

April 2016



Monthly

Quaesta Capital Insight ++ The macro perspective ++ FX market talk ++
Economic activity ++ Inflation ++ FX markets ++ Financial markets ++
Number of the month



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Quaesta Capital Insight

FX volatility – an interesting investment alternative

In currency management, FX volatility is usually regarded as a risk that comes with foreign currency investments, something to be avoided wherever possible. But in active currency management, FX volatility can offer an interesting alternative to conventional currency strategies. One major advantage: very attractive portfolio diversification features.

Currency managers pursue a variety of trading strategies and different orientations in their implementation. Depending on the strategy, the focus is either fundamental or technical, the trading is done in major or minor currencies, and decision-making is discretionary or systematically defined. Whatever the approach, most strategies have one thing in common: they focus purely on directional trading ideas; for example, will the USD appreciate or depreciate versus the CHF?

Volatility trading takes a different view. An investor's positioning in this approach involves the so-called volatility risk, which is non-directional in nature and thus offers excellent diversification characteristics. As with any conventional investment, successful volatility trading must draw the right conclusions from the available data and from one's own market assessments.

Volatility trading

Volatility trading runs mostly through the buying and selling of options. In the pricing of an option all the well-known factors are involved: maturity, strike price, spot rate and the interest rate levels of the two currencies involved. In this way the intrinsic value of the option is calculated.

The volatility component is then incorporated in the form of a statistical index tracking the fluctuation of the currency pair around its mean level. The higher the volatility, the higher the price of the option. The volatility index in the current price of the option is called *implied volatility*. It reflects the current market consensus regarding the future volatility of the currency pair underlying the respective option. Using sophisticated processes, directional risk is hedged and only non-directional volatility remains as a residual risk.

Volatility trading is supported with statistical analysis. Comparisons of current implied volatility are made with historical volatility. The past, as we know, often foreshadows the future – but only to a limited extent. It is therefore essential also to consider fundamental assessments of developments on the financial markets and the respective currency markets as well.

Diversification features

The graphic shows the historical volatility of the EUR-USD currency pair over the past ten years. The graph

also shows at what completely different levels the implied volatilities for various maturities were traded in recent years and during different market environments. Whenever the implied volatilities are trading lower than the expected volatilities, investors are advised to buy volatility exposure. In the reverse case, the investor sells volatility because the market, in his or her opinion, currently expects overly high future volatility.

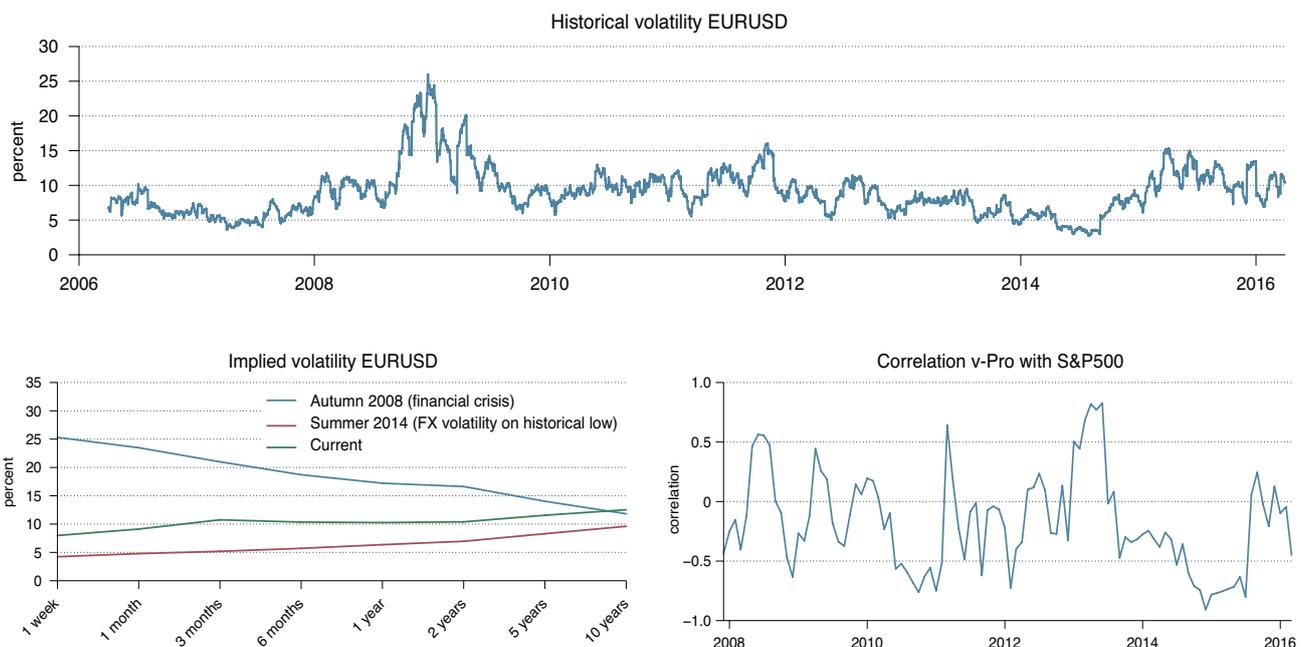
Typically, the transaction execution for the purchase and sale of options uses dynamic delta hedging. Another alternative is the purchase or sale of variance swaps, which have significant drawbacks in terms of liquidity and flexibility compared to an option. Soon, there will also be the opportunity to engage directly in volatility futures. The Chicago Board Options Exchange is currently in the process of launching investable FX volatility indexes.

In the best – and usual – case, a volatility strategy takes on a life of its own. It can be regarded as market-neutral strategy with an independent correlation pattern to markets and thus can constitute an excellent portfolio addition. The historical correlation of Quaesta Capital's v-Pro FX volatility strategy with the S&P500 (see graph) confirms this benefit.

Investment opportunities

For most investors, it is advisable to leave decisions about positioning to a specialized manager. Here, various offers are available. Each variant has its advantages. One thing is essential: Investors should have a clear picture of the advantages and disadvantages and the risks and rewards of each potential investment decision.

FX volatility indicators



Source: Thomson Reuters Datastream, Wellershoff & Partners

The macro perspective

A battle won, but still a long way to go

In March, for the first time in six months, the foreign exchange reserves held by China's central bank failed to fall. The temporary stabilisation of the Chinese economy doubtless played an important role in this development. But it was a costly win for the government, and China's economy is not growing quite as fast as officials report.

In the wake of its botched currency devaluation in August 2015, China's currency reserves fell by about 100 billion US dollars per month. Even with its reserves of a staggering 3650 billion US dollars when the devaluation began, this cannot be a sustainable strategy. Now the pressure appears to have eased a bit. In March, the reported US dollar-denominated reserves held by China's central bank, the People's Bank of China (PBoC), actually increased by 10 billion US dollars. Financial markets began to breathe a bit easier.

Weaker US dollar

The weaker US dollar probably helped here. The dollar's weakness allowed the PBoC to devalue the renminbi on a trade-weighted basis. On a bilateral basis, the renminbi has actually appreciated slightly since the beginning of the year, which matters a lot to market sentiment and to expectations for the ren-

minbi. The difference between the onshore and offshore exchange rates, CNY and CNH, is often a good indicator of market expectations for appreciation or depreciation. This difference is now back to zero after reaching a whopping 1000 basis points in August 2015 and again in January 2016.

Improved communication

Another calming factor not to be overlooked is the central bank's improved communication practices. The appreciation of the US dollar after mid-2014 brought attention to the renminbi and its real appreciation on a trade-weighted basis. But markets only panicked when, over a two-day period in August 2015, the PBoC allowed the CNYUSD exchange rate to depreciate to an unprecedented degree, without a word of warning or explanation. Now the PBoC seems to have learned its lesson. For two months, senior central bank officials asserted almost weekly that the bank intended to keep the renminbi stable in real, trade-weighted terms.

The economy helped too

The central bankers' soothing words might have fallen flat had the Chinese economy remained in crisis mode, as was the case in mid-2015. But then again, the economy did stabilise thanks only to extremely expansive economic policies. But despite this costly restoration of stability, China's true economic growth is in fact markedly lower than official statements suggest. This is evident looking at a new economic indi-

cator developed by Wellershoff & Partners, the *W&P GDP Growth Stat for China*, which offers an alternative to official economic pronouncements (see figure).

Chinese government statistics quote GDP growth at 6.7 percent for the first quarter of 2016, comfortably within the range of 6.5 to 7.0 percent “guaranteed” at this year’s National People’s Congress. But the reality – as reflected in data from the vital industrial and construction sectors of the Chinese economy – paints a decidedly darker picture. Using this bottom-up approach, the *W&P GDP Growth Stat for China* calculates first-quarter GDP growth in China at just 5.7 percent.

