Dukascopy
Swiss Forex Bank & Marketplace

QUARTERLY REPORT

Q3, 2012

AGGREGATE TECHNICAL INDICATOR

FUNDAMENTAL ANALYSIS

TECHNICAL ANALYSIS

ECONOMIC RESEARCH

TRADE PATTERN IDEAS

EXPERT COMMENTARY

... on EUR/USD: "We expect another phase of the bearish scenario to unfold in the second half of the year" ...

Yaroslav Smirnov,
FX Analyst at Dukascopy Bank

Intro

Dear traders,

We are glad to offer you the latest Quarterly Review from Dukascopy Research Team devoted to Q3, 2012. In this report we have compiled comprehensive materials on the major currencies: EUR, USD, GBP, CHF and JPY. You may read interesting opinions from Dukascopy and external experts, overview the most important technical and fundamental trends, discover new trade ideas and get acquainted with our statistical research.

We are continuously developing Dukascopy Interactive Community TV and FX Spider, our latest innovations, which are gaining increasing popularity among our clients. Thus, every day Dukascopy Research team members will wait for you in the "central" room (http://www.dukascopy.com/tv/Live) to go into the latest and hottest economic and FX market topics. Meanwhile, on FX Spider (http://www.dukascopy.com/fxspider/) you can receive a compilation of latest news, videos and market trends in one real-time web widget – customized according to your needs.

Trade with Dukascopy Bank. Be informed.

Wishing you a prosperous quarter,

Alexander Suhobokov, FRM

Head of Research

Dukascopy Bank SA

We are glad to offer you the new Quarterly Overview from Dukascopy Research Team. In this report we have compiled comprehensive materials on the major currencies: EUR, USD, GBP, CHF and JPY.

FUNDAMENTAL OVERVIEW

Euro-zone

The second quarter of 2012 was notable for several reasons. First, EU officials agreed to lend Spain up to 100 billion euros to shore up its banking sector. Second, Greek pro-bailout parties secured a slim majority in parliamentary elections on June 17, easing concern the nation would be forced from the currency bloc. However, market euphoria over a bailout for Spain and a positive outcome of the Greek elections faded quickly, driving Spanish yields above seven per cent and raising the prospect of a full-scale bailout.

"There is a need to…conceive a banking union as an integral counterpart of monetary union" - ECB spokesperson

The European Central Bank expects inflation in the single currency bloc to remain above two per cent in 2012 and, looking beyond the short term, forecasts the euro area economy to "recover gradually". Nevertheless, the ECB acknowledges that downside risks persist and the adverse impact of fiscal consolidation in PIGS countries on near-term growth may be significant.

Additionally, in its semi-annual financial stability review, the ECB calls for a common banking union to shore up the eurozone's financial system: "There is a need to…conceive a banking union as an integral counterpart of monetary union". Such a union would include euro-zone-wide bank supervision, deposit guarantees and a funding mechanism from banks. Germany's central bank, in turn, called the proposal premature and warned that eurozone liabilities cannot be shared without a fundamental shift towards fiscal and political union .

USA

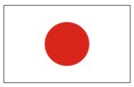
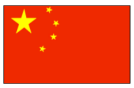
U.S. economic growth stalled in the second quarter of 2012. Unemployment ticked up to 8.2, the consumer sentiment for June, measured by The Thomson Reuters / University of Michigan, declined to 74.1, the lowest level this year, and month-on-month industrial production contracted 0.1 per cent in May. The four-week average of unemployment claims remains below a psychologically important level of 400,000.

S&P kept a negative outlook for the nation on June 8, citing the political deadlock between Republicans and Democrats which continues to block solutions for closing the government's deficit and bringing down debt. "We see the US economy with an economy as highly diversified and market-oriented, with an adaptable and resilient economic structure, all of which contribute to strong credit quality". However, the government's ability to implement reforms "has weakened in recent years... particularly with regard to broad fiscal policy direction".

Operation Twist "should put downward pressure on longer-term interest rates and help to make broader financial conditions more accommodative"
-FOMC spokesperson

In the latest effort to reduce unemployment and protect the expansion, the Federal Reserve renewed its so-called Operation Twist, a program to replace short-term bonds with longer-term debt. The continuation of Operation Twist "should put downward pressure on longer-term interest rates and help to make broader financial conditions more accommodative", the Federal Open Market Committee said June 20. The Fed also noted that it remains ready to act should the economic outlook deteriorate.

Asia-Pacific Region

The direction of China’s economy remains a subject of discussion. The government has cut its growth forecast to 7.5 per cent from 8.0 per cent for 2012 and the HSBC manufacturing PMI contracted for the eighth consecutive month in June. In addition, the pace of foreign direct investment into China declined for six straight months ending April and rose only modestly in May. Given all this, most analysts expect that the Bank of China is likely to ease monetary policy in order to boost the decelerating economy. “Beijing’s policy easing so far has not been enough,” Qu Hongbin, Hong Kong-based chief China economist for HSBC, said at the end of June. “Probably more needs to be done if they really want to stabilize the growth”.

“Beijing’s policy easing so far has not been enough”
-Qu Hongbin, HSBC

Japan’s economy is recovering from the previous year’s tsunami and earthquake, albeit slowly. The economy grew 1.2 per cent in the first quarter of 2012 from the previous three months, or at an annualised rate of 4.7 per cent. “We maintain our basic view that the economy is likely to slow in [the] second-quarter of calendar year, reaccelerate during [the third and fourth quarters of 2012] and face downward pressure in 2013 due to the ‘fiscal cliff’ facing both Japan and the U.S.”, wrote Barclay’s economists in a note to clients in the beginning of June. Japan’s policy makers demonstrated a commitment to fiscal reform on June 25 by voting in favour of a bill to double the consumption tax to 10 per cent to curb the nation’s public debt. “We have taken a big first step toward reform, both for the sake of present-day Japanese and for future generations”, said Japanese Prime Minister Yoshihiko Noda after the vote.

EUR/USD

Daily Chart

100 day sma 200 day sma

Q2 Summary

Following a precipitous fall of the currency pair at the very beginning of Q2 due to an encounter with a downtrend resistance line at 1.3366/88, EUR/USD has been attempting to distance itself from a downtrend support (1.2992/78), which underpinned the price until May. Afterwards EUR/USD has extended a dip down to 1.2287 – a level last touched almost two year ago. A subsequent rally was halted by resistance at 1.2704 that caps the pair to the present day.

Q3 Outlook

EUR/USD has been trading below a 200 day simple moving average since September of 2011 and is likely to be weighed upon by it in the coming three months. Accordingly, we expect an additional phase of the bearish scenario to unfold in the second half of the year. Resistance at 1.2712, in conjunction with 100 and 200 day SMAs, should prove to be impenetrable for the pair in Q3, forcing it to slide southwards - to 1.2287, while pushing though some of the less significant supports along the way. Since downward pressure is likely to persist, the price may then tumble to 1.1874, which was previously tested back in June of 2010.

Resistance at 1.2712, in conjunction with 100 and 200 day SMAs, should prove to be impenetrable for the pair in Q3, forcing it to slide southwards - to 1.2287.

USD/JPY

Daily Chart

100 day sma 200 day sma

Q2 Summary

USD/JPY has been submissively trading within the strict boundaries set by a downward channel, reversing the trend only after the price lost more than 580 pips during 70 days. Robust recovery, being a result of a strong rebound from support at 78.00 and consequent violation of a downtrend resistance line, persisted until July, but remains fragile .

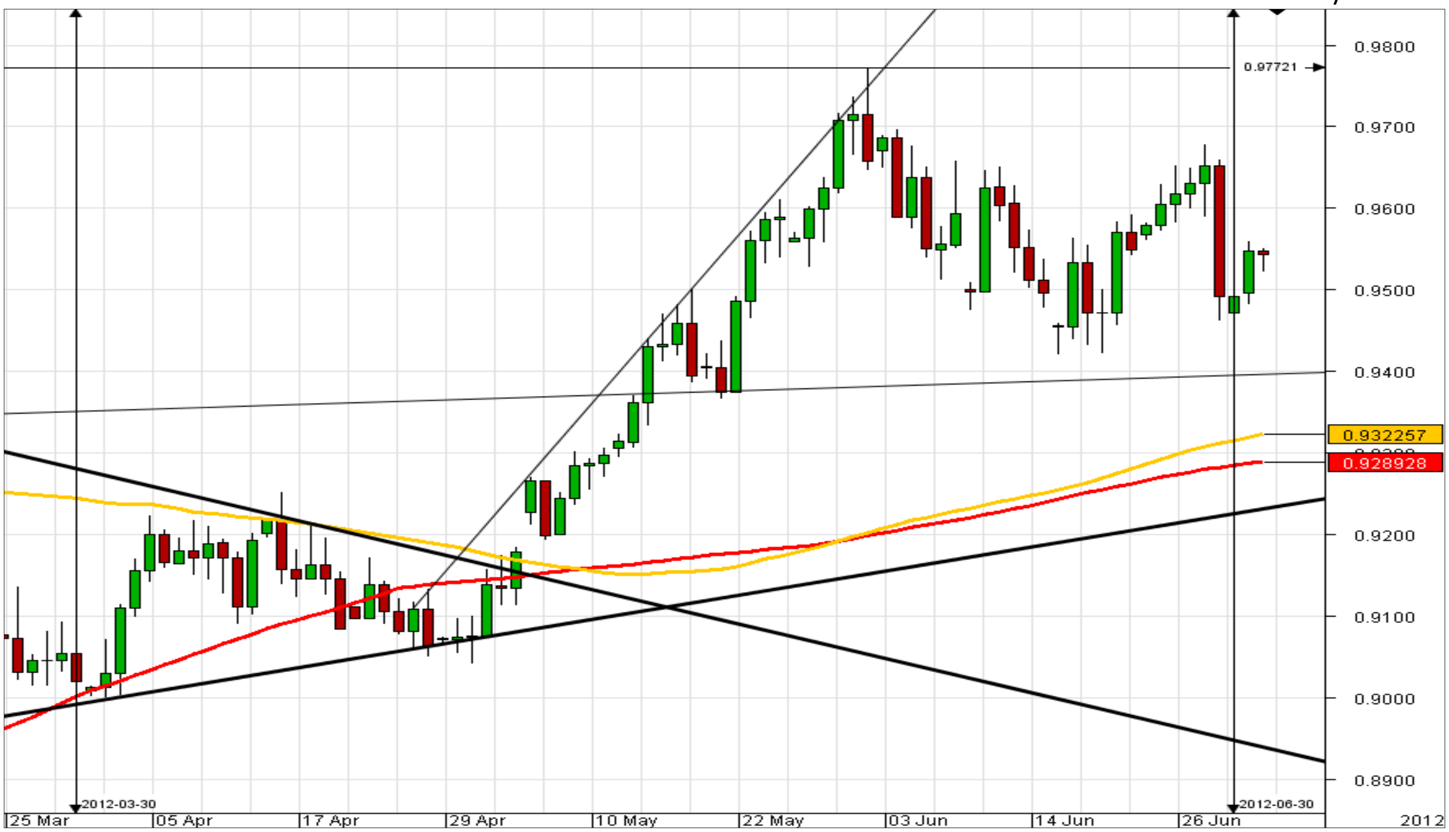
Q3 Outlook

Return of the pair into the aforementioned down-sloping channel, following a bullish breakout from the range, appears to be highly improbable. Closer to the end of Q2 the bullish trend was in fact emerging on the chart, though it is too early to say whether it will be carried into the next quarter. This should depend on a test of 79.25/41, where a 200 day simple moving average is at the moment. In case the support does not withstand bearish pressure, we may observe a drop down to 76.81, which in turn is expected to provide sufficient resistance and prevent further depreciation of the green-back.

Closer to the end of Q2 the bullish trend was in fact emerging on the chart, though it is too early to say whether it will be carried into the next quarter.

