

FX Crossroads

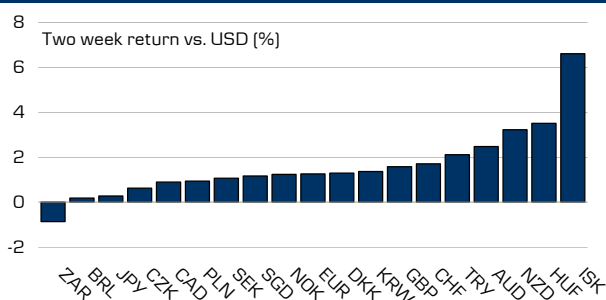
29 May 2008

G10: FX implications of rising food and energy prices

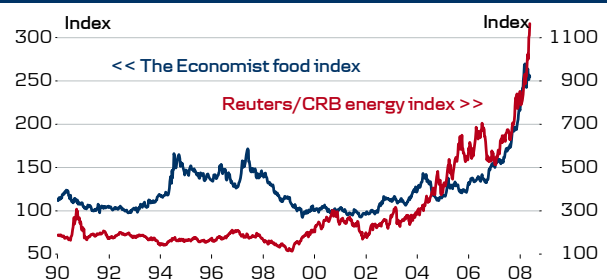
Summary and conclusions

- Food and energy prices have recently sky-rocketed. This naturally generates upward price pressure and inflation is either on the rise or set to rise in most economies. In this edition of *FX Crossroads* we examine which currencies will benefit, which will experience headwinds, and which currency pairs will look attractive in the near and longer term on the back of rising food and energy prices. In the near term EUR/USD and perhaps CHF/JPY are likely to head higher, while CAD/NOK is expected to turn lower. EUR/USD and AUD/NZD are both expected to rise in the longer term on higher energy prices. Investors are, however, advised to read these results with caution, due to the high degree of uncertainty about energy and food prices.
- Since the previous edition of [FX crossroads – EUR/USD: Will history repeat itself?](#) financial distress has eased and key data releases have been on the soft side in the US, while proving surprisingly buoyant in the Euro area. Energy prices have surged and focus has switched markedly from economic growth concerns towards inflation fears. In general, market participants now anticipate G10 policy rates to be higher one year ahead – except in New Zealand. The USD has been the worst performing G10 currency against EUR, and due to falling risk aversion JPY has lost ground, while carry-target favourites, AUD and NZD both have benefited.
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Major currencies – two-week performance



Energy and food prices have surged
– what is the implication for FX markets?



G10: FX implications of rising food and energy prices

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Who will benefit and who will not?

Introduction

During the past five years the global economy has experienced one of the largest rallies in food and energy prices recorded in modern times. Especially energy prices have surged, and in recent months the price of oil has set new record highs. As a consequence inflation has picked up in all G10 economies. To make matters worse, this coincides with a global slowing of economic growth.

While economists are busy discussing whether this represents a speculative bubble or if fundamentals (such as increased demand from emerging markets) offer a sufficient explanation, we are left with the risk that this marks the beginning of a prolonged or even permanent period of elevated commodity prices.

In this article we identify the winners and losers in FX markets from rising food and energy prices. By looking at both empirical and theoretical evidence we are seek to identify which exchange rates will benefit and which will not.

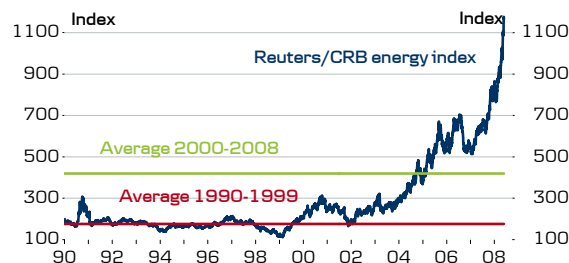
In the near term, we find that EUR/USD and perhaps CHF/JPY is likely to head higher, while CAD/NOK is expected to turn lower. EUR/USD and AUD/NZD are both expected to rise on the longer horizon. FX investors are, however, advised to show cautiousness due to the high degree of uncertainty on future energy and food prices.