China’s economy now fully doped

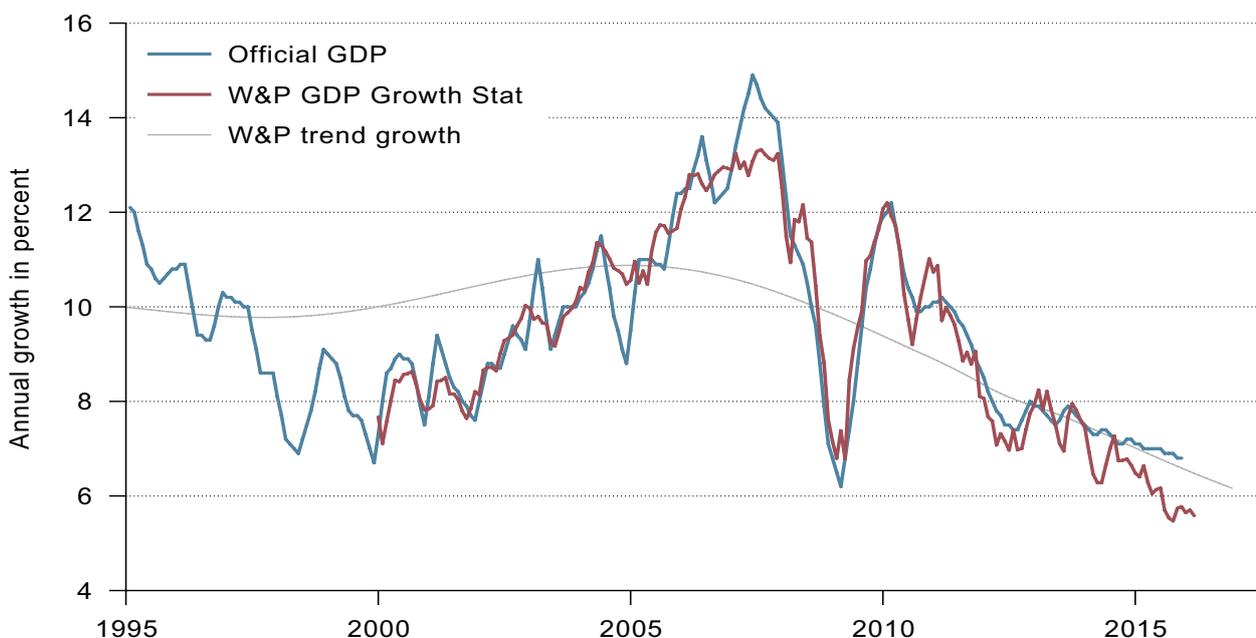
Longer-term, China faces profound economic problems. The recent stabilisation was only achieved by an extraordinary surge in debt. Indeed, at the end of 2015, the public and private sectors, including house-

holds, had accumulated debt totalling 240 percent of GDP. In 2015 alone, debt rose by 20 percent of GDP and it may grow even faster this year, given the more expansive credit policies now in place. No other developing economy has more debt than China. And that not only means an ever more costly mountain of debt to finance, but also new renminbi asset values. Thus, come the next currency crisis, China’s foreign exchange reserves will face even more renminbi liquidity.

Long-term risks remain

China’s economy has stabilised for the moment, which should improve sentiment about the country and its currency throughout the remainder of this year. But long-term the risks remain considerable. Truly, a battle has been won, but the war is long not yet over.

W&P GDP Growth Stat for China



Source: Thomson Reuters Datastream, Wellershoff & Partners

FX market talk

A higher oil price would create new investment opportunities

At the moment, various commodity currencies are grossly undervalued in terms of purchasing power parity estimates. For investors who reckon with a rising oil price and worry about high rollover losses, the Norwegian krone is worth a closer look.

On a purchasing power parity basis, many commodity currencies are significantly undervalued right now. And not just high-risk emerging markets currencies like the Russian ruble. The graph shows PPP estimates of the Norwegian krone (NOK) versus the Swiss franc. While we estimate an at-par exchange rate of about 15 francs per 100 krone, those 100 krone currently cost only 11.6 francs. At the same time, Swiss franc investors can enjoy a small interest rate advantage with NOK versus franc investments. While investors in five-year Swiss government bonds endure an annual loss of 90 basis points, Norway's government bonds offer an annual return of around 65 basis points.

Crude oil accounts for about a third of Norway's exports. Add natural gas to the calculation and energy constitutes fully half the country's exports. Norway is the world's third biggest gas exporter after

Russia and Qatar. Its trade balance, government revenues and ultimately its currency's exchange rate are all accordingly sensitive to fluctuations in energy prices. And not only is the current exchange rate dependent on the development of the relative prices of export goods to import goods, but so is the PPP-based exchange rate, too.

Low oil price has consequences

In due course, if the oil price doesn't recover, many now loss-making producers will go under. Many producers have made deep cuts in their investment budgets while investments in new capacity are being held to a minimum. Oil services companies suffer from credit restrictions and high bankruptcy risk. Production capacity seems likely to shrink over the longer term.

Various arguments can be made for the oil price coming under even further pressure in the short and medium term. Discipline among OPEC members is less than ironclad. And desperate vendors have been known to produce without regard to losses, as long the gross margin is positive or foreign exchange returns can be earned. That's especially the case with shale oil producers in the US, as well as with Venezuela and Russia. And Iran's reintegration into global trade only adds to the burdens weighing down the oil price.

Higher oil price in the long term

According to our assessment, despite evident short-

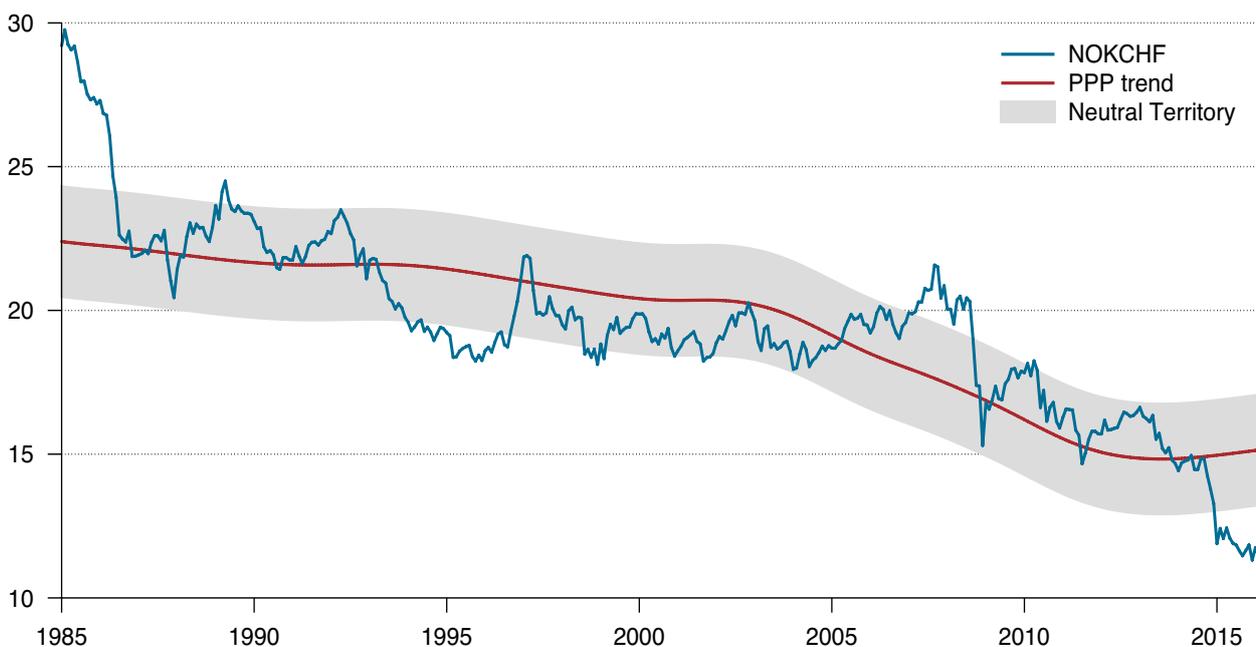
and medium-term risks, the probability of a higher oil price in the long term is high. Thus, we find a long position in the Norwegian krone attractive versus the Swiss franc or the euro. This assertion would hold true even if the oil price were to remain low, given the deep undervaluation we observe in the NOK at present. From a franc or euro perspective, long NOK positions offer a positive carry and, at the same time, plausible appreciation potential. Investors in oil-futures contracts will also benefit from an oil price rise, but they must also absorb rollover losses. These currently amount to about 3 percent a month with WTI Crude futures, for example, or about 41 percent a year.

For investors who want to escape high rollover losses and who believe in a scenario of rising oil prices, we think the Norwegian krone offers an interesting alternative.

Risky Russian ruble

The Russian ruble could be seen as the turbocharged version of the Norwegian krone. We estimate the ruble's undervaluation versus the euro is a bold 30 percent. Ruble-denominated five-year government bonds return over 9 percent annually, so that a greater interest-rate advantage can be enjoyed in the middle zone of the interest-rate curve. In terms of crude oil price sensitivity, the ruble easily surpasses Norway's krone. But: Volatility is also so much higher here, including substantial political risk.

NOKCHF purchasing power parity



Source: Thomson Reuters Datastream, Wellershoff & Partners

Economic activity

Improved US economic data in April lowered the risk of a recession. The ISM's Purchasing Managers Index rose from 49.5 to 51.8 points in April, finally clearing the psychologically important 50-point threshold. In addition to manufacturing, the service sector has also seen some improvement lately.

The US labour market continues its robust performance, with 215 000 new jobs added in April. This is well above the average of 186 000 new jobs per month, as tracked since 2010.

The emerging economies are beginning to find a floor, firming up mostly thanks to the weakening US dollar and some recovery in the oil price. In the process, they not only produced better data; emerging economies also beat market expectations. That's clear when you look at the Citigroup Economic Surprise Index (CESI), which shows an overhang of positive economic surprises in emerging economies.

Growth overview

	Trend growth ¹	Real GDP growth ²				W&P economic sentiment indicators ³			
		Q2/2015	Q3/2015	Q4/2015	Q1/2016	12/2015	1/2016	2/2016	3/2016
United States	1.7	2.7	2.2	2.0	-	2.3	2.0	2.1	2.6
Eurozone	1.0	1.6	1.6	1.6	-	2.5	2.2	2.0	1.9
Germany	1.4	1.6	1.7	1.4	-	2.6	2.2	2.1	2.1
France	0.7	1.1	1.2	1.4	-	1.7	1.8	1.9	1.6
Italy	0.2	0.6	0.8	1.0	-	2.2	1.8	1.5	1.0
Spain	1.6	3.2	3.4	3.5	-	4.7	3.7	3.6	3.5
United Kingdom	1.8	2.4	2.2	2.1	-	3.4	2.8	2.6	2.8
Switzerland	1.5	1.2	0.8	0.4	-	0.7	0.7	0.6	1.0
Japan	0.4	0.7	1.7	0.8	-	2.2	2.2	1.9	1.9
Canada	1.6	1.0	1.1	0.5	-	0.7	0.2	-0.1	0.2
Australia	2.4	2.0	2.7	3.0	-	3.2	3.2	3.3	3.5
Brazil	1.4	-2.9	-4.5	-6.0	-	-0.2	0.9	-0.9	0.0
Russia	0.1	-4.5	-3.7	-3.8	-	0.2	1.5	0.9	-0.3
India	7.7	7.6	7.7	7.3	-	5.2	6.1	6.1	6.1
China	7.4	7.0	6.9	6.8	6.7	7.5	7.6	7.4	8.4
Advanced economies⁴	1.4	2.1	2.0	1.9	-	2.6	2.3	2.2	2.4
Emerging economies⁴	6.0	4.7	4.7	4.5	-	4.0	4.4	4.2	4.9
World economy⁴	3.5	3.4	3.4	3.2	-	3.1	3.1	3.0	3.2

¹ Current year-on-year trend growth rate of real GDP, in percent, according to the proprietary trend growth model of Wellershoff & Partners.

