A new indicator for the cost of borrowing in the euro area

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Abstract

In order to assess the effectiveness of the monetary policy pass-through across the euro area countries, it is necessary to use an accurate and comparable measure of the borrowing costs for firms and households in those countries. Cost-of-borrowing indicators can be used to accurately assess borrowing costs for non-financial corporations and households and to further enhance cross-country comparability. The construction of the new cost-of-borrowing indicators is based on Monetary Financial Institutions interest rate statistics, which are considered the most relevant source of information for bank lending rates in the euro area in particular due to their harmonised collection across countries. Four basic categories of lending rates per country are used in the calculations: short- and long-term lending rates to non-financial corporations and to households for house purchase, respectively. This paper will provide an assessment of the methodology employed in the calculation of the cost of borrowing indicators and an assessment of the results focusing on the use for policy purposes as well as the national evolution on different euro area countries.

Keywords: Monetary policy, Interest Rates, Cost of borrowing, non-financial corporations, households.

JEL classification: E400, E520, C190

Contents

Introduction

Monetary Financial Institutions interest rates (MIR) statistics cover all interest rates that credit institutions and some other MFIs resident in the euro area apply to euro-denominated deposits and loans vis-à-vis all households and non-financial corporations of any size that are resident in the participating EU Member States.[2] Euro area rates and volumes are calculated in terms of the so-called "changing composition", i.e. euro area aggregates are calculated on the basis of the countries forming part of the euro area at the time.

MIR statistics are collected, on a monthly basis, according to harmonised reporting requirements as from January 2003 for the initial 45 categories in Regulation ECB/2001/18 and as from June 2010 for additional 56 new breakdowns established in Regulation ECB/2009/7. Additionally, 16 new indicators will also be published as from January 2015 as established in Regulation ECB/2013/34. The new indicators will further expand the data set by including interest rate reset and renegotiations.

MFI interest rate (MIR) statistics enable a more complete assessment of the impact of monetary policy on the euro area economy. They facilitate the analysis of the transmission mechanism of monetary policy, in particular of the extent and the speed of the pass-through of official rates and market interest rates to lending and deposit rates faced by households and non-financial corporations.

In the aftermath of the financial crisis and as country-specific financing conditions have taken increased prominence in the analysis of euro area developments, the question of building a sound and reliable composite indicator for the cost of bank borrowing has been taking into consideration and brought to the forefront.

In this context, this note elaborates on the purpose of the cost of borrowing indicator and links it with the current aggregates using MIR, and presents some proposals for new indicators based on MIR statistics. In this respect, a new synthetic indicator reflecting the cost of borrowing has been defined by ensuring that these

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[2] The household sector also includes non-profit institutions serving households. Non-financial corporations include all enterprises excluding insurance companies, banks and other financial institutions.

indicators comply with the high output quality principles of ESCB statistics in terms of: i) relevance, ii) accuracy and reliability (including stability), iii) consistency and comparability, iv) timeliness and v) clarity.

This note first describes the MFI interest rate statistics data set; section two discusses the conceptual issues in respect of the cost of borrowing indicators, section three provides the context in which cost of borrowing indicators are defined, section four and section five describe how the cost of borrowing indicators are being constructed and section six provides an example on how to interpret the evolution of the cost of borrowing indicators to non-financial corporations and households over time.

Background data: MFI Interest rate statistics

In January 2003 the Eurosystem started compiling harmonised statistics on euro-denominated lending and deposits of national credit institutions vis-à-vis households and non-financial corporations. Work on the development of a steady-state approach started in summer 1999 with the aim of compiling a set of euro area interest rates on retail deposit and lending business that is harmonised, complete, detailed, and able to cope with financial innovation. To avoid invoking a potentially misleading contrast between 'retail' and 'wholesale' interest rates, expressions that can carry different meanings, the statistics developed under the steady-state approach are referred to as 'MFI interest rate statistics'.