Global inflation

Rising energy and food prices

Energy prices have risen substantially in this decade. The Reuters/CRB energy index has in the period 2000-2008 on average been 138% higher than in the period 1983-1999 and most recently, energy prices have sky-rocketed. The energy index is 83% compared to one year ago and a stunning 366% higher than five years ago.

Figure 1: Energy index

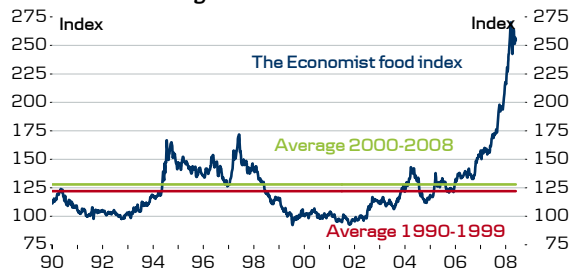


Note: The energy index is comprised by crude oil, heating oil and natural gas.

Source: Ecowin

In general, food prices have not been dramatically higher in this decade compared to the previous. On average, these are only around 5% higher. Recently, however, food prices have surged and are now 58% higher than one year ago and 122% higher than five years ago. While this is a remarkable increase, it is still somewhat less than the rush in energy prices.

Figure 2: Food index



Source: Ecowin

Linking inflation to exchange rates

A dual approach

The link from shocks to global energy and food prices to exchange rates is far from trivial. In this article we have therefore employed a dual approach, by considering both historical evidence and theoretical predictions. First, we consider what theory can tell us about the different currencies' potential in an environment of rising energy and food prices. Secondly, we consider how the G10 currencies have performed historically during times of high inflation and moderating growth.

What can economic theory tell us?

One thing to note in a situation in which global inflation surge due to an increase in both energy and food prices is that these two types of price shocks affect the economy in different ways. Higher energy costs raise production costs and thus suppress output. Moreover, higher energy costs might also result in lower domestic demand through lower consumption (i.e., if energy and other goods are not perfect substitutes). This is not the case with food price inflation, since food does not enter as a significant production input and food price inflation will therefore not affect production. It will, however, equivalent to an energy price shock, result in higher import prices relative to export prices (the terms of trade), and thus ultimately depress domestic consumption in order to pay the higher oil import bill.

The story is somewhat different for economies that are net exporters of energy and/or food. For those economies an exogenous shock to commodity prices will work as a positive shock to the terms of trade and thus act as a positive “income shock”. As a result domestic demand will increase, creating pressure on domestic prices additional to that stemming from higher production costs (the negative supply shock).

In order to assess the combined effect of rising energy and food prices on each of the G10 economies, we will consider four different channels. These will be the subject of the following sections.

1) The share of food and energy in the consumption basket. This represents the direct effect on consumer prices.

2) The reaction function of the central bank. This determines the link from inflation and economic growth to interest rates.

3) The share of energy in the economies’ production inputs. This determines the negative supply shock and thus determines the negative effect on production and the degree of additional pressure on domestic prices.

4) The share of energy and food production in domestic GDP. This determines the potential positive income shock through changes in terms of trade

Ad 1) The share of food and energy in the consumption basket

As energy is dominated by oil, changes in the oil price affect energy prices. But do rising oil prices – and thereby energy prices – have an impact on inflation? The answer is yes.

Hooker (1999) finds that “oil price changes seem to affect inflation mostly through their direct share in a price index, with little or no pass-through in core measures”. We can, in other words, look at the impact from oil price increases through their importance in the broad CPI basket in order to assess the overall impact. We could even go a bit further; as food has a larger share in the CPI basket than energy, a rise in food prices must initially impact CPI inflation more than an equivalent rise in energy prices. We will therefore in the following assume that both food and energy affect CPI inflation proportional with their respective shares in the CPI basket.

Noteworthy is it that while swings in food and energy prices affect headline inflation, core inflation remains broadly unchanged. This is also confirmed by recent data: in the past 10 years, during which energy inflation has been at elevated levels, headline inflation has on average been substantially higher than core inflation in G7. Furthermore, the relative difference between headline and core inflation has been noticeable in all countries.