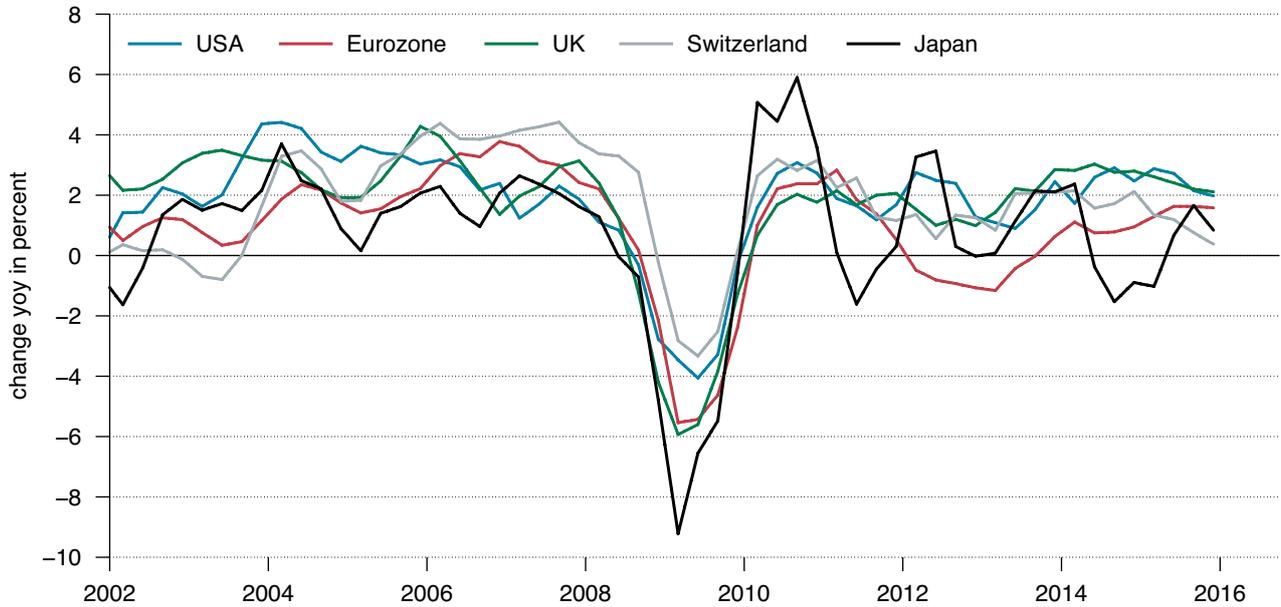
² Year-on-year growth rate, in percent.

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.

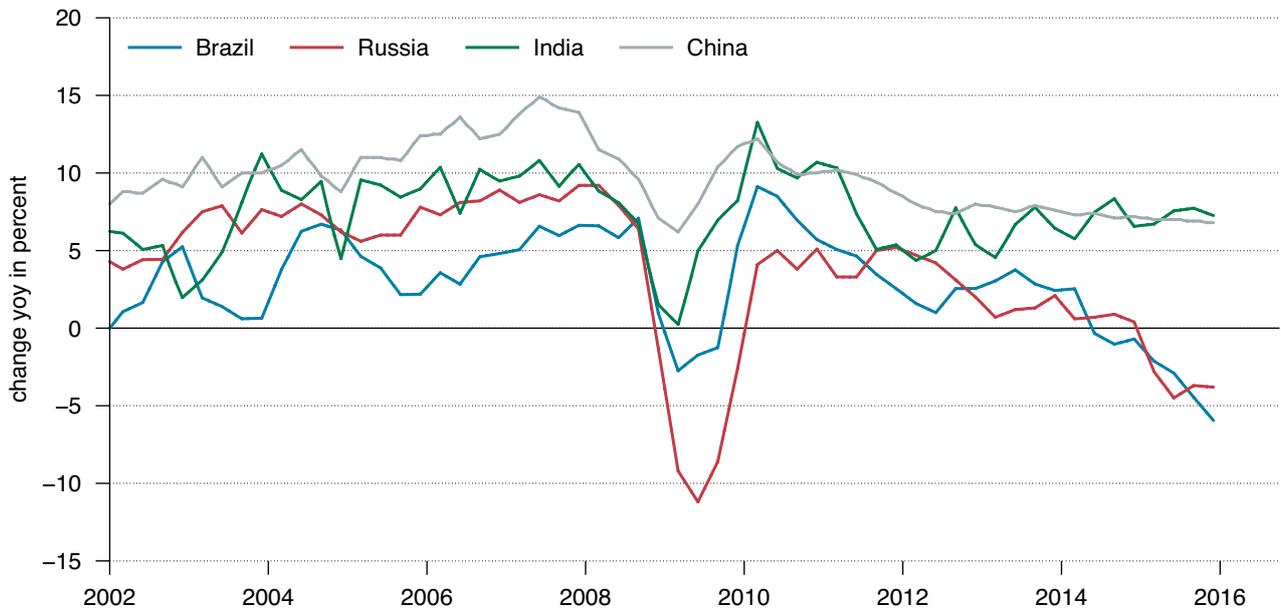
⁴ Calculations are based on nominal GDP weights derived from purchasing power parity exchange rates.

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

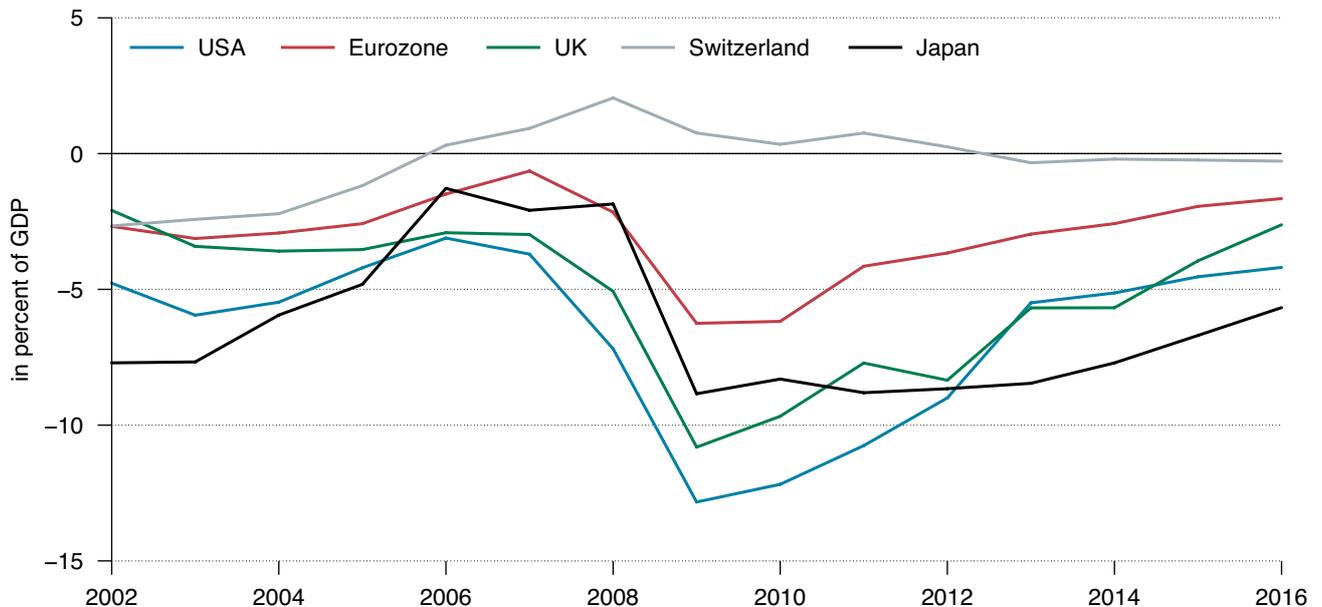
Economic indicators

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	-2.8	110.7	111.4	-7.0	-4.2	7.2	5.0
Eurozone	17.2	16.0	2.6	3.7	105.1	110.2	-3.1	-1.7	11.2	10.3
Germany	4.9	4.7	7.0	8.0	82.4	75.0	0.0	0.6	6.8	6.2
France	3.6	3.3	-0.7	0.2	112.1	121.3	-4.3	-3.4	9.6	10.0
Italy	2.8	2.5	0.2	1.3	144.4	159.9	-3.0	-2.2	11.1	11.6
Spain	1.8	1.7	0.1	1.3	102.0	118.7	-7.4	-2.9	23.8	20.4
United Kingdom	3.7	3.7	-3.7	-3.4	111.5	115.5	-6.3	-2.6	3.8	2.1
Switzerland	0.9	0.9	9.2	9.9	45.9	46.6	0.0	-0.3	3.1	3.6
Japan	6.8	6.0	1.6	2.9	220.1	232.4	-8.1	-5.7	4.0	3.3
Canada	2.4	2.0	-3.0	-3.5	86.0	92.3	-2.0	-2.4	7.1	7.1
Australia	1.9	1.6	-3.7	-3.6	30.8	39.1	-3.3	-2.4	5.6	5.7
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	5.7	8.2
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	5.8