MFI interest rate statistics 'provide an increasingly important source of information for the assessment of monetary policy transmission mechanism. The analysis derived from MFI interest rate statistics 'includes several aspects: a) studying the pass-through process from changes in official rates to lending and deposits of households (HHs) and non-financial corporations (NFCs); b) assessing the changes in the cost of capital influencing investment decisions; c) analysing cash-flow income effects resulting from changes in interest rates, with an impact on disposable income; d) structuring the cost of financing assumptions in the context of the macroeconomic projection exercise. MIR statistics are regularly used in a variety of publications and notes, inter alia the ECB Monthly Bulletin, Annual Report, and Financial Integration Report.

 While the currently available breakdowns in MIR are now very detailed, and hence increasingly valuable, economic analysis may also require the construction of synthetic indicators, which aim at using the information for other analyses as well as in the context of (regular or ad hoc) forecasting exercises. In particular, cost of borrowing indicators, as part of the overall cost of capital (or corporate funding), are intended to reflect the composite interest rates that are most relevant in the investment decisions taken by non-financial corporations (NFCs), the choice between current and future consumption made by households (HHs) and the cost spread between self-financing and use of credit by both NFCs and HHs.

The prices of certain financial services in the euro area countries can also give insights into the state of financial integration. For this purpose, composite indicators of the cost of borrowing for non-financial corporations, as well as for house purchases by households, are used.

Cost of borrowing context: National Bank lending rates dispersion

In the period following the onset of the Economic and Monetary Union (EMU), at the beginning of 1999, until the start of the current financial crisis, in September 2008 with the default of Lehman Brothers, the rates charged by euro area MFIs to households, mainly for new house purchases, and to non-financial corporations for new loans recorded a low level of dispersion. Even though a certain degree of heterogeneity in MFI interest rates still persisted, as a consequence of country differences of regulatory and fiscal frameworks, different degrees of competition between banks or differences in the economic cycle, among others factors, the level of integration of the financial markets as measured by converging MIR could be qualified as highly satisfactory.

This situation suddenly changed with the eruption of the financial crisis, which fragmented the financial markets of the euro area. This complicated very much the assessment of the monetary policy transmission mechanism, since whereas in some countries, the loose monetary policy adopted by the ECB during the crisis reflected, more or less, the expected correspondence in the bank credit growth to non-financial private sectors, in other countries, this variable recorded a much lower response compared to the foreseen results in periods prior to the crisis. These different effects depending on the countries, can be explained, on the one hand, because the standard pass-through models used before the crisis are not suitable equipped to explain the levels of heterogeneity in bank lending rates during the crisis; and, on the other hand, because the relative importance of loan instruments have changed with the crisis.

Regarding the standard pass-through models (i.e. models where policy interest rates and market interest rates are considered the most important determinants of retail bank lending rates) they have failed because they do not include risk factors and sovereign debt spread among the explanatory variables. These two kinds of variables have had a strong impact on bank lending rates in some countries. On the other hand, users require less volatile instruments than the broad range of MFI interest rates instruments categories for modelling and forecasting purposes.

With respect to the relative weight of the different loan instruments, the financial crisis has, logically, increased the relative weight of short term instruments which in a situation of growing uncertainty, cover better the credit and interest rate risks than the long term instruments. Regarding bank loans to non-financial corporations, there has been a significant increase in overdrafts and other short term loans in the countries more affected by the crisis compared to other countries less affected. Therefore, it is necessary to use an accurate and more cross-country comparable measure of the borrowing costs for non-financial companies and households.

The cost-of-borrowing indicators serve both purposes: they are based on MFI interest rates statistics and they allow for easier and less volatile arguments in modelling and a better comparison on the credit conditions among euro area countries with different structures of borrowing to households and non-financial corporations.

Computing cost of borrowing indicators

In order to assess the effectiveness of the pass-through across countries it is necessary to apply an accurate and consistent measure of the borrowing costs for firms and households across the euro area countries.

Four basic cost of borrowing rates are considered per each country: short and long-term lending rates both to non-financial corporations and to households for house purchase, respectively.