	Headline inflation	Core inflation
USA	2.6%	2.2%
Eurozone	2.0%	1.7%
Japan	-0.2%	-0.4%
UK	1.6%	1.3%
Canada	2.1%	1.8%
Norway	2.0%	-
Sweden	1.3%	-

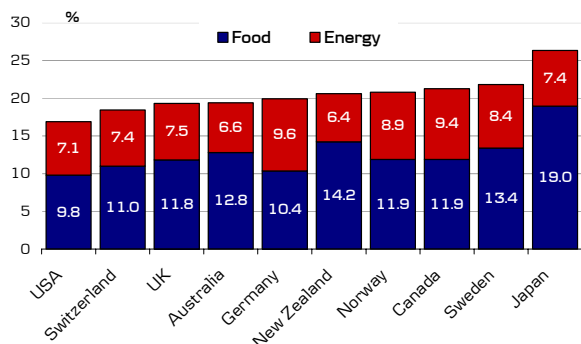
Source: Reuters Ecowin

Food and energy constitute different shares in consumer baskets in various countries. Accordingly, food and energy price changes will affect inflation rates differently across countries. As seen from the table, Japan and New Zealand are the countries most affected by food and energy price changes. On the contrary, the US and Germany are less affected by food prices. With regard to changes in energy prices, Germany and Canada have the highest ex-

posure while Australia and the US tend to be least affected.

In total, the US and Switzerland have the lowest share of their CPI baskets devoted to food and energy, while Japan and Sweden have the highest shares.

Figure 3: Percentage share of food and energy in CPI baskets



Note: Shares are measured in various years, ranging from 1999 to 2006. This difference in base year can affect results.

Source: OECD

It should, however, be noted that the difference between the countries least and most exposed to food and energy prices is not that big – the spread is only five percentage points (excluding Japan). Japan stands out due to the high share of food in the consumer basket. If commodity prices surge, a difference in headline inflation rates across countries should, however, be detected due to the difference in pass-through rates.

What to make from this? Well, rising energy and food prices have a larger effect on inflation in Japan than in other G10 economies. Higher Japanese inflation would, however, likely be welcomed, as price increases have been almost non-existent in the past decade. Canada has also struggled with headline inflation below the comfortable level of 2% this year, and some impact from higher commodity prices would thus not necessarily be regarded as an evil. On the other hand, Sweden and Norway are probably less content with food and energy prices on the rise, since it affects CPI inflation more in Scandinavian countries than elsewhere. Looking at the lower end, the US already faces inflationary stress and even in traditionally inflation-protected Switzerland price pressures are evident. However, in the US and Switzerland, food and energy will affect inflation rates the least and these countries

will be spared relative to their peers. But why is the impact from food and energy prices on consumer inflation important for exchange rates? The answer is simple: because inflation affects monetary policy which in turn impacts exchange rates (in this article we will not consider PPP type effects of inflation).

Ad 2) The reaction function of the central bank

At least three issues are worth noting when it comes to how central banks react to inflation; the weighing between inflation and growth concerns, the chosen inflation target (if any), and the commitment and flexibility of the central bank.

Most central banks are committed to deliver price stability, but the formal set-up varies considerably. Some have a clear inflation target such as the ECB, SNB and RBNZ, while some have adopted a dual mandate (to focus both on inflation and economic growth) such as the Fed and the BoJ. The former group will be more committed to achieve low and stable inflation by adjusting interest rates, while the latter also focuses on the impact on the real economy. While ECB, SNB, BoE, RB, NB and RBNZ have headline inflation as their primary target, the Fed tends to use core inflation when paying attention to prices. The targets of BoC and RBA are expressed in terms of headline inflation, but the banks use measures of core inflation as operational guides.