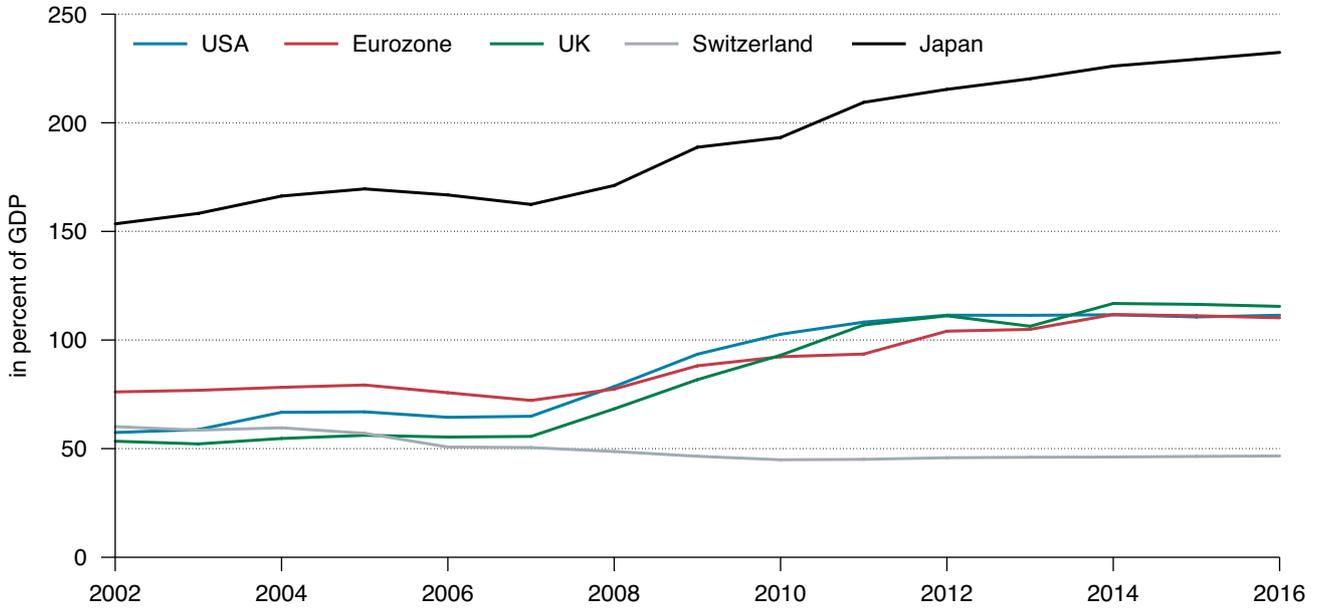
¹ In percent; calculations based on market exchange rates. ² In percent of nominal GDP. ³ In percent.

Budget deficits in advanced economies

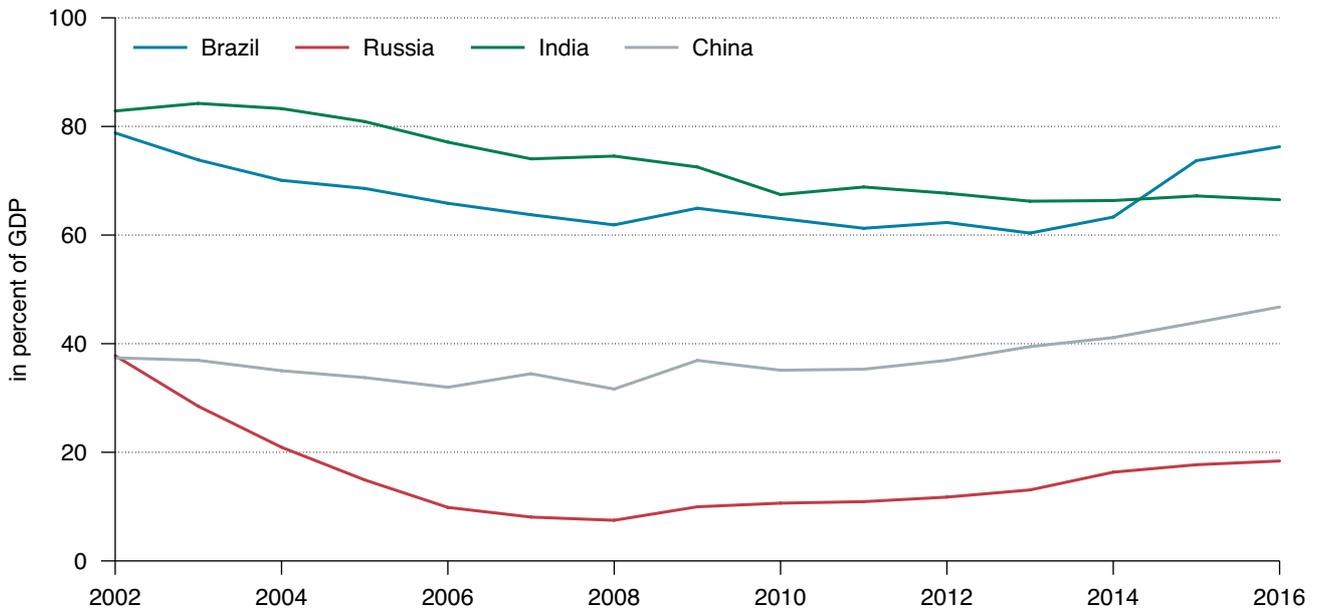


Source: Thomson Reuters Datastream, Wellershoff & Partners

Public debt in advanced economies



Public debt in emerging economies



Source: Thomson Reuters Datastream, Wellershoff & Partners

Inflation

Core inflation in the industrialized economies continues to trend higher, while overall inflation remains notably below that level. The low energy price explains this divergence in the two rates, and this dynamic looks to persist over the coming weeks – if nothing crazy happens with the oil price.

Currently, the low oil price suppresses US overall inflation by fully 1 percent. That said, Wellershoff & Partners calculates that overall and core inflation rates converge toward year-end.

After breaking with trend in February, the Eurozone's core inflation rate resumed its upward path in March, up 1 percent from a year earlier. And overall inflation recorded an uptick as well, from -0.2 to -0.1 percent. Germany's overall inflation rate rose from -0.1 to 0.1 percent and its core inflation from 0.9 to 1.2 percent, year-over-year. Switzerland's overall inflation rate declined from -0.8 to -0.9 percent year-over-year, and core inflation was unchanged from last month's level, -0.5 percent.

Inflation overview

	Ø 10 years ¹	Inflation ²				Core inflation ³			
		12/2015	1/2016	2/2016	3/2016	12/2015	1/2016	2/2016	3/2016
United States	1.9	0.7	1.3	1.0	0.9	2.1	2.2	2.3	2.2
Eurozone	1.6	0.2	0.3	-0.2	-0.1	0.9	1.0	0.8	1.0
Germany	1.4	0.4	0.6	-0.1	0.1	1.2	1.3	0.9	1.2
France	1.3	0.2	0.2	-0.2	-0.2	0.8	0.9	0.7	0.7
Italy	1.6	0.1	0.3	-0.3	-0.2	0.6	0.7	0.5	0.6
Spain	1.7	0.0	-0.3	-0.8	-0.8	0.9	0.9	1.0	1.1
United Kingdom	2.5	0.2	0.3	0.3	0.5	1.4	1.2	1.2	1.5
Switzerland	0.2	-1.3	-1.3	-0.8	-0.9	-0.9	-0.9	-0.5	-0.5
Japan	0.3	0.2	-0.1	0.3	–	0.8	0.7	0.9	–
Canada	1.7	1.6	2.0	1.4	–	1.9	2.0	1.9	–
Australia	2.6	1.7	–	–	–	2.2	–	–	–
Brazil	5.8	10.7	10.7	10.4	9.4	9.4	9.2	9.2	7.9
Russia	9.4	12.9	9.8	8.1	7.3	13.7	10.7	8.9	8.0
India	8.1	5.6	5.7	5.3	4.8	–	–	–	–
China	2.9	1.6	1.8	2.3	2.3	1.5	1.5	1.3	1.5
Advanced economies⁴	1.6	0.5	0.8	0.5	0.5	1.5	1.6	1.6	1.6
Emerging economies⁴	5.2	4.5	4.3	4.3	4.0	4.0	3.6	3.2	3.1
World economy⁴	3.2	2.4	2.5	2.3	2.2	2.3	2.1	2.0	2.0

¹ Average annual consumer price inflation, in percent.

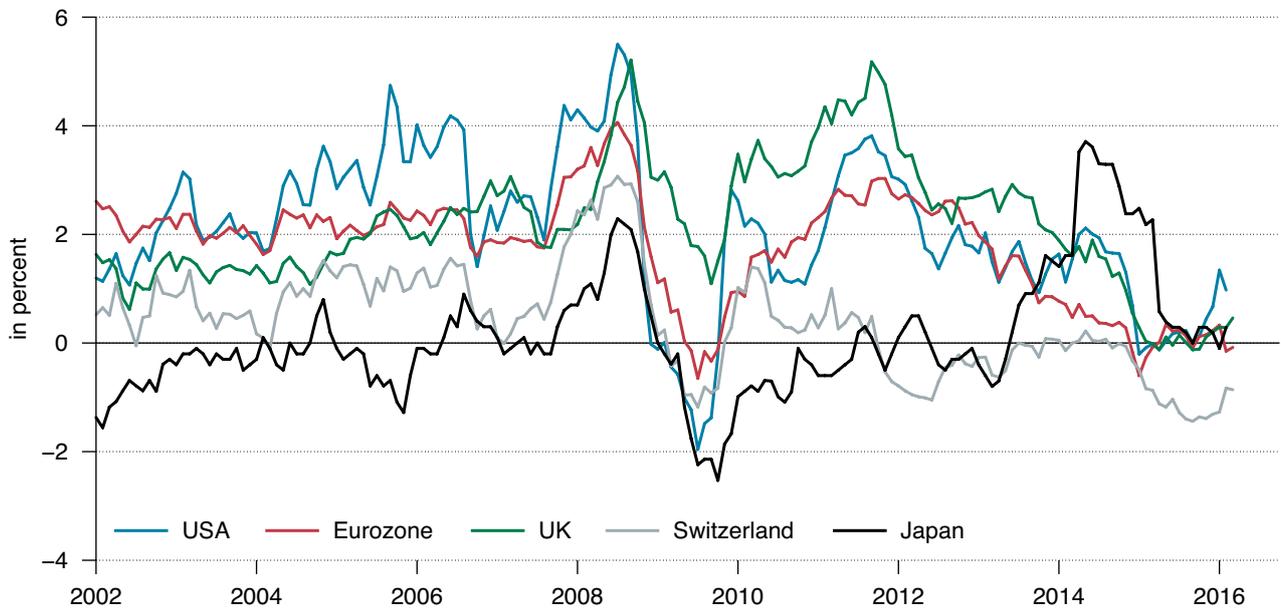
² Year-on-year change of the consumer price index (CPI), in percent.

