The impact of unexpected oil-price changes and of large changes in the euro-dollar exchange rate on confidence

Presentation by Staffan LINDÉN
Directorate of Economic Studies and Research

EU Workshop on Recent Developments in BCS
20 – 21 November 2006, Brussels
Introduction

• In the past couple of years, two topics have been a major concern for forecasters.
  – Adjustments on the foreign exchange markets ($/€)
  – The increase in oil prices
• Exchange rates and the price of oil, are part of the key assumptions that underlie the Commission forecast.
• Confidence indicators are commonly used to explain both the outlook and the past developments.
• Potential impact on forecast modelling
Theoretical affects of large changes in the euro-dollar exchange rate

- Euro appreciation
  - Dampens inflationary pressure and reduce the price of imported goods
  - Reduces competitiveness of exporting firms and firms that face foreign competition on home market.

- Consequences for consumers
  - Imported goods and travelling abroad cheaper: direct income effect
  - Higher risk of unemployment: indirect income effect

- Consequences for firms
  - Lower selling price in euros
  - Expected export orders should decline
  - Ultimately, production can decrease
Theoretical affects of an oil price shock

• Permanent oil price shock (increase)
  – Immediate change in terms of trade in favour of oil-exporting countries.
  – Later, oil revenues could partially be recycled back into the euro-area economy.
  – Consequences: output declines, prices increase, and confidence should worsen.

• Transitory oil price shock (increase)
  – There is still a terms of trade effect.
  – Consequences: smaller output losses, price increases.
  – Confidence: in general confidence should be less affected, but perceived and expected prices might increase.

• Influence domestic demand and output through investments and precautionary behaviour.
Survey Indicators tested

• Composite indicators
  – Industrial Confidence Indicator (ICI)
  – Services Confidence Indicator (SCI)
  – Consumer Confidence Indicator (CCI)
  – Construction Confidence Indicator (CoCI)
  – Retail trade Confidence Indicator (RCI)

• Individual questions for all sectors
Methodology

- An event study with four types of events
  - Extreme changes in the euro-dollar exchange rate
    - Extreme euro appreciations against the dollar, $/€ ↑
    - Extreme euro depreciations against the dollar, $/€ ↓
  - Unexpected changes in the oil price
    - Positive expectation gap, p < exp
    - Negative expectation gap, p > exp
- The procedure tests for statistical significance of large changes in the euro-dollar exchange rate or of oil expectation gaps on above average changes in the confidence indicator.
Definition of euro-dollar events

- Selection of event dates are based on monthly or quarterly rates of change in the euro-dollar exchange rate
- Extreme appreciations
  - Months or quarters where the exchange rate has increased by more than 3 %.
- Extreme depreciations
  - Months or quarters where the exchange rate has decreased by more than 3 %.
Definition of oil price events

• Selection of event dates are based on monthly relative deviations of oil-price forecasts from the realised price (consensus forecasts).

• Positive expectation gap, p < exp
  – Months or quarters where the oil prices are 6 % or more below the expected price.

• Negative expectation gap, p > exp
  – Months or quarters where the oil prices are 6 % or more above the expected price.
### Descriptive statistics of FX events

<table>
<thead>
<tr>
<th></th>
<th>Monthly change in $/€-rate</th>
<th>Quarterly change in $/€-rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depreciation</td>
<td>Appreciation</td>
</tr>
<tr>
<td>Max change</td>
<td>-11.8 %</td>
<td>8.7 %</td>
</tr>
<tr>
<td>Average change</td>
<td>-4.6 %</td>
<td>4.7 %</td>
</tr>
<tr>
<td>Min change</td>
<td>-3.0 %</td>
<td>3.0 %</td>
</tr>
<tr>
<td>No. of events</td>
<td>49</td>
<td>48</td>
</tr>
</tbody>
</table>
## Descriptive statistics of oil price events

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<tr>
<th></th>
<th>Monthly oil price events</th>
<th>Quarterly oil price events</th>
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<tbody>
<tr>
<td></td>
<td>Oil P &lt; Exp</td>
<td>Oil P &gt; Exp</td>
</tr>
<tr>
<td>Maximum gap</td>
<td>-21.5 %</td>
<td>35.7 %</td>
</tr>
<tr>
<td>Average gap</td>
<td>-10.6 %</td>
<td>13.9 %</td>
</tr>
<tr>
<td>Minimum gap</td>
<td>-6.2 %</td>
<td>6.0 %</td>
</tr>
<tr>
<td>No. of events</td>
<td>39</td>
<td>63</td>
</tr>
</tbody>
</table>
• Abnormal change = change in indicator – expected change
• Expected change = the average change 12 months before event window
Procedure – 2

