



BANCA D'ITALIA
EUROSISTEMA

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EU BANK DELEVERAGING

by Pierluigi Bologna*, Marianna Caccavaio* and Arianna Miglietta*

Abstract

We analyse the deleveraging process with reference to a sample of European banks from December 2011 to June 2013 and find that the leverage ratio (measured as assets to equity) has declined on average from 28.6 to 25.0. Its standard deviation fell from 8.2 to 6.5. About 2/3 of the deleveraging has been achieved by raising common equity while 1/3 took place by reducing balance sheet assets. The deleveraging has been more “good” (raising capital and reducing non-core assets) than “ugly” (indiscriminate asset sales) even though only a few banks in our sample managed to pursue it also through a reduction in bad assets. Based on the US experience, we argue that European banks have not yet completed their deleveraging, although what has been done to date is more substantive than it appears prima facie given the generalized increase in banks’ sovereign exposure.

JEL Classification: G21, G01, G28.

Keywords: leverage, deleveraging, European banks, financial stability.

Contents

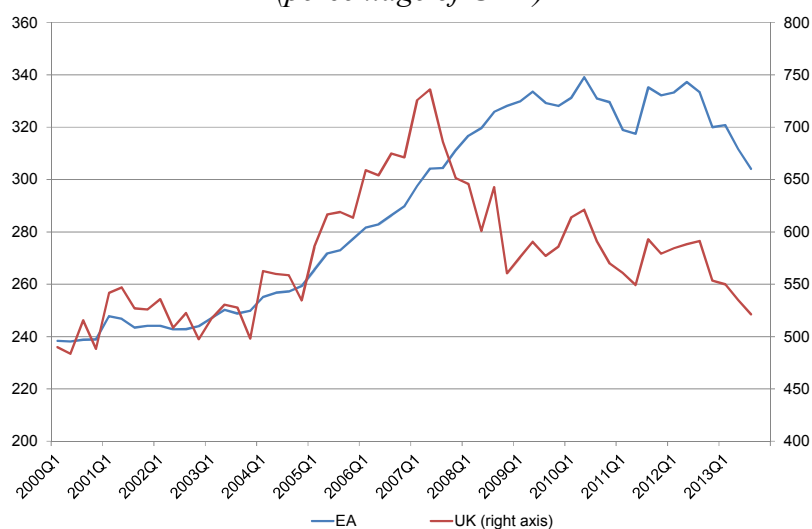
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* Bank of Italy, Financial Stability Directorate.

1. Introduction¹

Ever since the global financial crisis made it apparent that financial institutions had increased their leverage substantially, possibly to unsustainable levels (Figure 1), banks' leverage has been the subject of intense scrutiny. In the run-up to the global financial crisis, many banks experienced a significant increase in lending activities, to both domestic and foreign sectors, fuelled by the abundant availability of cheap funding. In this period, the prevailing banks' business model and the liability structure was distorted in favour of wholesale financing sources, low deposits and inadequate equity, which over time led to higher vulnerability for banks. Many banks expanded, becoming too highly leveraged and too-big-to-fail, while simultaneously accumulating significant risks in their balance sheets. From the beginning of the expansion in 2005 to its peaks in 2010 and 2012, total assets of euro-area monetary financial institutions increased by more than 80 percentage points of GDP (to €34.2 trillion in 2012Q2).

Figure 1. Financial sector debt burden
(percentage of GDP)



Source: Based on ECB data.

Several policy initiatives have been taken to address these threats to financial stability. Among others, the Basel Committee on Banking Supervision (BCBS) has introduced an explicit regulatory limit on banks' leverage. Banks have therefore been forced to both reduce their risk exposure and to improve their capital position, which has resulted in a push towards sharp deleveraging. At the same time, tighter conditions in debt and interbank markets have helped intensify the process. Overall, the adjustment observed at the global level has reflected regulatory and financial factors, as well as the need to revise the unsustainable business models that had characterized banking activity before the crisis. In Europe, banks have sharply reduced the size of their balance sheets and have issued large amounts of equity.

In this perspective, it is widely acknowledged that deleveraging has been a necessary medicine to restore banks' health. Policy makers have repeatedly expressed support for the idea that the restructuring of balance sheets could help re-establish sustainable conditions for the conduct of banking business and to serve the economy (Draghi, 2014). Nonetheless, the process has to be properly managed in order to avoid both a disorderly sell-off of assets and an excessively prolonged

¹ We benefited from comments and insights by Antonio Di Cesare, Giorgio Gobbi and Fabio Panetta during the various stages of the analysis. The views expressed in the paper do not necessarily reflect those of the Bank of Italy.

adjustment period, which could undermine the economy. Indeed, in certain conditions deleveraging can be harmful for economic growth and for financial stability. It is “good” if carried out by reducing bad or non-strategic assets, while at the same time raising capital. In this case, the swift reallocation of credit to more productive sectors could eventually contribute to the economic recovery. It is “bad” if deleveraging implies indiscriminate sales aimed at reducing overall indebtedness, regardless of the quality of the assets. This process could have adverse economic consequences, especially if undertaken in a disorderly fashion, through an abrupt reduction in credit to the economy. Finally, an extreme scenario of “ugly” deleveraging is a situation where banks discard good assets, while maintaining bad assets on balance sheet. This strategy could lead to the emergence of “bad banks”, with limited prospects for channelling credit to the real economy (Cœuré, 2014). The risks implied in the deleveraging process make this issue particularly important from a policy perspective.