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.

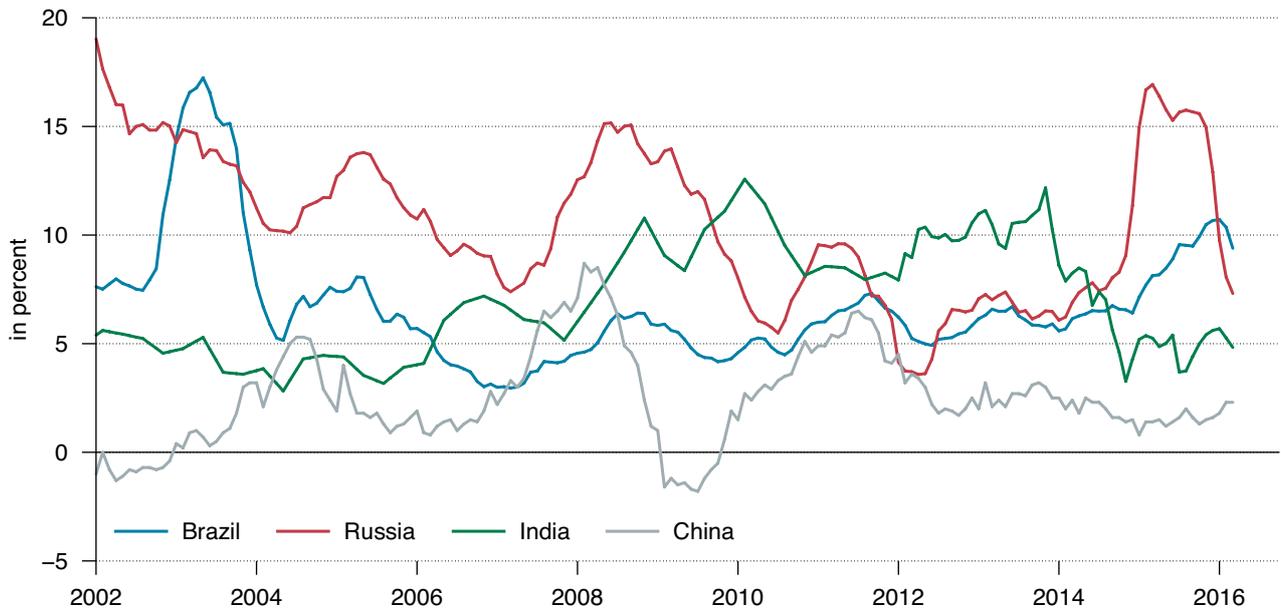
⁴ Calculations are based on nominal GDP weights derived from purchasing power parity exchange rates.

Source: Thomson Reuters Datastream, Wellershoff & Partners

Consumer price inflation in advanced economies



Consumer price inflation in emerging economies



Source: Thomson Reuters Datastream, Wellershoff & Partners

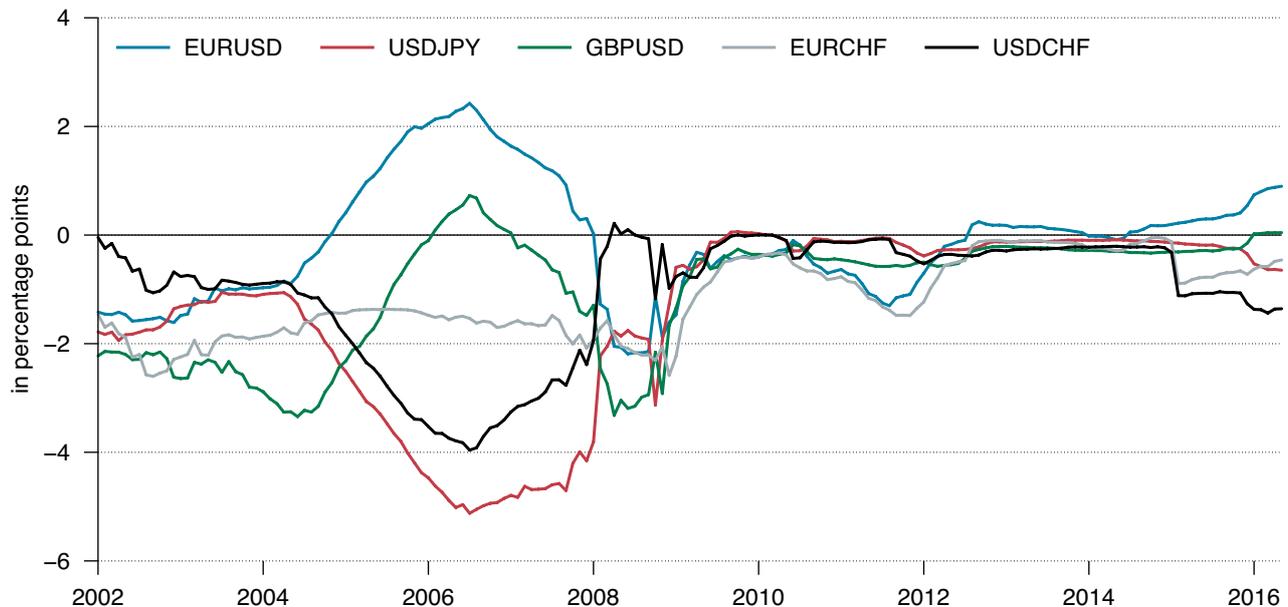
Interest rates

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	1.130	0.88	0.29	0.00	-0.03	1.26	0.54	0.09	0.00
USDJPY	108.7	-0.65	-0.18	-0.19	-1.13	-1.12	-0.42	-0.40	-1.26
GBPUSD	1.418	0.05	-0.29	-0.32	-0.57	0.21	-0.29	-0.39	-0.62
EURCHF	1.092	-0.47	-0.81	-0.50	-0.90	-0.50	-0.76	-0.65	-0.98
USDCHF	0.967	-1.36	-1.09	-0.50	-0.87	-1.76	-1.30	-0.74	-0.98
GBPCHF	1.370	-1.31	-1.38	-0.82	-1.43	-1.55	-1.59	-1.13	-1.59
CHFJPY	112.5	0.71	0.91	0.31	-0.27	0.64	0.88	0.33	-0.28
AUDUSD	0.770	-1.32	-1.82	-2.54	-2.58	-0.64	-1.22	-1.91	-2.20
USDCAD	1.288	0.28	0.72	0.85	0.39	-0.12	0.40	0.63	0.22
USDSEK	8.130	-1.16	-0.48	0.64	0.27	-1.46	-0.64	0.49	0.23
USD RUB	66.62	9.92	14.12	8.44	6.87	8.93	12.77	8.11	7.28
USDBRL	3.529	13.44	12.98	10.37	9.64	12.17	12.75	10.20	9.60
USDCNY	6.482	2.21	4.43	4.09	2.43	1.82	4.09	3.72	2.21
USDTRY	2.853	10.30	10.28	8.85	9.86	9.83	9.77	8.71	10.17
USDINR	66.61	7.47	7.94	8.83	6.85	5.88	7.22	6.26	4.36

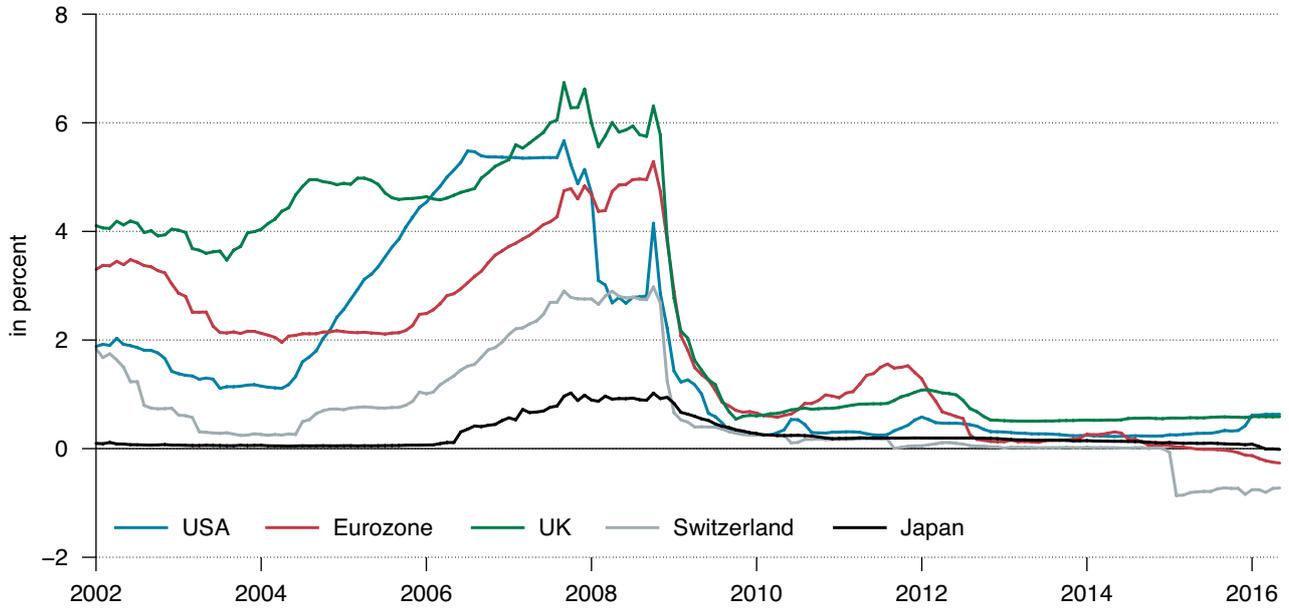
¹ The gap in interest rates between the second currency and the first one, in percentage points; e.g. US dollar minus euro for EURUSD.