USD/CHF

Daily Chart



100 day sma 200 day sma

Q2 Summary

In the beginning of the second quarter the corridor, within which USD/CHF has been trading, was gradually narrowing, resulting in the price rising steeply above the upper trend-line and reaching an 18-month high. Later the price has been undergoing a bearish correction, which seemed to have come to an end in the middle of June, as five days in a row the U.S. Dollar has been gaining in value relative to the Swiss Franc, but turned out to be more durable.

Q3 Outlook

Provided that USD/CHF resides far above a fairly wide but still dense support area that stretches from 0.9395 to 0.9279, the currency pair is anticipated to maintain the current course and oscillate further. The initial notable resistance the price will confront may be found at 0.9772, while there are almost no additional levels capable of impeding ensuing growth up until 1.0774. Nevertheless, we may not yet rule out a possibility of a weaker green-back, which, even if such an event occurs, is likely to be a short-lived phenomenon, subsequently turning into consolidation and then charting a new pronounced leg up.

The currency pair is anticipated to maintain the current course and oscillate further.

GBP/USD

Daily Chart

100 day sma 200 day sma

Q2 Summary

Growth of the Cable, invoked by a bullish breakout from an ascending wedge, was short-lived, as GBP/USD stumbled upon a major downtrend resistance line at 1.6283, which predetermined supervening bearish development. Only a line in the sand that is situated at 1.5267 and is continuously respected by the market (since July 2010) was able to terminate a prolonged period of Sterling's depreciation relative to the U.S. Dollar.

Q3 Outlook

The next quarter is likely to be marked with a struggle of the currency pair with a downtrend resistance line, which has already suppressed both rallies and dips on several occasions throughout the last three months and is unlikely to give in easily. Nonetheless, being that GBP/USD has recently left the vicinity of a formidable support at 1.5267, we expect the pair to act bullishly, at least in the second part on Q3. In a long-term perspective we expect the Cable to aim for 1.6139, following confirmation of its potential for growth after overcoming a 200 day simple moving average.

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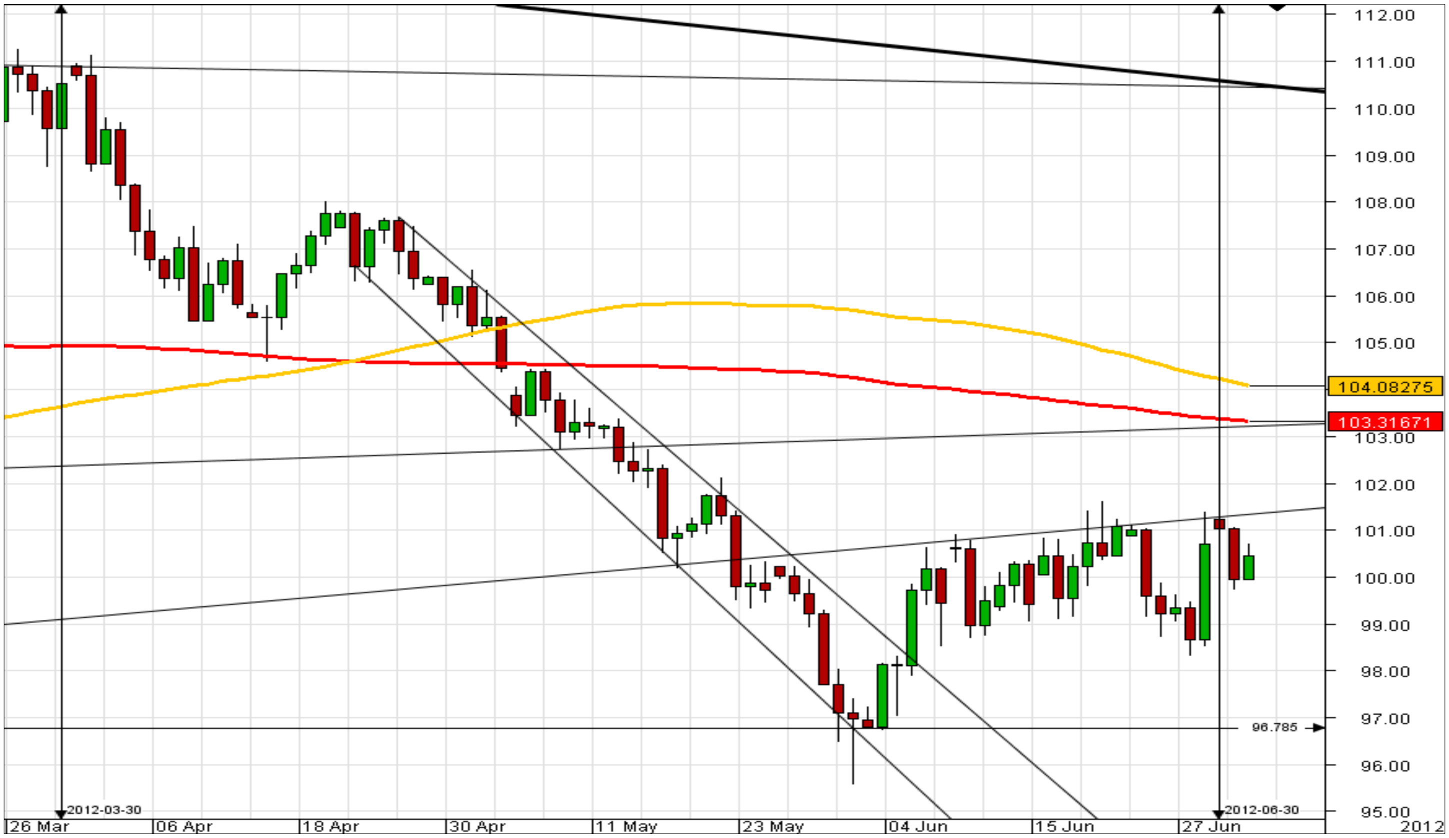
EUR/JPY

Daily Chart



100 day sma 200 day sma

Q2 Summary

For the most part of the preceding quarter EUR/JPY has been contained by a downtrend channel, leading to a large 1400 pip plunge over the first two months. However, the currency couple managed to recover from the lowest level since 2000. It then consolidated just below an uptrend resistance line, pointing to the fact that received bullish impetus has already run out of steam and is not topical any more.

Q3 Outlook

Given previous behaviour of the pair, we expect it to fall down to 96.78 prior to a re-establishment of bullish momentum. EUR/JPY has to form a double bottom pattern in order to become well-placed to recommence advancement towards and above 101.08/73. Then the pair might challenge a congregation of resistances (103.34/104.16) being formed by an uptrend resistance line together with 100 and 200 day simple moving averages, although it will require some time and several attempts to be eroded. Above this cluster the currency pair will not face considerable levels until 109.00 and may move freely in the interval.

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EXPERT COMMENTARY

EUR/USD

Neil Mellor/ Currency Strategist/ Bank of New York Mellon/ London, UK

It has obviously been negative lately. Apparently May has not been a great month for EUR/USD. The euro has been tracking sideways for some months. Currently, there are two different forces: one clearly negative surrounding the eurozone, another is a belief that perhaps Germany would step in and deliver some sort of end to the crisis by establishing a fiscal union or something similar. However, I think it becomes very clear since the start of May that this is not going to happen, and Germany is not going to “pull a rabbit out of the hat” so to speak, and deliver some sort of panacea for the eurozone crisis and this is the reason why the euro has slipped from the 1.30 level to the lows we see now.

Q3 Forecast

We see the Euro/USD coming down into the low 1.20s. I think the market has decided set on the lows we saw in the last couple of years. We expect that the sovereign buying might mitigate a downturn a little bit.

GBP/USD, EUR/GBP

Neil Mellor/ Currency Strategist/ Bank of New York Mellon/ London, UK

Recently the Sterling has not performed particularly well against the Dollar, but it has been perceived as a safe haven against the euro, and obviously it has been performing very well pretty much since the end of last year. It has come out at an importunate time for the Bank of England. Basically, interest rates in the UK have been at a very low level and similar to the level where the government has been deleveraging its accounts. However, the way it has been able to do that is with the weaker currency. Since currently the Sterling is turning about, the deleveraging path is going to be much more difficult for the government, thus this is going to put more and more pressure on the policy makers to offer a bit more of growth-oriented strategy. It is not really helping at the moment.

In terms of Sterling I suspect we are probably looking at a stronger Dollar environment for a while longer and I suspect something in the low 1.60ies. The pair seems entirely closeable to 1.62 -1.64.

It is more difficult to forecast The EUR/GBP, because a lot of technicals are involved in this particular currency pair. However, I certainly believe that the target would be around 77-78 versus the bottom of the range we saw in 2008.

GBP/USD, EUR/GBP

Ankita Dudani/Currency Strategist/Royal Bank of Scotland/UK

We have a target for EUR/GBP at 80. We have seen the Cable move from above 1.57 to around 1.555 in just two days. In terms of our forecast we think the Cable should be around 1.57 and also below 1.60, but not below 1.55. A lot of positive data influenced price in Sterling over the last two months, whether it came out from Bank of England members turning less dovish, whether it came from the sort of better data earlier last month and two months ago. I think the things have done around again in terms of the inflation report, the latest data that shows retail sales and confidence still remains slow and obviously the UK will remain tight and will remain dependent on developments out of the eurozone as well. We do not really look for a lot of upside possibility in the Cable, and in Sterling in general. We think it should consolidate around these levels. EUR/GBP should trade just above 80.

USD/JPY, EUR/JPY

Issei Suzuki/ FX Strategist/ Citibank Japan/ Tokyo, Japan

Our expectations are still the same as we had at the beginning of the year. USD/JPY would trade in a very narrow range, possibly around 7the 8-82 level. We do not expect USD/JPY to go significantly higher or lower. The reason why we do not think the pair will appreciate is that we do not expect the Fed will increase its interest rate any time soon. On the other hand, the reason why we do not think USD/JPY is to go significantly lower is the deterioration in the Japanese trade balance. That is why we think USD/JPY will stick around 72-82 level in this year.

Issei Suzuki/ FX Strategist/ Citibank Japan/ Tokyo, Japan

As for the EUR/JPY, I guess it will more depend on the euro- whether Greece exits from the eurozone or not. _But meanwhile the ECB and other European members would have to expand the monetary base. The ECB needs to decide on additional monetary easing or possibly a rate cut to support the European economy. That way could mean the Euro will depreciate against the other currencies including the Japanese Yen. That is our basic scenario.

Forecast

"Since the beginning of May, however, the pair has basically traded sideways around the 80 mark, something we expect to continue for the next several months. As the yen typically benefits in risk-off periods, our central scenario of weaker risk appetite globally could lead to more downward pressure on USD/JPY. On the flipside, more sluggish export growth and import flows related to tight domestic energy markets could be negatives for the yen. But USD/JPY is unlikely to move much higher until short-term interest rates in the US rise materially" - Citibank Investment Research and Analysis.

EUR/CHF, USD/CHF

Peter Kinsella/ Senior FX Strategist/ Commerzbank/ UK

Well, if you think about it because of the floor / lower bound in EUR/CHF at 1.20, this means that USD/CHF is basically reflecting the moves in EUR/USD. Because there is no significant interest rate differential between the Fed and ECB, at least in terms of overnight money market rates, this means that EUR/USD is trading as a function of the relative liquidity policies of the respective central banks. So the question is - who is more likely to cut rates further / expand in further liquidity support. A look at the situation in Spain and Greece argues that it is more likely to be the ECB. Hence we can expect the Euro to come lower.