A crucial factor in the actual implementation of monetary policy is the commitment of the central bank. There can occasionally be extenuating circumstances that tempt central banks to deviate from their primary focus, for example rising food and energy prices threatening to harm the broader economy. As a deteriorating real economy essentially curbs price pressures in the medium term and most central banks focuses on this horizon, it can perhaps be tempting to deviate from the usually clear inflation target. We have not seen ECB and SNB taking focus away from the core purpose and Scandinavian central banks are probably also faithful to their inflation targets. We suspect on the other hand BoE to be tempted or forced to sacrifice some control on consumer prices in order to support growth. Meanwhile, the Fed, BoC and BoJ are definitely flexible in their inflation approach.

Adding insight from Ad 1) and Ad 2) together, we are able to draw some conclusions for the near

term. The EUR and NOK are set to benefit while the USD not necessarily will perform well in case of rising food and energy prices. Since CHF traditionally is highly correlated with EUR and CAD, and JPY normally swings more with USD, we can detect trading strategies for the near term: EUR/USD and perhaps CHF/JPY is likely to head higher, while CAD/NOK is expected to turn lower.

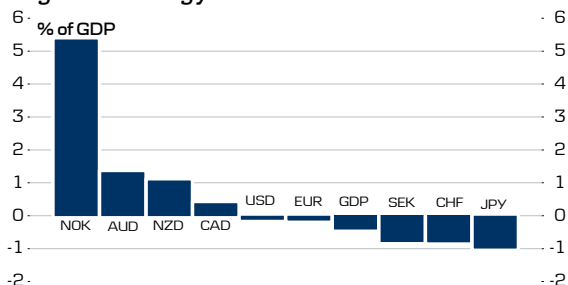
Ad 3) The share of energy in the economies' production inputs. One of the most important production inputs is energy. Accordingly, when energy prices increase, production costs increase. As a result, production will be suppressed causing inflationary pressures. This negative supply shock will not affect all economies in the same way, though, since energy consumption in production varies across different economies.

Canada, the US, and New Zealand are the largest oil consumers in the G10, while Norway, Switzerland, the UK, and Sweden all have a low level of oil consumption. This will likely imply that the latter use energy more efficiently in production. As a result the CAD, USD and NZD are most likely to weaken on an oil price-driven (negative) supply shock, while the NOK, CHF, GBP and SEK are most likely to gain.

Ad 4) Energy and food production

In order to account for the fact that economies that are large energy or food producers will experience a positive effect from higher energy and food prices, we have looked at the energy- and food trade balance. That is, we have identified, for each of the G10 economies, the net export of food and energy in percent of domestic GDP.

Figure 4: Energy and food trade balance 2007



Source: Ecwin and Danske Bank calculations

Figure 4 shows that Norway by far has the largest energy and food trade balance surplus followed by

Australia and New Zealand. On the other end of the scale we find Japan, Switzerland and Sweden. This implies that from the "terms of trade channel", it is the NOK that will benefit most from a rise in energy and food prices, and the JPY, CHF, and SEK which will suffer most.

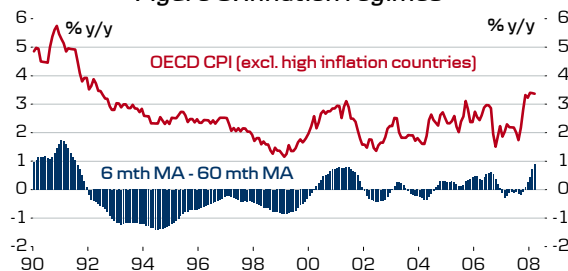
It is important to note though, that it is NOK and CAD that will gain most from a pure shock to oil prices, while the NZD will be hurt most, given its status as a net importer of energy. Unlike the case of a dual shock to energy and food prices, the EUR and USD will also suffer from a pure oil price shock via this channel.

What can historical evidence tell us?

Another approach to identifying the link from inflation to exchange rates is to look at historical data. However, simply considering how different currencies perform in different inflation regimes yields little information and is perhaps too simple an exercise. Instead, it is useful to look at other factors which might be of importance. One such factor is economic growth. As a result, we have considered how the G10 currencies have performed in different inflation and growth regimes. (See also [FX Strategy: G10: Business cycles and FX performance](#), 10 December 2007).