Long-term lending rates to non-financial corporations and short and long-term rates on loans to households for house purchase are obtained directly from the MFI interest rate statistics. In this respect, MFI interest rate statistics on short-term loans to non-financial corporations, which capture bank lending rates on loans with a rate fixation period of up to one year, only offer a partial view of firms' financing costs in some countries. That is because those statistics do not include interest rates on overdrafts, which are a major source of finance for firms in some large euro area economies (e.g. Italy and Portugal). Consequently, when taking into account the interest rates on overdrafts (which are generally higher than other short-term bank lending rates), the estimated borrowing costs would be higher, especially in those countries where overdrafts are an important source of firm's external finance.

Cost of borrowing indicators construction

The following section describes how the different cost four types of cost of borrowing indicators are being constructed.

a)   Cost of borrowing indicator for households

The cost of borrowing for households includes only loans for house purchase. Loans for consumption and other purposes have been excluded as they are too volatile and less relevant for macroeconomic projections. "Short-term" refers to loans with a floating rate or an initial period of interest rate fixation up to one year regardless of maturity. Accordingly, "long-term" refers to loans with an initial period of interest rate fixation over one year.

This indicator is calculated as a weighted average of MFI interest rates on short-term and long-term loans to households for house purchase, where the new business volumes used are smoothed with a moving average of previous 24 months' observations.

The precise formula is as follows:

At time t:

$$CB^H = \frac{R_{ST}^H(NB) * \frac{1}{24}\sum_{i=t}^{t-23} V_{ST}^H(NB)_i + R_{LT}^H(NB) * \frac{1}{24}\sum_{i=t}^{t-23} V_{LT}^H(NB)_i}{\frac{1}{24}\sum_{i=t}^{t-23} V_{ST}^H(NB)_i + \frac{1}{24}\sum_{i=t}^{t-23} V_{LT}^H(NB)_i}$$

where:

CB^H is the cost of borrowing for households.

$R_{ST}^H(NB)$ are the interest rates on new business on loans to households for house purchase with a floating rate or an initial rate fixation up to 1 year as defined in ECB/2013/34.

$V_{ST}^H(NB)$ are the new business volumes of loans to households for house purchase with a floating rate or an initial rate fixation up to 1 year as defined in ECB/2013/34.

$R_{LT}^H(NB)$ are the interest rates on new business on loans to households for house purchase with an initial rate fixation over 1 year as defined in ECB/2013/34.

$V_{LT}^H(NB)$ are the volumes of new business of loans to household for house purchase with an initial rate fixation over 1 year as defined in ECB/2013/34.

   b) Cost of borrowing indicator for non-financial corporations

The aggregated cost of borrowing indicators for non-financial corporations is calculated in broadly the same way as the one for households above, i.e. as a weighted average of rates on short-term and long-term loans.

As regards short-term loans to non-financial corporations, the MFI interest rates data on new business does not include overdrafts, revolving loans, convenience and extended credit. For companies in some euro area countries, these instruments, mainly overdrafts, are however a significant source of short-term finance. Thus, since interest rates on overdrafts are, on average, higher than other short-term bank lending rates, their exclusion tends to lower average short-term rates. To improve comparability across countries, for cost of borrowing purposes, revolving loans and overdrafts and extended credit card credit are incorporated in the calculation of short-term lending rates as described below.

At time t:

$$CB^{NFC} = \dfrac{\widetilde{R}_{ST}^{NFC} * \widetilde{V}_{ST}^{NFC} + R_{LT}^{NFC}(NB) * \dfrac{1}{24} \sum\limits_{i=t}^{t-23} V_{LT}^{NFC}(NB)_i}{\widetilde{V}_{ST}^{NFC}(NB)_i + \dfrac{1}{24} \sum\limits_{i=t}^{t-23} V_{LT}^{NFC}(NB)_i}$$

where:

CB^{NFC} is the cost of borrowing for non-financial corporations.

$R_{LT}^{NFC}(NB)$ are the interest rates on new business of long-term loans (i.e. loans with interest rate fixation over one year) to non-financial corporations as defined in ECB/2013/34.

