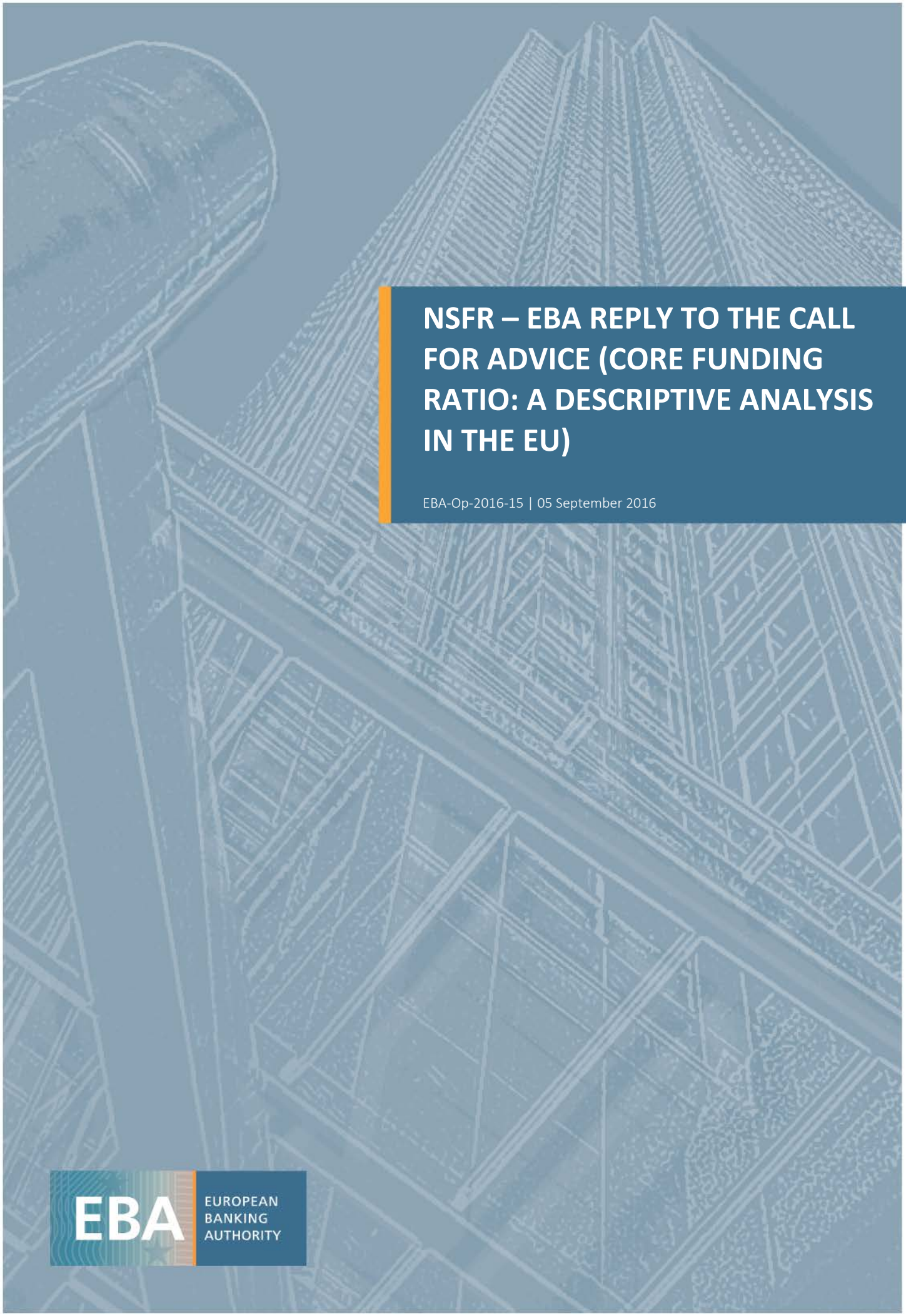

# NSFR – EBA REPLY TO THE CALL FOR ADVICE (CORE FUNDING RATIO: A DESCRIPTIVE ANALYSIS IN THE EU)

EBA-Op-2016-15 | 05 September 2016

EBA EUROPEAN BANKING AUTHORITY

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# Background

In December 2015, the European Banking Authority (EBA) published an impact assessment and calibration report on the implementation of the net stable funding requirement (NSFR) in the European Union.[1] The Commission sent to the EBA a call for advice (CfA) on 12 April 2016,[2] where among others some work is required on the assessment of a possible core funding ratio (CFR). In a letter dated 11 May 2016,[3] the EBA informed the Commission that some quantitative information on a core stable funding ratio, on the basis of the data already available, will be delivered.

This report aims to provide the Commission with a descriptive analysis of the CFR in the EU.

The Committee of European Banking Supervisors (CEBS) published in June 2009 the document 'Liquidity Identity Card',[4] which states in its first paragraph that it 'aims at providing supervisors of European cross-border groups with a single prudential language in order to enable meaningful exchanges of information in going-concern situations, in particular within colleges of supervisors'.

In this context, the document defines the CFR as follows:

$$core\ funding\ ratio = \frac{retail\ deposits + wholesale\ funding > \ one\ year + equity\ instruments}{total\ liabilities + equity\ instruments}$$

The analysis included in this report is based on this harmonised definition of the CFR.

For consistency reasons, the data used in the descriptive work of this report is the same as that used in the development of the EBA NSFR report published in December 2015, comprising a sample of 279 banks. The QIS NSFR data submitted by national competent authorities (NCAs) on a voluntary basis, and used for that report, is also considered. The reference date of the analysis is December 2014 (the last available reference point for the 279 banks used in the NSFR report). In addition, some data covering the period from June 2013[5] to December 2014 has been used for a consistent sample of 122 banks[6] for the purposes of a descriptive analysis over time, for which half-yearly observations were available.

[1] http://www.eba.europa.eu/documents/10180/983359/EBA-Op-2015-22+NSFR+Report.pdf

[2] https://www.eba.europa.eu/documents/10180/1466081/%28EBA-2016-E-660%29%20Letter+from+O.+Guersent%2C%20DG+FISMA+re+EBA+report+on+NSFR%2C%20Ares%282016%291729077.pdf/85cef4b4-7143-4fb9-bf21-3d419034c4da

[3] https://www.eba.europa.eu/documents/10180/1466081/%28EBA+2016+D+697%29%20Letter+to+O.+Guersent%2C%20DG+FISMA+re+Calls+for+Advice+to+assist+Commission+revision+-+signed.pdf/014cd6d6-afc2-4409-b704-a9237f07ff3a

[4] https://www.eba.europa.eu/documents/10180/16166/CEBS+2009+127+final+(Liquidity+ID).pdf

[5] For the specific purposes of the time series analysis, this report does not consider the data referred to December 2012 (which was considered in the EBA NSFR report) since the QIS template for this reference date does not include the information on the amount of total liabilities below one year, which is necessary for the calculation of the denominator of the CFR. For the rest of the reference dates, this information is available in the templates.

[6] One bank of the consistent sample used in the time series analysis in the EBA NSFR report (which was composed of 123 banks) has been removed due to inconsistencies in the data required for the calculation of the CFR, and in order to ensure good data quality for all reporting dates.

This report considers as wholesale funding above one year all the liabilities, except retail deposits, with a maturity above one year. The NSFR QIS templates do not differentiate between derivative liabilities above or below one year, all of them being reported together.[7] Therefore, following a conservative approach, and considering that derivative liabilities maturing below one year are expected to be significantly higher than those maturing above one year, derivative liabilities are not included within the liabilities in the numerator of the calculation of the CFR.

The analysis is developed for the whole sample and broken down by business model (the same models that were considered in the EBA NSFR report) and by size bucket (with the same definitions of 'very large', 'large', 'medium' and 'small' banks, as in the EBA NSFR report).

[7] The NSFR provides the same treatment to all derivative liabilities, irrespective of maturity.

# Economic and supervisory considerations of the core funding ratio:

The 'Liquidity Identity Card' points out that the CFR 'provides insight on the extent to which effective long-term funding is used, given the business model', and 'reveals structural shifts in funding, which serves as a macroprudential indicator for general developments in the funding behaviour of credit institutions'.

The CFR is also a structural ratio like the NSFR. None of them are purely stressed ratios.

The one-year horizon is also a common assumption in the analysis of both metrics.

The main advantages and disadvantages of the use of the CFR for some or all credit institutions appear to be the following:

## Advantages:

**Simplicity:** The CFR is operationally a simple ratio since it is calculated based on the amounts of some aggregated items of the liability side of the balance sheet of banks without any specific calibration. It basically considers the total amount of liabilities and equities, and only needs to differentiate within the former the retail deposits and other liabilities maturing above one year. The metric does not consider the assets side of the balance sheet of banks, and therefore no granularity or specific calibration on it is considered.

**Possibly a relatively good proxy of the available stable funding (ASF) in the NSFR**: The report shows that the CFR appears to approximate relatively well the average ASF factor in the NSFR. Therefore, in those banks where, on an ongoing basis, assets are very much concentrated in items with the same degree of stable funding needs, the CFR seems, to a certain extent, to be able to estimate the availability of sufficient stable funding.

## Disadvantages:

**The CFR gives an incomplete picture of the funding risk of a bank:** The ratio does not consider the funding needs of the assets held on the balance sheet. The CFR examines only the liabilities side and does not include any consideration of the various assets and the various core/stable funding need they may have. This is a significant limit of this tool, as the vast majority of banks hold assets with very different stable funding needs.

A minimum CFR would impose the same funding requirement for two banks, irrespective of the maturity of their loans portfolio and the market liquidity of their assets, and regardless of the encumbrance level or the intrinsic funding possibilities associated with, for instance, mortgage loans, which may reinforce an incorrect perception of the liquidity risk. The exposure of funding

risk for these cases is the same under the analysis of this metric. This could endanger a consistent assessment of funding risk across business models.

The CFR of banks operating in traditional banking activities tends to be high, as they are funded most of the time by retail deposits. Banks conducting more complex banking activities have a lower CFR, as they are often funded through relatively short-term wholesale funding, without taking into account whether this funding profile would actually be aligned with the funding risk of these activities. Therefore, only considering the CFR could turn out to be beneficial for traditional banking but detrimental for more complex banking activities.

In this regard, a potential differentiated calibration of a minimum CFR requirement for the various business models may, in turn, significantly increase the complexity of the CFR.

