# Does central bank optimism move financial markets?

By Paul Hubert and Fabien Labondance

"Animal spirits", also called "errors of optimism and pessimism" or "sentiments", contribute to macroeconomic fluctuations, as has been pointed out by Pigou (1927) and Keynes (1936) and more recently by Angeletos and La'O (2013) [1]. Quantifying these kinds of unobservable concepts is crucial for understanding how economic agents form their expectations and arrive at decisions that in turn influence the economy. In a recent working paper, "Central Bank Sentiment and Policy Expectations", we examine this issue by analysing central bank communications and assessing their impact on expectations about interest rate markets.

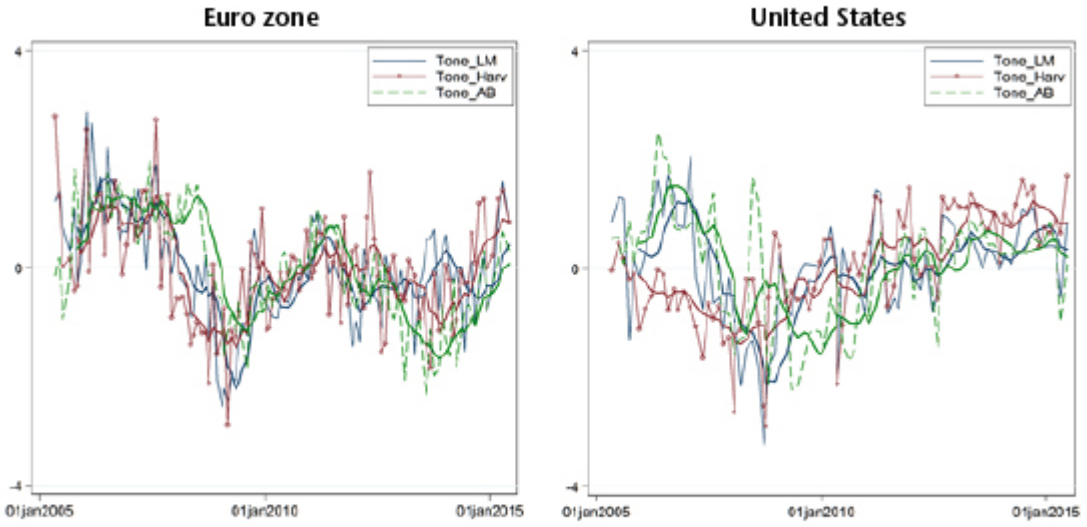
Our study aims to quantify the "sentiment" conveyed by central bank communications using the monetary policy statements of the European Central Bank (ECB) and the US Federal Reserve (Fed). We then test whether the optimism or pessimism transmitted in these statements affects the term structure of short-term interest rate expectations.

The main challenge is measuring a concept like the "sentiment" of a central bank, which is not very tangible. We first quantified the tone used by the ECB and the Fed in their monetary policy statements by using a computational linguistics approach based on three dictionaries of "positive" and "negative" words [2]. Note that the goal here is not to measure the orientation of the discourse (whether, for example, expansionary or restrictive) but rather to quantify the use of words with a positive or negative tone in order to measure the overall tonality of the speech, regardless of its ultimate message. Sentiment is thus conceived as a component that is independent of economic fundamentals and the monetary

policy decisions actually taken [3]. In other words, we look at whether the use of certain words rather than others, regardless of the message communicated, affects the financial markets.

Figure 1 shows changes in the tone of central bank statements, calculated on the basis of the three dictionaries, for the ECB and the Fed from 2005 to 2015. The tone is correlated with the economic cycle: the speech is more optimistic (positive tone) during periods of growth and more pessimistic (negative tone) during periods of recession. Using this measure of tonality, we can see the 2008-2009 recession in the euro zone and the US, as well as the sovereign debt crisis in the euro zone in 2012-2013. The tone adopted by central bankers seems therefore to be the product of a combination of the central banks' assessment of the current and future state of the economy and of the sentiment that they are conveying.