More specifically, we have defined low and high inflation periods based on the OECD CPI measure. Since global inflation trended downwards in the 90s we have defined high (low) inflation periods, as periods where the six-month moving average is above (below) the 60-month moving average. We thus consider inflation to be high when it is higher than what has been observed on average during the five years prior. This measure is shown in figure 5 below.

Figure 5: Inflation regimes



Source: Ecwin

By this definition, most of the 90s is characterised as a low inflation period, whereas the period following is characterised by short fluctuations between high and low inflation periods. Finally, we can observe that the global economy, by this measure, entered a period of high inflation in November last year.

In order to identify different economic growth regimes we consider the OECD composite leading indicator as a proxy for global growth expectations. We define accelerating (decelerating) growth periods as those where the year-on-year growth is positive (negative).

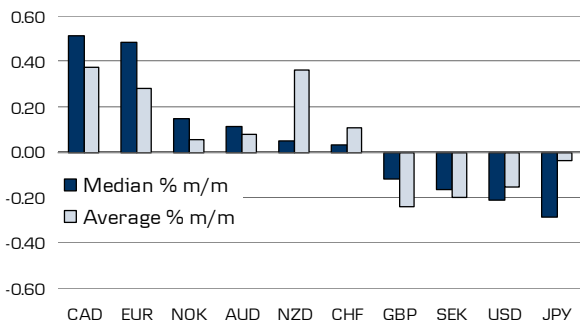
This leaves us with four states of the economy, out of which we entered the stagflationary state in November last year (decelerating growth and high inflation). We look at data from 1990 and forward, given that this period allows for more stable shapes and parameters of the G10 central bank reaction functions. The stagflationary scenario is more common by these definitions than usual, and occurs in 48 months out of the 219 months in the sample. Figure 6 below shows the median and average monthly return of G10 nominal effective exchange rates in the stagflation state.

The graph shows that CAD and EUR have high positive median returns during periods of stagflation, while GBP, SEK, USD and JPY all show negative median returns. Looking instead at the average monthly return, the NZD posts a high return, while the JPY posts a reduced negative return. This indicates that the return population during stagflation periods is skewed to the right for both the NZD and JPY. That is, both currencies have seen a few months with very high positive returns during periods of stagflation.

Winners and losers

In the near term, we find that EUR/USD and perhaps CHF/JPY are likely to head higher, while CAD/NOK is expected to turn lower if energy and food prices increase further. EUR/USD and AUD/NZD are both expected to rise in the longer term on a surge in energy prices. Investors are, however, advised to read these results with caution, due to the high degree of uncertainty on future energy and food prices.

Figure 6: Monthly returns in stagflation



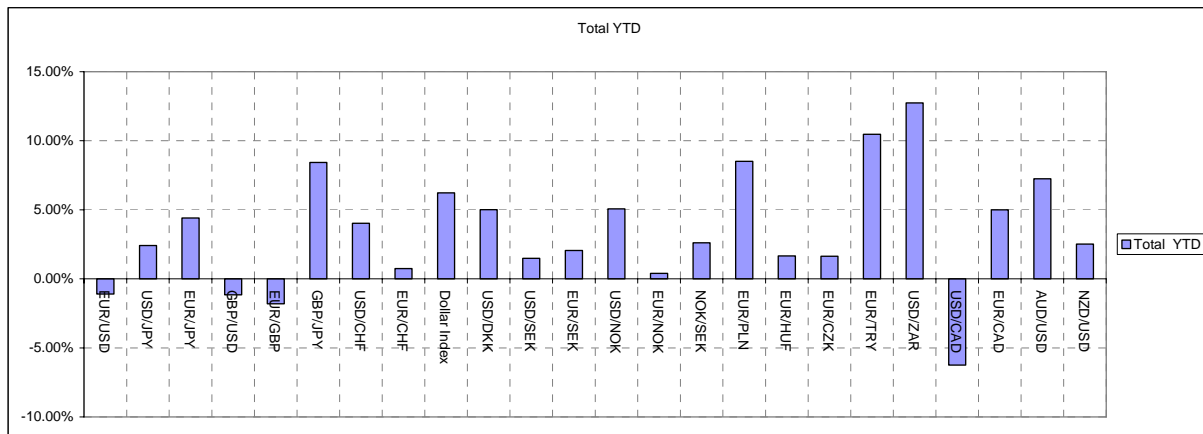
Source: Ecwin and Danske Bank calculations

