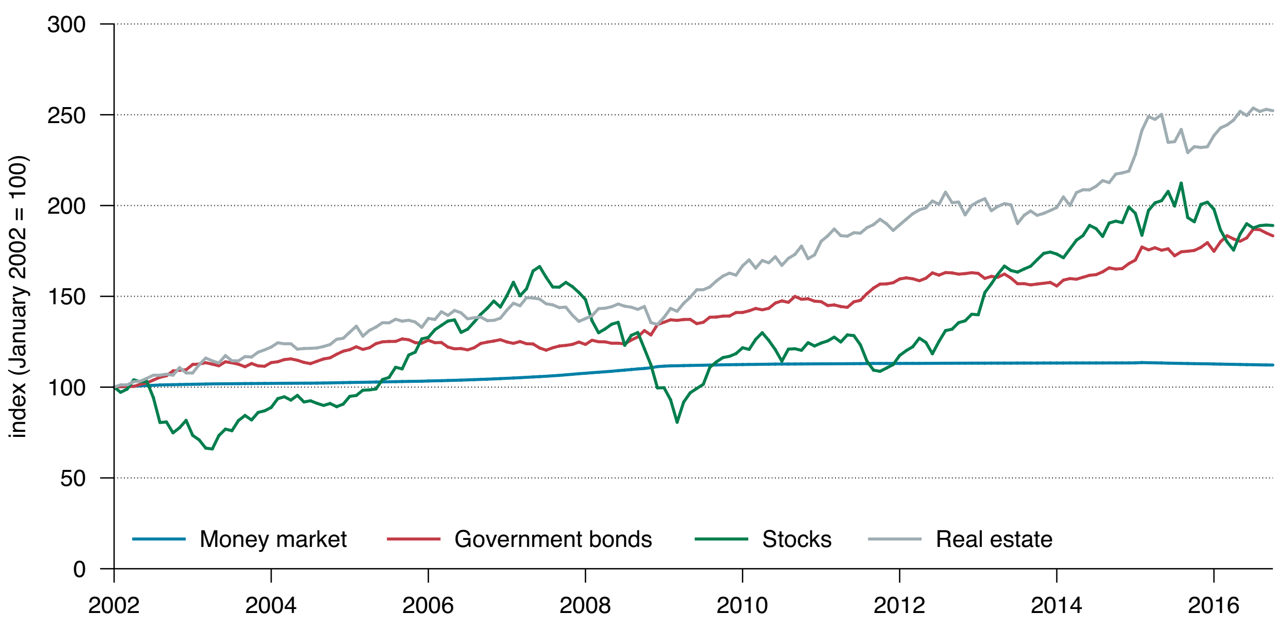
Financial markets

Performance overview

	Performance in either local curreny or USD[1]				Performance in CHF[1]			
	YTD	3 months	1 year	5 years	YTD	3 months	1 year	5 years
Swiss money market	-0.5	-0.2	-0.7	-0.8	-0.5	-0.2	-0.7	-0.8
Swiss government bonds	4.9	-1.0	6.4	17.9	4.9	-1.0	6.4	17.9
Swiss corporate bonds	2.8	-0.7	3.5	15.7	2.8	-0.7	3.5	15.7
Swiss equities (SMI)	-4.5	5.6	-4.8	75.2	-4.5	5.6	-4.8	75.2
Eurozone equities (Stoxx600)	-4.8	4.2	-3.1	74.7	-3.7	5.2	-3.4	58.3
UK equities (Ftse100)	11.0	12.5	12.8	50.6	-2.8	5.2	-3.4	40.2
Japanese equities (Topix)	-14.2	5.0	-10.2	89.7	-0.5	8.6	7.0	58.8
US equities (S&P 500)	6.3	3.8	9.9	95.9	4.5	5.1	10.5	117.8
Emerging markets equities	14.0	11.2	10.0	4.4	12.0	12.5	10.6	16.0
Global equities (MSCI World)	4.1	4.2	5.4	64.6	2.3	5.5	6.0	83.0
Swiss real estate	5.7	1.1	11.5	31.4	5.7	1.1	11.5	31.4
Global real estate	8.4	1.5	14.0	64.7	6.5	2.7	14.6	83.1
Commodities	6.0	-6.2	-6.5	-47.1	4.1	-5.1	-6.0	-41.2
Brent oil	29.6	-4.6	-3.9	-59.8	27.4	-3.4	-3.4	-55.3
Gold	23.4	1.9	17.2	-27.0	21.3	3.1	17.9	-18.8