TRADE PATTERN IDEAS

AUD/CAD

AUD/CAD

Rising Wedge

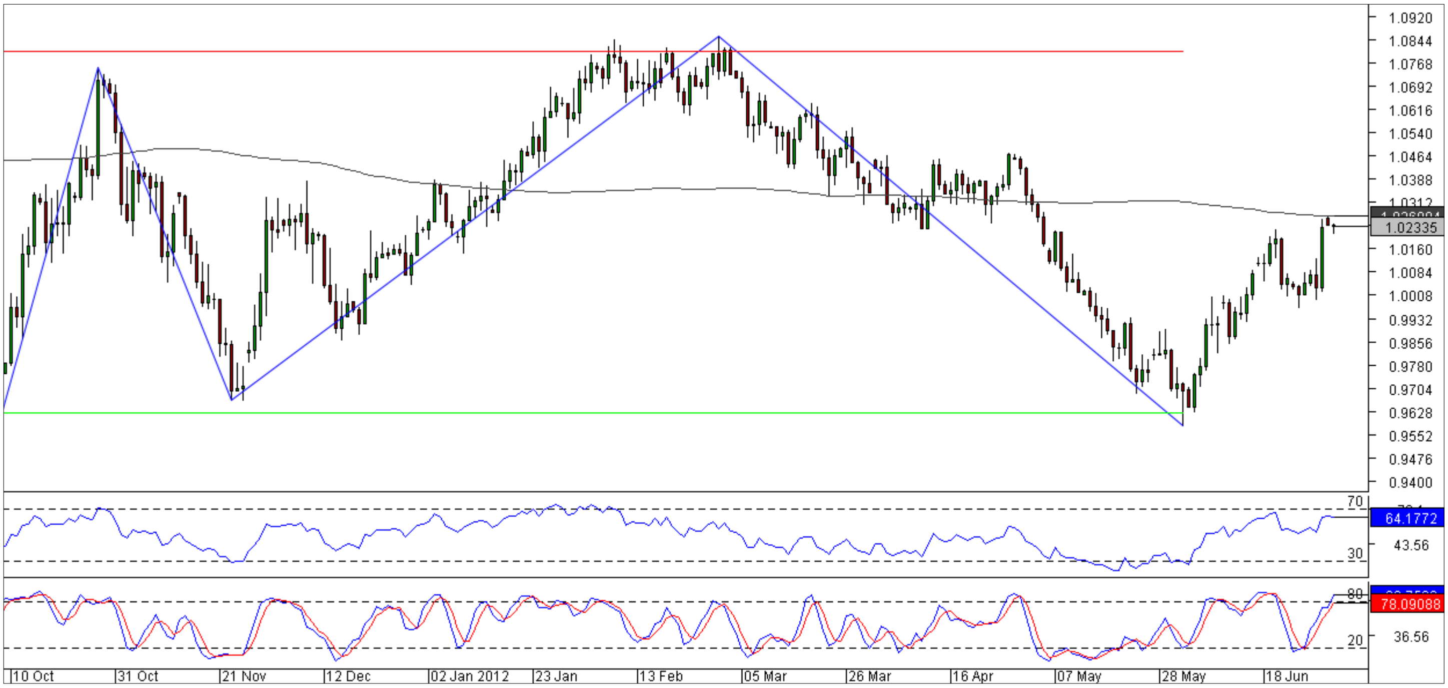
If the pair breaches this level the next targets could be at Fibonacci weekly support at 1.0316 (23.6% of weekly retracement) and the recent low at 1.0277.

AUD/CAD is recovering after a long decline from 1.0765 on 27th of February, 2012, to 0.9955 on 23rd of May, 2012, and has formed a Rising Wedge pattern on the 4H chart. The pattern has 74% quality and 96% magnitude on the 149-bar period.

The pattern started on 28th of May when the pair rebounded from 1.0115 and after testing pattern support twice at 0.9972 and 1.0277 and resistance twice at 1.0401 and 1.0455 it has narrowed its trading price range around 1.0419. Technical indicators on aggregate suggest a bullish market outbreak on the one-day and one-month time horizons. Long traders could focus at the recent support band test level at 1.0455 (also 23.6% of Fibonacci weekly retracement). If this level is breached the next target could be set at the pattern's resistance band upper limit at 1.0505.

Technical indicators on aggregate on the one-week outlook point to a bearish market outbreak. Current market sentiment, with more than 80% of traders being short, supports such a possibility as well as suggesting that the pair will experience a strong rebound after reaching the pattern's upper limit. Short traders might set the first target at 1.0384. If the pair breaches this level the next targets could be at Fibonacci weekly support at 1.0316 (23.6% of weekly retracement) and the recent low at 1.0277.

AUD/USD



EUR/NZD

Rectangle

Long traders could focus on the SMA200 level around 1.0268.

For the past 10 months AUD/USD has been fluctuating around its SMA200 value and has formed a Rectangle pattern on the daily chart. The pattern has 56% quality and 86% magnitude in the 208-bar period.

The formation started on the 4th of October when the pair bounced from 0.9837, and after reaching the pattern's higher band (1.0802) and lower band (0.9621) it slowed down near SMA200 at 1.023. Major market participants consider the level of 1.022 to be very important because at this Fibonacci resistance level (38.2% retracement of the week) we can see a recent peak and it is still rather unclear if the level will be breached or we will see a pull-back. Technical indicators on aggregate do not suggest any clear emerging trends on the 1W and one-month time horizons, but point to a bullish market outbreak on the 1D outlook. The current market sentiment is in favour for bulls as well, with 75% of traders expecting the pair will increase further. Long traders could focus on the SMA200 level around 1.0268. If the pair breaches this level the next targets could be at Fibonacci resistance level (61.8% retracement of the week) at 1.0305 and the late-April high at 1.0473. On the 1W outlook the Stochastic indicator is in the sell area suggesting a possible pull-back in the near future. Most likely this could happen in the beginning of next week or near the above-mentioned bull market targets in the upcoming month. Short traders could focus on the Fibonacci support levels at 1.0172 (23.6% retracement of the week) and 1.0089 (0% retracement of the week).

EUR/GBP

EUR/GBP

Channel Down

Technical indicators on aggregate suggest a bearish market outbreak on the one-week and one-month time horizons.

EUR/GBP has fallen below its SMA200 value and formed a Channel Down Pattern on the one-day chart. The pattern has 53% quality and 77% magnitude in the 174-bar period.

The pattern started on the 27th of October, 2011, when the pair rebounded from 0.8830 and on its way down to the current level of 0.808 it tested the pattern's support band levels twice, at 0.8221 and 0.795, and resistance level once, at 0.8505. Long traders, expecting positive economic developments in the eurozone could focus on 0.8092, where the recent peak and Fibonacci resistance (23.6% retracement of the week) can be found. If this level is breached the next targets could be at 0.8117 (38.20% Fibonacci retracement of week) and around 0.815 where the 10th and 15th of June, 2012, highs stand.

Technical indicators on aggregate suggest a bearish market outbreak on the one-week and one-month time horizons. The current market sentiment, with more than two thirds of traders in short position, supports the possibility of such a development as well. Short traders could focus on the 0.8049. If the pair breaches this level the next targets could be at Fibonacci support at 0.801 (23.6% retracement of the week) and around 0.798 where the Fibonacci support (61.8% retracement of week) and 25th of May and 26th of June low is.

EUR/JPY

EUR/JPY

Channel Down

Long traders should pay attention to the mid-June peak at 101.622.

EUR/JPY has partly recovered after a sharp drop from 169.96 on 21st of July to 113.6 on 27th of October, 2008, but is continuing its descent and has formed a Channel Down pattern on the 1W chart. The pattern has 50% quality and 57% magnitude in the 135-bar period.

The pattern started on the 1st of June, 2009, when the pair rebounded from 139.220 and after testing support levels at 105.430 (23rd of August, 2010) and 97.030 (16th of January 2012) and resistance at 123.319 (4th of April, 2011) it has been fluctuating around 100 (+/- 1.7) for the past month. The SWFX market sentiment, with 75% of traders long, points to appreciation for the pair. Long traders should pay attention to the mid-June peak at 101.622. If the pair develops beyond this milestone the next levels of interest should be Fibonacci resistance levels at 103.0283 and 105.3310 (38.2% and 61.8% of monthly retracement respectively) and the mid-April attempt to breach 107.8.

Technical indicators in the medium term (one week and one month outlook) on aggregate suggest the pair will continue to follow a general downward-sloping trend. Short traders could focus on the recent pattern support band test at the level of 97.030. If this price is breached the next targets should be at the recent low at 95.594 and the pattern support band at around 93.275.

GBP/USD

GBP/USD

Triangle

The SWFX market sentiment is slightly in favour for bears with 51% of the traders in the short position.

GBP/USD is narrowing its trading range after a sharp drop from 2.0155 on the 14th of July, 2008, to 1.3502 on the 19th of January, 2009, and has formed a Triangle pattern on the one-week chart. The pattern has 91% quality and 46% magnitude on the 156-bar period.

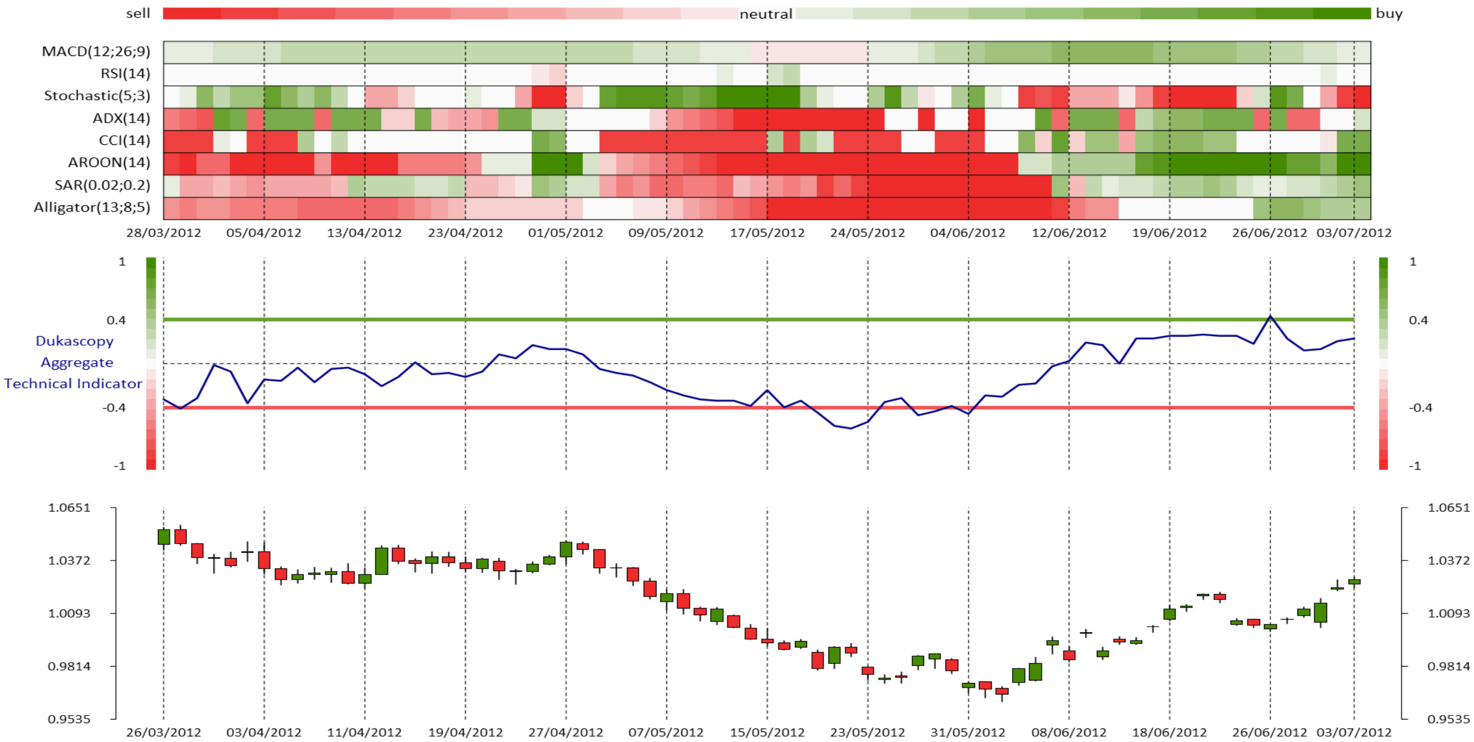
The pattern started when the pair rebounded from 1.7042 on the 3rd of August, 2009, and after testing pattern support and resistance levels for a few times it slowed down near its SMA200 level at 1.570. The pattern support and resistance bands are scheduled to intercept on the week starting 21st of October, 2013, at the level of 1.6316. Technical indicators on the one-day time horizon point to a bullish market outbreak which might indicate an attempt to rise above the SMA200 level of 1.5764. If this target is breached, the next milestones could be set at the Fibonacci resistance levels at 1.5885 and 1.6079 (38.2% and 61.8% of monthly retracement respectively) and the April 30th high at 1.6300.