Trading Points

28/05/2008

14:18 (CET)

Strategy (Short-Medium Term)										
MARKET	LAST	Trend	5DCHG	Strategy	Stop/Entry	1st Target	2nd Target	Stop/Reverse	New Target	Total YTD
CURRENCIES - Majors										
EUR/USD	1.5637	↓	-0.99%	SHORT		1.5489		1.5817	1.6003	-1.10%
USD/JPY	104.89	↑	1.79%	LONG		105.66		103.13	101.71	2.41%
EUR/JPY	164.03	↑	0.77%	LONG		164.96	166.10	162.68	157.47	4.41%
GBP/USD	1.9738	↑	0.04%	SHORT		1.9664	1.9549	1.9846	2.0025	-1.16%
EUR/GBP	0.7922	↑	-1.04%	LONG		0.8099		0.7926	0.7903	-1.81%
GBP/JPY	207.05	↑	1.82%	Go Long>	206.86	209.03	Go Short<	200.20	198.80	8.42%
USD/CHF	1.0396	↓	1.41%	LONG		1.0622		1.0214	1.0117	4.03%
EUR/CHF	1.6258	↓	0.41%	LONG		1.6377		1.6132	1.6067	0.74%
Dollar Index	72.612	↑	0.009	LONG		73.106		71.842	71.191	6.22%
CURRENCIES - Scandies										
USD/DKK	4.7702	↑	1.01%	LONG		4.7980		4.7164	4.6625	5.01%
USD/SEK	5.9608	↑	1.07%	LONG		5.9935		5.8849	5.8205	1.48%
EUR/SEK	9.3216	↑	0.07%	Go Long>	9.3499	9.4037	Go Short<	9.2538	9.2165	2.05%
USD/NOK	5.0308	↑	1.19%	LONG		5.0934		4.9665	4.9290	5.06%
EUR/NOK	7.8667	↑	0.18%	LONG		7.9367		7.8513	7.7790	0.39%
NOK/SEK	1.1849	↑	-0.11%	LONG		1.1954		1.1749	1.1693	2.61%
CURRENCIES - Non Majors										
EUR/PLN	3.3971	↑	-0.40%	Go Long>	3.4216	3.4322	Go Short<	3.3814	3.3610	8.51%
EUR/HUF	243.85	↓	-0.46%	Go Long>	245.64	249.05	Go Short<	242.43	239.63	1.65%
EUR/CZK	25.232	↑	0.22%	LONG		25.604		25.008	24.643	1.63%
EUR/TRY	1.9197	↑	-2.93%	SHORT		1.8962		1.9761	2.0209	10.46%
USD/ZAR	7.6702	↑	-0.84%	LONG		7.8128		7.6632	7.4440	12.74%
USD/CAD	0.9952	↑	1.15%	LONG		1.0018		0.9869	0.9599	-6.24%
EUR/CAD	1.5563	↑	0.15%	Go Long>	1.5662	1.5723	Go Short<	1.5361	1.5127	5.00%
AUD/USD	0.9575	↓	-0.51%	Go Long>	0.9654	0.9804	Go Short<	0.9511	0.9292	7.25%
NZD/USD	0.7842	↑	0.94%	LONG		0.7956		0.7760	0.7539	2.51%