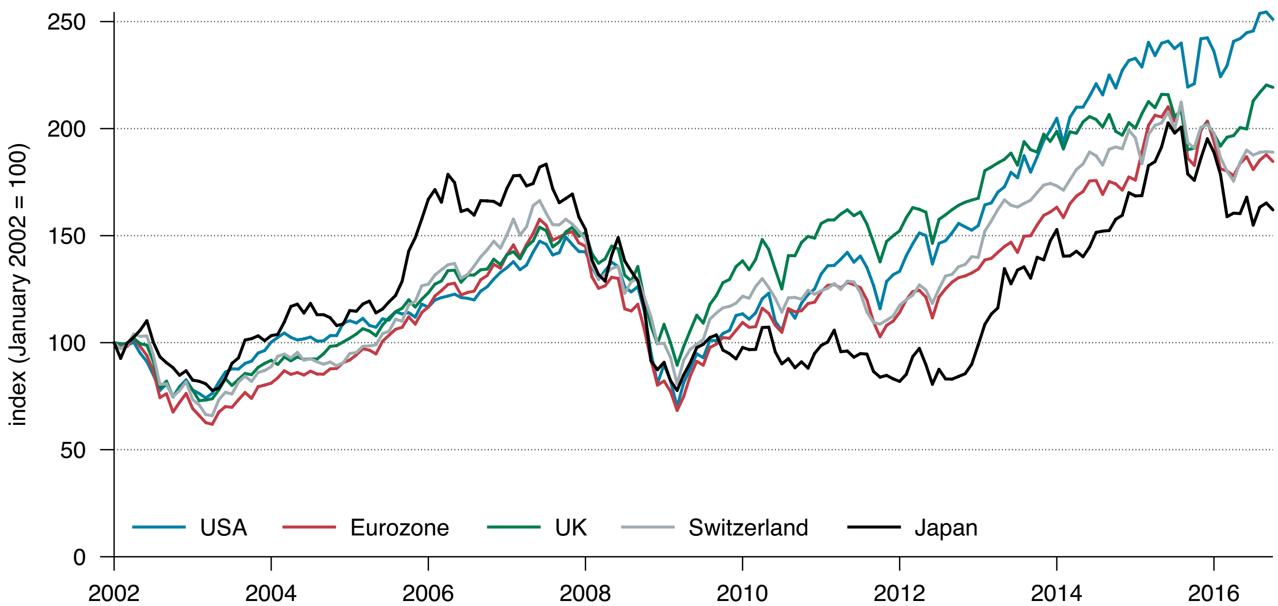
[1] Performance over the respective period of time, in percent.

Performance of selected Swiss asset classes

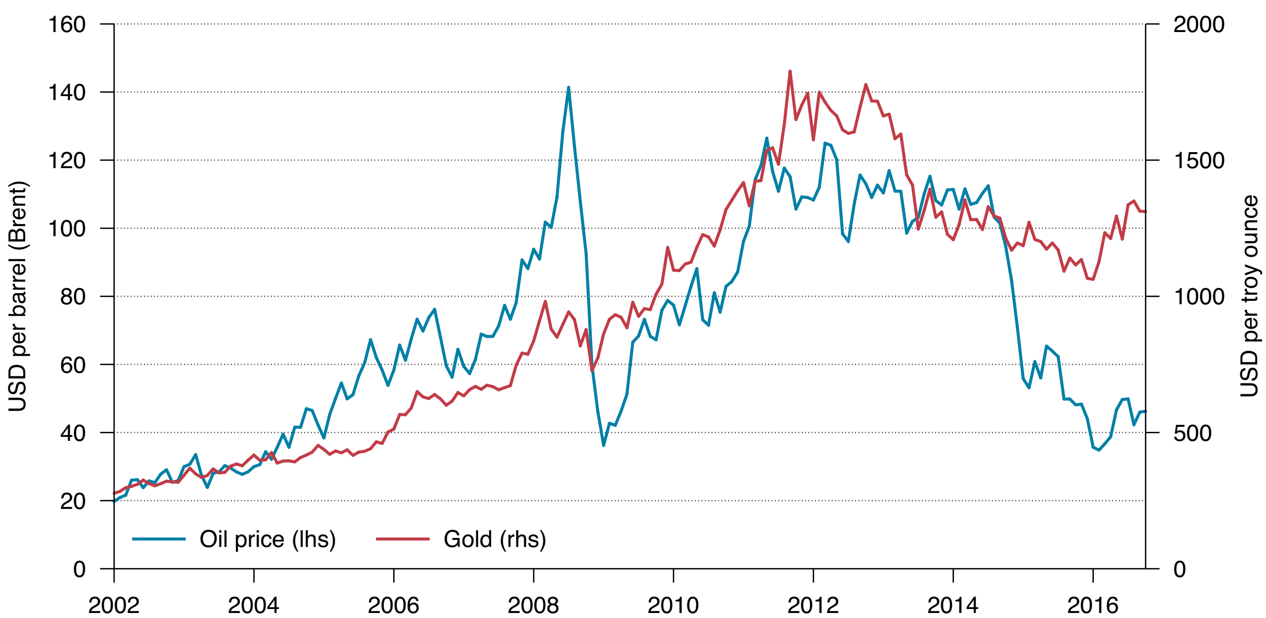


Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

Performance of selected equity markets (in local currency)



Performance of selected commodity prices



Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

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Number of the month

45 percent

Both US presidential candidates enjoyed the support of 45 percent of US voters on September 14, 2016. This figure is derived from the averages of the past ten national surveys. Wasn't Hillary Clinton supposed to easily defeat Donald Trump? And wasn't there another vote recently where, despite the narrowing polls as the campaign ended, many observers expected a result that the voters flatly rejected?