By contrast, the NSFR looks at both the assets and the liabilities of a bank and evaluates whether the bank holds enough stable funding to fund its activities. This explains why both metrics, the NSFR and the CFR, do not appear to be correlated in our sample.

**Risk sensitivity:** Using a simple, transparent and non-risk-based prudential tool as the leverage ratio is attractive from the prudential monitoring perspective only if it is associated with a more risk-sensitive tool. It serves as a backstop, but not as the only risk-based measure on which institutions base their strategy. This serves the purpose of avoiding a massive shift toward riskier activities, where those activities would consume the same prudential resources (capital, liquidity) as those that are less risky. Replacing NSFR by the CFR would create the same effect as if leverage ratio was a substitute and not a complement to the solvency ratio, and would not contribute to reach an adequate balance between risk sensitivity, comparability and simplicity.

A non-risk-sensitive approach would only be appropriate for institutions with lower risk profiles. There is no evidence that small institutions have a lower liquidity risk profile. Because of their reduced size, they may actually be less able to absorb shocks in tapping wholesale markets; to face unexpected losses; and to adapt to more limited access to liquidity facilities, as evidenced in the EBA report on NSFR (Section 8), which stated that the aggregated impact of fragilities in the funding structures of smaller banks could be a very large magnitude as a whole, and should not be underestimated (a risk referred to as ‘too-many-to-fail’ by some authors). Furthermore, the EBA NSFR report did not find any significant correlation between the size of the institutions and the change in the NSFR between June 2011 and December 2014 (see the EBA report, Section 8.5.5). The evidence that a CFR would identify the same weak institutions and would evolve in a parallel manner to the NSFR has to be made to ensure CFR could constitute a credible alternative to NSFR for some type of institutions or business models.

**Macroprudential aspects:** the lack of comparability between smaller and larger institutions, if subject to different requirements, regarding macroeconomic data on the shortfall, which could hinder liquidity analysis.

## Main findings

The discussions concerning advantages and disadvantages of the CFR should be assessed together with the findings of the descriptive work in the following items of this report.

Overall, there appears to be a lack of correlation, in terms of outcome and conclusions, between the CFR and the NSFR for the whole sample, and also generally when looking into different business models or size buckets, and particularly for smaller banks. The report illustrates how the group of banks that are compliant with the NSFR, above 100%, is quite different to the group of banks that would have a CFR above the average CFR of the whole sample. Smaller banks show higher CFR than larger banks (up to 75% versus 54% in relative size buckets), whereas the NSFR was not significantly different between them (104% versus 106%). This is basically because the CFR assesses the funding risk only considering the liabilities side of banks. On the contrary, the NSFR provides an assessment of the funding risk profile of banks, looking into the whole picture of the balance sheet (i.e. looking into the stable/core funding a bank needs depending on what kind of assets it holds, and looking into the stable/core funding a bank has), and therefore provides a full assessment of a potential funding gap.

Considering only the CFR when assessing funding risk could lead to wrong conclusions with significant impact. Firstly, the CFR only gives a picture of the importance of the stable funding sources among the whole liabilities. It does not compare them with needs. Secondly, there is no ability to set minimum requirements that would be operationally usable by supervisors, except in the form of benchmarks that would surely need to be tailored for business models specifically. A high level of CFR in a bank could apparently show a low funding risk profile but indeed hide significant problems. For example, a bank might be showing a CFR of 65% on an ongoing basis. The bank could have been considered to have a low funding risk profile during that time, as a CFR of such value means that the liability side of the bank is largely stable. If that bank would have on average an 85% RSF – for example, because the vast majority of its assets are composed of long-term encumbered assets (100% RSF) or unencumbered mortgages subject to 85% required stable funding (RSF) – its funding stability would heavily depend on its capacity to roll over the rest of the funding, which is short term (not included in the CFR), to cover the gap. The CFR is not specifically a stressed ratio, but like the NSFR should be sufficient to ensure a stable funding structure during stress without endangering the investment activity of the bank. Against this background, if, for some specific reason or market development, this bank were not able to renew its short-term funding when maturing, it would face a situation where it would be very likely to have to resort to fire sales of assets, with a negative impact on its profit and loss account (P&L) and solvency, or make recourse to central banks for long-term funding to cover its funding gap. On top of the wrong prudential signal, there could be the risk of a significant contagion effect on other banks. By contrast, the NSFR assesses the available stable/core funding but also considers the required stable funding; therefore, a high NSFR is not expected to give misleading information.

A CFR metric cannot on its own be a replacement of the NSFR metric, even for a specific type of business model, or smaller institutions. A proper funding risk assessment needs to confront the

available stable/core funding with the funding required based on the type of assets and off-balance-sheet items, and this is clearly achieved by the NSFR, which appears to be the most precise metric for assessing the funding risk of banks.

However, the CFR seems to be a relatively good proxy of the ASF in the numerator of the NSFR. Only for some very particular and limited cases, where banks would keep their assets structure very stable over time, and where the required stable funding of these assets is well and easily known in advance, could the CFR possibly serve the purposes of assessing the funding risk of a bank. For example, this could be the case of banks the business of which consist, on an ongoing basis, of granting unencumbered mortgages subject to a risk weight below 35% in the standardised approach, and therefore subject to 65% RSF in the NSFR framework. For these cases where a relatively precise figure of RSF can be forecasted, a minimum correlated CFR could potentially be suggested by relying on the supervisory knowledge.

Nevertheless, due to the generally simple nature of the balance sheet composition of such banks (which is also assumed to be stable over time) the costs of compliance with the NSFR (especially for reporting purposes) may be relatively less relevant compared to the ones borne by more diversified banks. Since the potential implementation of two different metrics for different banks would generate a lack of comparability from a supervisory analysis perspective, the introduction of an alternative regulatory standard to address banks' funding risk, even for very particular and limited cases, should be carefully assessed alongside the assumed benefits (also in terms of reduced compliance costs) for the beneficiary banks.

# Descriptive analysis of the core funding ratio: whole sample and business models

*This section provides a description of the CFR levels for the various business models and for the whole sample. Against a background where there is not an established minimum CFR to be met, the analysis flags those business models that show the highest levels (mortgage banks and building societies, savings banks and pass-through banks) and the lowest levels (CCPs, diversified no-retail-deposit banks and securities trading banks) of CFR in a comparative manner. Also, the analysis provides with a calculation of theoretical shortfalls under the assumptions of various hypothetical minimum levels of the CFR.*

*The section also assesses the CFR and the NSFR in parallel for the various business models and highlights discrepancies in the values observed and in the conclusions that might be drawn on the funding risk profile of a bank when using one metric or the other. The lack of correlation between the CFR and NSFR is confirmed in this report. The CFR only looks into the funding structure of a bank irrespective of the type of its investments. The NSFR provides a whole picture of the funding risk profile of a bank since it confronts its available stable/core funding with the necessary stable/core funding for the relevant assets it may hold. However, this section also flags a relatively good correlation between the CFR and the ASF factor.*

## General descriptive work

**Table 1: CFR and its components as of December 2014**

| | | Core funding ratio | | | | % Core funding components (average) | | |
|---|---|---|---|---|---|---|---|---|
| Business model | Number of banks | Weighted average | Min. | Median | Max. | Retail deposits | Whole sale funding > one year | Equities |
| **Auto & cons.** | 6 | 66% | 58% | 71% | 75% | 27% | 56% | 16% |
| **CCP** | 3 | 4% | 1% | 6% | 14% | 0% | 0% | 100% |
| **Co-operatives** | 46 | 64% | 6% | 73% | 97% | 45% | 44% | 11% |
| **Div. no retail dep.** | 3 | 31% | 13% | 37% | 79% | 0% | 78% | 22% |
| **Local universal** | 80 | 60% | 28% | 66% | 100% | 55% | 33% | 13% |
| **Mrtg. & build. soc.** | 20 | 81% | 39% | 84% | 99% | 61% | 32% | 7% |
| **Other** | 20 | 66% | 10% | 64% | 87% | 17% | 65% | 18% |
| **Other no retail dep.** | 13 | 61% | 7% | 64% | 86% | 0% | 95% | 5% |
| **Pass-through** | 7 | 77% | 68% | 78% | 85% | 0% | 95% | 5% |
| **Savings** | 40 | 76% | 43% | 83% | 94% | 68% | 22% | 10% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Sec. trading** | 9 | 22% | 3% | 41% | 93% | 2% | 45% | 53% |
| **Univ. cross-border** | 32 | 51% | 18% | 55% | 83% | 54% | 33% | 14% |
| **Total** | 279 | 55% | 1% | 69% | 100% | 50% | 37% | 13% |

## General descriptive work

Table 1 above describes various metrics on the CFR for the whole sample and broken down by business model as of December 2014. It also shows the composition of the total core funding on average.

CCPs, diversified no-retail-deposit banks and securities trading banks are the business models that have the lowest average levels of CFR, well below the average of the whole sample. These business models include 15 banks in total (5% of the total number of banks in the sample). The core funding of these banks is basically concentrated on wholesale funding greater than one year and equities with almost no retail deposits.

Mortgage banks and building societies, savings banks and pass-through banks show the highest average levels of CFR, the first two categories having significant core funding via retail deposits and the latter via long-term securities.

For example, as described in Figure 1 below, 77% of the banks in the sample have a CFR above the average of the whole sample (55%).