Trading recommendations and G10 central bank overview

Directional trades

	Date	Start	Now	Target	Stop	P/L (incl carry)
Open						
Buy EUR/GBP	07/05/08	0.7885	0.7926	0.8100	0.7885	0.46
Sell NZD/USD	08/05/08	0.7740	0.7842	0.7400	0.7950	-1.63
Sell EUR/CHF	08/05/08	1.6195	1.6253	1.5800	1.6400	-0.47
Recently closed						
Sell EUR/NOK	08/05/08	7.885	7.785	7.785	8.03	1.36
Sell USD/JPY	21/04/08	103.70	105.00	100.00	105	-1.30
Sell EUR/CHF	21/04/08	1.6080	1.6235	1.5650	1.6235	-1.00
P/L 2008	0.35%	Open	-1.63%	Closed	1.99%	
# of trades *	105	# of trades 2008		20		
- average net gain	0.31%	- average net gain		0.02%		
- batting average	0.50	- batting average		0.40		

* Since 17 November 2005

Central bank overview

Country	Official interest rate	Policy rate	Next decision*	Last change
United States	Federal funds rate	2.00	25 Jun (-25bp)	30 Apr (-25bp)
Euroland	Minimum bid rate	4.00	5 Jun (unch)	6 June 07 (+25bp)
Japan	Overnight call rate	0.50	13 Jun (unch)	21 Feb 07 (+25bp)
United Kingdom	Base rate	5.00	5 Jun (unch)	10 Apr (-25bp)
Switzerland	3-month Libor	2.75	19 Jun (unch)	13 Sep 07 (+25bp)
Canada	Overnight rate	3.00	10 June (-25bp)	22 Apr (-50bp)
Australia	Cash rate	7.25	3 Jun (unch)	4 Mar (+25bp)
New Zealand	Cash rate	8.25	4 Jun (unch)	25 Jun 07 (+25bp)
Sweden	Repo rate	4.25	3 July (unch)	13 Feb (+25bp)
Norway	Sight deposit rate	5.50	25 Jun (unch)	23 Apr (+25bp)

* Expected decision in brackets

G10 central bank forecast overview

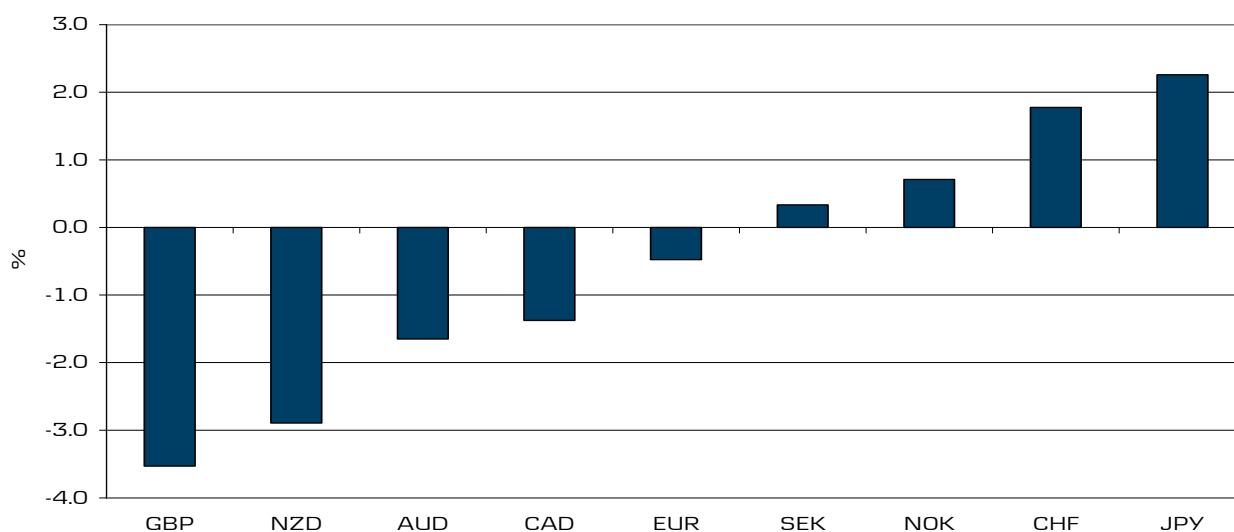
	FED	BOC	ECB	BOE	SNB	RB	NB	BOJ	RBA	RBNZ
Now	2.00	3.00	4.00	5.00	2.75	4.25	5.50	0.50	7.25	8.25
2008 May							28-May			
Jun	25-Jun	10-Jun	05-Jun	05-Jun	19-Jun		25-Jun	13-Jun	03-Jun	05-Jun
Jul		15-Jul	03-Jul	10-Jul		03-Jul			01-Jul	24-Jul
Aug	05-Aug		07-Aug	07-Aug			13-Aug		05-Aug	
Sep	16-Sep	03-Sep	04-Sep	04-Sep	18-Sep	04-Sep	24-Sep		02-Sep	11-Sep
Oct	29-Oct	21-Oct	02-Oct	09-Oct		23-Oct	29-Oct		07-Oct	23-Oct
Nov			06-Nov	06-Nov					04-Nov	
Dec	16-Dec	09-Dec	04-Dec	04-Dec	11-Dec	17-Dec	17-Dec		02-Dec	04-Dec
2009 Jan	28-Jan									
Feb									03-Feb	
Mar									03-Mar	
Apr									03-Feb	
12M	1.75	2.75	3.25	4.50	2.25	3.75	5.75	0.50	7.25	7.50
Rate cut										
Rate hike										