The SWFX market sentiment is slightly in favour for bears with 51% of the traders in the short position. Technical indicators on the one-month outlook on aggregate also support the possibility of the pair's further devaluation. Targets for short traders should be at the pattern's support band around 1.5570 and the recent low at 1.5267.

DUKASCOPY AGGREGATE TECHNICAL INDICATORS

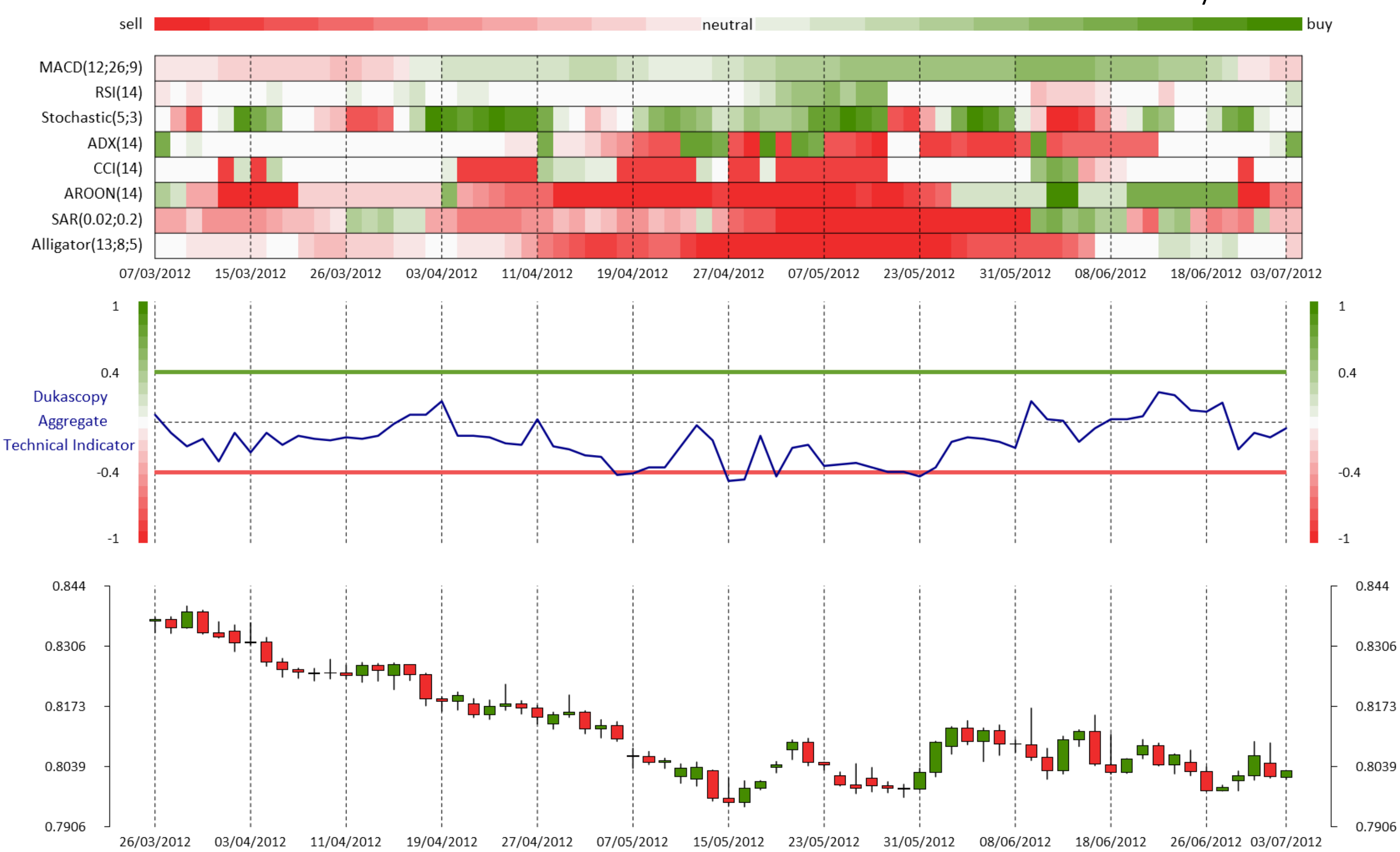
AUD/USD

Daily chart



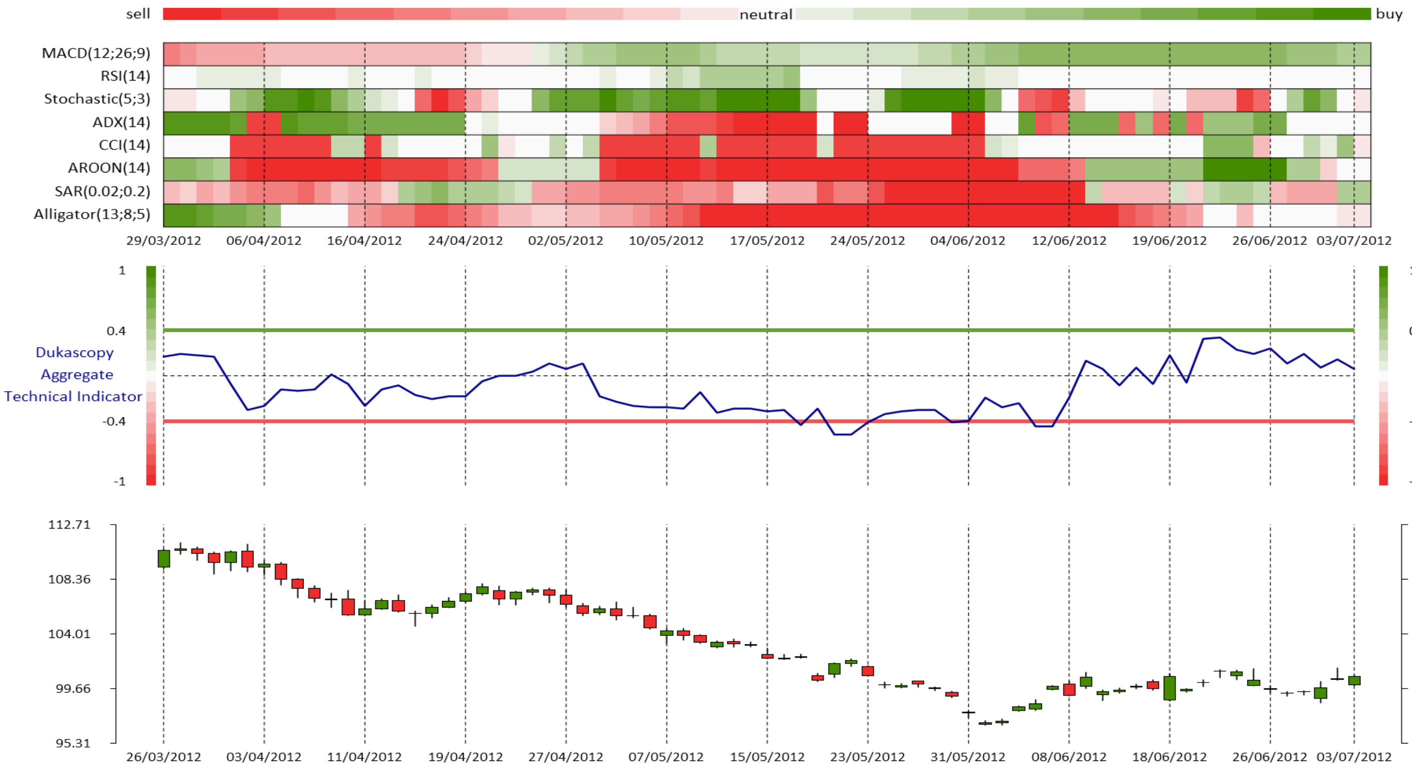
AUD/USD

Daily chart



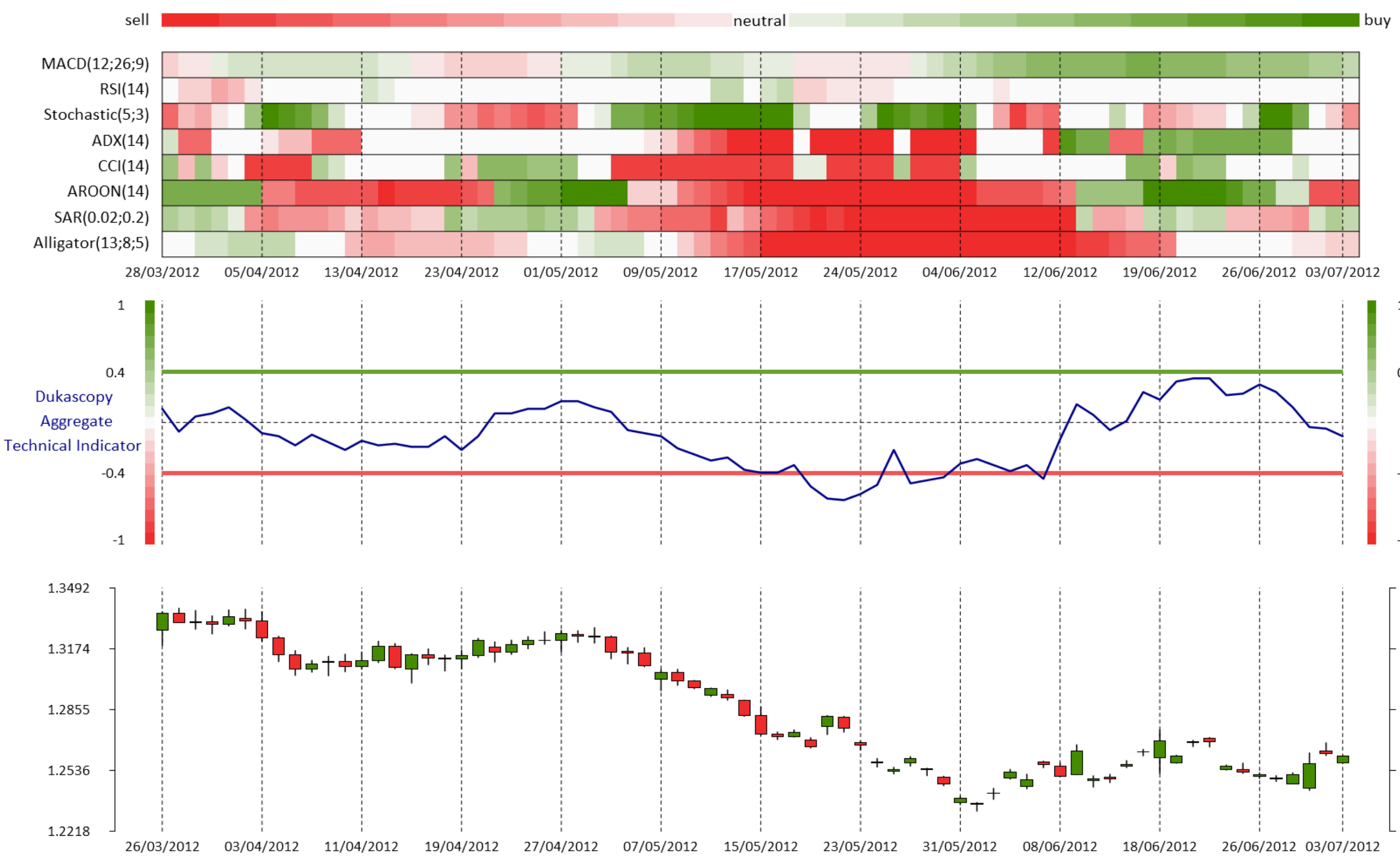
EUR/JPY

Daily chart



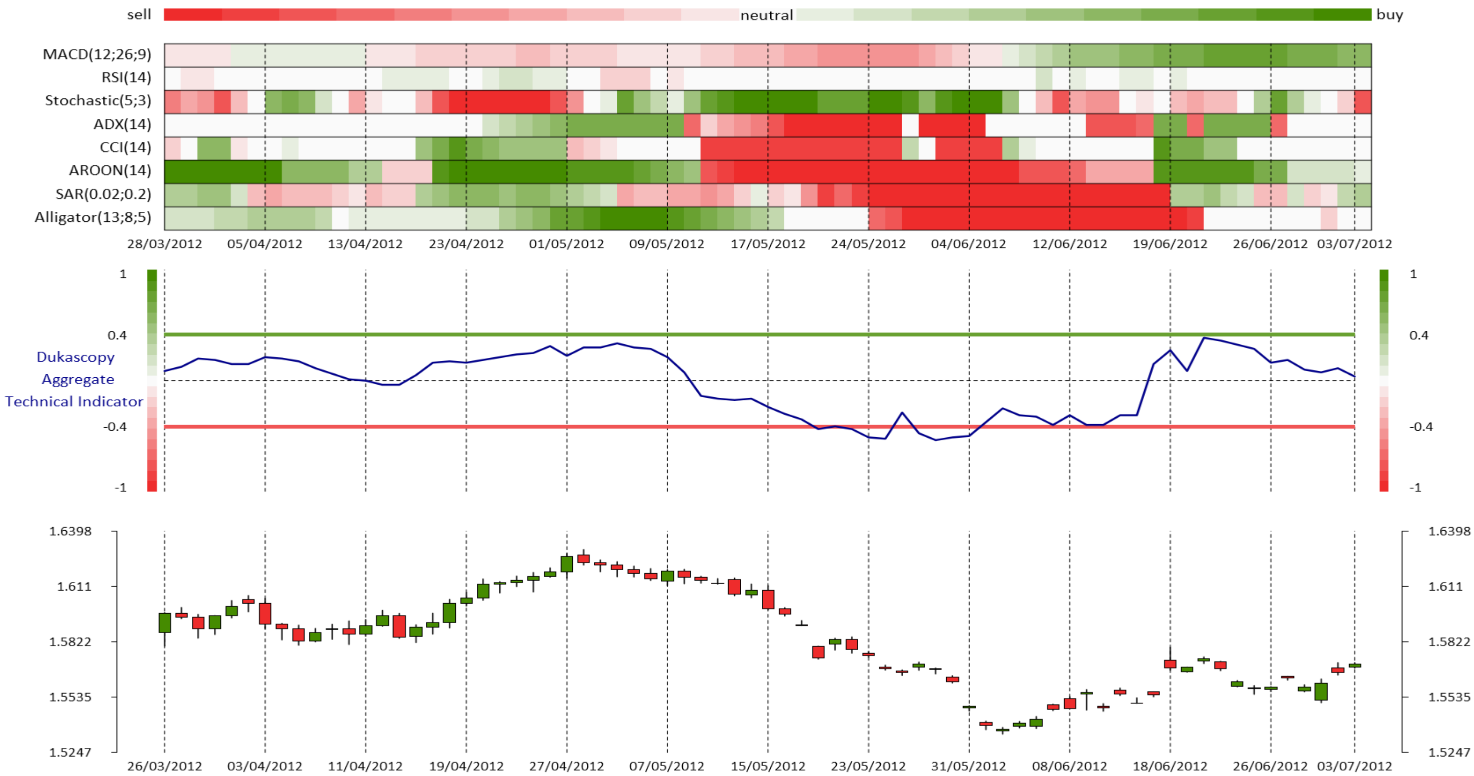
EUR/USD

Daily chart



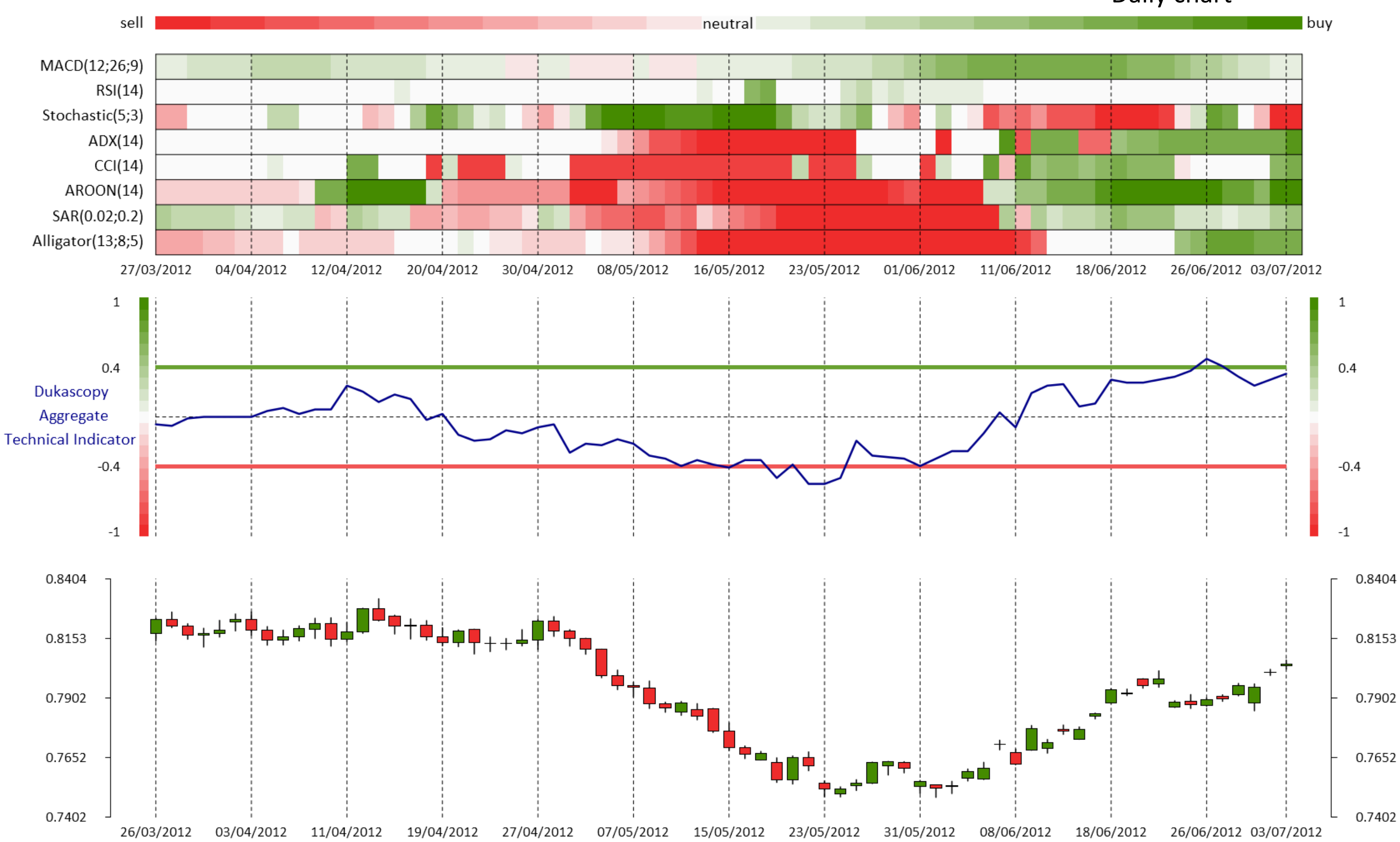
GBP/USD

Daily chart



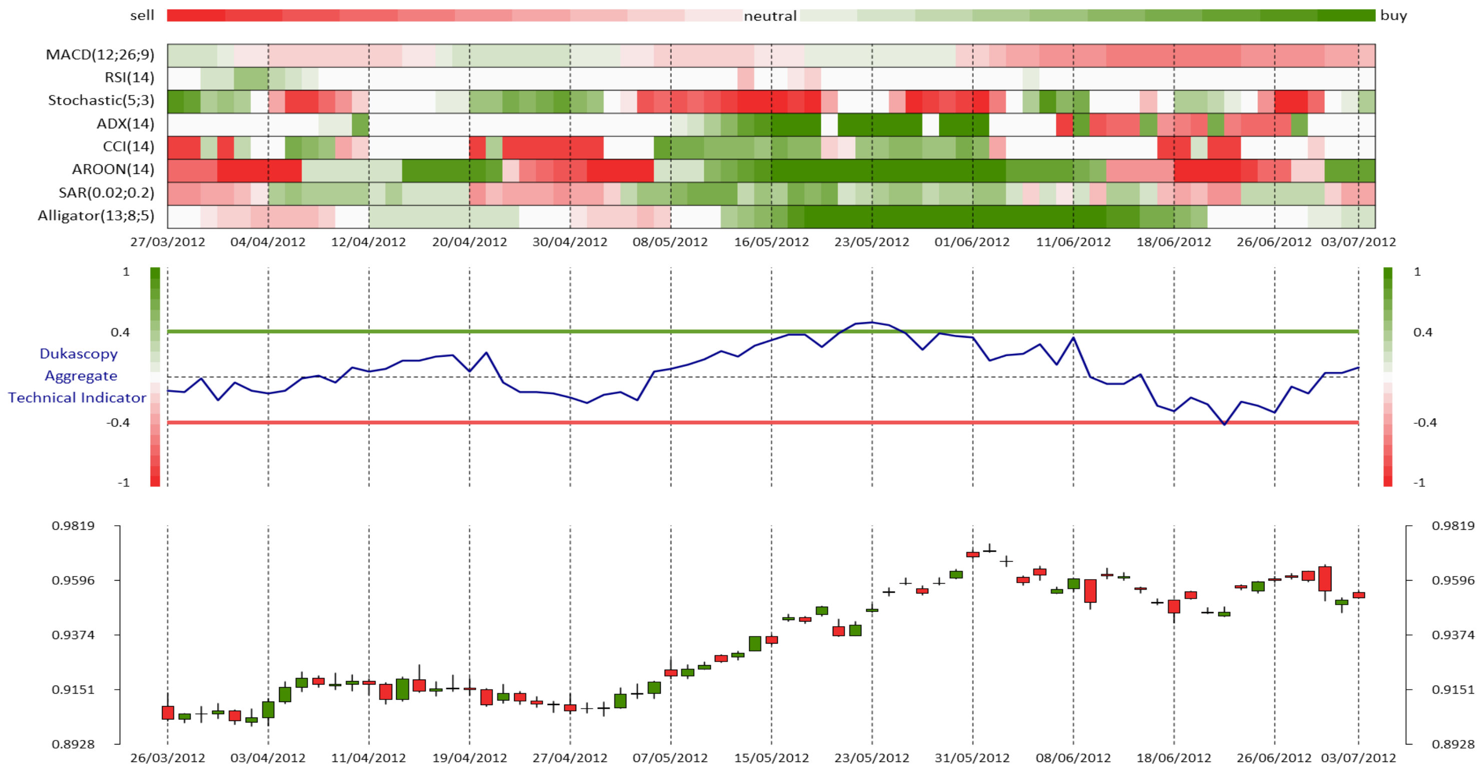
NZD/USD

Daily chart



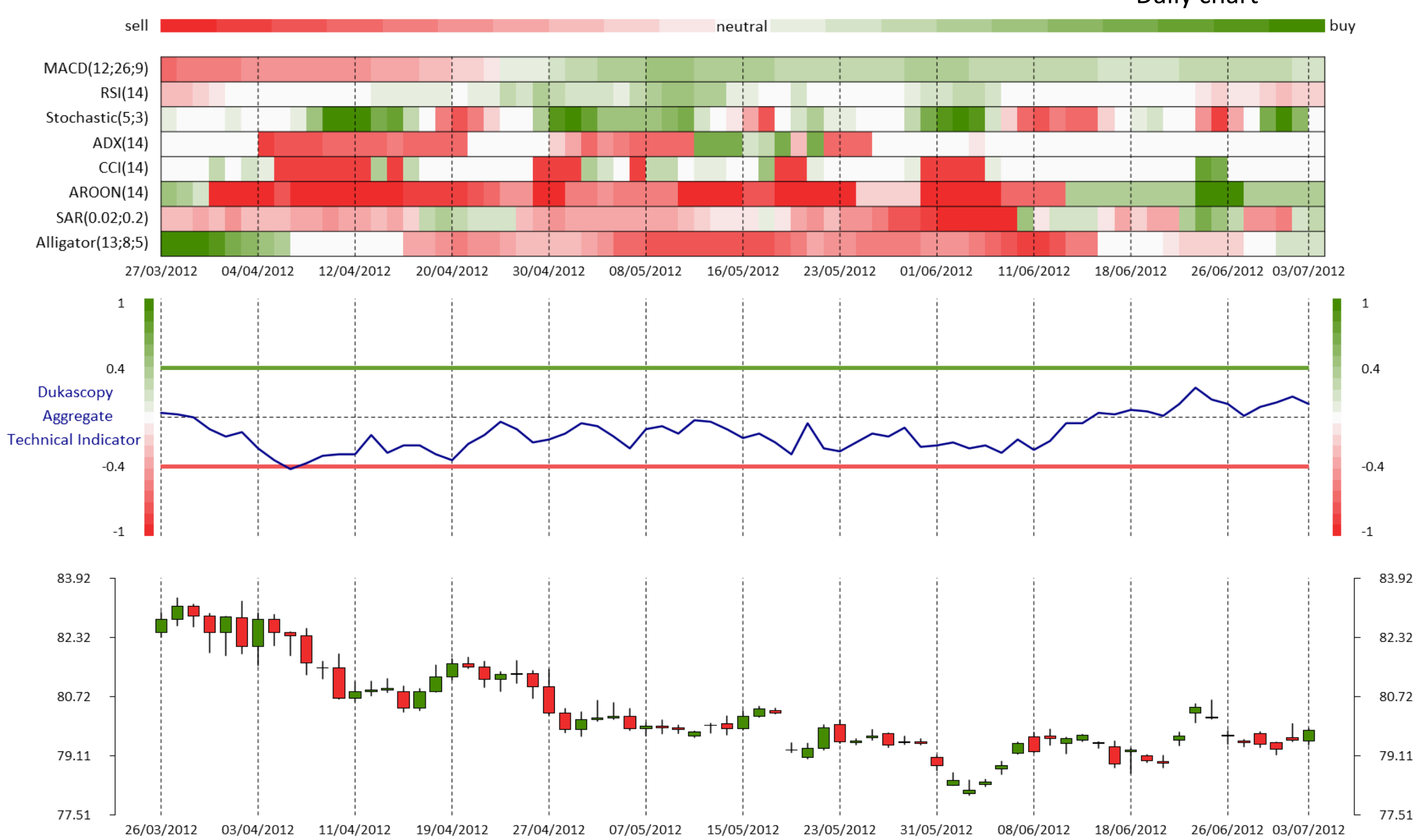
USD/CHF

Daily chart



USD/JPY

Daily chart



ECONOMIC RESEARCH

Commodity currencies: Norwegian Krone

The Dukascopy Bank research department presents the final part of its research on commodity currencies. In the current issue we consider commodity sectors' influence on Norwegian krone exchange rates. Norway is the second largest non-OPEC oil