**Figure 1. Tone of central banker statements**



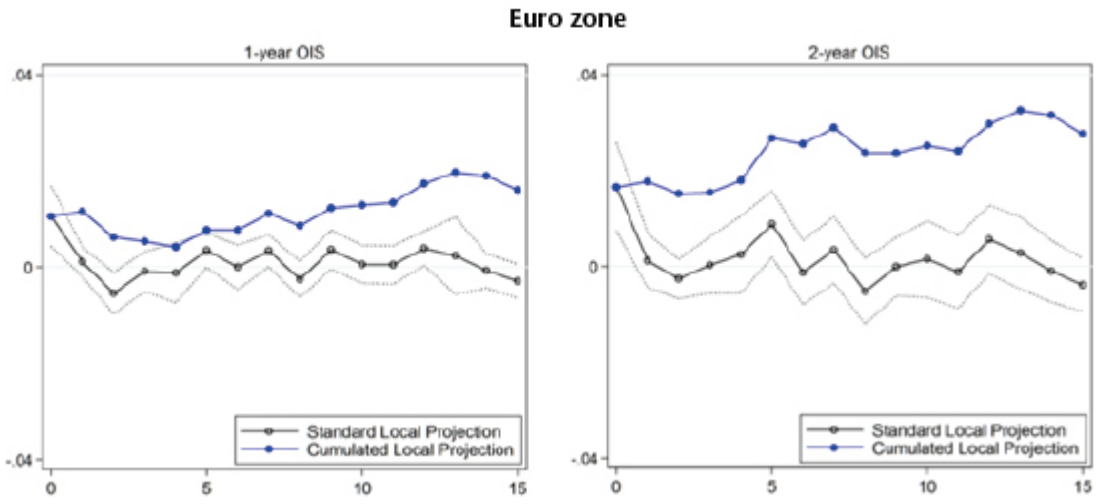

*Source:* The changes in tone were calculated using three dictionaries: Apel and Blix Grimaldi (2012 – AB); Loughran and McDonald (2011 – LM); and General Inquirer's Harvard IV-4 Psychosocial (Harv). The tone variables were normalized. The bold lines indicate the moving averages of the latest six statements on monetary policy.

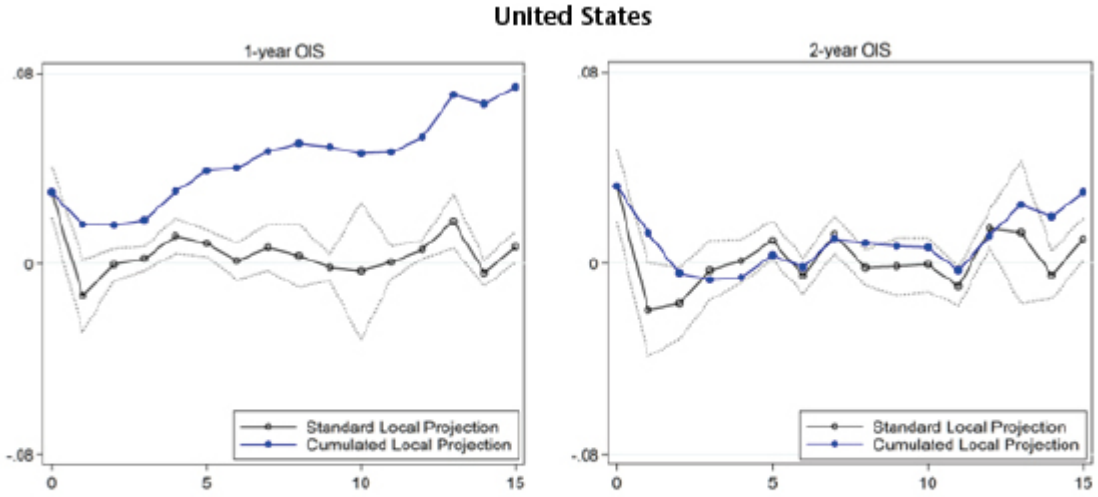
After isolating the "sentiment" component of the variables quantifying the tone, we measured the impact of this sentiment on changes in short-term interest rate expectations, as measured by interest rate swaps (OIS – Overnight Indexed Swaps) for maturities ranging from 1 month to 10 years. Since

this sentiment is communicated on the day of the monetary policy decision, we also checked that we are not measuring the effect of the decision itself.