Exchange rate forecasts

	Spot	Forecast				Forecast vs forward outright, %			
		+1m	+3m	+6m	+12m	+1m	+3m	+6m	+12m
Exchange rates vs EUR									
USD	1.573	1.55	1.55	1.50	1.50	-0.8	-0.5	-3.2	-2.4
JPY	164.10	161	158	150	150	-1.5	-2.7	-6.7	-5.0
GBP	0.793	0.800	0.820	0.800	0.750	0.8	3.2	0.4	-6.4
CHF	1.625	1.61	1.58	1.56	1.52	-0.8	-2.3	-3.0	-4.6
DKK	7.46	7.46	7.46	7.46	7.46	0.0	0.0	0.0	0.0
NOK	7.86	7.84	7.80	7.75	7.75	-0.4	-1.2	-2.3	-3.1
SEK	9.32	9.30	9.25	9.20	9.20	-0.2	-0.8	-1.4	-1.6
PLN	3.40	3.50	3.50	3.55	3.60	2.9	2.7	3.8	4.6
CZK	25.19	25.50	25.60	25.75	26.00	1.3	1.8	2.5	3.8
HUF	244	257	260	265	270	5.1	5.8	6.8	7.0
TRY	1.92	1.95	1.98	2.05	2.25	0.6	0.1	0.5	4.1
Exchange rates vs USD									
DXY	72.5	73.0	73.1	74.1	73.6	0.4	0.5	1.6	0.7
JPY	104.9	104	102	100	100	-0.7	-2.3	-3.7	-2.7
GBP	1.97	1.94	1.89	1.88	2.00	-1.6	-3.5	-3.6	4.0
CHF	1.04	1.04	1.02	1.04	1.01	0.0	-1.8	0.2	-2.3
DKK	4.77	4.81	4.81	4.97	4.97	0.8	0.5	3.4	2.5
NOK	5.02	5.06	5.03	5.17	5.17	0.4	-0.7	1.0	-0.6
SEK	5.96	6.00	5.97	6.13	6.13	0.6	-0.3	1.9	0.9
CAD	1.00	1.00	1.01	1.02	1.02	0.4	1.4	2.3	2.2
AUD	0.96	0.95	0.93	0.88	0.85	-0.4	-1.7	-5.7	-6.5
NZD	0.78	0.77	0.75	0.73	0.70	-1.3	-2.9	-4.0	-5.4
ZAR	7.69	7.60	7.70	8.10	8.40	-1.9	-2.3	0.4	-0.7
BRL	1.67	1.70	1.70	1.75	1.80	1.4	-0.3	0.3	-1.7
MXN	10.37	10.55	10.60	10.75	10.90	1.3	0.9	1.2	0.3
CNY	6.94	6.98	6.91	6.74	6.57	0.7	0.4	-0.5	0.7

Note: GBP, AUD and NZD are denominated in local currency rather than USD

Expected change in USD vs forwards, 3m



Head of FX Research

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