exporter, and energy products make up more than 50% of its exports. It gives us an opportunity to establish whether the exports' share can be named as one of the relationship-defining factors.

Considering this new idea and the conclusions we have drawn from our previous research, we will examine the following questions:

1. How strong is the link between the Norwegian krone and commodities?
2. Which commodity sectors have the most influence on the exchange rates?
3. What is the relationship now?

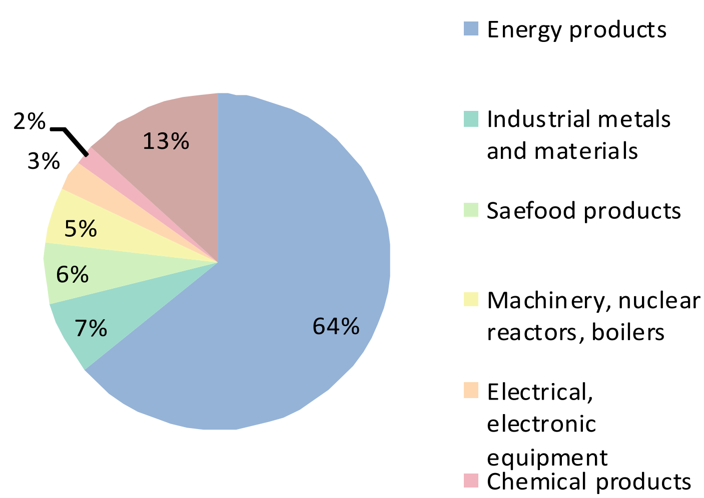
Methodology

We use rolling correlation as an index of relationship and apply the method to asset returns.

Correlation is a measure of how similar the performances of two datasets are. It is expressed by a correlation coefficient that can vary from -1 to 1, with -1 being a perfectly opposite movement and 1 – a perfectly unidirectional one. Commonly absolute values of 0.3 and below are considered insignificant and do not indicate a relationship.