$V_{LT}^{NFC}(NB)$ are the volumes of new business of long-term loans (i.e. loans with interest rate fixation over one year) to non-financial corporations as defined in ECB/2013/34.

$\widetilde{R}_{ST}^{NFC}$ is the estimated interest rate on new business of short-term loans to non-financial corporations adjusted to take into account the overdrafts as defined in ECB/2013/34.

$\widetilde{V}_{ST}^{NFC}$ is the estimated volume of new business of short-term loans to non-financial corporations slightly inflated to take into account the overdrafts as these are an important source of short-term funding for non-financial corporations. The way to do this is to increase the volume of new business short-term loans by the share of overdraft in the total amounts outstanding of short-term loans. When calculating the total amounts outstanding of short-term loans, we consider that long-term loans with a residual maturity below one year and interest reset below one year can be considered short-term and therefore their amounts are added to the outstanding amounts of short-term loans as defined in ECB/2013/33.

The estimated volume is calculated as follows:

$$\widetilde{V}_{ST}^{NFC} = \frac{1}{24} \sum\limits_{i=t}^{t-23} V_{ST}^{NFC}(NB)_i \times \left(1 + \underbrace{\frac{V_o^{NFC}(OA)}{V_{ST}^{NFC}(OA) + \widetilde{V}_{LT,IR<1\,year}^{NFC}(OA)}}_{=\beta}\right)$$

where:

$V_{ST}^{NFC}(NB)_i$ are the volumes of new business of short-term loans to non-financial corporations as defined in ECB/2013/34.

and β is the share of overdraft in the total amounts outstanding of short-term loans.

$V_o^{NFC}(OA)$ is the volume of overdrafts, revolving loans, convenience and extended credit (outstanding amounts).

$V_{ST}^{NFC}(OA)_i$ are the volumes of total short-term loans to non-financial corporations as defined in ECB/2013/33.

$\widetilde{V}_{LT,IR<1year}^{NFC}(OA)$ is the estimated volume of long-term loans with original maturity over 1 year, residual maturity over 1 year and with interest rate reset within a year as defined in ECB/2013/34.

$$\widetilde{V}_{LT,IR<1year}^{NFC}(OA) = \frac{1}{12}\sum_{i=0}^{11}\left(\frac{V_{LT,IR<1year}^{NFC}(OA)}{V_{LT}^{NFC}(OA)}\right)_{t-i} \times V_{LT}^{NFC}(OA)_t$$

with
$V_{LT}^{NFC}(OA)$ are the volumes of total long-term loans (loans with original maturity over 1 year) to non-financial corporations as defined in ECB/2013/33.

$V_{LT,IR<1year}^{NFC}(OA)$ is the real volume of long-term loans with original maturity over 1 year, residual maturity over 1 year and with interest rate reset within a year as defined in ECB/2013/33.

The estimated rate, $\widetilde{R}_{ST}^{NFC}$ is calculated as follows:

$$\widetilde{R}_{ST}^{NFC} = \beta R_o^{NFC}(OA) + (1-\beta)R_{ST}^{NFC}(NB)$$

Where:

$R_o^{NFC}(OA)$ are the interest rates on overdrafts, revolving loans, convenience and extended credit to non-financial corporations as defined in ECB/2013/34.

$R_{ST}^{NFC}(NB)$ are the interest rates on new business of short-term loans to non-financial corporations as defined in ECB/2013/34.

c) Cost of borrowing indicator for short-term loans to households and non-financial corporations

$$CB_{ST}^{H,NFC} = R_{ST}^{H}(NB) \times \frac{\dfrac{1}{24} \sum\limits_{i=t}^{t-23} V_{ST}^{H}(NB)_i}{\dfrac{1}{24} \sum\limits_{i=t}^{23} V_{ST}^{H}(NB)_i + \widetilde{V}_{ST}^{NFC}} + ...$$