Interest rate differentials

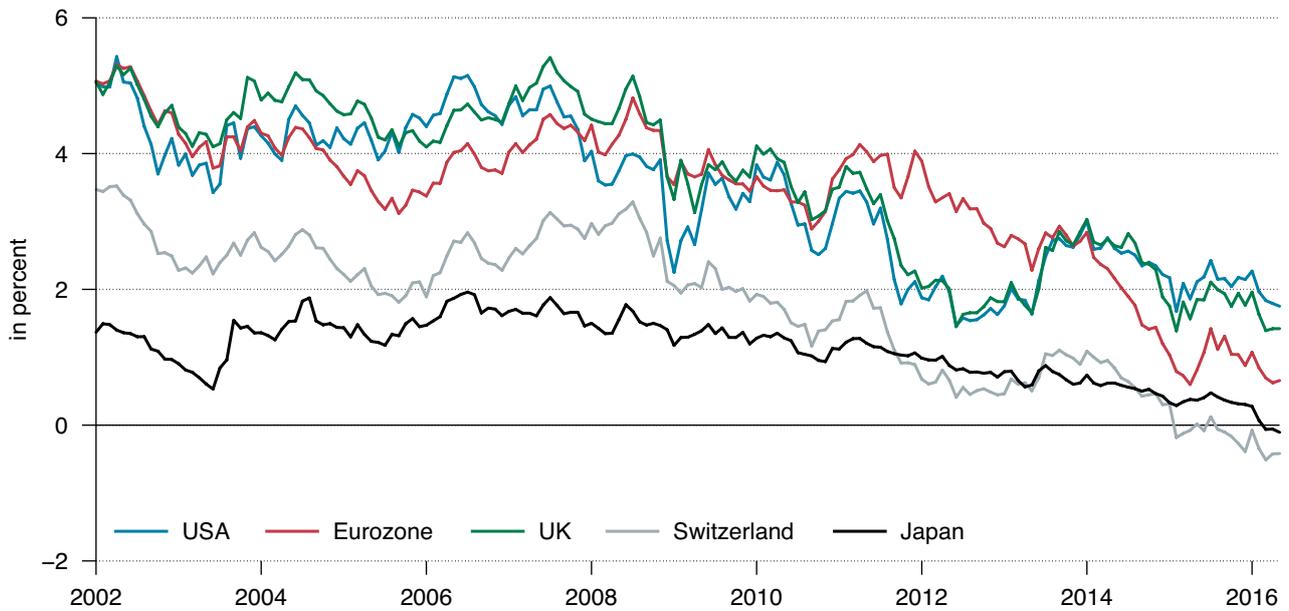


Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

3-month Libor



10-year government bond yields



Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

FX markets

Wellershoff & Partners took an analytical look at the daily volatility of the EURUSD exchange rate. A pattern emerged: three of the ten historical price peaks occurred in just the past few months. And, we note, they coincided to the day with an ECB or a Fed press conference. So much for the notion of forward guidance that the central banks so eagerly promote. In ninth place on our EURUSD TopTen list: the 3.66 percent jump after ECB President Mario Draghi's press conference on March 10.

At the moment, the weakening US dollar has the attention of the currency markets. The Bloomberg

Dollar Spot Index recorded a drop of 6.5 percent from the end of January to the middle of April. The euro has appreciated about 4 percent against the US dollar so far this year. And in terms of purchasing power parity, our estimates still indicate a mispricing of over 14 percent.

So far this year, the British pound shed almost 4 percent in value against the dollar. In any case, counting down to the Brexit vote on June 23, uncertainty is sure to reign and sharp exchange rate movements can occur. Additionally, volatility is high, as the graph on page 18 shows.

FX overview

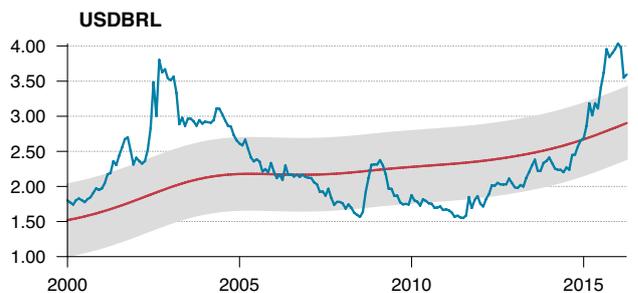
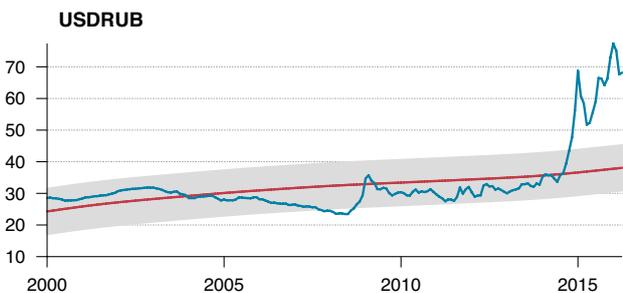
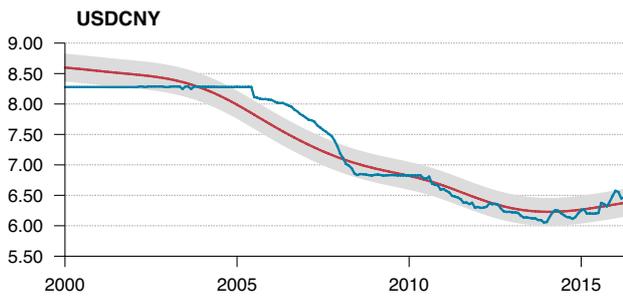
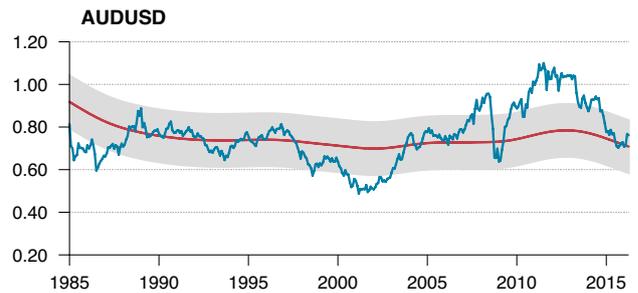
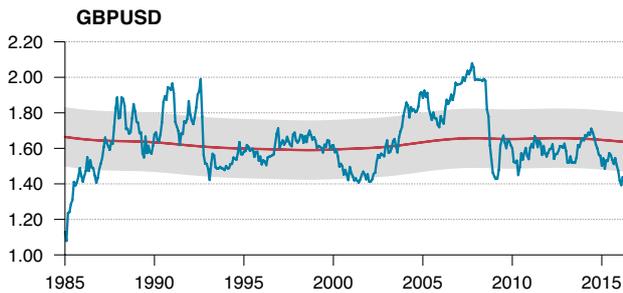
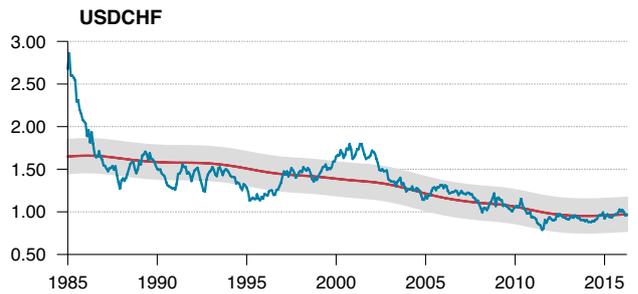
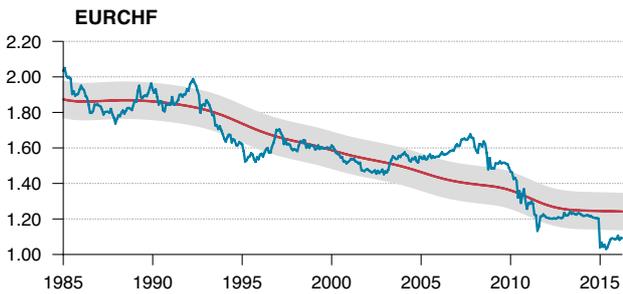
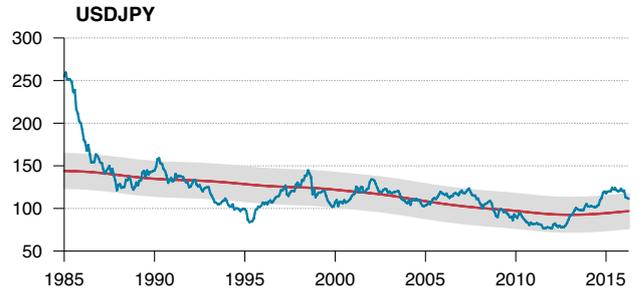
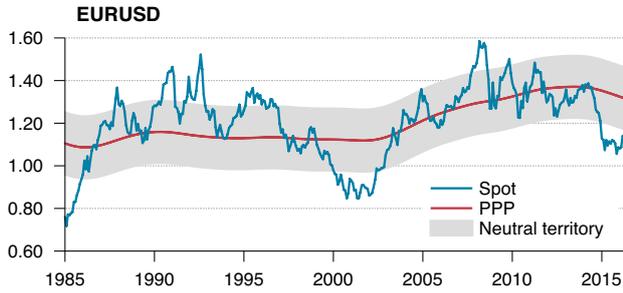
	Current exchange rate	Performance ¹				Purchasing Power Parity ²		
		YTD	3 months	1 year	5 years	PPP	Neutral territory	Deviation ³
EURUSD	1.130	4.0	3.2	5.6	-21.6	1.32	1.17 - 1.46	-14.2
USDJPY	108.7	-9.6	-7.0	-8.9	30.7	96.8	77.0 - 116.6	12.3
GBPUSD	1.418	-3.8	-0.9	-4.8	-13.0	1.64	1.48 - 1.80	-13.4
EURCHF	1.092	0.4	-0.2	6.2	-15.4	1.24	1.14 - 1.34	-12.1
USDCHF	0.967	-3.4	-3.2	0.6	8.0	0.97	0.78 - 1.16	-0.5
GBPCHF	1.370	-7.1	-4.1	-4.3	-6.1	1.61	1.33 - 1.88	-14.6
CHFJPY	112.5	-6.4	-3.9	-9.4	21.1	91.0	78.5 - 103.6	23.6
AUDUSD	0.770	5.9	12.0	-0.9	-27.0	0.71	0.58 - 0.83	8.8
USDCAD	1.288	-7.3	-11.1	5.2	33.9	1.18	1.11 - 1.25	9.2
USDSEK	8.130	-3.6	-5.2	-5.8	31.1	6.98	6.09 - 7.87	16.5
USDRUB	66.62	-8.8	-14.3	33.3	136.7	38.1	31.0 - 45.2	75.0
USDBRL	3.529	-10.8	-12.9	16.4	124.1	2.90	2.39 - 3.41	21.6
USDCNY	6.482	-0.2	-1.6	4.6	-0.8	6.38	6.17 - 6.59	1.7
USDTRY	2.853	-2.3	-6.2	5.5	88.3	2.27	2.01 - 2.52	25.8
USDINR	66.61	0.7	-1.5	6.9	50.2	63.6	60.4 - 66.7	4.8