Our results show that a discourse with a positive (i.e. optimistic) sentiment has a positive effect on interest rate expectations for maturities ranging from 3 months to 10 years in the euro zone and on maturities from 1 to 3 months and from 1 to 3 years in the United States. The peak effect is for maturities of around 1 to 2 years both in the euro zone and the United States. We also show that this effect is persistent and tends to grow over time (see Figure 2). We also find that the impact of the sentiment depends on the precision of the signal, its size and its sign (the effect of pessimism is stronger than that of optimism, for example), as well as on the level of inflation and growth.

**Figure 2. Effect of sentiment on interest rate expectations**






*Note*: Response function to a positive sentiment shock over 15 days using the methodology of Jorda (2005). The figure shows the estimated points, the 90% confidence interval and the cumulative effect.

*Source*: Jorda, Oscar (2005). "Estimation and Inference of Impulse Responses by Local Projections", American Economic Review, 95(1), 161-182.

These results show that market reactions are not due solely to the substance of the message but also to the way that it is expressed by the central bankers. Central bankers' sentiments influence the formation of interest rate expectations and seem to set the future prospects for rate policy. In a context where observers attentively scrutinize the slightest detail that might reveal the date when the Fed will once again raise rates, this study opens new avenues for research and suggests that it might be useful to test whether the sentiment conveyed in the last speech by Janet Yellen might be a good indicator.

[1] Angeletos, George-Marios, and Jennifer La'O (2013), "Sentiments", *Econometrica*, 81(2), 739-780 ; Keynes, John Maynard (1936), *General Theory of Employment, Interest and Money*, London, Palgrave Macmillan; and Pigou, Arthur Cecil (1927), *Industrial Fluctuations*, London, Palgrave MacMillan.

[2] We use three different dictionaries: one by Apel and Blix-Grimaldi (2012) that focuses on the communications of the central banks; one developed by Loughran and McDonald (2011) for a financial context; and the General Inquirer's Harvard dictionary, which lists positive and negative words used in everyday life. These dictionaries list words or phrases with

positive or negative connotations. The difference between the numbers of positive and negative words indicates the tone of the text: if there are more positive than negative expressions, the tone is optimistic, and vice versa. See Apel, Mikael and Marianna Blix-Grimaldi (2012), "The information content of central bank minutes", *Riksbank Research Paper Series*, no. 92; Loughran, Tim and Bill McDonald (2011), "When is a Liability not a Liability? Textual Analysis, Dictionaries, and 10-Ks", *Journal of Finance*, 66 (1), 35-65; and http://www.wjh.harvard.edu/~inquirer/.

[3] Cf. Angeletos and La'O (2013).

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# The official introduction of the euro in Lithuania: does it really make no difference?

Sandrine Levasseur

On 1 January 2015, Lithuania adopted the euro *officially*, becoming the 19th member of the euro zone. The adoption was in reality formal, as the euro was already (very) present in Lithuania. For example at the end of 2014, over 75% of loans to Lithuanian businesses and households were denominated in euros, as were 25% of bank deposits.

The use of the euro alongside Lithuania's national currency, as a currency for loans, a means of savings and for invoicing, is neither an anomaly nor simply an anecdote: this practice concerns or concerned a number of countries in the former communist bloc. "Euroization" [1] is the result of economic and political events that, at one time or another in these

countries' histories, have led them to use the euro in addition to their own currency. So given this context, will the official introduction of the euro in Lithuania really not change anything? Not exactly. Lithuania will see some changes, admittedly minor, as will the decision-making bodies of the ECB.