To compare results of the current research with those previously, we use the same indices to represent commodity sectors. Namely, S&P GSEN (Energy), S&P GSIN (Industrial Metals), S&P GSAG (Agriculture), and S&P GSPM (Precious Metals). The time frame also is the same – from 2000 to 2011. The currency pairs chosen for analysis are NOK/USD, NOK/EUR, NOK/JPY, NOK/CAD, NOK/CHF, and NOK/AUD. More detailed information can be found in the appendix.

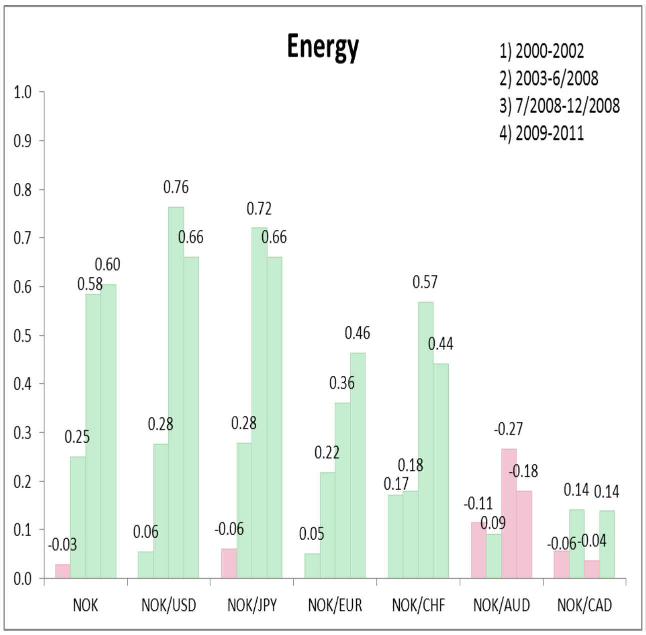
Figure 1. Norway's 2010 export by product

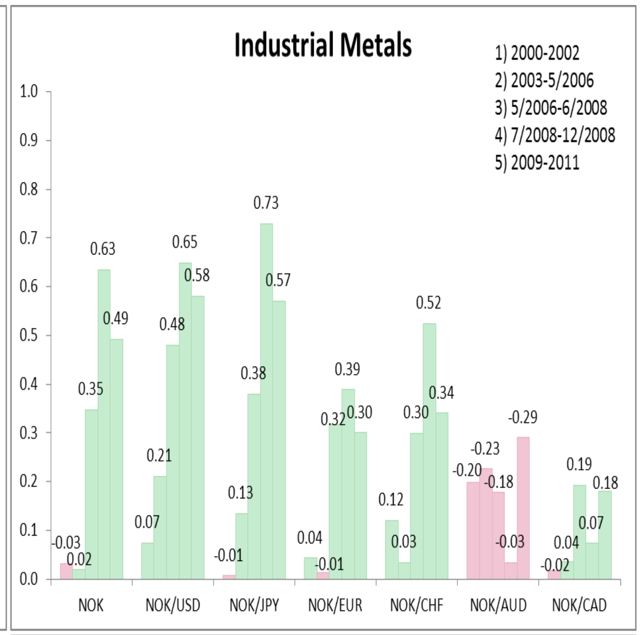


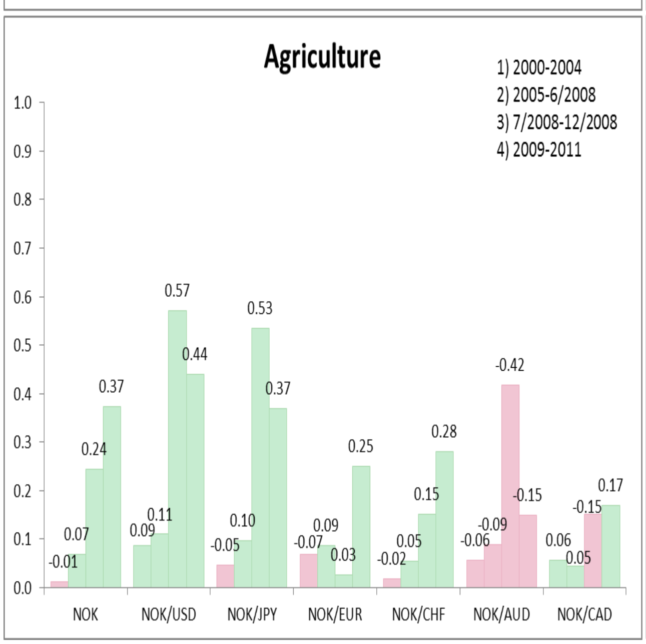
Findings

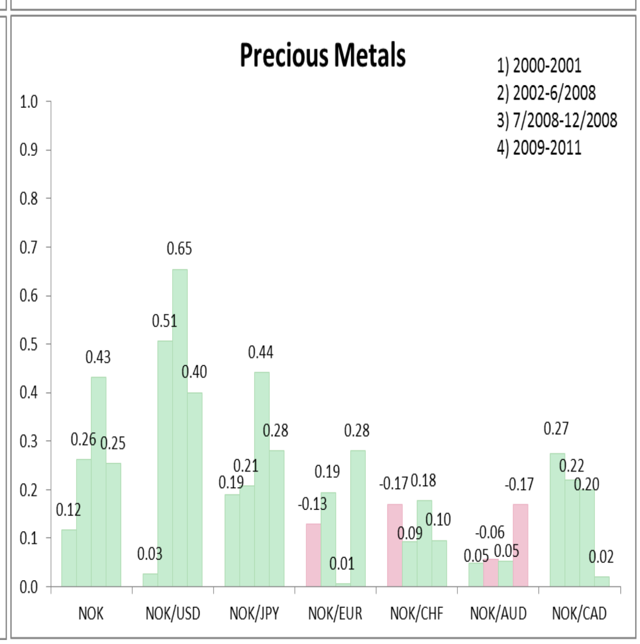
<u>First finding:</u> commodities' relationship with NOK is weaker than with the Australian dollar, but stronger than with the Canadian.

In the last periods, the averaged NOK returns' correlations with commodities were above or near to significance level. The values are notably greater than the ones of CAD, which were often close to zero and had more dramatic drops. The AUD correlations prevail over the NOK in both values and stability. It is especially clear in the results for the Industrial Metals and the Agriculture sectors. NOK correlations with Energy, however, are on the same level as AUD-Energy, and even higher in the period pre-2008.