**Figure 1: Ordered CFR by bank at an aggregated level on 31 Dec 2014**

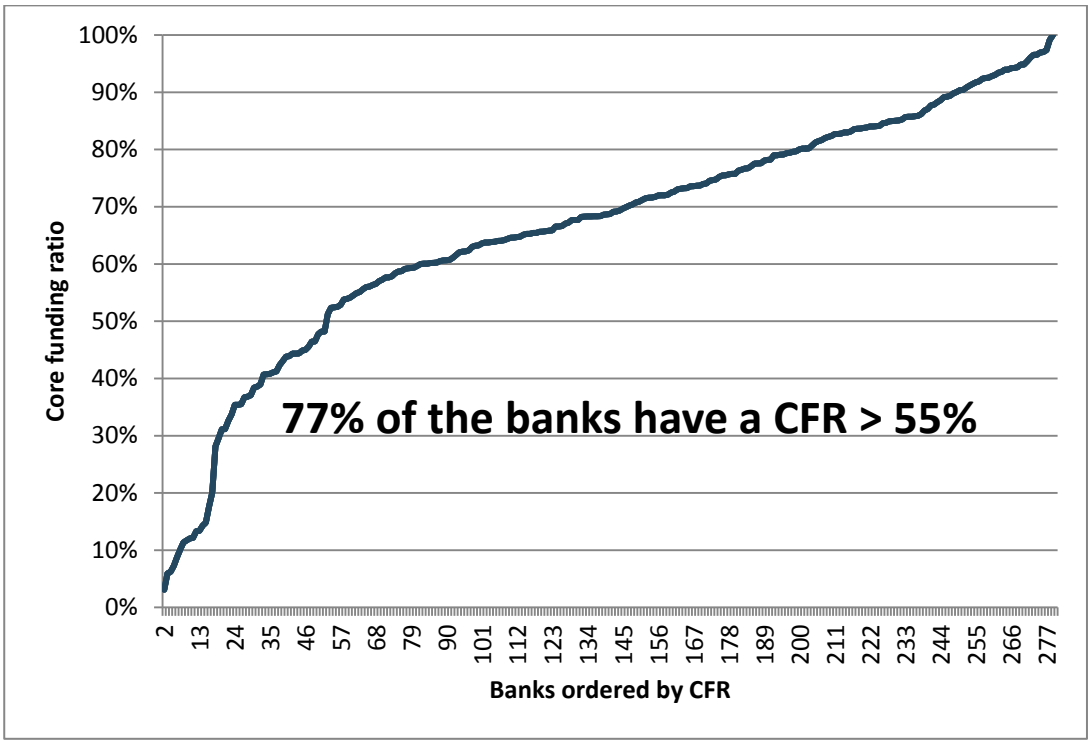


**Table 2: Hypothetical shortfall of CFR in the sample**

| | Shortfall min. CFR 50% | | Shortfall min. CFR 60% | | Shortfall min. CFR 75% | |
|---|---|---|---|---|---|---|
| | Amount (EUR bn) | % Compliant banks | Amount (EUR bn) | % Compliant banks | Amount (EUR bn) | % Compliant banks |
| **Auto & cons.** | 0.00 | 100% | 0.40 | 83% | 14.34 | 17% |
| **CCP** | 21.93 | 0% | 26.71 | 0% | 33.87 | 0% |
| **Co-operatives** | 16.03 | 89% | 31.55 | 80% | 239.88 | 43% |
| **Div. no retail dep.** | 14.88 | 33% | 19.65 | 33% | 26.81 | 33% |
| **Local universal** | 56.13 | 89% | 204.49 | 73% | 830.45 | 24% |
| **Mrtg. & build. soc.** | 1.55 | 95% | 2.90 | 95% | 19.14 | 70% |
| **Other** | 10.79 | 70% | 19.93 | 60% | 47.74 | 25% |
| **Other no retail dep.** | 29.77 | 62% | 37.68 | 62% | 82.13 | 31% |
| **Pass-through** | 0.00 | 100% | 0.00 | 100% | 3.52 | 57% |
| **Savings** | 3.08 | 95% | 7.81 | 93% | 25.53 | 80% |
| **Sec. trading** | 156.97 | 33% | 209.86 | 22% | 290.07 | 22% |
| **Univ. cross-border** | 750.12 | 59% | 1775.83 | 38% | 4075.65 | 9% |
| **Total** | 1061.25 | 81% | 2336.81 | 71% | 5689.13 | 38% |

Table 2 above provides the calculation of shortfalls of non-compliant banks under the assumption of theoretical minimum levels of the CFR, namely 50%, 60% and 75%. This is made only for informative purposes and without any attempt to pre-empt any minimum level. Particularly in the cases of a hypothetical minimum CFR of 50% or 60%, the shortfall would be concentrated in a small number of banks (81% and 71% of all the banks would meet the minimums, respectively) and mainly within the category of universal cross-border banks.

**Figure 2: Distribution of CFR by banks and business model as of 31 Dec 2014**

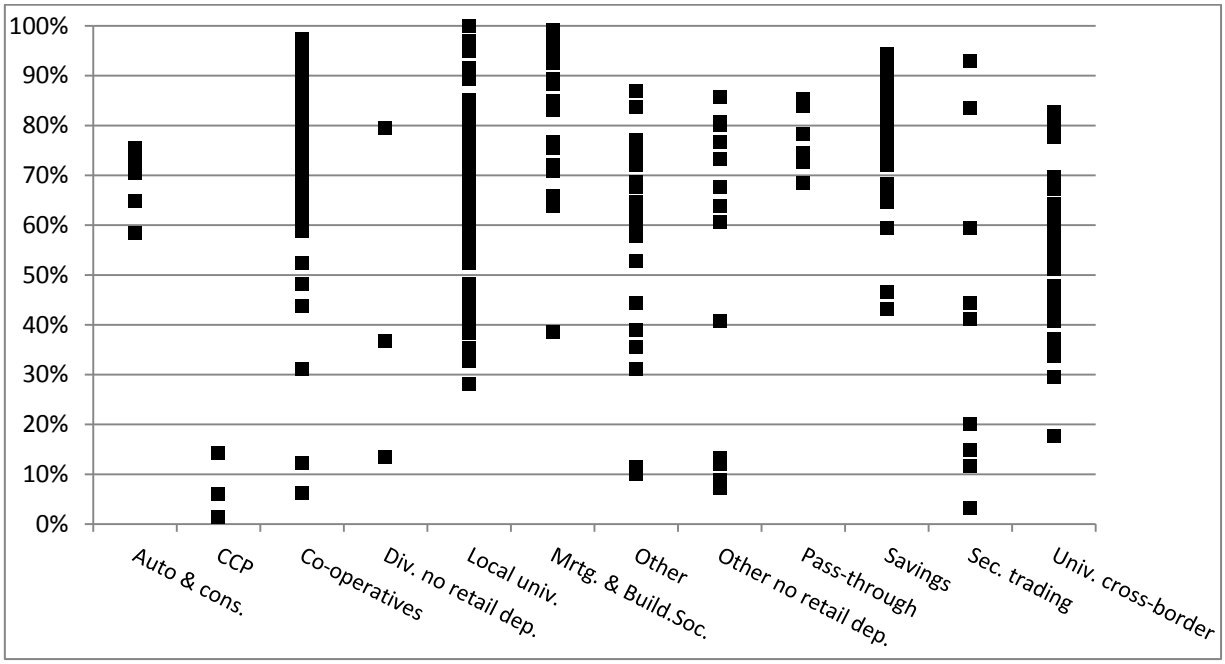
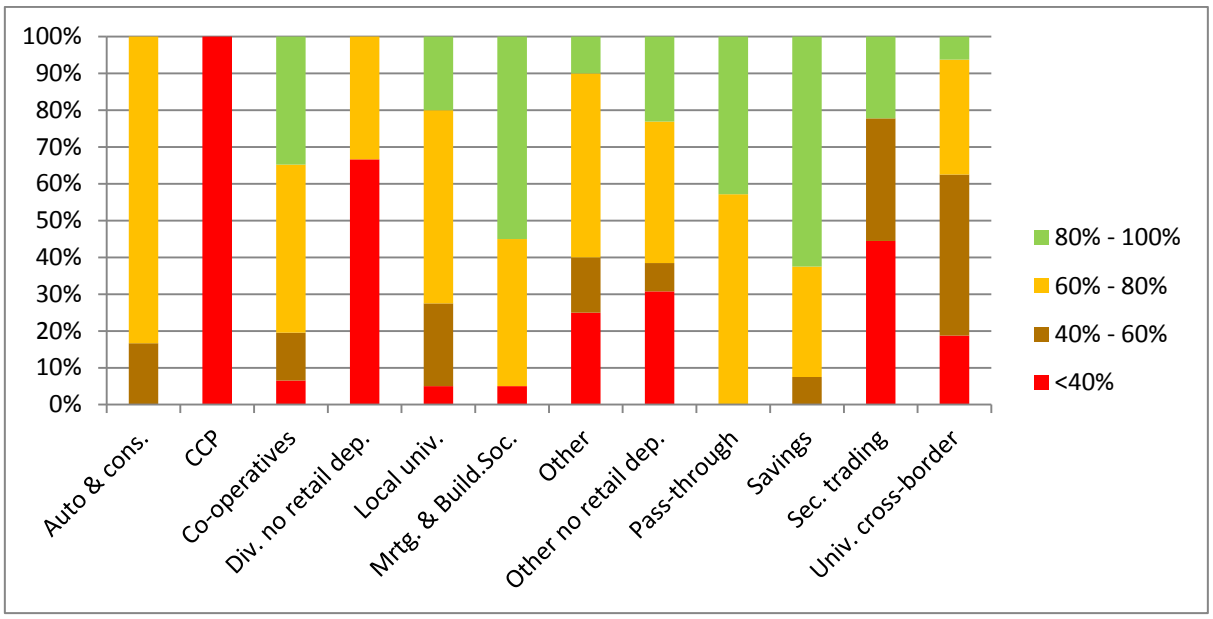



**Figure 3: % distribution of banks by business model and by level of CFR**




More than 50% of the banks within the categories of CCPs, diversified no-retail-deposit banks and securities trading banks, and 50% of the universal cross-border banks, have a CFR below 55% (the average of the whole sample).

More than 80% of the banks within the categories of auto and cons., co-operatives, mortgage banks, pass-through banks, savings banks and local universal have a CFR above the average (55%).