**The euroization of loans and deposits: the case of Lithuania, neither anomaly, nor anecdote …**

If we exclude the principalities, islands and States (Andorra, San Marino, the Vatican, etc.) that have negotiated the adoption of the euro with the European authorities but without joining the European Union together with the countries that have adopted the euro unilaterally (Kosovo and Montenegro), there is in addition a whole set of countries that use the euro alongside their own currency. These countries are mostly from Central and Eastern Europe, the Balkans or the Commonwealth of Independent States (CIS). For example, in 2009, before Estonia and Latvia officially joined the euro zone (in 2011 and 2013, respectively), lending by private agents in the three Baltic states was mainly denominated in the euro, reaching a level of almost 90% in Latvia (Figure 1). Countries such as Croatia, Romania, Bulgaria, Serbia and Macedonia were not far behind, with over 50% of their loans denominated in euros. The figures for deposits in euros are somewhat less striking (Figure 2), but still raise questions as to the attraction that the euro exerted in some countries as a payment or reserve currency or for precautionary savings.

Figure 1. Share of loans to the private sector denominated in euros (emerging Europe, 2009)

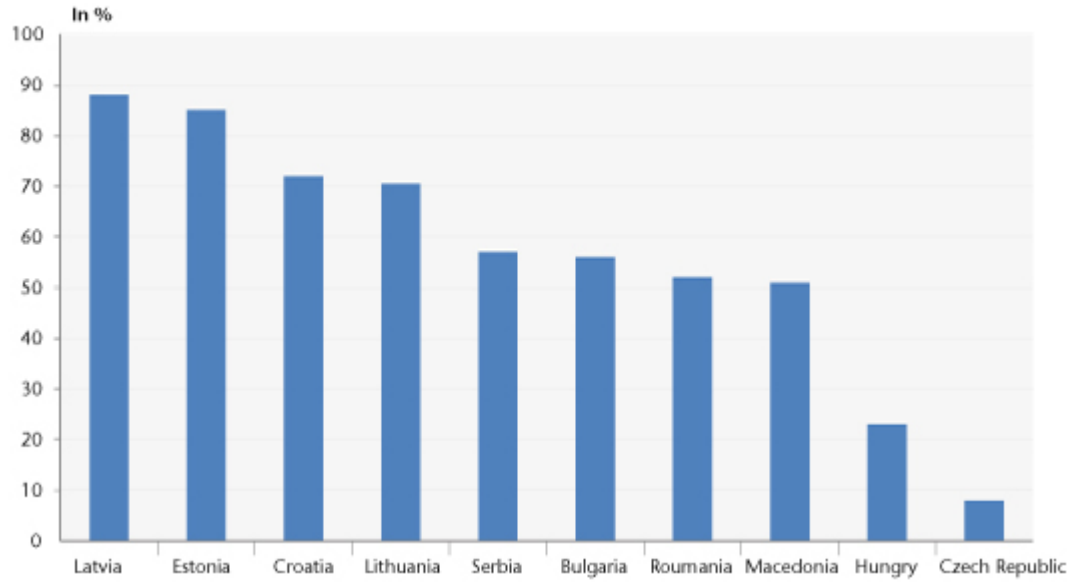
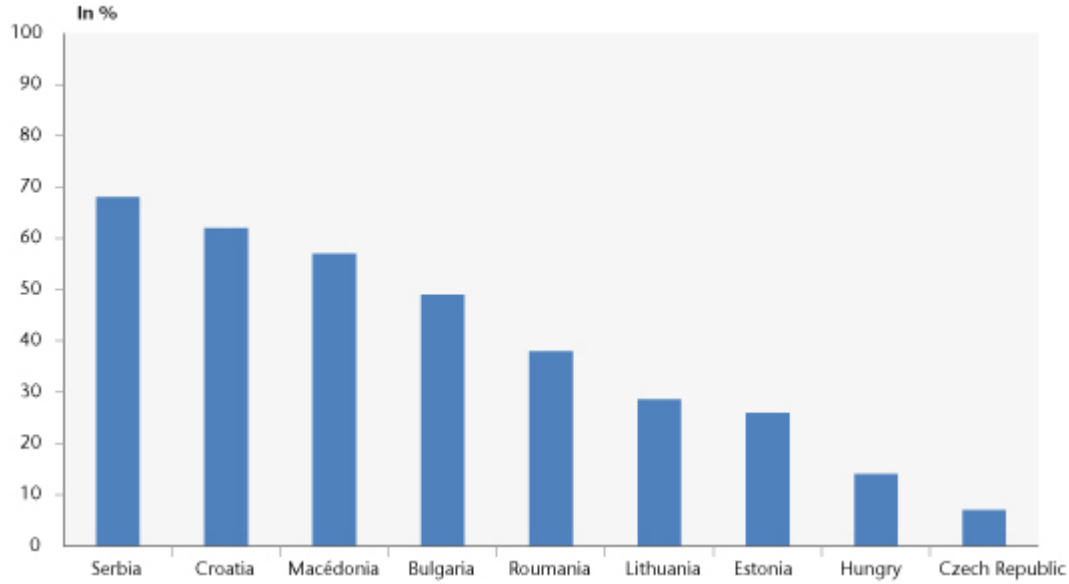



