

Rich internet applications for the visualisation of statistics: the use of Flex 2 and SDMX-ML on the European Central Bank websites

Xavier Sosnowska

Rich Internet Applications (RIAs) have become increasingly popular today, with the success of various Internet applications such as Mail, Finances and Maps from Google and Yahoo, for example. As a hybrid between desktop and web-based applications, Rich Internet Applications aim at offering the best of both worlds: the rich user experience and responsiveness of desktop applications together with the low maintenance costs, platform independence and broad reach of internet applications. Several technologies are available for implementing RIAs, such as Ajax, Flash, SVG and Java. They all rely on an intermediary client engine, which will execute user actions on the user computer instead of on the server, thereby improving the responsiveness of the application.

The European Central Bank (ECB) uses RIA technologies in order to improve the visualisation and accessibility, and therefore the understanding, of statistics published on the ECB websites. Around mid-April 2007, new graphs were introduced for the euro foreign exchange reference rates¹ which are, by far, the most popular section on the ECB website with more than 175 million hits since January 2006. Daily rates are available in various formats, including HTML, SDMX-ML, CSV, PDF and WML.

When hovering over the graph for a selected currency, visitors will see the value of each data point together with the change over the last period, therefore improving the accessibility of the data. One of the most frequent requests concerning exchange rates on the ECB statistics hotline was for direct access to historical data, which now has been significantly improved with the introduction of the new graphs. Different periods of observation (last month, last 3 months, last year, etc) can also be selected. Those needing a finer level of control for selecting the period of interest can use the slider at the bottom of the graph. As all actions performed by the visitor (such as changing the selected period) happen on the visitor's computer, the application responds immediately, which enhances the overall user satisfaction and allows to increase the quantity of information extracted from the data.

In the initial version, the new features have been voluntarily limited in order not to overwhelm visitors and, therefore, incremental updates will be favoured. New versions of the graphs will be released on a regular basis, with one or two features being added with every release. Features planned so far are:

- Possibility to switch from EUR vs. Currency to Currency vs. EUR;
- Possibility to change the time-series frequencies.

¹ <http://www.ecb.int/stats/exchange/eurofxref/>

- Possibility to compare currency developments; and
- Add a data table to make it easier to download the data from the graph.

The ECB plans to use the same technology for the charting functionality of the ECB Statistical Data Warehouse², for the Eurosystem joint dissemination framework³, for the forthcoming Yield Curve to be published in July, and eventually for all charts that are published on the ECB websites. For the sake of efficiency, a more generic solution than the one developed for the exchange rates should be sought. A generic SDMX-ML browser is needed, which would offer an attractive visual representation of any SDMX-ML compliant data file. In cooperation with the OECD, work has now started on this project, which, when finished should offer the following features:

- Implementation of the SDMX information model, version 2;
- Possibility to fetch XML files from the web, from the user file system and from SDMX web services;
- Possibility to parse data files in the Compact, Generic and Structure formats;
- Possibility to filter data based on the dimensions;
- Possibility to visualise data as tables and charts.

The development that the OECD and ECB are undertaking based on the open source Flex technology and the SDMX ISO standard will be made available to the greater statistical community in order to facilitate the visualisation of statistics in rich dynamic graphical formats. Such an effort can also help to promote the employment of the SDMX standard to disseminate and share statistics which is an important initiative to provide consistency for statistics and resource efficiencies.

² <http://www.ecb.int/stats/services/sdw/html/index.en.html>

³ <http://www.ecb.int/stats/services/escb/html/index.en.html>