Figure 4: Evolution of the weighted average CFR for a consistent sample of 122 banks

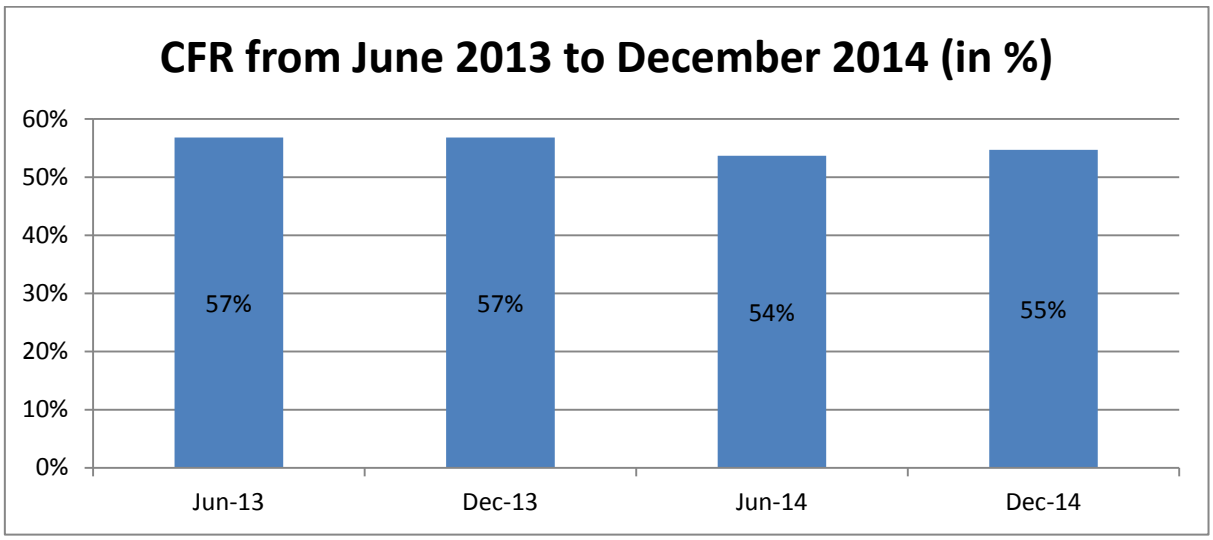
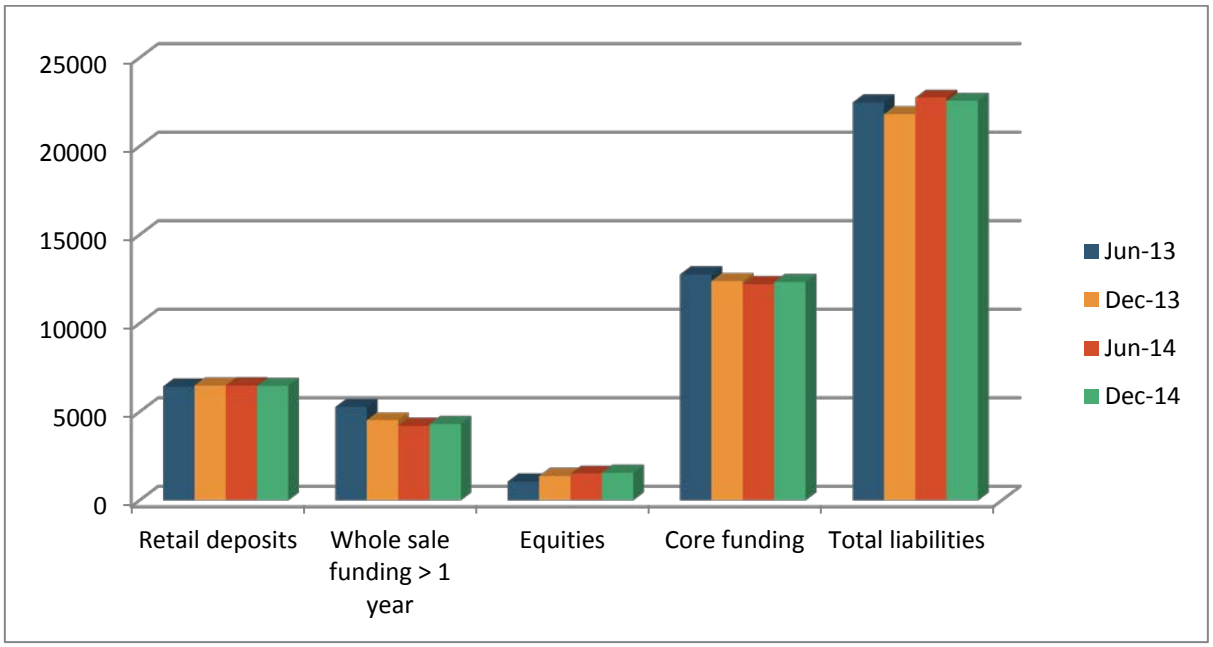



Figure 4 and Figure 5 show that on average the CFR has decreased slightly between 2013 and 2014 as wholesale funding above one year has decreased during this period. This decrease has been offset to a certain extent by an increase in the amount of equities, with the retail deposits not experiencing significant changes.

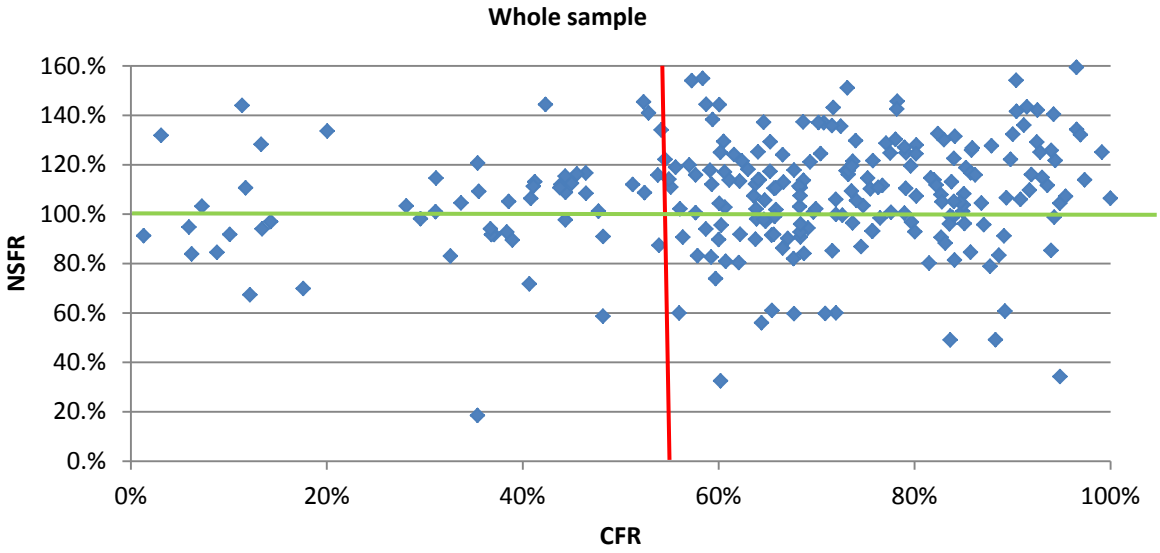
Figure 5: Evolution of the total amount (EUR bn) of the components of the CFR for a consistent sample of 122 banks



## Correlation between the CFR and the NSFR

The correlation between the CFR and the NSFR appears to be very low (see graph below). The NSFR gives an indication of how much stable funding a bank holds relative to its illiquid assets, whereas the CFR shows how much stable funding a bank holds given its total amount of liabilities.

**Figure 6: Correlation of NSFR versus CFR for the whole sample as of December 2014**




It can be seen in Figure 6 that the group of banks compliant with the NSFR, above 100% (those dots above the horizontal line in green), is quite different from the group of banks that would have a CFR above the average CFR in the whole sample (the dots on the right side of the red line).

**Table 3: Average CFR versus average NSFR by business model**

| | Weighted average CFR | Weighted average NSFR | Weighted average RSF factor |
|---|---|---|---|
| **Auto & cons.** | 66% | 97% | 71% |
| **CCP** | 4% | 98% | 7% |
| **Co-operatives** | 64% | 107% | 57% |
| **Div. no retail dep.** | 31% | 94% | 42% |
| **Local universal** | 60% | 104% | 55% |
| **Mrtg. & build. soc.** | 81% | 112% | 68% |
| **Other** | 66% | 116% | 56% |
| **Other no retail dep.** | 61% | 109% | 61% |
| **Pass-through** | 77% | 94% | 86% |
| **Savings** | 76% | 115% | 60% |
| **Sec. trading** | 22% | 60% | 42% |
| **Univ. cross-border** | 51% | 103% | 47% |
| **Total** | 55% | 104% | 51% |

Some business models show low levels of CFR (below the average of the sample, 55%) but have an average NSFR of almost 100%. This is the case of CCPs and diversified no-retail-deposit banks. This responds basically to the fact that these two business models have the lowest average RSF factors in the sample, and therefore their funding need is, to a certain extent, in line with the amount of core funding they hold.

There are banks (for example, in the case of pass-through banks) for which the CFR is very high, whereas that is not the case when looking at the NSFR. This is because the CFR does not take into account the RSF factors. The RSF factor in pass-through banks is the highest on average in the sample.

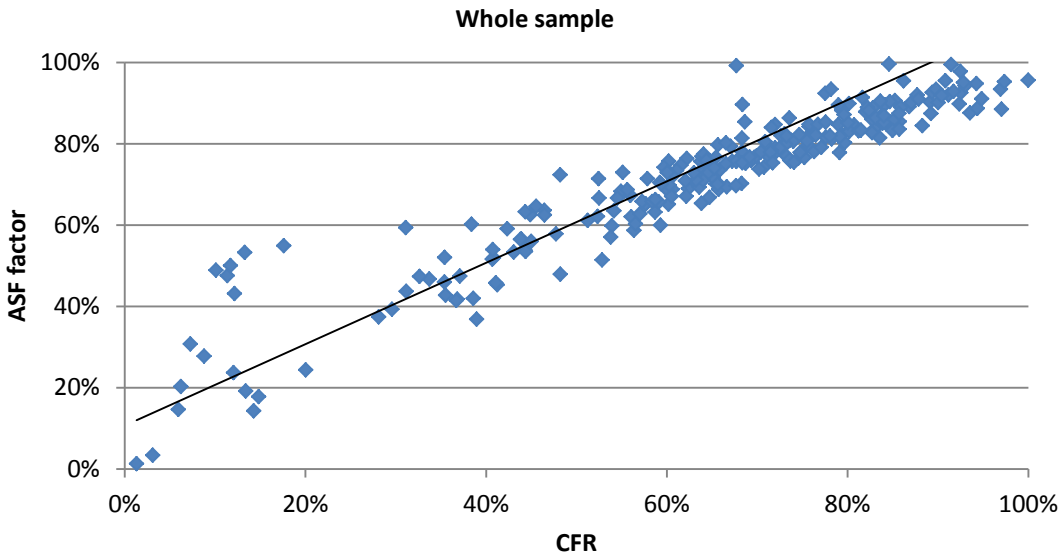
Other business models have both a low CFR and a low NSFR – for example, securities trading banks, because even if they have one of the lowest RSF factors in the sample, they do not have sufficient core funding.