- Estimation window: 12 months
- Event window: 2 months

First event

Last event

Time
Procedure – 3

- The abnormal changes are stacked
- The average abnormal change is calculated across events
- Test for significance
General results – Euro-dollar events

• Almost no abnormal changes in the event-months or the event quarters are significant.
• The effect appears in the following month or quarter (event date 1).
• This is in accordance with the timing of the surveys.
  – Surveys are conducted during the first 2-3 weeks of the month.
  – On average respondents have 7-10 days of FX information.
FX Results – Composite Indicators

ICI - Industrial Confidence Indicator
SCI - Services Confidence Indicator
CCI - Consumer Confidence Indicator
CoCI - Construction Confidence Indicator
RCI - Retail trade Confidence Indicator

Stars represent the significance level
*** = 1%, ** = 5%, * = 10%

Depreciation Appreciation

European Commission 2006
FX Results – Consumer Survey

CCI - Consumer Confidence Indicator
Q2 Expected Financial Position of Households
Q4 Expected Economic Situation in the Country
Q5 Consumer Price Developments - past 12 months
Q6 Consumer Price Developments - next 12 months
Q7 Expected Unemployment
Q11 Likelihood of Saving Any Money - next 12 months

Stars represent the significance level
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Depreciation  Appreciation

European Commission 2006
ICI - Industrial Confidence Indicator

Q1 Past Production

Q2 Current Overall Order Books

Q3 Current Export Order Books

Q4 Current Stocks of Finished Products

Q5 Expected Production

Q6 Expected Selling Price

Q7 Expected Total Employment

Stars represent the significance level
*** = 1%, ** = 5%, * = 10%

Depreciation
Appreciation

European Commission 2006
FX Results – Industry Survey

Q12 Expected Export Orders

Q14 Competitive Position - domestic market

Q15 Competitive Position - foreign markets inside EU

Q16 Competitive Position - foreign market outside EU

Stars represent the significance level

*** = 1%  ** = 5%  * = 10%

European Commission 2006
General results – oil price events

• Very few survey questions show any impact caused by the expectation gaps in oil prices.
• When there is an abnormal change, the impact occurs in the event-month or event-quarter (event date 0)
• This is in accordance with the coincident timing of the surveys and the events.
• Very little or no impact when oil prices are less than expected.
Oil Results – Composite Indicators

ICI - Industrial Confidence Indicator
SCI - Services Confidence Indicator
CCI - Consumer Confidence Indicator
CoCI - Construction Confidence Indicator
RCI - Retail trade Confidence Indicator

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\[ P < \text{Exp} \quad \text{P > Exp} \]
Oil Results – Consumer Survey

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P < Exp  P > Exp

European Commission 2006
Oil Results – Industry Survey

ICI - Industrial Confidence Indicator

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European Commission 2006
Possible explanations to a counter intuitive result

• The events ($p > \text{Exp}$) are correlated with the business cycle.
• Oil revenues are recycled back into the euro area economy.
• Euro area firms become more competitive on local markets.
  – Higher costs for transporting goods to the euro area.
• Euro area firms become more competitive on foreign markets.
  – More cost efficient in terms of energy use.
Oil Results – Industry Survey

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Conclusions – euro-dollar events

- Confidence indicators react to strong changes in the euro-dollar exchange rate.
- The reactions are asymmetric – mainly react to “bad” news.
- Consumer confidence declines when the euro depreciates.
- Industrial confidence decline when the euro appreciates.
- For individual questions the signs are as expected, but the effects are mainly significant when news are bad.
- Respondents seem to factor in the long-term effects.
Conclusions – oil price events

• The consumer survey
  – Confidence does not react significantly when oil prices differ from what is anticipated.
  – Inflation perceptions and expectations change in accordance with the “surprise” in the oil price.
  – The results imply that consumers think that higher than expected oil prices are transitory, with only a marginal effect on output.
Conclusions – oil price events

• The industry survey
  – No significant effects when oil prices are lower than expected.
  – Industrial confidence increase when oil prices are higher than expected.
  – The results are counterintuitive, but could be the result of ↑ transport costs or ↑ energy efficiency.
  – The selling price is expected to increase when oil prices are higher than expected.
  – The results are consistent in the sense that higher confidence is obtained in one type of event and lower in the other.