Bearing in mind the various policy initiatives aimed at containing banks’ leverage, we analyse the main features of the deleveraging process undertaken by a sample of the largest European banks, shedding light on its timing and components. We then compare it with the adjustment carried out by the largest US banks, in order to contextualize EU bank deleveraging and to assess its future prospects.

The paper is organized as follows: Section 2 describes the data and the measure of leverage used; Section 3 illustrates the evolution of the leverage for our sample over the last 3 years and examines its components; Section 4 compares the sample of EU banks with the largest US banks and discusses the possible prospects for deleveraging by European banks. Section 5 concludes.

2. The dataset and the measure of leverage

The dataset includes 43 of the 64 banks involved in the Transparency Exercise carried out by the European Banking Authority (EBA) in December 2013.² The banks selected belong to the following ten countries: Austria, Belgium, Germany, Denmark, Spain, France, United Kingdom, Italy, the Netherlands, and Sweden (Table 1).

The country subsampling allows us to streamline the sample size without losing representativeness, as the banks retained in our dataset are the largest in Europe and account for 94 per cent of the total assets of the EBA banks. The remaining 6 per cent of the EBA banks’ assets is given by intermediaries from Cyprus, Finland, Hungary, Ireland, Luxemburg, Malta, Norway, Poland, Portugal and Slovenia, which are not considered in this analysis.

The banks in our sample also account for a large share of the total assets of the countries taken into consideration: on average they represent 79 per cent of the banking systems’ assets of the 10 European countries considered in the analysis. At country level the share of the sample banks’ assets ranges from a minimum of 41 per cent of the total banking system assets for Austria to a maximum of 96 per cent for France.

² The banks considered in the latest EBA EU Transparency exercise were also part of the EBA EU-wide Capital exercise carried out in December 2012.

Table 1. Sample of banks

Country	Number of banks	Banks	Total assets at December 2012		
			billions of euros	share of country's consolidated banking system assets (1)	share of country's GDP (1)
Austria	2	Erste Group Bank AG, and Raiffeisen Zentralbank Österreich AG	350	41.3	114.0
Belgium	1	KBC Bank	225	43.2	59.8
Denmark	4	Danske Bank, Jyske Bank, Sydbank, and Nykredit	714	88.5	291.2
France	4	BNP Paribas, Credit Agricole, BPCE, and Societe Generale	6,314	95.9	310.7
Germany	11	Deutsche Bank AG, Commerzbank AG, Landesbank Baden-Württemberg, DZ Bank AG Dt. Zentral-Genossenschaftsbank, Bayerische Landesbank, Norddeutsche Landesbank-GZ, HSH Nordbank AG Hamburg, Landesbank Hessen-Thüringen GZ Frankfurt, Landesbank Berlin AG, DekaBank Deutsche Girozentrale Frankfurt, and WGZ Bank AG Westdt. Geno. Zentralbk Ddf (2)	4,588	63.2	172.1
Italy	5	Intesa Sanpaolo S.p.A, Unicredit S.p.A, Banca Monte dei Paschi di Siena S.p.A, Banco Popolare S.C., and UBI Banca	2,084	80.1	133.0
Netherlands	3	ING Bank NV, Rabobank Nederland, and ABN Amro Bank NV	2,064	85.5	344.3
Spain	4	Banco Santander S.A., Banco Bilbao Vizcaya Argentaria S.A., Caja de Ahorros y Pensiones de Barcelona, and Banco Popular Espanol S.A.	2,424	67.4	235.5
Sweden	5	SNS Bank NV, Nordea Bank AB, SEB AB, Svenska Handelsbanken AB, and Swedbank AB	1,456	89.5	356.9
United Kingdom	4	Royal Bank of Scotland plc, HSBC Holdings plc, Barclays plc, and Lloyds Banking Group plc	6,642	88.0	343.6
Sample banks	43		26,860	79.5	240.6
Other banks (3)	21		1,634 (4)		
Total EBA banks	64		28,494 (4)		

(1) Percentage. (2) Hypo Real Estate Holding AG is not included due to missing data. (3) Other banks in the EBA EU Transparency exercise not included in the analysis are from Cyprus, Finland, Hungary, Ireland, Luxemburg, Malta, Poland, Portugal, and Slovenia. (4) The value does not include total assets for Irish Life and Permanent.

Sources: Based on SNL Financial and ECB data.

The data are consolidated at group level and semiannual from 2007-H2 to 2013-H1, with a focus on the post-crisis period from 2011-H2 to 2013-H1 as greater details are made available by EBA (2012 and 2013b). The sources of data used in the analysis are the EBA (2012 and 2013b) and SNL Financial. Table 2 reports the summary statistics for the sample.

The leverage ratio at time t is computed as the ratio of total assets (A) to equity (E). As a measure of total assets A we use the total assets on the bank's balance sheet. As a measure of equity E we use common equity. We deem common equity to be a reliable proxy of the actual level of a bank's net worth because it is not affected by any regulatory definition and/or by any possible difference in its interpretation across jurisdictions. On the basis of this measure of capital, banks are therefore more easily comparable with each other regardless of the country in which they are headquartered. We calculate the common equity E as the sum of equity capital, reserves, earnings of the reference period and share premia, net of own shares, intangibles, and losses (if any) of the reference period.