These differences between the CFR and the NSFR explain the lack of correlation between them. The CFR, without being complemented by a measure of the funding requirement of the assets, gives an incomplete picture of the funding risk of a bank.

## Correlation between the CFR and the ASF factor

The CFR appears to be a relatively good proxy for the average ASF in a bank. The average CFR of the whole sample is 55%, and the average ASF factor is 64%. This is because the CFR captures all sources of stable funding included in the NSFR, except the funding between six months and one year and the short-term funding below six months from non-financial corporates (which all attract a 50% ASF factor).

**Figure 7: Correlation ASF factor versus CFR for the whole sample as of December 2014**



# Descriptive analysis of the core funding ratio: analysis by size bucket

*The section describes the CFR by size bucket. This section assesses the CFR and the NSFR in parallel on banks classified by size. Again, a lack of correlation is flagged between the results of both metrics and therefore between the conclusions derived thereof. Smaller banks appear to have, over time, higher CFRs than larger banks. However, this responds again to the fact that the CFR does not look into the assets side of banks. Smaller banks seem to have higher required stable funding than larger banks due to the nature of their assets. The consideration of the required stable funding from the assets side, together with the value of the CFR (which refers to the funding structure only) explains that the exposure to funding risk is not significantly different among banks of different sizes. This is consistent with the NSFR analysis shown in the EBA NSFR report. Again, a relatively good correlation between the ASF factor and CFR is observed here.*

## General descriptive work

This item assesses the CFR performance of banks by size bucket. Banks in the sample have been classified by size bucket following the same criteria as established in the EBA NSFR report published in December 2015:[8]

- The absolute size, measured by total assets.
- The relative size of the bank compared to the GDP of the country in which it is based, measured by the ratio of a bank's total assets over the domestic GDP.[9]
- The relative size of the bank compared to the total domestic assets held by banks and foreign branches of the country in which it is based.[10]

**Table 4: Number of banks by size bucket as of December 2014 (of the whole sample of 279 banks)**

| | Absolute size | % of domestic GDP | % of total assets held by domestic banks and foreign branches |
|---|---|---|---|
| **Very large** | 36 | 70 | 69 |
| **Large** | 22 | 69 | 70 |
| **Medium** | 110 | 70 | 70 |
| **Small** | 111 | 70 | 70 |

[8] The absolute thresholds used to define the absolute size buckets are EUR 200 billion, EUR 100 billion, and EUR 10 billion. For the two measures of relative size, the threshold for defining the category has been set by calculating the ratio for each firm and dividing the sample into four equal segments.

[9] Note that because large banks report at the global consolidated level in our sample, the importance of some banks relative to domestic GDP could be overestimated.

[10] Note that again, here, the relative size of some large banks could be overestimated.

Figure 8 shows the relative number of banks in each absolute size bucket that falls within each different tranche of CFR values. This distribution is based on the whole sample of banks as of December 2014 (279 banks).

**Figure 8: % banks by CFR level per absolute size bucket**

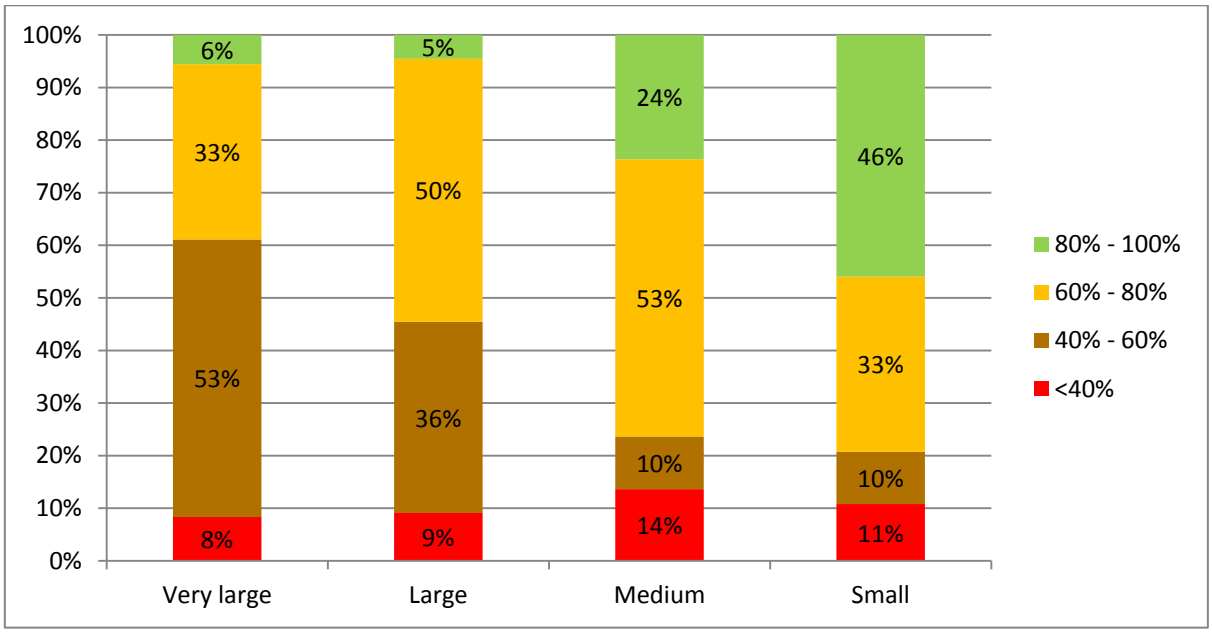



Figure 9 shows the relative number of banks in each relative size bucket (based on GDP) that falls within each different tranche of CFR values. This distribution is based on the whole sample of banks as of December 2014 (279 banks).

**Figure 9: % banks by CFR level per relative size bucket based on % GDP**

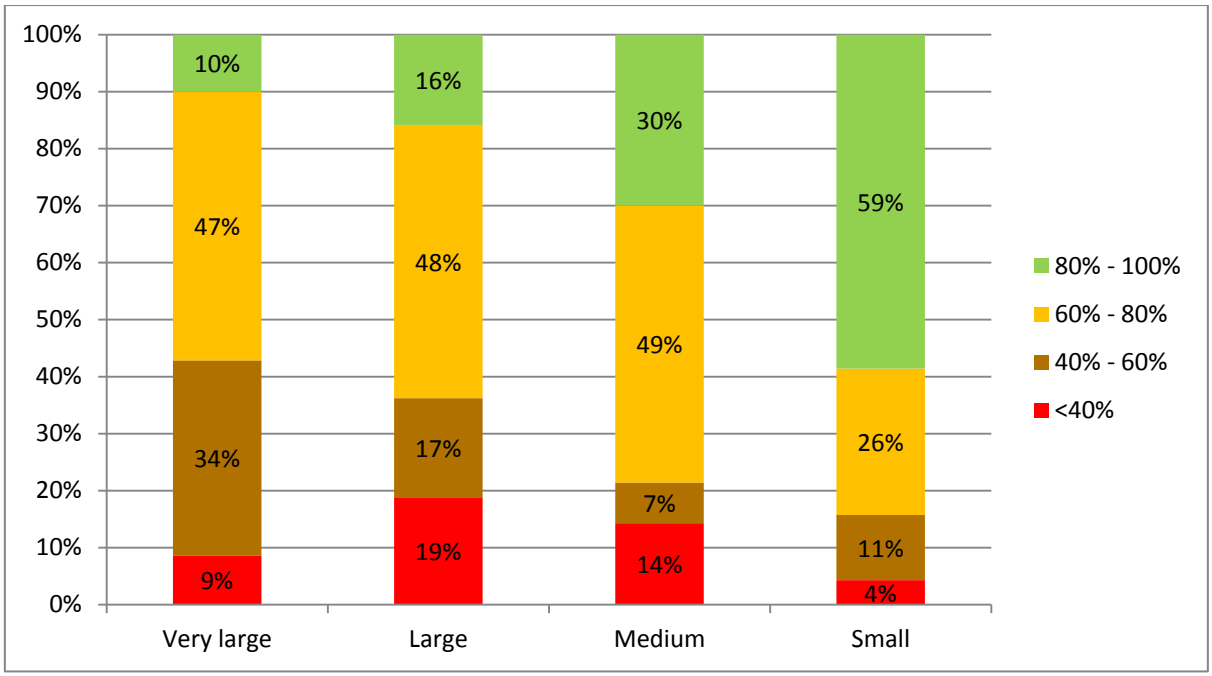


Figure 10 shows the relative number of banks in each relative size bucket based on the amount of total assets of domestic banks and foreign branches that falls within each different tranche of CFR values. This distribution is based on the whole sample of banks as of December 2014 (279 banks).

**Figure 10: % banks by CFR level per relative size bucket based on % total assets**

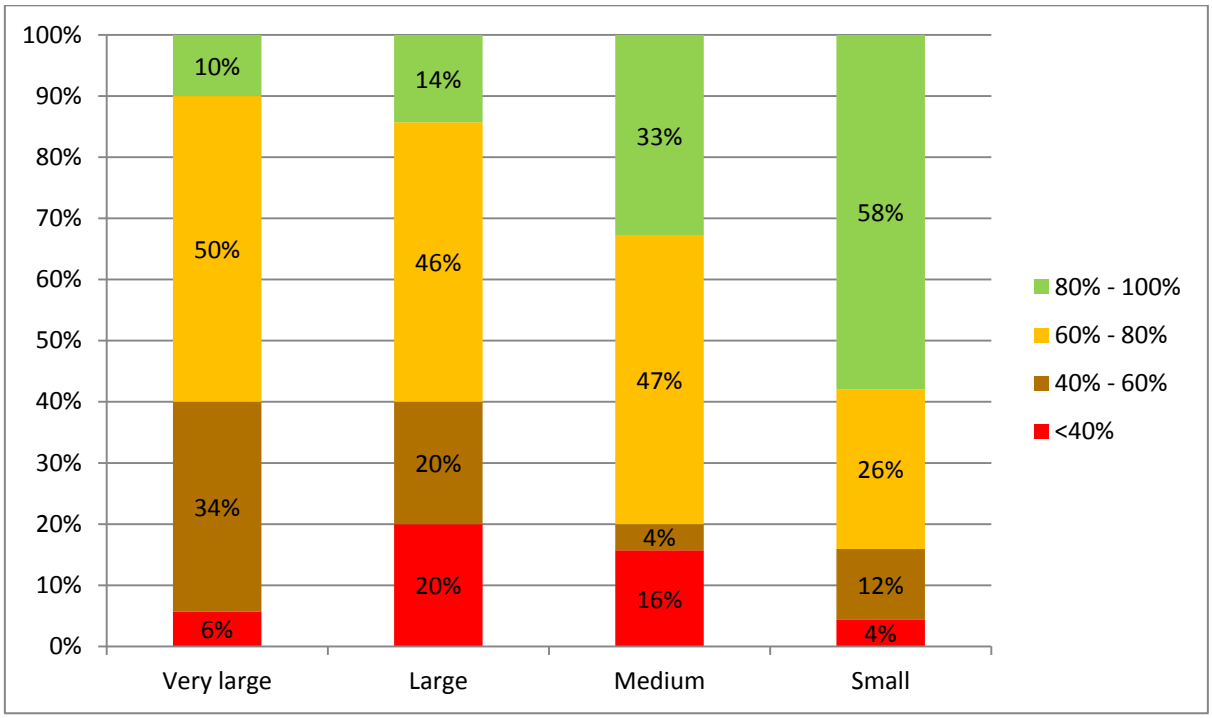


Figure 11, Figure 12 and Figure 13, on the consistent sample of 122 banks, show the evolution of the CFR from June 2013.