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

² Purchasing power parity (PPP) is estimated based on the relative development of inflation rates in two currency markets; the neutral 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



Source: Thomson Reuters Datastream, Wellershoff & Partners

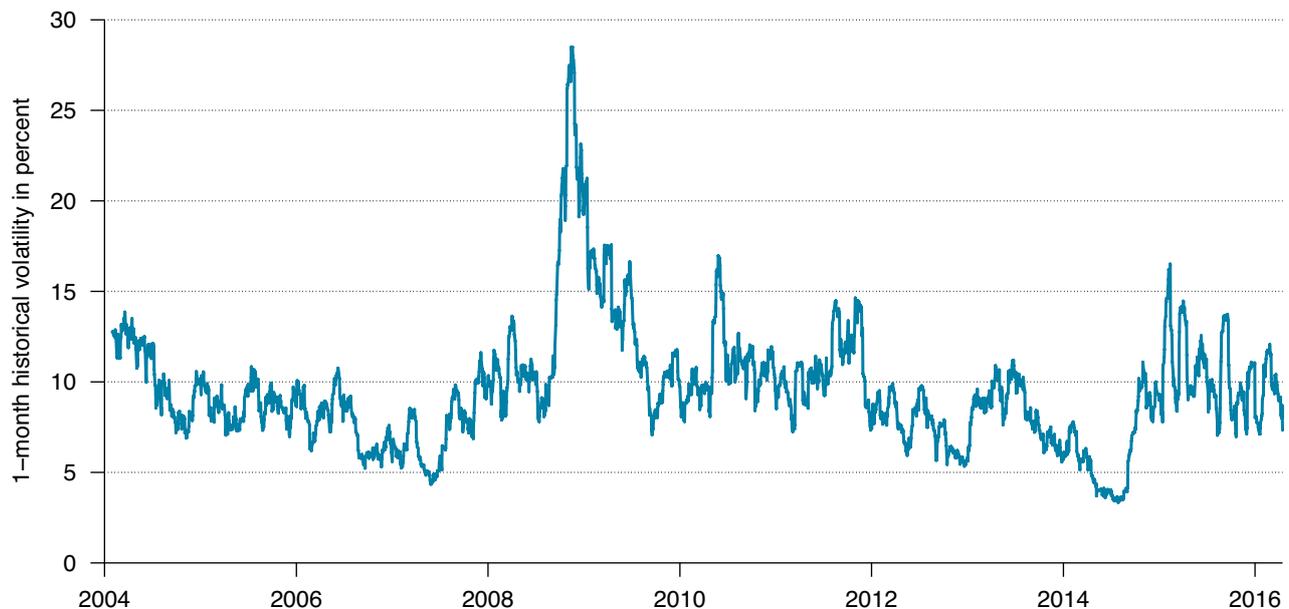
FX volatility

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	1.130	9.7	10.4	9.7	10.4	11.2	10.2	10.2	10.7
USDJPY	108.7	11.3	11.6	9.6	10.6	9.3	10.8	10.5	11.0
GBPUSD	1.418	10.1	16.0	8.1	9.5	8.5	12.7	8.9	10.0
EURCHF	1.092	5.7	7.1	6.2	6.1	7.1	8.1	7.2	6.4
USDCHF	0.967	9.6	10.1	10.2	10.6	10.7	10.4	10.7	10.8
GBPCHF	1.370	11.0	15.0	8.9	9.7	10.5	13.1	9.6	10.2
CHFJPY	112.5	10.8	11.6	11.0	11.3	10.5	11.4	11.8	11.8
AUDUSD	0.770	13.1	13.1	11.0	12.3	12.6	12.9	11.7	12.6
USDCAD	1.288	11.4	11.1	8.2	9.7	9.6	10.6	8.7	10.0
USDSEK	8.130	10.0	10.4	11.4	12.5	11.8	10.6	12.0	12.7
USD RUB	66.62	24.9	21.9	15.6	13.0	26.5	22.3	15.9	14.1
USDBRL	3.529	20.1	22.2	14.6	15.1	19.3	20.2	15.2	15.6
USDCNY	6.482	3.0	5.7	2.6	2.8	3.3	7.3	3.5	4.4
USDTRY	2.853	9.1	11.8	11.8	13.5	12.7	13.7	13.2	14.8
USDINR	66.61	4.4	6.7	9.5	9.5	4.8	8.3	10.5	10.3

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

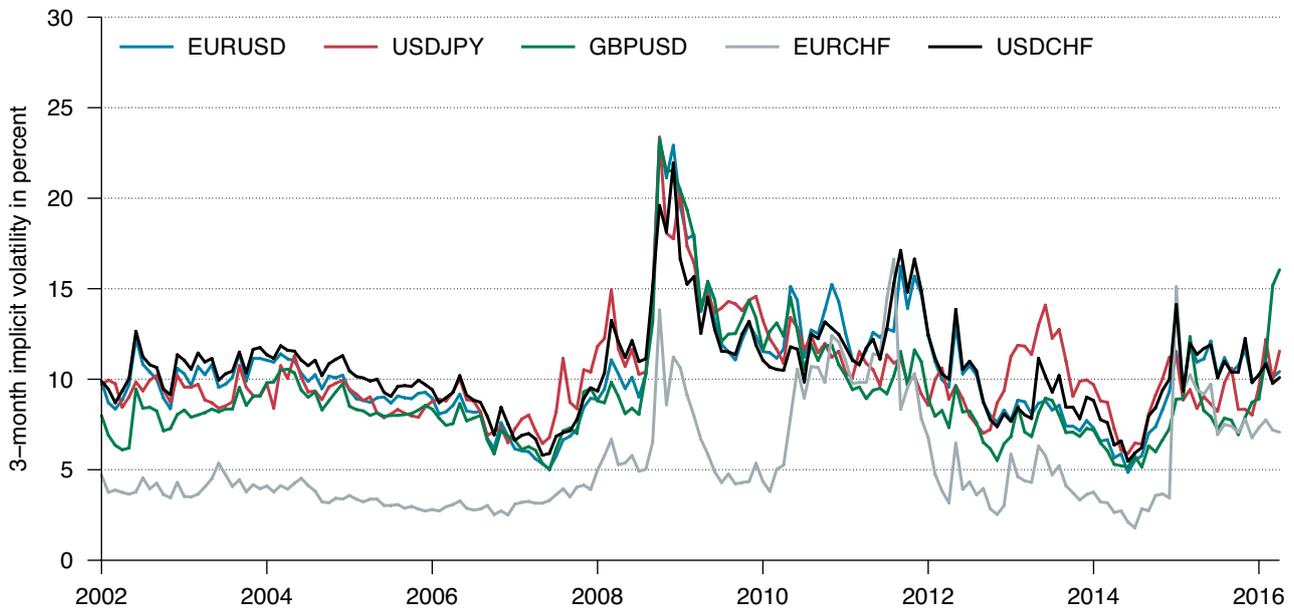
Quaesta Capital volatility indicator³



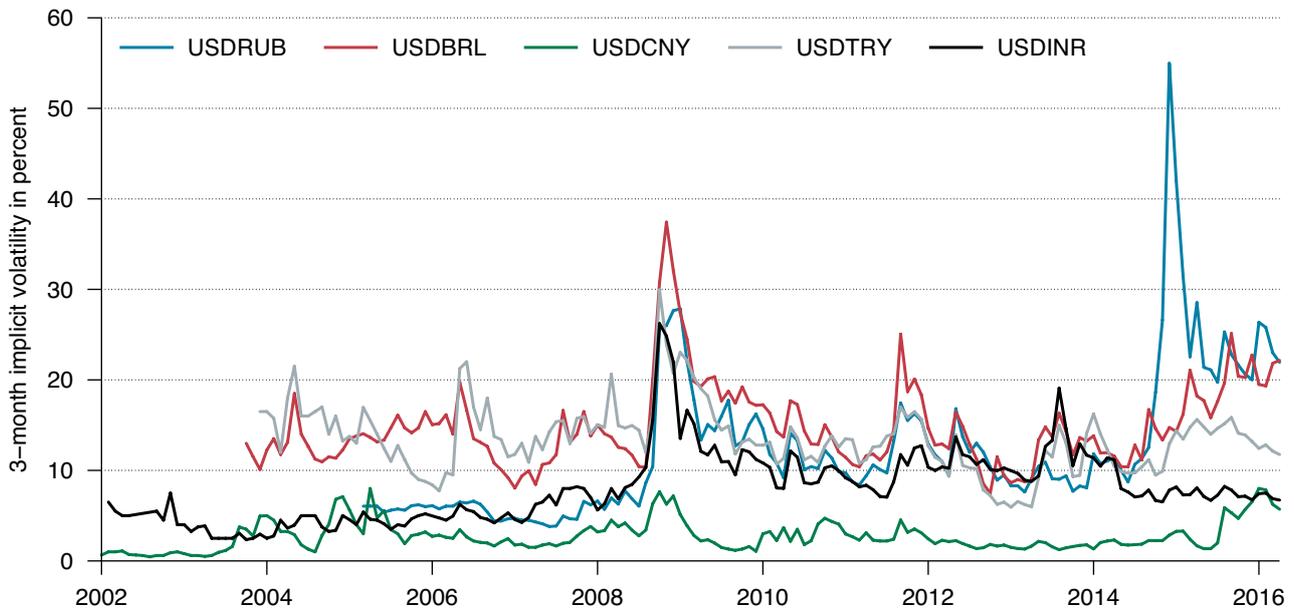
³ Quaesta Capital's volatility indicator measures general volatility in global FX markets; the indicator is based on historical volatility of the main exchange rates, which are weighted by trading volume.