Table 2. Summary statistics

Variable		Simple average	Median	Min	Max	St. dev.
Leverage	Dec 11	28.60	28.19	16.17	52.35	8.15
	June 13	24.73	23.86	13.75	42.79	6.43
Total assets (1)	Dec 11	628,712	309,172	20,649	2,164,103	624,735
	June 13	601,902	306,807	18,969	2,035,571	592,767
<i>Sovereign exposures (2)</i>	Dec 11	8.24	7.10	1.67	28.40	0.06
	June 13	11.50	10.99	0.83	26.92	0.06
<i>Customer loans (2)</i>	Dec 11	49.73	51.81	20.50	79.51	0.15
	June 13	49.39	50.71	20.95	84.25	0.14
<i>Private sector securities and derivatives (2)</i>	Dec 11	24.30	21.25	3.63	60.18	0.14
	June 13	21.09	19.49	2.04	52.32	0.13
<i>Cash and cash equivalents (2)</i>	Dec 11	11.77	9.79	2.79	29.88	0.06
	June 13	11.85	11.43	3.00	30.26	0.06
Risk Weighted Assets (1)	Dec 11	214,307	114,911	9,510	934,782	205,567
	June 13	195,138	94,300	9,560	847,407	191,754

(1) Billions of euros. (2) Percentage of total assets.

Sources: Based on EBA and SNL Financial data.

Our calculation of the leverage ratio should not be considered immediately comparable with that adopted by the BCBS and included in the Basel 3 package. This is because our measure differs in at least two respects, one of which is purely formal and another more substantive. First, the BCBS requires the computation of the leverage ratio as capital to assets, while we do the reverse. Second, the measure of capital used by the BCBS is the Tier 1 capital of the BCBS risk-based capital framework (2011), while we use the common equity definition just mentioned. As for the quantification of assets, the two metrics are broadly consistent, albeit with some differences that vary in importance from bank to bank, due to a number of valuation adjustments explicitly required by the BCBS and not considered in this study.³

3. The evolution and modalities of EU banks' deleveraging

3.1 The evolution of the leverage ratio

From December 2011 to June 2013, the average leverage ratio for the banks in the sample fell from 28.6 to 25.0 (Figure 2a). The decline was accompanied by a substantial shift in the distribution of the leverage ratio across the sample banks (Figure 2b), with the maximum falling by almost 10 points and the median by 4; the standard deviation also declined (from 8.2 to 6.5).

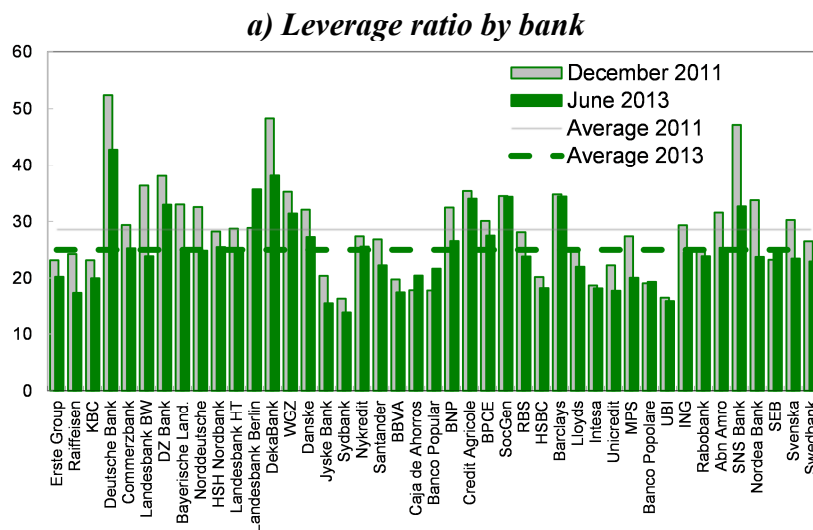
The banks' headcount highlights that the leverage declined for 38 out of 43 banks.⁴ Overall, the banks with a higher initial leverage are those that reduced it most over the period. For instance, the seven banks with the highest leverage ratio (above 35.0) have seen their leverage declining on average by 6.0 points (compared to 3.6 points for the sample), while the reduction has been equal to only 0.3 points for the seven banks with the lowest ratio (below 20.0).

³ The Basel Committee on Banking Supervision (2014) specifies that the asset measure should follow the accounting value, subject to the following adjustments: a) "non-derivative exposures are included in the exposure measure net of specific provisions or accounting valuation adjustments (e.g. accounting credit valuation adjustments)"; b) "netting of loans and deposits is not allowed".