**Figure 11: Evolution of the CFR in the consistent sample (122 banks) by size bucket (absolute size)**

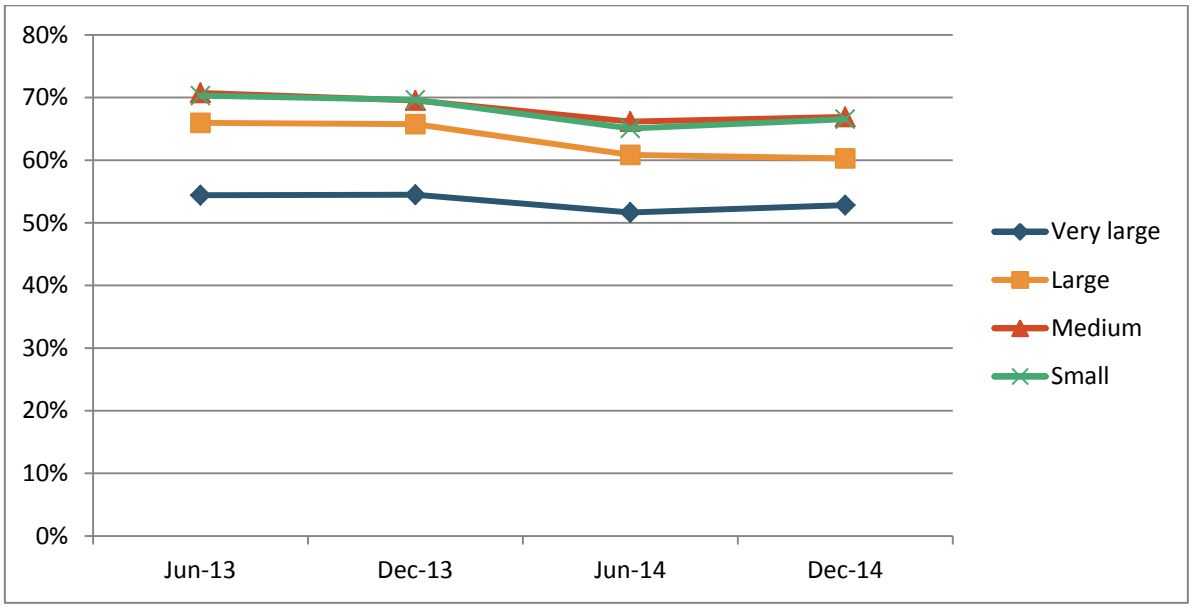



**Figure 12: Evolution of the CFR in the consistent sample (122 banks) by size bucket (relative size on GDP)**

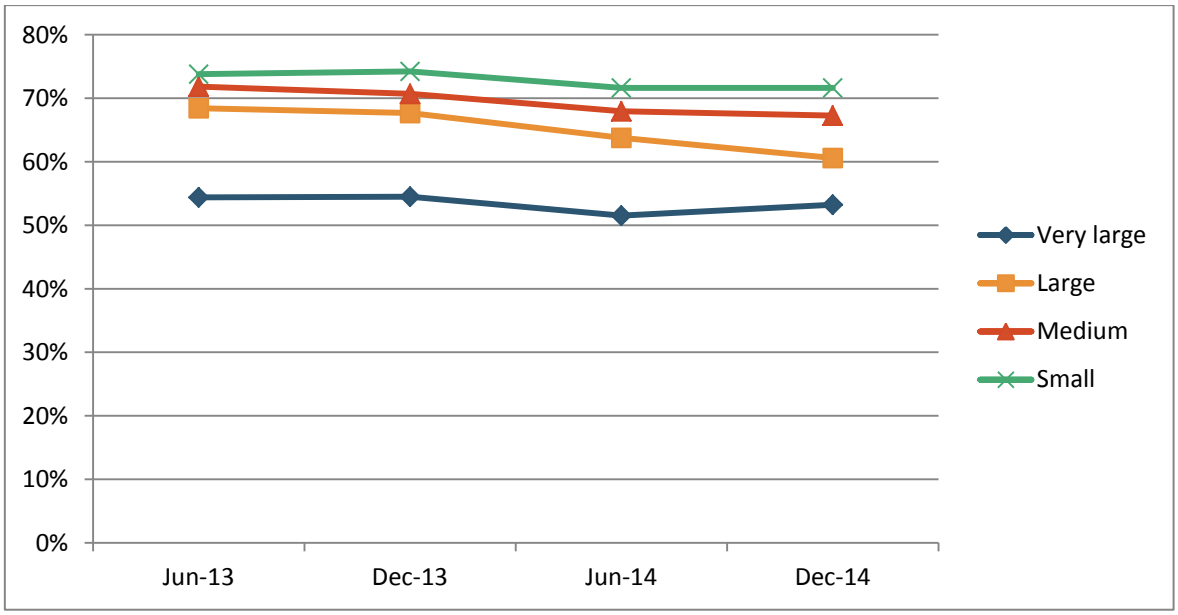
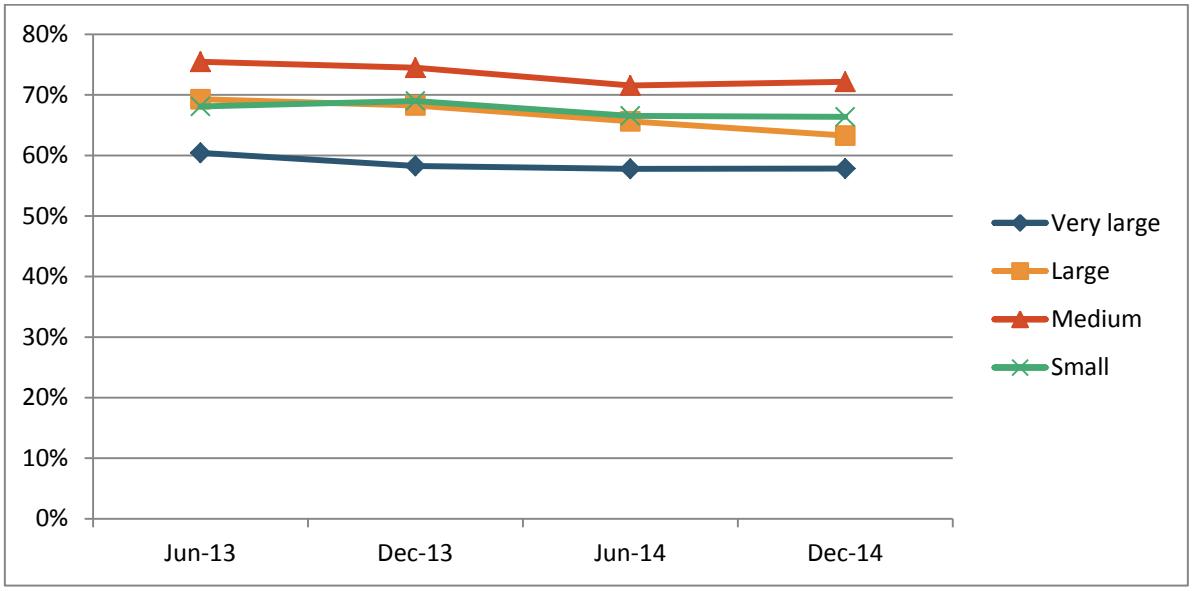


**Figure 13: Evolution of the CFR in the consistent sample (122 banks) by size bucket (relative size on total assets)**




## Correlation between the CFR and the NSFR

**Table 5: CFR versus NSFR by size bucket as of December 2014 (in the whole sample of 279 banks)**

| | Absolute size | | | % domestic GDP | | | % total assets held by domestic bank and foreign branches | | |
|---|---|---|---|---|---|---|---|---|---|
| | Average CFR | Average NSFR | Average RSF factor | Average CFR | Average NSFR | Average RSF factor | Average CFR | Average NSFR | Average RSF factor |
| **Very large** | 53% | 116% | 48% | 54% | 109% | 49% | 54% | 106% | 49% |
| **Large** | 58% | 109% | 60% | 57% | 101% | 55% | 57% | 101% | 55% |
| **Medium** | 66% | 98% | 59% | 67% | 112% | 58% | 68% | 112% | 60% |
| **Small** | 66% | 103% | 54% | 76% | 104% | 61% | 75% | 104% | 62% |

Despite the fact that NSFR does not show significant differences in the exposure to funding risk among the different size buckets (data from the EBA NSFR report published in December 2015), the CFR seems to be higher in banks of lower size. This is because the CFR does not take into consideration the assets and off balance sheet (OBS) items held by the banks and the need to provide different stable or core funding depending on their composition.

After examining the average RSF factors, it appears that banks of a smaller size have higher RSF factors. Even though many of these banks have a high CFR, their assets need to be stable/core funded by a relatively higher amount. Therefore, the final exposure to funding risk considering the whole picture should not change too much by size, similarly to the conclusions in the NSFR.

Therefore, the lack of correlation between the NSFR and the CFR is also perceived for the different size buckets.

Figure 14 shows the NSFR and CFR as of December 2014 by absolute size bucket in the whole sample of 279 banks considered.

