

Box 13

ELASTICITY OF BANKS' INTEREST INCOME VIS-À-VIS RECENT CHANGES IN SHORT-TERM MARKET RATES

In the context of the current severe pressure on banks' earnings and solvency, a direct and immediate channel through which bank profitability may be strengthened is via the effect of recent changes in short-term money market rates on banks' net interest income. This box provides some estimates of the impact of recent declines in short-term money market interest rates (in part triggered by the monetary policy easing by the ECB) on banks' net interest income from loans and deposits.

The analysis is carried out in two steps. First, country-specific error-correction regressions of the change in the average interest rate paid on outstanding loans and deposits respectively, on changes in the three-month EURIBOR are conducted.¹ In particular, the following error correction model is estimated:

$$\Delta BR_t = \alpha + \sum_{i=0}^n \beta_i \Delta MR_{t-i} + \gamma(BR_{t-1} + \theta MR_{t-1})$$

where BR_t is the composite interest rate on either loans to or deposits from the non-financial private sector, MR_t is the three-month EURIBOR, Δ indicates the first difference and the optimal lag length n is determined by a Bayesian information criterion.

Second, the multipliers on the changes in the money market rate, β_i , from these regressions are related to changes in the three-month EURIBOR, which declined by 1.61 percentage points between December 2008 and 28 May 2009. Using the amounts of loans and deposits outstanding as of end-December 2008, it is possible to calculate the effect on the interest receivables (i.e. on loans) and interest payments (i.e. on deposits) of the euro area monetary financial institution (MFI) sector arising from the recent decline in short-term rates.²

The results of the first step of this exercise are shown in Table A. Generally, the multiplier coefficients of short-term money market rates are higher for deposit rates than for lending rates in countries where banks operate predominantly with long-term fixed rate loans (e.g. Belgium, Germany and France). The opposite is generally the case for countries with predominantly floating rate and short-term lending (i.e. most of the other countries), where lending rates seem to react more strongly to changes in short-term market rates. However, when deriving the effect on banks' net interest income (from loans and deposits) account also needs to be taken of the amounts outstanding of loans and deposits. In other words, the overall effect on interest income hinges on the extent to which the country's banking sector operates with a "funding gap"

1 The MFI lending and deposit rates are applied to outstanding amounts as reported in the MFI interest rate statistics.

2 This analysis is partial as it obviously disregards any changes to the amounts outstanding since end-December 2008.

Table A Interest rate multiplier, funding gap and interest rate payments of euro area banks

(Dec. 2008; EUR billions)

	Immediate multiplier on three-month EURIBOR		Funding gap	Interest receipts	Interest payments	Net interest income
	Loan rate	Deposit rate				
Sum	n.a.	n.a.	1,146	584	256	328
Mean	0.25	0.18	104	53	23	30
Median	0.22	0.19	74	21	10	15
Maximum	0.60	0.42	429	138	77	72
Minimum	0.05	0.06	-293	8	3	5
Standard deviation	0.17	0.11	217	48	23	27
Floating rate countries ¹⁾						
- sum	n.a.	n.a.	956	282	104	178
- mean	0.29	0.18	137	40	15	25
Fixed rate countries ²⁾						
- sum	n.a.	n.a.	190	302	152	150
- mean	0.17	0.19	47	76	38	37

Sources: ECB, Reuters and ECB calculations.

Note: The effect is derived using country-specific error-correction regressions of the change in the composite loan and deposit rates respectively, on the change in the three-month EURIBOR for the period from January 2003 to December 2008 (monthly data).

1) "Floating rate countries" include Ireland, Greece, Spain, Italy, Austria, Portugal and Finland. In this group of countries, the majority of new business loans are provided with floating rates and an initial rate fixation of up to one year.

2) "Fixed rate countries" include Belgium, Germany, France and the Netherlands. In this group of countries, a major proportion of new business loans (in particular to households for house purchase) are granted with initial rate fixation of over five years.

(in the sense of deposits being insufficient to finance lending). Indeed, the funding gap (as of end-December 2008) is sizeable in the majority of the euro area countries (see Table A).

All in all, focusing on the results regarding the decline in the three-month EURIBOR (the results for the EONIA, which are not reported, are similar), net interest income should generally be expected to fall in the euro area (see Table B). However, the total euro area effect is largely driven by countries where "floating rate" lending is predominant. Apart from the pure interest elasticity effect, this also reflects the comparatively large funding gap of the banking sector in most of these countries. For the group of countries where "fixed rate" lending is predominant, by

Table B Estimated changes in euro area MFIs' interest income on outstanding loans and deposits between 31 December 2008 and 28 May 2009

(EUR billions)

	Loans	Deposits	Net effect
Sum	-30.77	-22.18	-8.59
Mean	-2.80	-2.02	-0.78
Median	-1.64	-1.36	-0.39
Maximum	-0.42	-0.37	2.66
Minimum	-6.76	-8.43	-4.48
Standard deviation	2.25	2.29	1.97
Floating rate countries ¹⁾			
- sum	-18.41	-7.54	-10.87
- mean	-2.63	-1.08	-1.55
Fixed rate countries ²⁾			
- sum	-12.36	-14.64	2.28
- mean	-3.09	-3.66	0.57

Sources: ECB, Reuters and ECB calculations.

Note: The effect is estimated using the country-specific multipliers reported in Table A. In a second step, the multiplier is combined with the aggregate amounts outstanding of loans and deposits in the country to derive the overall effect of the recent decline in the three-month EURIBOR on the interest received on loans and the interest paid on deposits.

1), 2) See Table A.

contrast, the net effect turns out to be slightly positive (importantly, the funding gap is also much smaller, on average, in this group of countries). However, despite the expected declines, the net interest income on loans and deposits of the banking sector remains significantly positive in all euro area countries, as a result of both the still positive loan-deposit margins and the substantial funding gap (in most countries). Moreover, it needs to be kept in mind that the overall effect on banks' net interest income also hinges on the interest elasticity of banks' holdings of debt securities and their non-deposit funding sources. It is not unlikely that especially the latter is highly correlated with short-term market rates, which should somewhat mitigate the generally negative net effect on net interest income found to stem from the recent rate decline. At the same time, to the extent that euro area banks are currently trying to reduce their funding gap, the validity of the reported results may become more pertinent in the future.