Source: Bloomberg, Quaesta Capital, Thomson Reuters Datastream, Wellershoff & Partners

Implied volatility



Implied volatility



Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

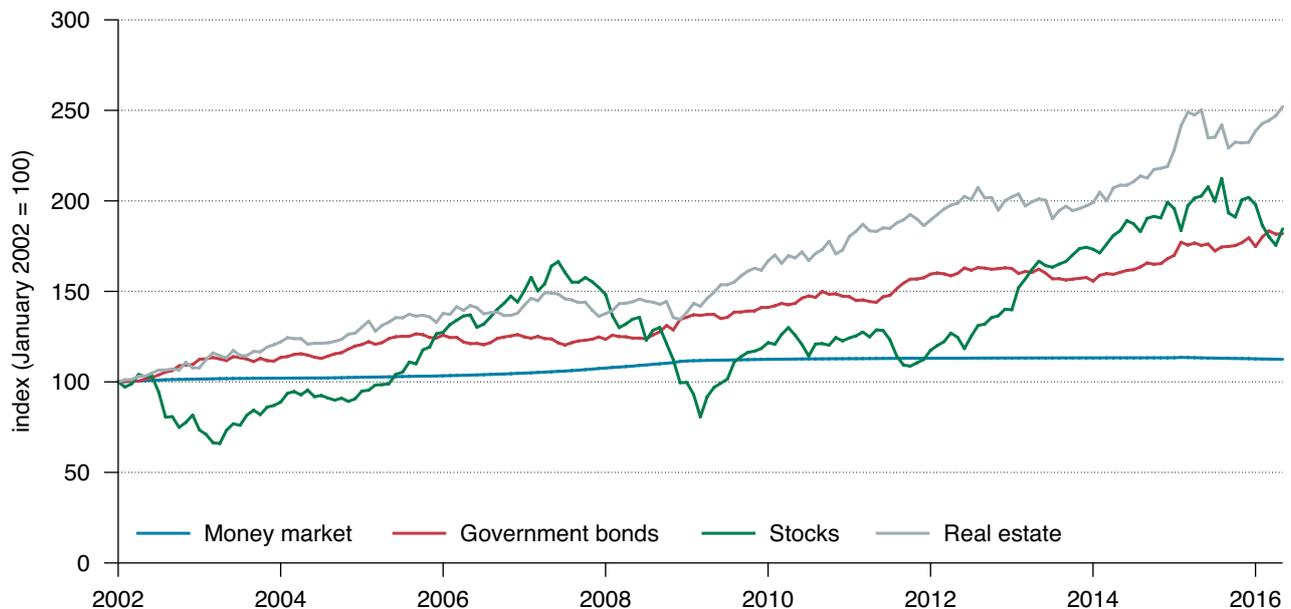
Financial markets

Performance overview

	Performance in either local currency or USD ¹				Performance in CHF ¹			
	YTD	3 months	1 year	5 years	YTD	3 months	1 year	5 years
Swiss money market	-0.2	-0.2	-0.7	-0.4	-0.2	-0.2	-0.7	-0.4
Swiss government bonds	4.1	2.4	1.8	26.7	4.1	2.4	1.8	26.7
Swiss corporate bonds	2.5	1.3	1.5	21.6	2.5	1.3	1.5	21.6
Swiss equities (SMI)	-6.8	1.4	-11.3	48.2	-6.8	1.4	-11.3	48.2
Eurozone equities (Stoxx600)	-5.2	5.1	-13.8	47.2	-4.5	4.7	-9.0	24.3
UK equities (Ftse100)	3.0	10.8	-6.6	27.3	-3.9	5.2	-11.2	19.4
Japanese equities (Topix)	-11.1	-1.9	-13.1	79.7	-4.4	1.6	-5.4	48.0
US equities (S&P 500)	2.5	11.3	1.0	75.6	0.1	7.4	0.7	90.2
Emerging markets equities	7.1	19.9	-17.3	-17.4	4.7	15.7	-17.5	-10.5
Global equities (MSCI World)	1.3	10.7	-4.0	42.7	-1.0	6.8	-4.3	54.6
Swiss real estate	5.6	6.6	-0.4	37.5	5.6	6.6	-0.4	37.5
Global real estate	5.9	12.5	2.2	52.0	3.4	8.6	1.9	64.7
Commodities	2.3	9.4	-21.4	-52.9	0.0	5.6	-21.6	-49.0
Brent oil	20.3	44.2	-29.8	-65.4	17.6	39.1	-30.0	-62.5
Gold	15.8	12.8	2.7	-17.1	13.1	8.9	2.4	-10.2

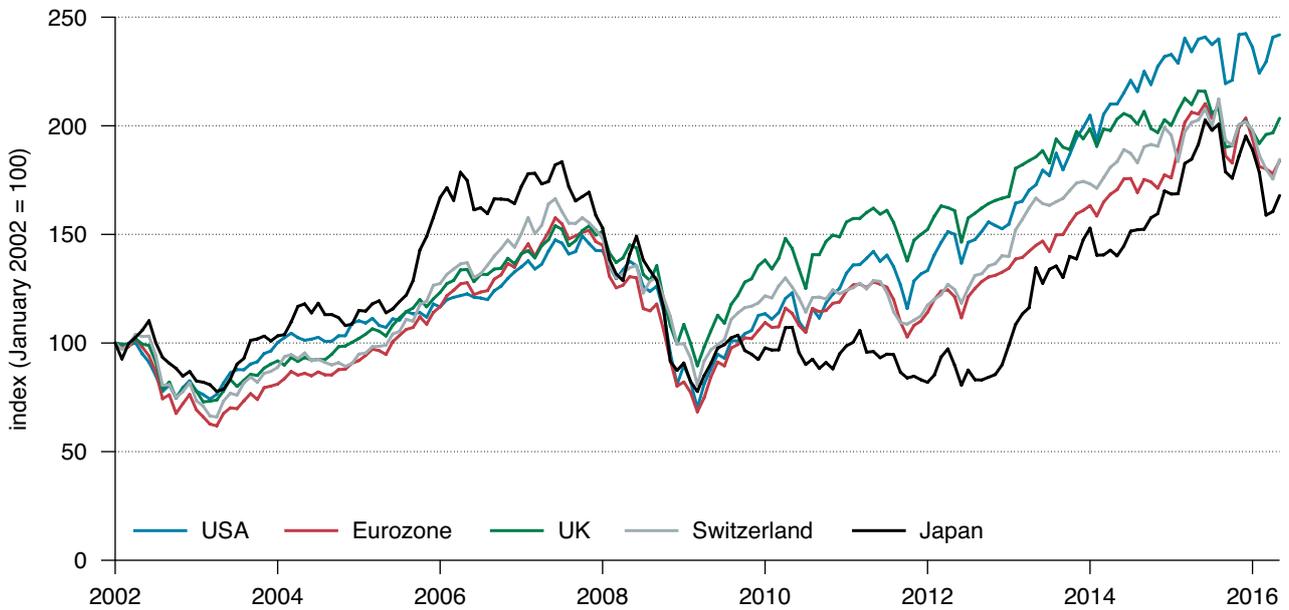
¹ Performance over the respective period of time, in percent.

Performance of selected Swiss asset classes

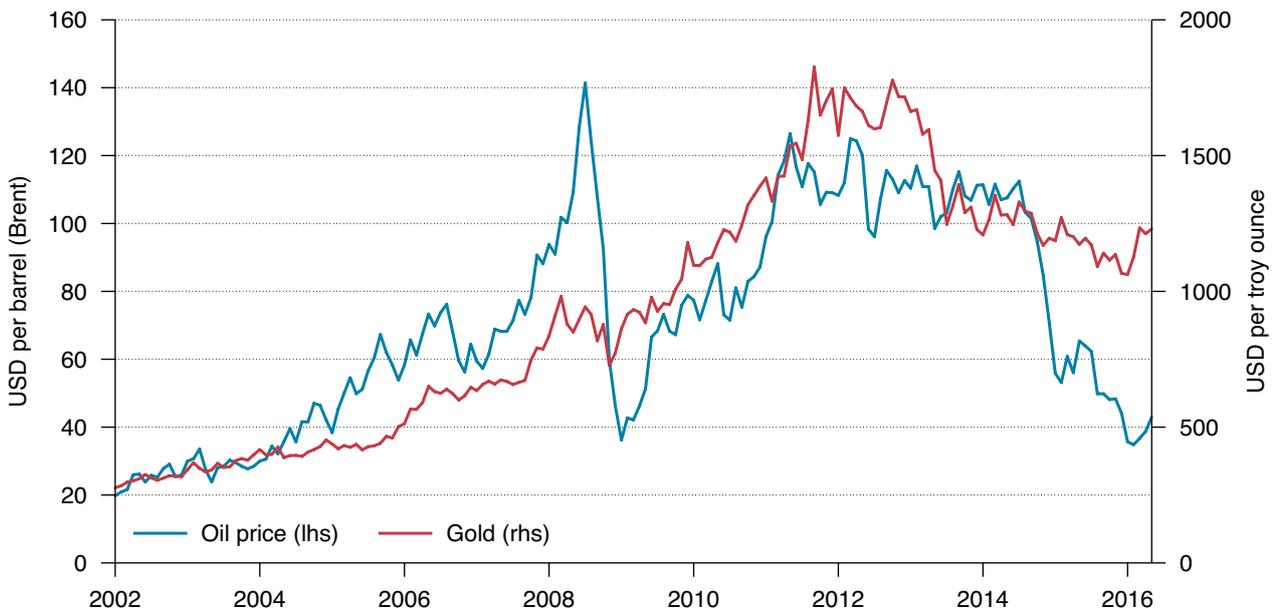


Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

Performance of selected equity markets (in local currency)



Performance of selected commodity prices



Source: Bloomberg, Thomson Reuters Datastream, Wellershoff & Partners

Number of the month

4.38 percent

The widest one-day spread between the highest and lowest price for EURUSD? 4.38 percent. Since 2002, that range has averaged only 0.95 percent. Who to blame? The Fed, whose utterly botched communication on March 18, 2015, sent volatility in the currency pair into orbit. No less than three of the EUR-USD's ten largest one-day price swings have taken place on the day of a recent ECB or Fed press conference. Forward guidance? Not here!

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