$$...... + \widetilde{R}_{ST}^{NFC} \times \left(1 - \frac{\dfrac{1}{24} \sum\limits_{i=t}^{t-23} V_{ST}^{H}(NB)_i}{\dfrac{1}{24} \sum\limits_{i=t}^{23} V_{ST}^{H}(NB)_i + \widetilde{V}_{ST}^{NFC}} \right)$$

where all the components of the formula are already defined in the previous sections a) and b)

d) Cost of borrowing indicator for long-term loans to households and non-financial corporations

$$CB_{LT}^{H,NFC} = \frac{R_{LT}^{H}(NB) * \dfrac{1}{24} \sum\limits_{i=0}^{23} V_{LT}^{H}(NB)_i + R_{LT}^{NFC}(NB) * \dfrac{1}{24} \sum\limits_{i=0}^{23} V_{LT}^{NFC}(NB)_i}{\dfrac{1}{24} \sum\limits_{i=0}^{23} V_{LT}^{H}(NB)_i + \dfrac{1}{24} \sum\limits_{i=0}^{23} V_{LT}^{NFC}(NB)_i}$$

where all the components of the formula are already defined in the previous sections a) and b)

Example: Cost of borrowing evolution to non-financial corporations and households in distressed and non-distressed countries in the euro-area
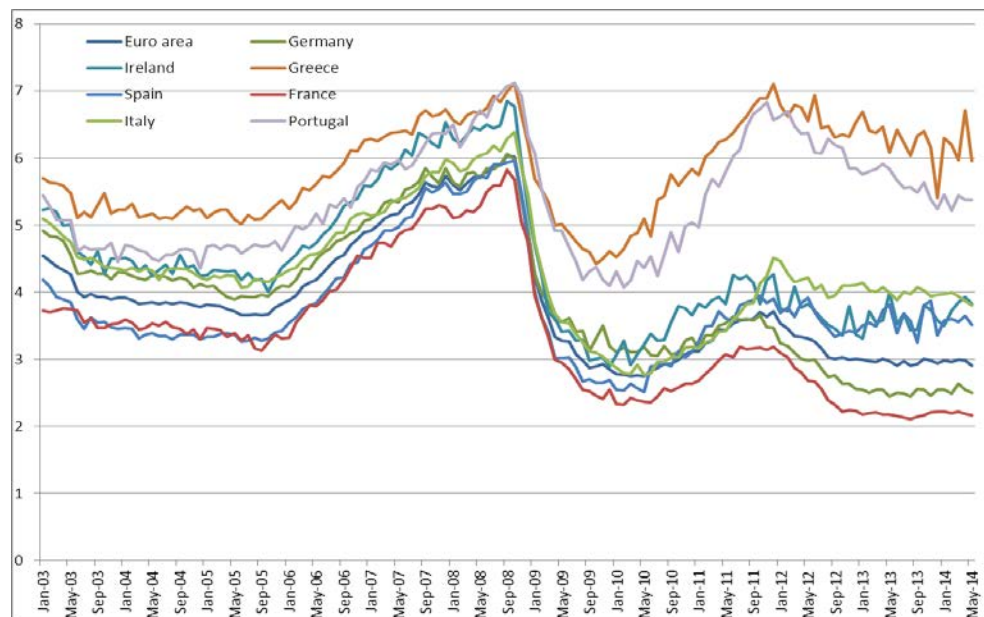
Chart 1 and Chart 2 show a composite indicator of the cost of borrowing for non-financial corporations and households in distressed and non-distressed countries in the euro area. The two charts show that the cost of bank borrowing for non-financial corporations has exhibited different dynamics across time in response to the financial crisis and particularly since the intensification of sovereign debt concerns in the euro area.