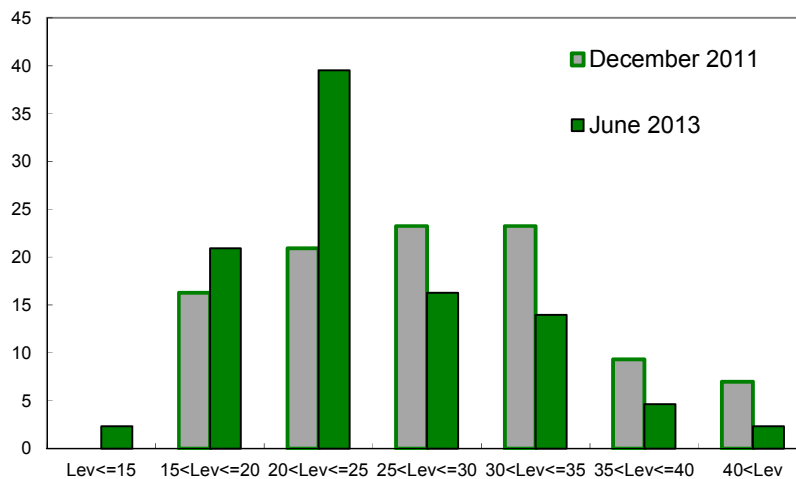
⁴ The five banks showing an opposite trend are Landesbank Berlin (DE), Caja de Ahorros and Banco Popular (ES), Banco Popolare (IT) and SEB (SE).

At both dates, the highest leverage was that of Deutsche Bank (52.4 in December 2011, 42.8 in June 2013), the lowest that of the Danish Sydbank (16.2 in December 2011, 13.7 in June 2013). For the Italian banks in the sample the leverage ratio was, at both dates, below the sample average: on aggregate it was 20.7 in December 2011 and 18.0 in June 2013, when it ranged from 15.7 (UBI) to 20.0 (MPS).

Figure 2. Leverage ratio of European banks



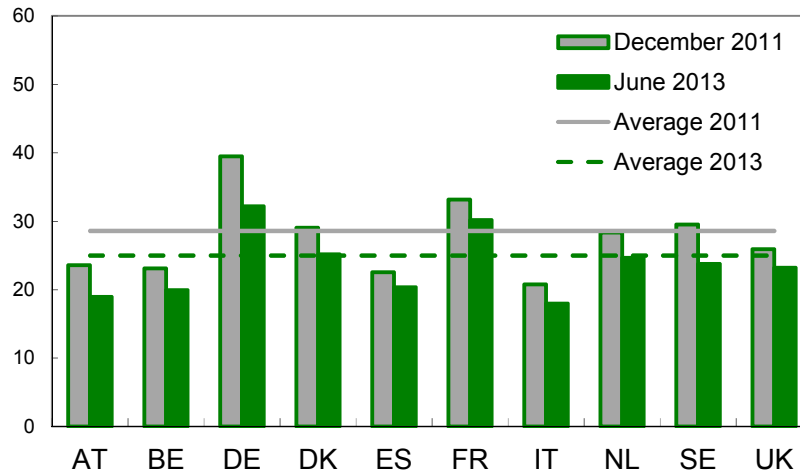
b) Distribution of banks by leverage ratio (percentages)



Source: Based on EBA data.

Aggregating the sample banks by country of residence, we observe that the leverage fell in all cases, regardless of the initial level (Figure 3). In June 2013, the highest leverage was that of German banks (32.2), followed by the French ones (30.2); the lowest was in Italy.

**Figure 3. Leverage ratio of EU banks
by country of residence**



Source: Based on EBA data.

3.2 How is deleveraging progressing?

Deleveraging by European banks is essential to regain a more balanced capital structure and thereby enhance financial stability; however, as we recalled initially, not all types of deleveraging necessarily produce the same effects. Broadly speaking, a change in the leverage ratio can be achieved both by changing assets and/or by changing equity. Deciding to act more on one or the other factor crucially depends on banks' incentives and expectations; the way the deleveraging process itself occurs can have different implications for financial stability, credit availability and ultimately for economic growth. A similar argument also applies to the decision to adjust the asset side of the balance sheet by choosing one or other asset class. Therefore, from a policy perspective, it becomes important to ascertain how the deleveraging is taking place and whether the observed development can be considered as being "good", "bad, or "ugly" for the real economy.

To shed light on the components of the observed deleveraging we use the so called shift-share analysis. This technique, which was first applied by Dunn (1960), is mostly used in regional and urban economic research to describe how much of the growth rate of a local variable can be attributed to national and regional factors. It is a descriptive technique and cannot be used to figure out the determinants of economic trends, but it is certainly helpful in identifying the contribution of the different factors that influence a variable change.⁵

Our first step is to use this technique to determine how much of a change over time in the leverage ratio is due to a change in assets and/or in equity.

More formally, the change in the leverage ratio over one period can be decomposed as follows:

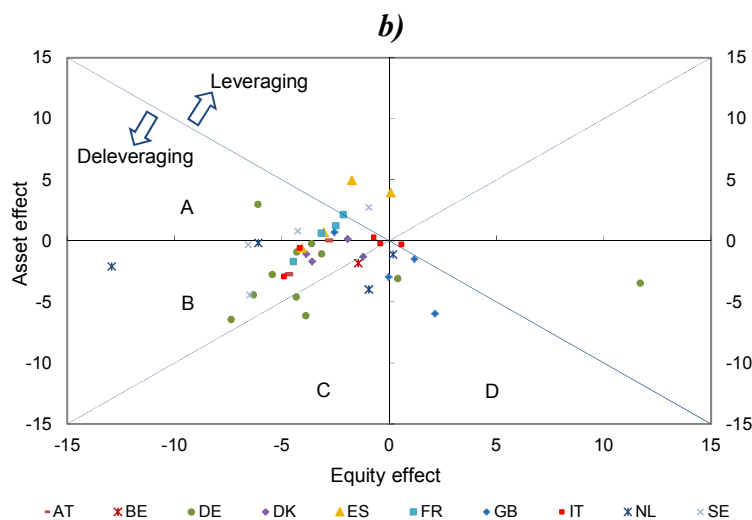
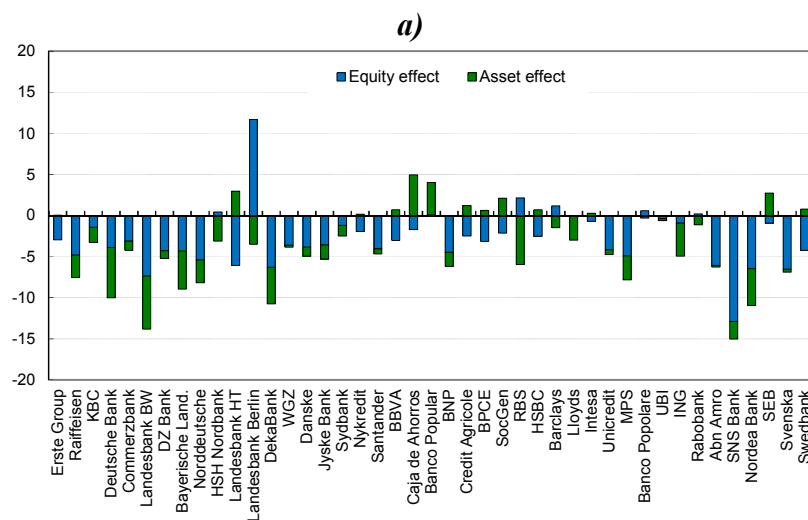
$$\Delta Lev_{t,t-1} = \frac{A_t}{E_t} - \frac{A_{t-1}}{E_{t-1}} = \frac{A_t - A_{t-1}}{E_{t-1}} + A_{t-1} \left(\frac{1}{E_t} - \frac{1}{E_{t-1}} \right) + (A_t - A_{t-1}) \left(\frac{1}{E_t} - \frac{1}{E_{t-1}} \right) \quad (1)$$

⁵ Stevens and Moore (1980), Selting and Loveridge (1992), and Shi and Yang (2008) review the literature on the shift-share analysis.

where the “asset effect” is $\frac{A_t - A_{t-1}}{E_{t-1}}$, the “equity effect” is $A_{t-1} \left(\frac{1}{E_t} - \frac{1}{E_{t-1}} \right)$ and the “residual effect” is $(A_t - A_{t-1}) \left(\frac{1}{E_t} - \frac{1}{E_{t-1}} \right)$.

The result of the above decomposition, computed over the period December 2011 to June 2013, is shown in Figure 4,⁶ with negative changes indicating a contribution to the decline of leverage and positive changes indicating a contribution to its increase. In other words, a negative change reads as a contraction in leverage, resulting from either a reduction in assets or an increase in equity, or a combination of both; a positive change, instead, reads as the result of either higher assets or lower equity, or both.

Figure 4. Components of the changes in leverage by European Banks
(December 2011 - June 2013)



A = equity increase more than offsetting assets increase
 B = equity increase and asset reduction (equity increase prevails)
 C = equity increase and asset reduction (asset reduction prevails)
 D = asset reduction more than offsetting equity reduction

Source: Based on EBA data.

⁶ The residual component $(A_1 - A_0) \left(\frac{1}{E_1} - \frac{1}{E_0} \right)$ is not presented in the figure.

Overall, in the period under consideration deleveraging occurred by acting on both assets and equity, though equity played a much more important role in abating leverage. The majority of banks in the sample reduced leverage by mainly raising capital (Figure 4a), which accounted for about 2/3 of the deleveraging. On average, common equity increased by 9.6 per cent, while assets decreased by 4.3 per cent.

A scatterplot of the banks' change in leverage mapped on its two drivers, assets and equity, highlights their relative contribution to deleveraging (Figure 4b). The dots below the solid diagonal refer to the banks that deleveraged, the very few above that line are those that increased their leverage. In the first group, for 10 out of 38 banks the negative equity effect more than offset increases in assets (Sector A). For the banks for which both assets and equity were factors in deleveraging, in 18 cases the equity effect was larger than the asset effect (Sector B) while in 6 cases the asset effect was larger than the equity effect (Sector C). For just 4 banks, assets were the only determinant of deleveraging, more than offsetting a decline in equity (Sector D).⁷

As for the 4 Italian banks that deleveraged, three involved contributions from both assets and equity but mostly equity (Sector B), while in one case deleveraging was driven by equity only with its effect more than offsetting the increase in assets (Sector A).

Our second step involves shedding more light on the types of asset class which contributed most to the observed deleveraging. We use banks' balance sheet information available from the EBA (2013b) and SNL Financial to split the "asset effect" into five classes: 1) net loans to customers,⁸ 2) sovereign exposure, 3) private sector securities and derivatives, 4) cash and cash equivalents, and 5) other assets. We do so by simply reapplying equation (1) and subdividing the overall "asset effect" as follows:

$$\Delta Lev_{t,t-1} = \frac{A_t}{E_t} - \frac{A_{t-1}}{E_{t-1}} = \sum_{i=1}^5 \frac{A_{i,t} - A_{i,t-1}}{E_{t-1}} + A_{t-1} \left(\frac{1}{E_t} - \frac{1}{E_{t-1}} \right) + (A_t - A_{t-1}) \left(\frac{1}{E_t} - \frac{1}{E_{t-1}} \right) \quad (2)$$

where i refers to each of the five asset classes for which the effects on leverage are computed.