**Figure 14: CFR versus NSFR by bank and absolute size bucket**

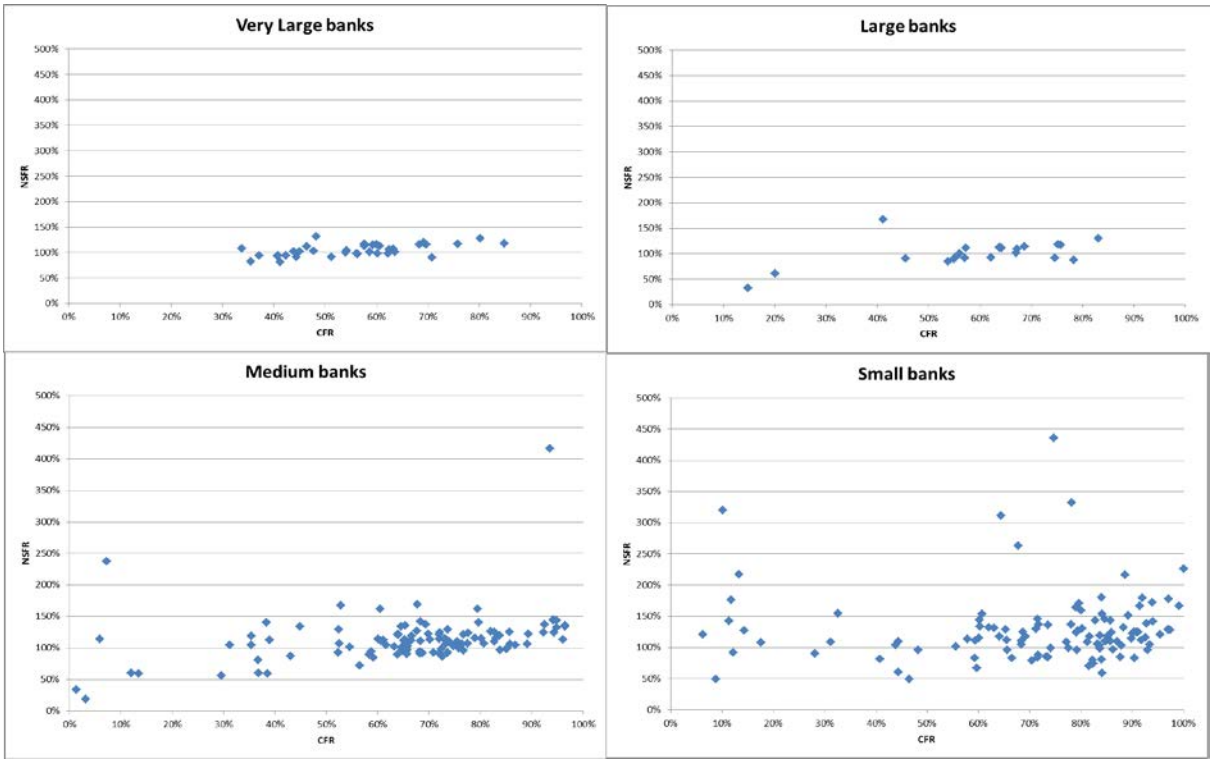



Figure 15 shows the NSFR and CFR values as of December 2014 by relative size bucket (% GDP) in the whole sample of 279 banks considered.

**Figure 15: CFR versus NSFR by bank and relative size bucket (% GDP)**

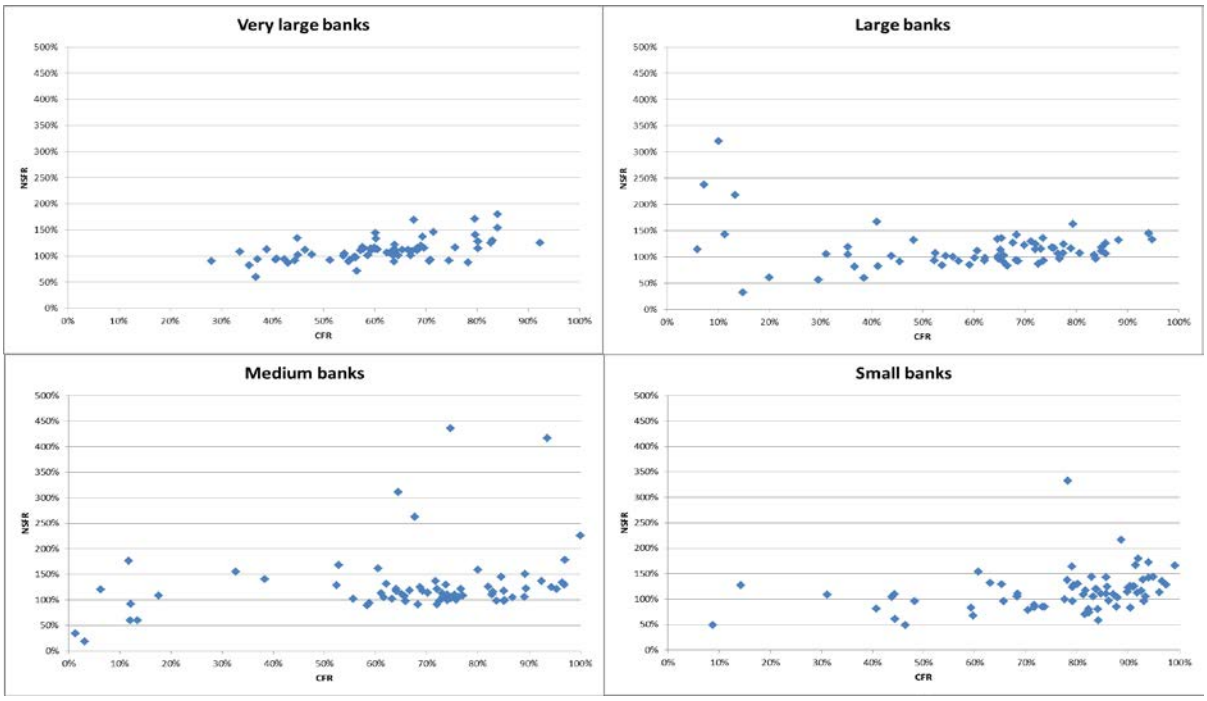


Figure 16 shows the NSFR and CFR values as of December 2014 by relative size bucket (% total assets in domestic banks and foreign branches) in the whole sample of 279 banks considered.

**Figure 16: CFR versus NSFR by bank and relative size bucket (% total assets)**

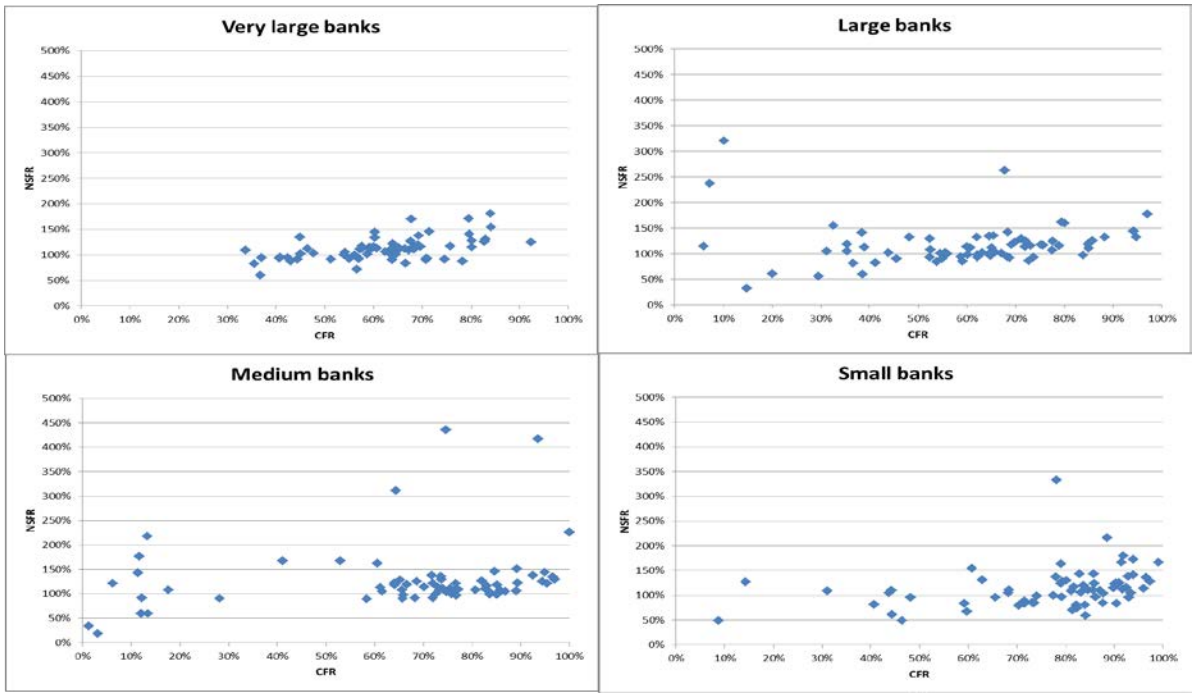



Figure 14, Figure 15 and Figure 16 above show a very low correlation between the CFR and the NSFR, particularly for smaller banks. In the case of larger banks, there appears to be some correlation. Table 6 shows that very large and large banks are the most homogenous size groups in terms of business models.

Indeed, as can be seen in Table 6 below:

- Most of the institutions included in the very large bank group are universal cross-border banks.
- Most of the institutions in the large bank segments are local universal banks.

Therefore, that potential correlation between CFR and NSFR in larger banks is probably explained by the business models these banks form part of and are concentrated on, rather than by their size.

**Table 6: Composition of the sample by size and business model**

| | Auto & cons. | CCP | Co-op | Div. no retail dep. | Local univ. | Mrtg. & build. soc. | Other | Other no retail dep. | Pass-through | Savings | Sec. trading | Univ. cross-border | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Very large** | | | 3 | | 7 | 1 | | | | 1 | | **24** | **36** |
| **Large** | | | 2 | | **11** | | 1 | 1 | 2 | | 3 | 2 | **22** |
| **Medium** | 3 | 2 | **14** | 3 | **34** | **15** | 9 | 6 | 5 | **13** | 1 | 5 | **110** |
| **Small** | 3 | 1 | **27** | | **28** | 4 | 10 | 6 | | **26** | 5 | 1 | **111** |
| **Total** | **6** | **3** | **46** | **3** | **80** | **20** | **20** | **13** | **7** | **40** | **9** | **32** | **279** |

## Correlation between the CFR and the ASF factor

Figure 17 shows the ASF factor and CFR as of December 2014 by absolute size bucket in the whole sample of 279 banks considered.