Figure 2. Share of private sector deposits in euros (emerging Europe, 2009)




There are a number of reasons why these countries have used the euro in addition to their own currency:

– **The existence of fixed** (or relatively fixed) **exchange rates** against the euro, which protects borrowers against the risk that their euro-denominated debt will grow heavier (since the likelihood of a devaluation / depreciation of the national currency is considered to be low);

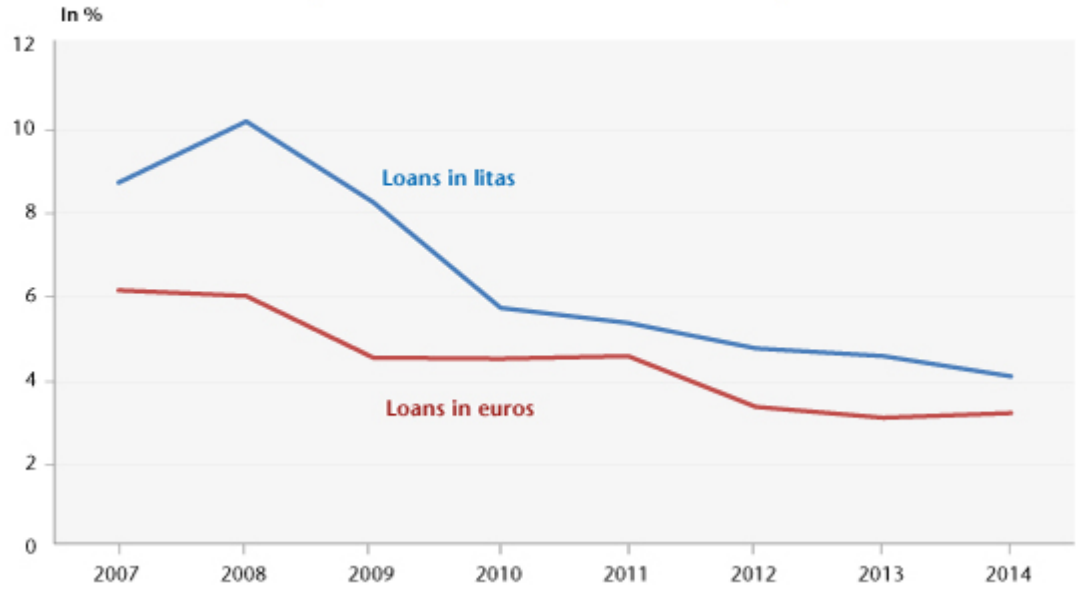
– **A lower interest rate on loans denominated in euros** than when the loans are denominated in the national currency;

– **A strong presence of multinational companies (particularly in the banking sector)** that have not only funds in euros but also the "technology" to lend / borrow in euros;

– For loans in euros, **the ex ante existence of bank deposits in euros**, which is itself linked to multiple factors (e.g. the credibility of the monetary authorities, a strong presence of multinationals, revenue from migration coming from countries in the euro zone) .