The results show that the contribution of the asset reduction towards deleveraging reflected a decline of 18.7 per cent in private sector securities and derivatives exposure (for 34 out of 43 banks) and a contraction of 3.8 per cent in customer loans (for 29 banks) (Figure 5a). While the contraction in loans to customers was lower than that of the exposure in private sector securities and derivatives, the effect of the former has been remarkable if we take into account the different degree of market liquidity for the two asset classes. We also observe that for most banks the reduction in net loans to customers involved only performing loans (Figure 5b) with a very limited contribution from impaired assets, which instead generally increased.⁹ This circumstance further aggravates the consequences for the real economy of this component of deleveraging.

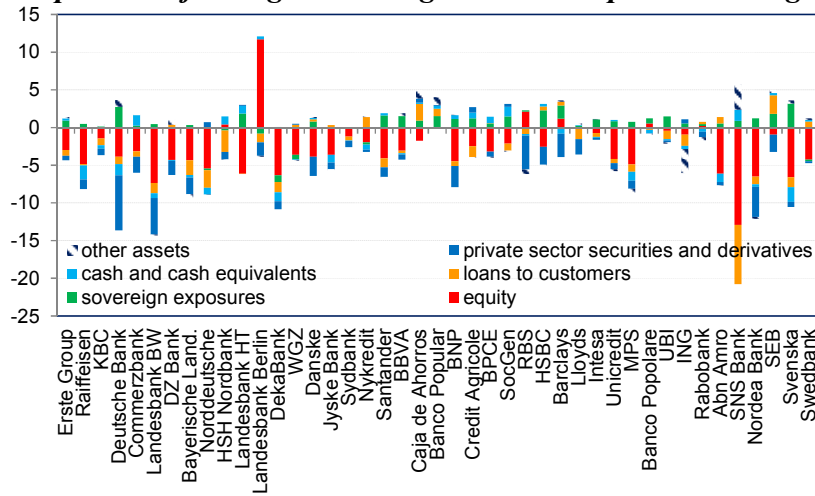
⁷ These are the cases of RBS and Barclays (UK), Rabobank (NL) and HSH Nordbank (DE).

⁸ Total loans and finance leases outstanding, including those held for sale. The value is net of unearned discount and loan-loss reserves, and does not include interest receivable on loans.

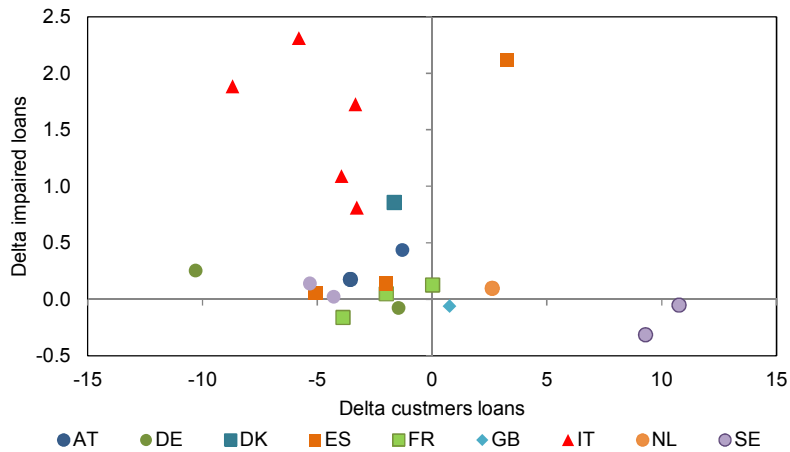
⁹ The information about the quality of the loans to customer portfolios is available for 22 out of the 38 banks in the sample that reduced their leverage. Only five banks managed to slash their non-performing loans portfolio as part of their deleveraging process during the period considered (Credit Agricole, Deutsche Bank, HSBC, SEB and Swedbank).

Figure 5. Decomposition of European bank leverage dynamics
(December 2011 - June 2013)

a) Components of change in leverage with decomposed assets' growth



b) Contributions to assets' growth: performing versus non-performing loans (1)

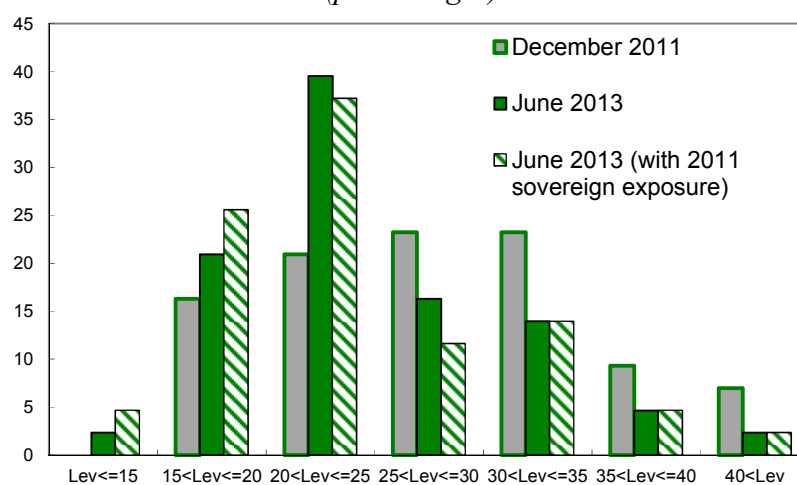


(1) Data on non-performing loans are available for 22 out of the 38 banks for which deleveraging is observed.