Separate NOK currency pairs, similar to CAD and AUD ones, have different levels of correlation with commodities. As in previous cases, we divide them into three groups based on the strength of the relationship in the latest periods.

NOK/USD and NOK/JPY form the first group with 50% of Energy and Industrial Metals correlations above 0.6. Most of the pairs' correlations with Agriculture and Precious Metals for that time are at the significance level. As pairs with the same counter currencies made up the first group in CAD and AUD researches as well, these results can also be compared. Agriculture correlations are at the same level for all three currencies. Norwegian results with Industrial and Precious Metals are better than those of CAD, as they were for averaged returns. The same values compared with the Australian have higher peaks, but lose on stability. It is notable that the Norwegian group's correlations with Energy are higher than both Canadian and Australian correlations.

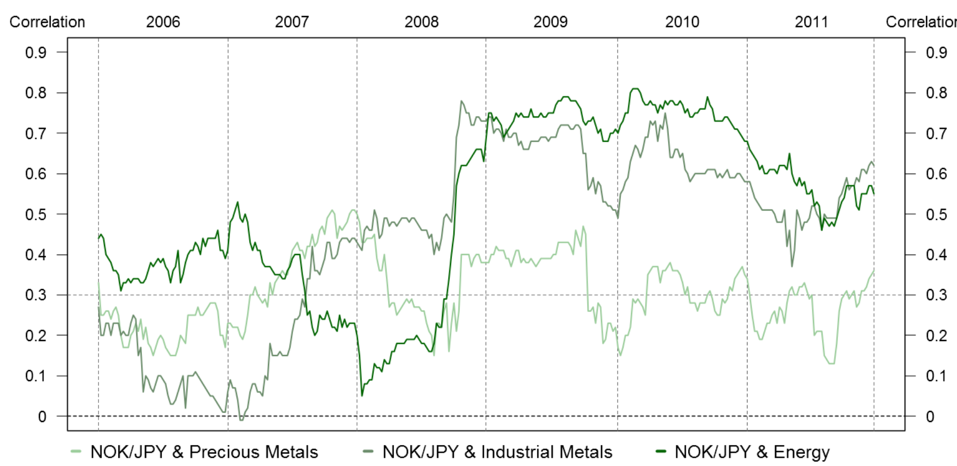
The second group is formed by NOK/EUR and NOK/CHF. These pairs have significant average correlations with the Energy and the Industrial Metals' sectors and values below 0.3 with Agriculture and Precious Metals. Compared with the same group of the Australian dollar, results for the first two commodity sectors are slightly less, but generally at the same level. The Canadian dollar against both European currencies gave mainly insignificant correlation values.

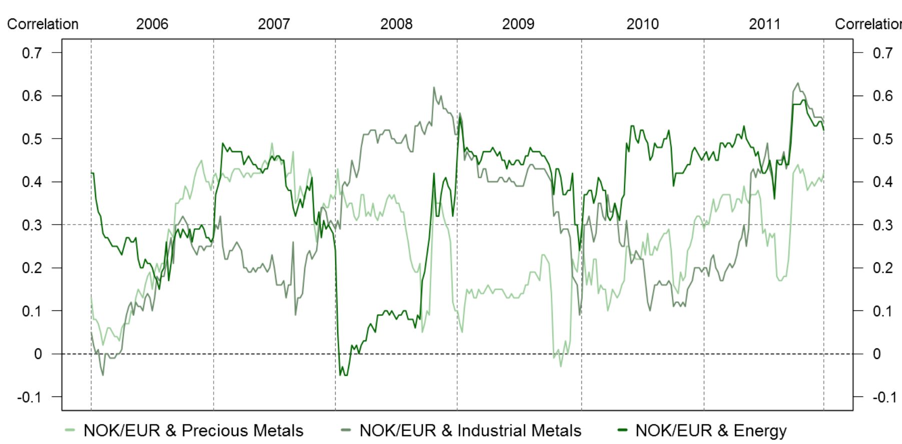
Correlations with absolute values below 0.3 are the main characteristic of the third group. It contains NOK/AUD and NOK/CAD – pairs with the Norwegian krone put against two other commodity currencies. NOK/CAD correlations with commodities are mostly insignificantly positive, indicating that the link with the Norwegian krone might be either slightly stronger, or generally at the same level as with the Canadian dollar. Correlations of NOK/AUD, on the other hand, are negative, which suggests that the Australian dollar's relationship with commodities might be stronger. In the case of Industrial Metals, many values are below -0.2 and close to significance level, but 50% of values for the last period are below -0.31.

<u>Second finding:</u> the Energy and the Industrial Metals' sectors give the best correlations with NOK exchange rates.

In the time period from 2006 to mid-2008, the correlation ranking was changing. Precious Metals had a strong link with the pairs of both groups in mid-2000s. However, the relationship weakened later in the decade, and Energy and Industrial Metals' results became leaders for all assets. The Energy sector's correlations dominated until late 2007, when the values dropped to zero in three months. Correlations with Industrial Metals were on an uptrend at the time and passed the significance level when Energy correlations crossed below it. By November 2008 Industrial Metals correlations surpassed all the others and reached the all-time highest values of 0.8 for the first group and 0.6 for the second.

The peaks for Energy correlations followed a month later, with 0.75 for NOK/USD and NOK/JPY, and 0.6 for NOK/EUR and NOK/CHF. As Industrial Metals correlations were already going down from their maxima, ones with the Energy sector took the lead. For the next two and a half yeas Energy correlations remained above 0.6 for the first group and moved in a 0.3-0.55 tunnel for the second. Differences between the groups occurred in the final months of 2011. After catching up with the leader in mid-2011, Industrial Metals correlations with NOK/USD and NOK/JPY got ahead of the Energy sectors', leaving it 0.1 point behind at the 0.5-0.6 level.



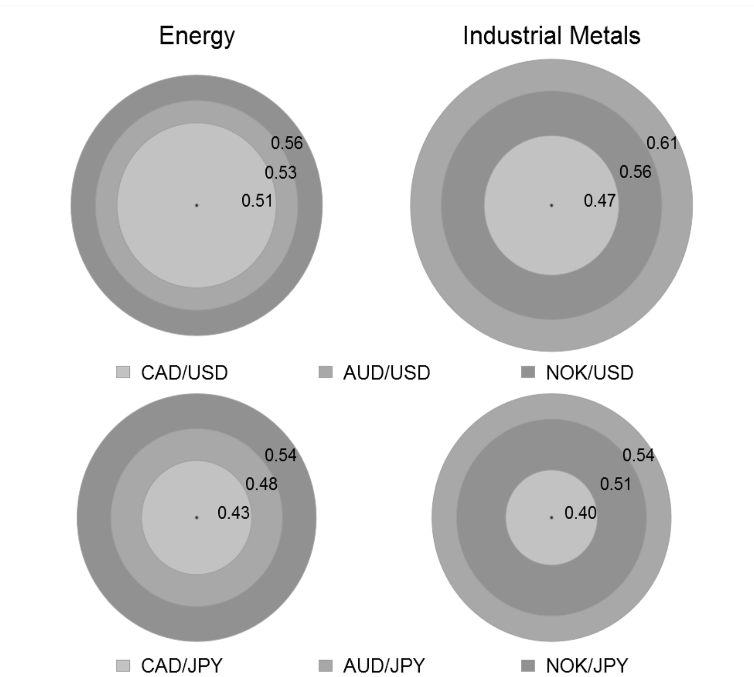


As for the second group, NOK/EUR finished the year with both correlations at about 0.55, but NOK/CHF-Industry Metals dropped severely. It resulted in the pair's Industrial Metals correlations resting below 0.4, when NOK/CHF-Energy passed 0.5, remaining the highest.

Before 2006 correlations were mostly insignificant, with only occasional short-term outbursts. With that, the ranking in earlier periods is irrelevant.

The averaged NOK returns' correlations show the same pattern of rearrangements. NOK-Industrial Metals dominated in 2008, reaching its highest value of 0.73 in December.

NOK exchange rates' correlations with the Energy sector are higher compared to other commodity currencies.



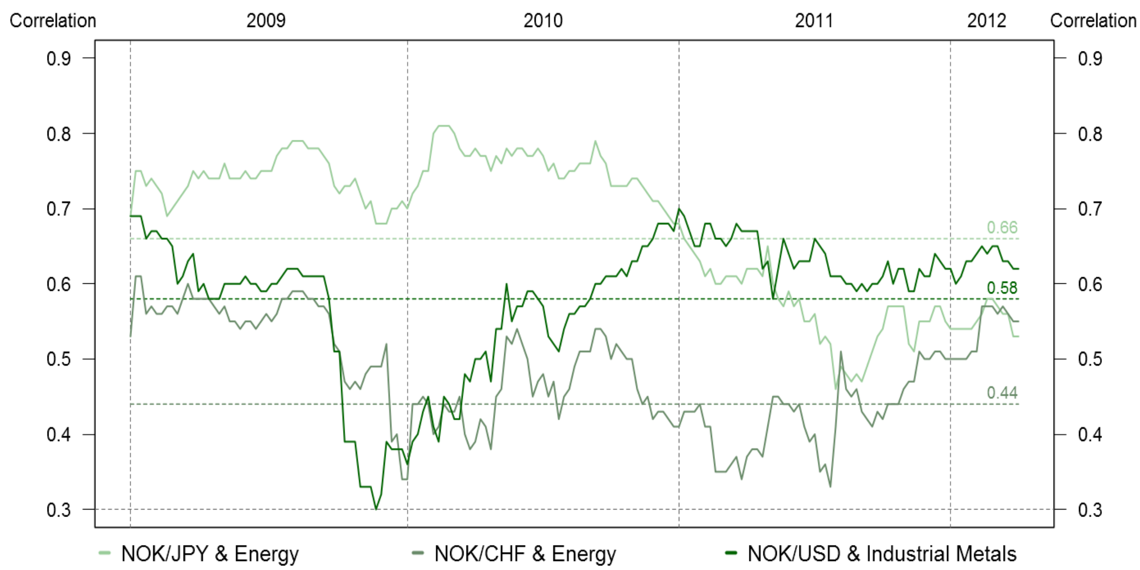
In our first finding we have established that NOK correlations are generally ranked between AUD and CAD ones. However, its results with Energy tend to surpass the ones of both other currencies. Figure 4 shows that, while Industrial Metals have higher correlations with AUD/USD and AUD/JPY, the same quote currencies give better Energy results when put against the Norwegian krone. Correlations of averaged returns are ordered likewise, indicating that it might be a general characteristic of the currencies.

This also might be the answer for whether exports' share can influence correlation with commodities. We did not see any convincing differences between NOKs correlations with Energy and Industrial Metals. But the sectors themselves are tightly linked, so the values cannot vary greatly. Therefore it is possible that the effect occurs only in relative values, contributing to the ranking among commodity currencies.

<u>Third finding:</u> In the beginning of 2012 the best correlations for Norwegian krone are stably over 0.5.

Such high positive values indicate that the currency pairs are currently in a period of rather strong direct relation to the commodity sectors. It is notable that in 2012 the values are above 2009-2011 averages.

The NOK/EUR correlation with Industrial Metals may be pointed out as the most remarkable in this respect. In the last month it remained at 0.52, which is 0.22 points above its previous average.



NOK/EUR and NOK/CHF Energy correlations are second-best in terms of improvement. Their values of 0.53-0.56 are about 0.15 points greater than the average. The latest results for the pairs of the first group and Industrial Metals do not exceed the averages that much, but are on a generally high level at 0.6. There are, however, two combinations that do not follow the trend of a strengthening currency-commodity link. Correlations of NOK/USD-Energy and NOK/JPY-Energy are around 0.56 – high, but 0.1 point below the last period's average.