These factors have been present to a greater or lesser extent in the different countries. In Lithuania, the existence of a *Currency Board* [2] vis-à-vis the euro since 2002 has generally contributed to the economy's "euroization". This system of fixed exchange rates has enjoyed great credibility, prompting the country's businesses and consumers to borrow in euros, particularly since these benefited from very low interest rates (Figure 3). The presence of multinational companies in a number of sectors strengthened the use of the euro as a benchmark currency for different functions (billing, deposits and savings). The importance to Lithuania of banks from the euro zone should nevertheless not be overestimated: the three largest banks operating in Lithuania are from Sweden and Norway. The risk of loans in euros thus involves, beyond the risk associated with the value of the Lithuanian lita, a risk associated with the value of a third currency. … This risk will obviously not disappear with Lithuania's formal adoption of the euro.

Figure 3. Interest rates on loans to the private sector
(based on the denomination of the loan)




## What changed on 1 January 2015?

Four changes can be highlighted:

(1) The euro now circulates in Lithuania in the form of notes and coins, whereas previously it existed primarily in the form of bank money (bank deposits and euro-denominated loans); the euro is the legal tender and will be used for all transactions; and the lita will disappear after dual circulation for a fortnight.

(2) Changes to the price labels for goods will result in additional inflation, due to more frequent rounding off upwards rather than downwards. However, this phenomenon, which has been seen in all countries during the transition (official) to the euro, should have only a minor impact. Experience shows that in general perceived inflation is higher than actual inflation.

(3) Lithuania is adhering *de facto* to the banking union, which can provide benefits in the financial sector (e.g. opportunities for additional collaboration in a common monetary and banking space, existence of an orderly resolution mechanism in case a bank runs into difficulty).

(4) The Governor of Lithuania's Central Bank is now a member of the ECB Governing Council and therefore participates in decision-making on euro zone monetary policy, whereas previously, under its Currency Board system[3], Lithuania's Central Bank had no choice but to "follow" the decisions taken by the ECB in order to maintain parity with the euro. It could be argued that in any case Lithuania will not carry much weight in the ECB's choice of monetary policy due to the size of its economy. Note, however, that Lithuania's entry into the euro zone is bringing changes to the way decisions are made by the ECB Governing Council. The principle of "one country, one vote" that prevailed until now is being abandoned in accordance with the Treaties, due to the entry of a 19th member into the euro zone. Henceforth, the five "major" countries in the euro zone (defined by the weight of their GDP and their financial system) havenow four voting rights, while the other fourteen countries have eleven votes. The vote in each group is established according to a rotation principle, which displeases the Germans, but not just them. In practice, however, it is not certain that this change in the voting system will affect many decisions. For example, while the governor of Germany's central bank now has only 80% of its voting right, it still has 100% of its right to speak… Will not voting one month out of five really mean that it loses its power of persuasion?

On 1 January 2015, the official adoption of the euro by Lithuania was thus not at all amount to a Big Bang. However, it is very symbolic for Lithuania, further demonstrating how much it is anchored in both Europe and the euro zone. This shows once again that despite all the turmoil the zone has experienced, it still has its supporters. The most striking result of Lithuania's accession to the euro zone is probably the change in the ECB's system of voting rights: here too the symbolic meaning is heavy, as it sounds the death knell of the principle, "one country, one vote".

**For more on the issue of euroization, readers can see:**

Sandrine Levasseur (2004), Why not euroization ? *Revue de l'OFCE*, Special Issue "The New European Union Enlargement", April 2004.

**For more on the system of rotating voting rights in the ECB, see:**

Silvia Merler (2014), Lithuania changes the ECB's voting system, *Blog of Bruegel*, 25 July 2014.

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[1] Strictly speaking, euroization refers to the adoption of the euro as legal tender by a country without its being given permission by the issuing institution (i.e. the European Central Bank) or the decision-making authorities (i.e. the heads of State of the European Union member countries). Euroization is then said to be unilateral. It differs from the phenomenon discussed here, where the euro is used in conjunction with the national currency, but only the national currency constitutes legal tender.

[2] A currency board involves a system of fixed exchange rates in which the central bank simply converts foreign exchange inflows and outflows into the local currency at the pre-defined parity. A central bank that adopts this system gives up the tool of autonomous monetary policy: its role is reduced to that of a "cashier".

[3] See footnote 2.