Sources: Based on EBA and SNL Financial data.

By contrast, the exposure to sovereign issuers, which grew by 68.2 per cent over the period, pushed leverage up in most cases (36 banks). Without this increase, EU bank deleveraging would have been more pronounced, with the average leverage ratio at 24.0 instead of the current 25.0 and a more downward shifted distribution (Figure 6).

Figure 6. Distribution of banks by leverage: comparing different levels of sovereign exposure
(percentages)



Source: Based on EBA data.

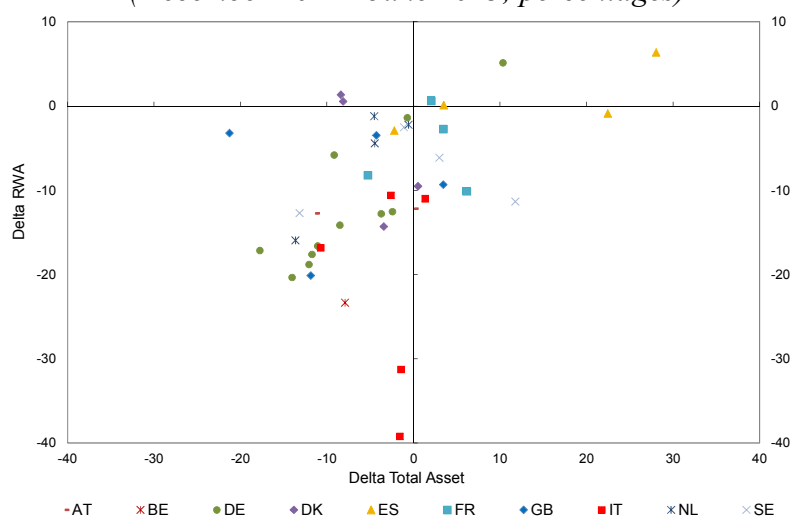
The effect of cash and cash equivalent positions played a more mixed role, helping to reduce leverage in about half of the cases (24 banks), and to a much smaller extent compared to other asset classes. The effect of other unexplained assets is negligible for almost all banks, with contributions equally split between deleveraging and leveraging, thus confirming the good explanatory role of the other balance sheet items considered.

For the Italian banks the “asset effect” was on average the lowest among those banks for which, grouped by country, asset growth contributed to the deleveraging. Italian banks’ assets fell by 2.2 per cent, compared to a 4.3 per cent decline for the whole sample. The decline in private sector securities was smaller for the Italian banks relative to the sample average (-16.1 per cent), but the contraction in customer loans was higher (-5 per cent). The exposure to sovereign issuers grew by less compared to the sample average (+46.8 per cent). Without this increase in sovereign exposure the leverage of Italian banks would have fallen to 17.1 compared to the current 18.0.

In this situation of generalized deleveraging, almost all the sample banks appeared to have also markedly reduced their risk exposure, assuming this to be well captured by the bank’s risk-weighted assets (RWAs). The contraction in RWAs was more pronounced than the observed shrinkage in banks’ balance sheet size, and took place even in cases of banks expanding their balance sheet (Figure 7) confirming the evidence that most of the asset growth resulted from increases in sovereign debt exposure, to which a zero risk weight is typically associated. Two Italian banks emerge as outliers in terms of RWAs, with contractions more than 3.5 times higher than the sample average. Nonetheless, a caveat applies to this evidence, as important differences in RWAs’ measurement practices exist among different jurisdictions.¹⁰

¹⁰ As shown by analysis carried out by the BCBS (2013) and the EBA (2013a).

Figure 7. Balance sheet assets and risk-weighted assets of EU banks
(December 2011 - June 2013; percentages)



Sources: Based on EBA and SNL Financial data.

4. EU banks' deleveraging in perspective

4.1 An international comparison

Having discussed the advancement and modalities of deleveraging up to June 2013, it becomes important, particularly from a policy perspective, to ascertain where banks stand in the process and identify possible further deleveraging needs.

To assess better the degree of advancement of the deleveraging process based on the sample of European banks considered in the analysis, we use the US banking system as a reference. We compute the leverage ratio of the 10 largest US banks in December 2008 (the peak of leverage and of the US financial crisis), in December 2013 and June 2013 (Figure 8a). The leverage ratio fell for all banks as did the sample standard deviation. In June 2013 the leverage ratio ranged from 11.4 to 16.5 (excluding Bank of New York Mellon, which had a leverage ratio of 30.5).

In this section, due to data availability, we slightly change the definition of the leverage ratio used elsewhere in the paper for European banks in order to make it comparable with the sample of US banks considered. This allows us to assess the dynamics of the average leverage ratio of the two groups on a more comparable basis.¹¹

Despite using the same definition of leverage, the comparability between the metrics for US and EU banks remains potentially problematic because of variations in the financial reporting standards used in the two regions which, despite ongoing efforts toward convergence, are still significantly different.¹² Hence caution is needed in interpreting the reported evidence.