In particular, the composite indicator for non-financial corporations shows that the borrowing costs in those countries with risk of debt distress, i.e. Greece, Ireland, Italy, Spain and Portugal and those with no risk of debt distress, i.e. France and Germany, have progressively diverged since the onset of the financial crisis. The

dispersion between these two country groups increased to 160 basis points in 2012. These developments hint at some fundamental issues in the banking markets: banking markets are increasingly less integrated, as corporations do not have equal access to funding in all euro area countries because of national factors (e.g. country-specific macroeconomic risks which affect borrower risk). In the early stages of the financial crisis in late 2008 and in 2009, bank lending rates to non-financial corporations tracked broadly the ECB main refinancing rate in the distressed and non-distressed countries in the euro area. Thereafter, following the intensification of sovereign debt tensions in 2010 and in response to the increase in policy interest rates in early 2011 bank interest rates on loans to non-financial corporations started to rise sooner and more rapidly in distressed countries, especially Portugal and Greece, than in non-distressed countries. And while the cuts in policy interest rates since mid-2011 translated broadly into lower interest rates on loans to non-financial corporations in France and Germany, the pass-through has been much more sluggish in the case of Portugal and Greece, where interest rates remain at a higher level than that recorded in the other large euro area economies.

However, the same fundamental issues are not evident in the household mortgage lending market as presented in Chart 2. The composite indicator of household borrowing costs for households shows almost no divergence between distressed and non-distressed countries.
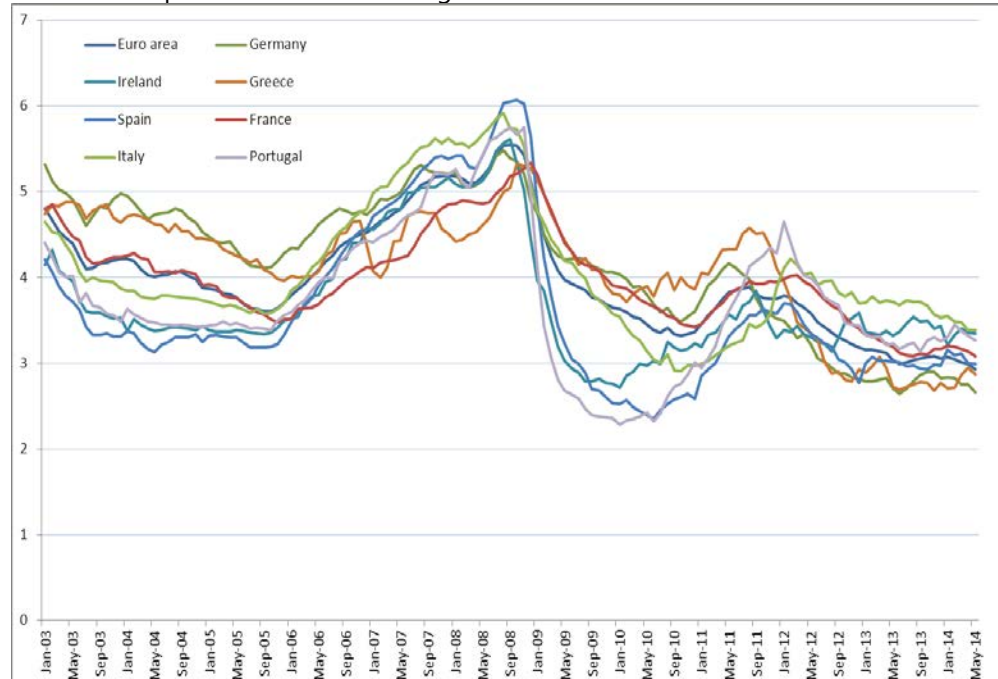
Chart 1. Composite cost of borrowing for non-financial corporations

In the case of loans to households for house purchase, bank lending rates in Spain and in Italy reacted particularly strongly to the cut in policy interest rates recorded in late 2008 and in 2009. This strong reaction reflects the higher share of mortgage loans with a short-term interest rate fixation period in these two countries compared with other large economies in the euro area. Since the start of the sovereign debt crisis in early 2010, interest rates in these two countries increased more strongly than in Germany and France. Following the policy rate cuts since mid-2011, mortgage interest rates have contracted across countries, as expected, and in particular in Greece. Nevertheless, mortgage rates in Italy, Portugal and Spain

remain above the levels observed in 2010 in spite of monetary policy rates having reached record low levels.

Chart 2. Composite cost of borrowing for households

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