Conclusion

At the moment there are five currency pairs – commodity combinations that have a stably strong relationship since 2011:

Rank	Currency Pair	Commodity Sector	Correlation	Performance
1	NOK/USD	Industrial Metals	0.62	commodity ↗, pair ↗, NOK strengthening commodity ↘, pair ↘, NOK weakening
2	NOK/JPY	Industrial Metals	0.6	commodity ↗, pair ↗, NOK strengthening commodity ↘, pair ↘, NOK weakening
3	NOK/CHF	Energy	0.55	commodity ↗, pair ↗, NOK strengthening commodity ↘, pair ↘, NOK weakening
4	NOK/USD	Energy	0.54	commodity ↗, pair ↗, NOK strengthening commodity ↘, pair ↘, NOK weakening
5	NOK/JPY	Energy	0.53	commodity ↗, pair ↗, NOK strengthening commodity ↘, pair ↘, NOK weakening

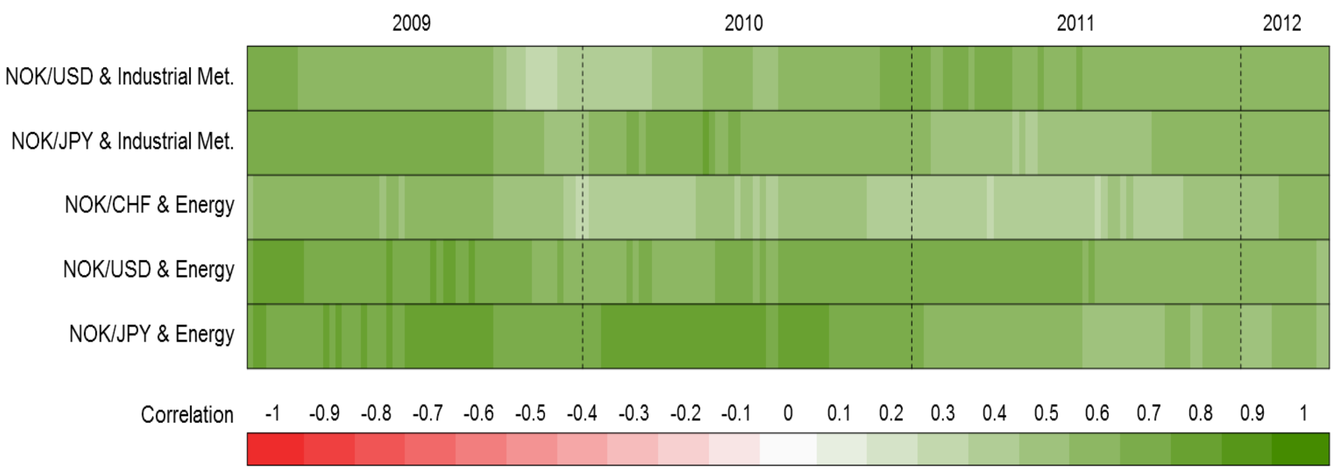
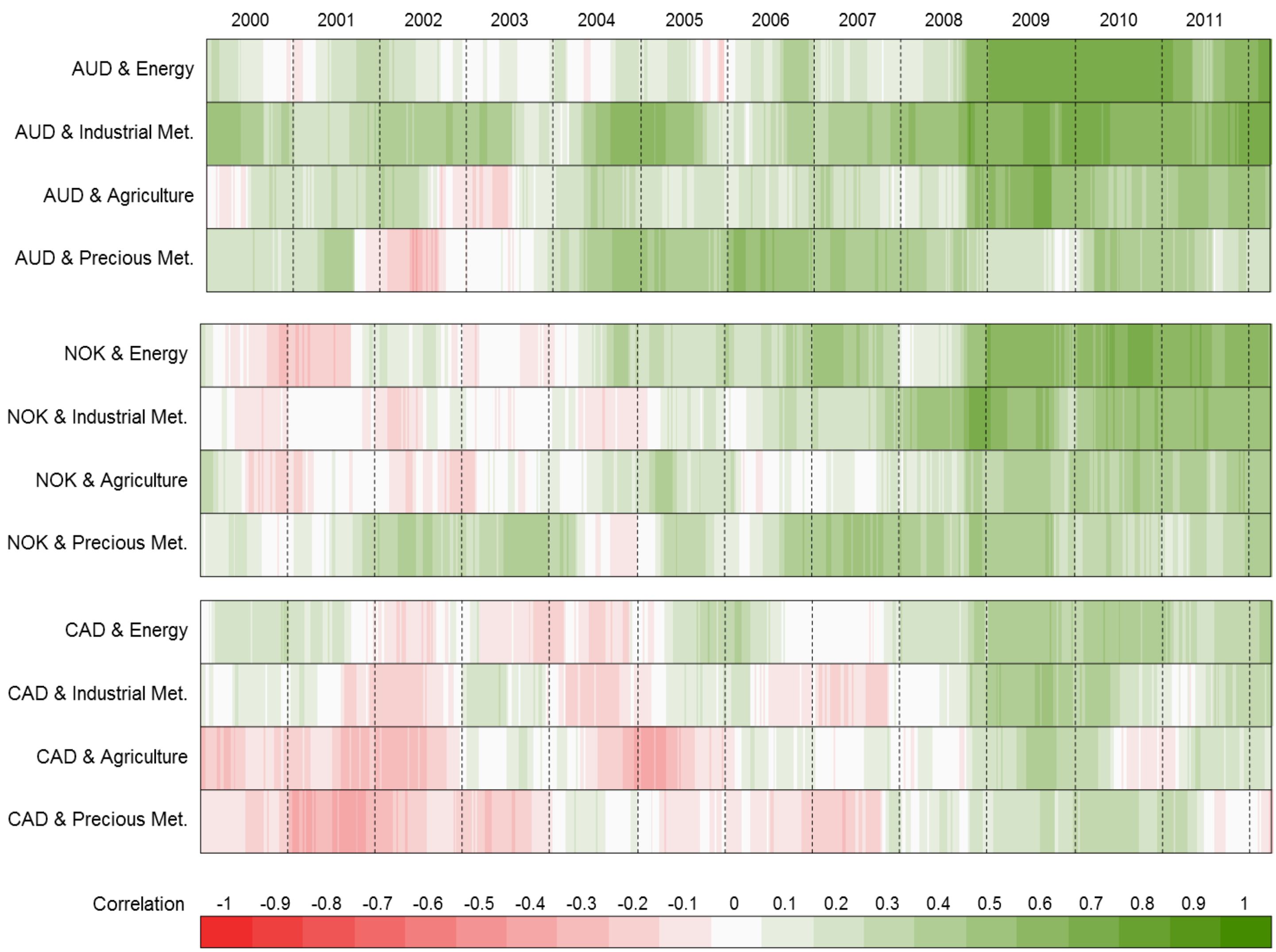


Figure 6. Top pair - commodity correlations by March 2012

Changes in price on Industrial Metals are significant for NOK/USD and NOK/JPY. The energy sector might be considered in trading NOK/USD, NOK/JPY, and NOK/CHF. However, the relationship is changeable, and traders should follow global market tendencies to estimate the link.

The aim of this research was to establish whether there is a link between commodities and so-called commodity currencies. We have examined three currencies and concluded that each of them is to some degree related to certain commodity sectors. The strength of the link changes in time, and currently all currencies are in a period of close relationship with commodities. The most impacted currency is the Australian dollar. The Norwegian krone is second-best. The weakest but still mostly significant relationship is between commodities and the Canadian dollar.

Figure 7. **2000-2012 commodities correlations with the averaged AUD, NOK, and CAD returns:**

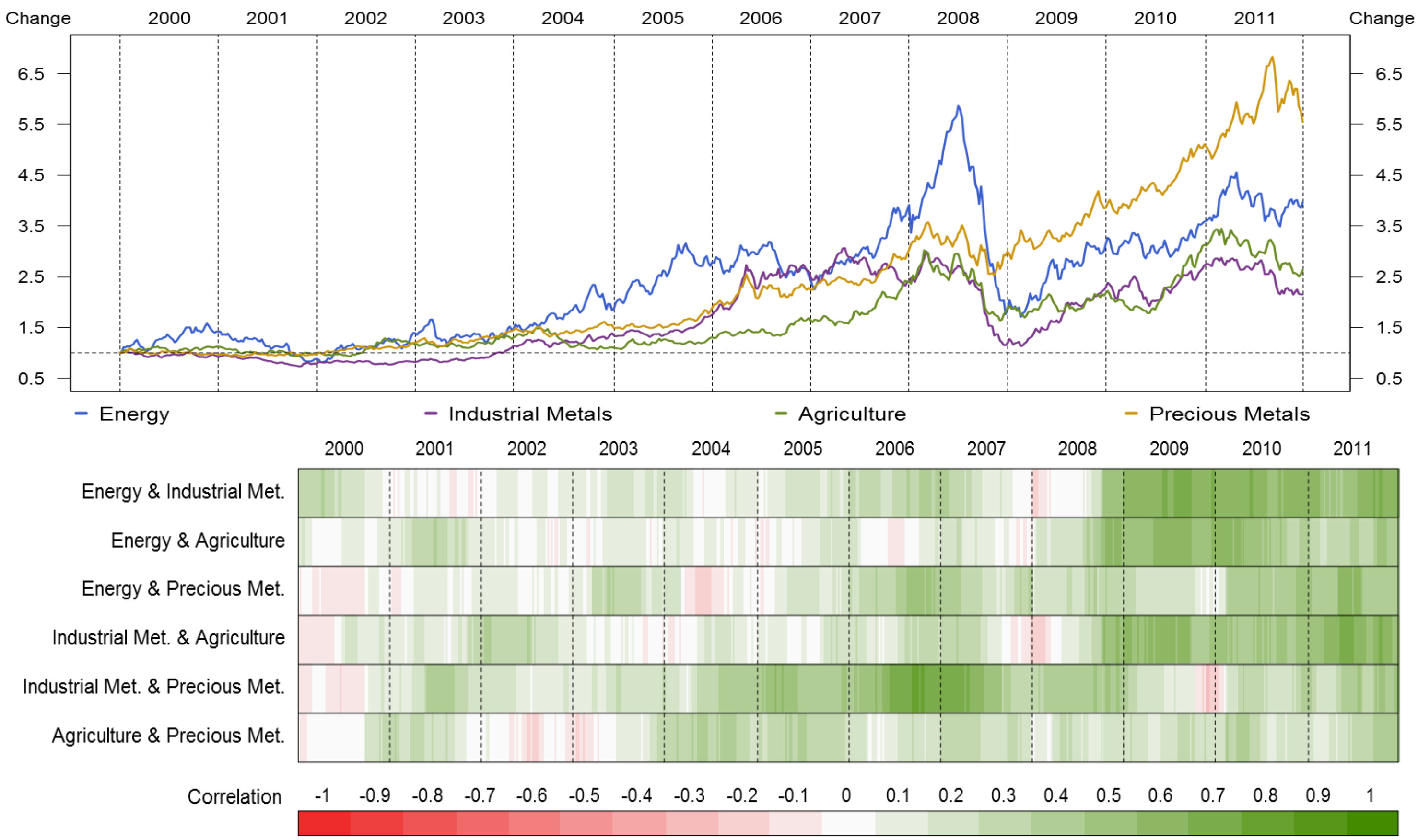


Appendix

Spot sub-indices of Standard & Poor's Global Industry Classification Standard:

- S&P GSEN (Energy) – Crude Oil, Brent Crude, Unleaded Gasoline, Heating Oil, Gas Oil, Natural Gas
- S&P GSIN (Industrial Metals) – Aluminum, Copper, Lead, Nickel, Zinc
- S&P GSAG (Agriculture) – Wheat, Kansas Wheat, Corn, Soybeans, Cotton, Sugar, Coffee, Cocoa, Biofuel
- S&P GSPM (Precious Metals) - Gold, Silver

2000-2011 performance and correlation between commodity sectors:



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