**Figure 17: CFR versus ASF factor by bank and absolute size bucket**

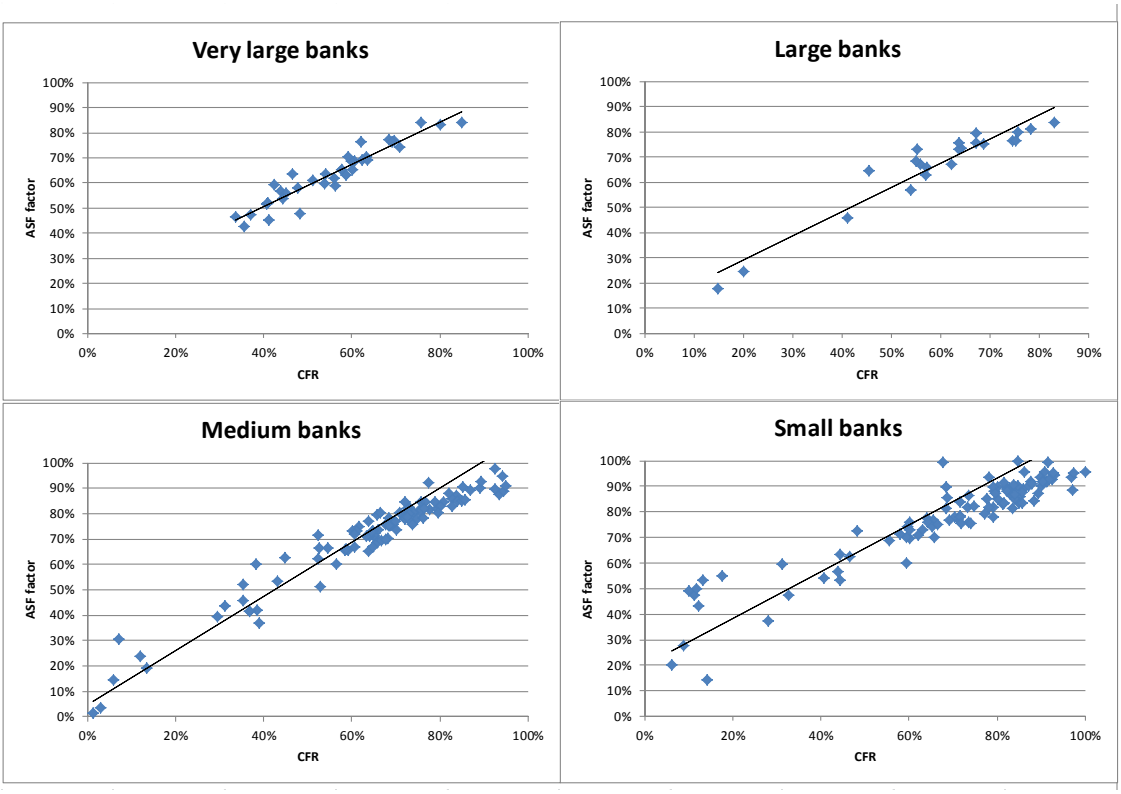
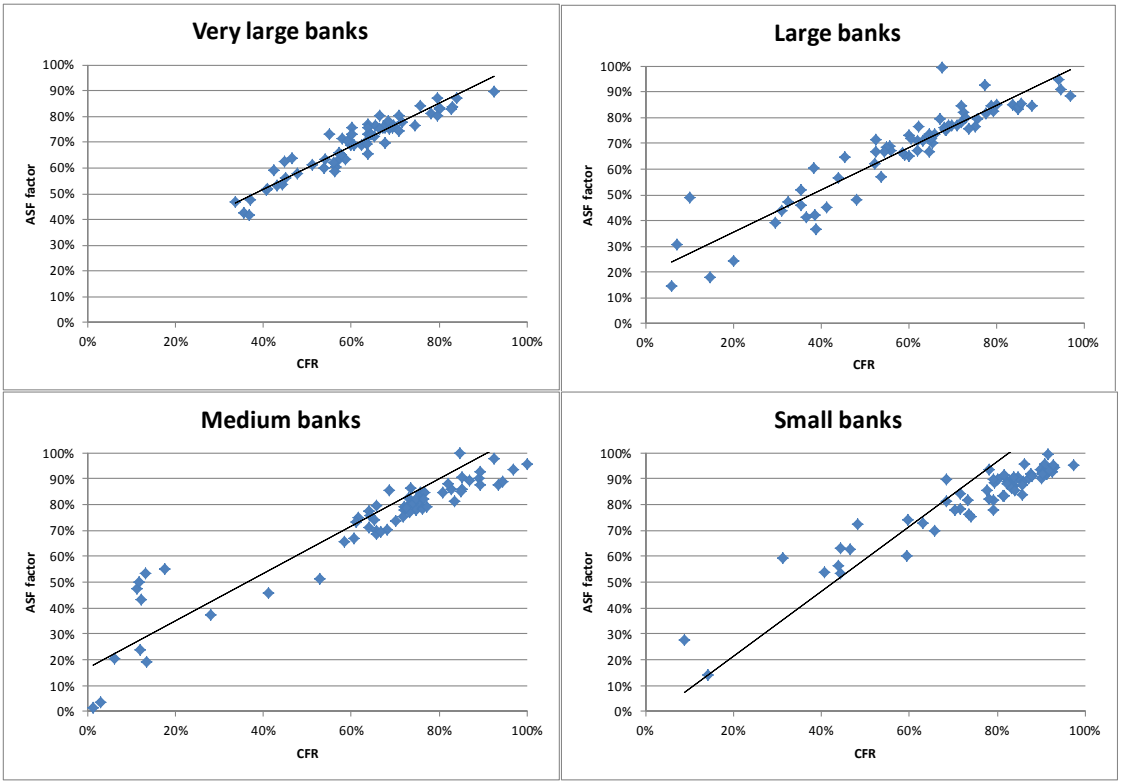


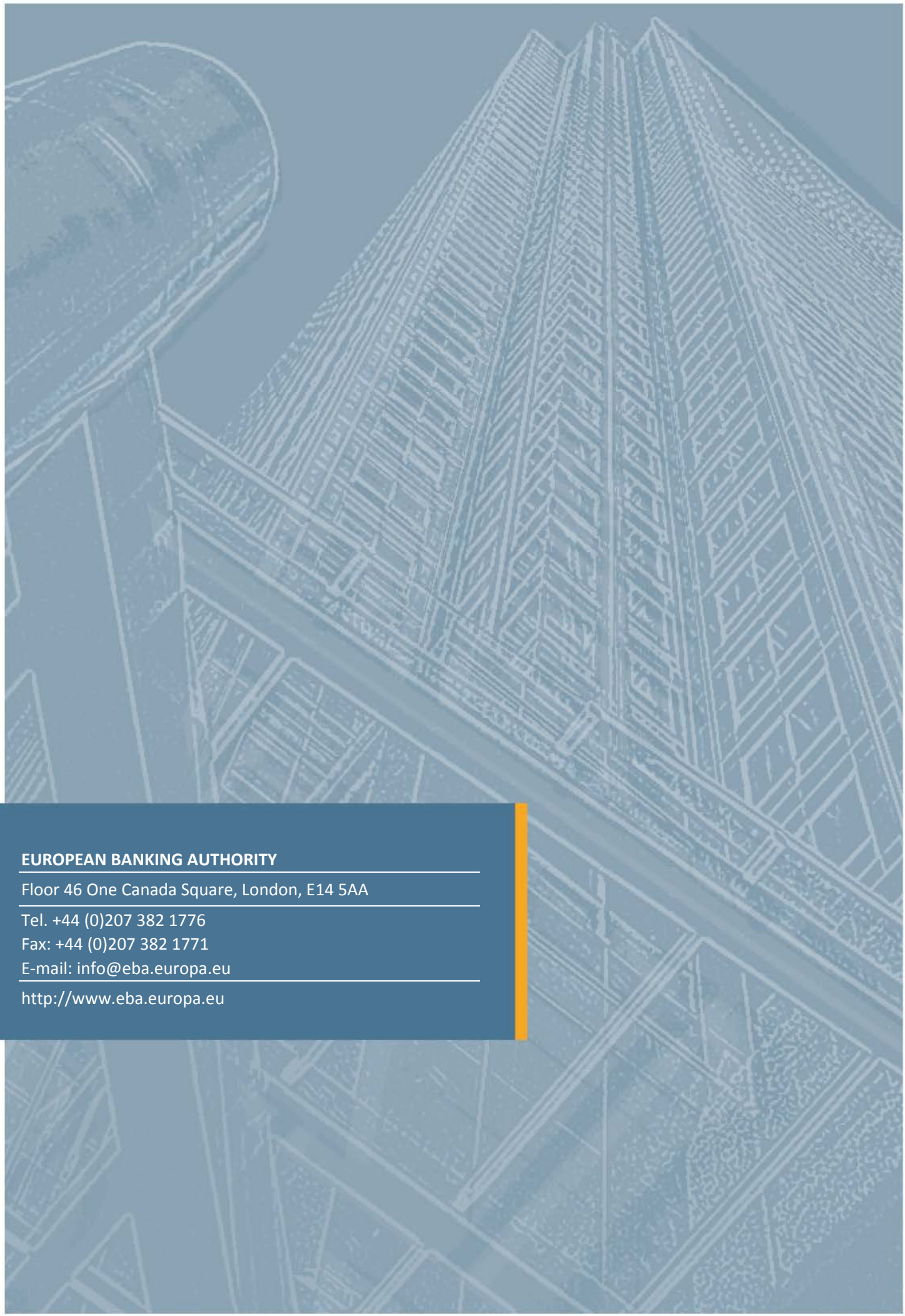
Figure 18 shows the ASF factor and CFR values as of December 2014, by relative size bucket (% GDP), in the whole sample of 279 banks considered.

**Figure 18: CFR versus ASF factor by bank and relative size bucket (% GDP)**


Figure 19 shows the NSFR and CFR values as of December 2014 by relative size bucket (% total assets in domestic banks and foreign branches) in the whole sample of 279 banks considered.

**Figure 19: CFR versus ASF factor by bank and relative size bucket (% total assets)**





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