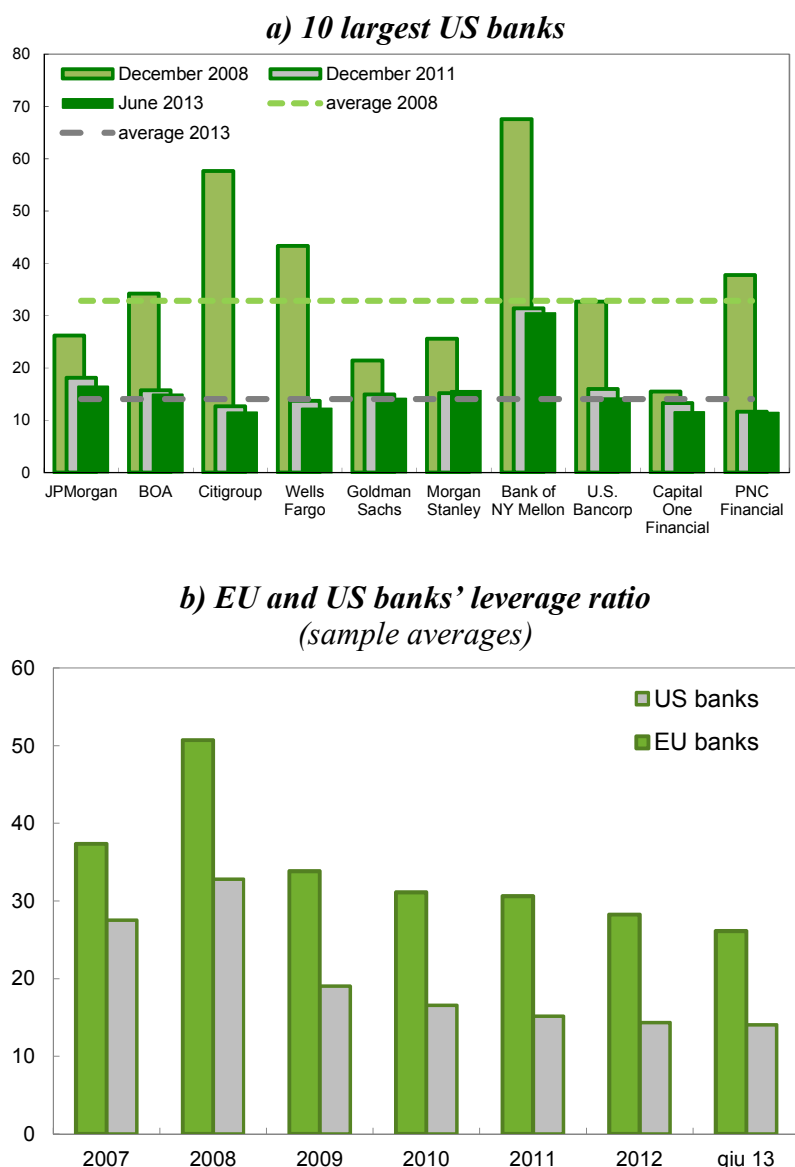
¹¹ In this section, we compute the leverage ratio as the ratio of total balance sheet assets to tangible common equity while elsewhere in the paper we compute it using the measure of common equity described in Section 2 and available in EBA (2013b). As a consequence, the European banks' leverage computed, albeit broadly consistent, differs from that previously shown in the paper.

¹² Europe has adopted the International Financial Reporting Standards (IFRS) while the US adheres to the US GAAP. According to the Financial Accounting Standard Board (2014) a number of countries, including China and Japan, are working to converge with the IFRS. So is the United States, where the Securities and Exchange Commission (SEC) has

Nonetheless, while it might be problematic to compare the levels of the leverage ratio between US and EU banks, their dynamics over time should be less exposed to these caveats. For both groups the leverage ratio decreased from its December 2008 peak (Figure 8b). However, the fall was of a smaller magnitude for EU banks than for US banks. For EU banks the average leverage ratio decreased by 48.2 per cent, from 50.5 to 26.1, for the latter it fell by 57.1 per cent, from 32.8 to 14.1.

This evidence suggests that, even if we assume that European banks' leverage is structurally higher than that of US banks – possibly also because of the differences in accounting standards – US banks deleveraged more than EU banks in relative terms from the peak.

Figure 8. US and European banks leverage ratio (1)



(1) The leverage ratio is computed as the ratio of total assets to tangible common equity. Source: based on SNL Financial data.

consistently supported convergence of global accounting standards. However, the SEC has not yet decided whether to incorporate IFRS into the US financial reporting system.

One argument to explain higher deleveraging by US banks is the different timing and features of the crises that hit the two continents: US banks were hit first and on average more severely than EU banks, calling for prompter deleveraging in the US system. The different policy responses to the crisis by the US and EU authorities may have also contributed to the different pace of deleveraging. In the EU, in fact, the action on banks' recapitalisation was delayed by the large size of banks relative to the domestic economy, which made recapitalisation with public money more difficult (Buttiglione et al., 2014), and by governance and structural factors (such as the cross-shareholdings typical in a number of euro-area countries), which created obstacles to the initiation of a decisive recapitalisation process (Reichlin, 2013).

4.2 *Should EU banks deleverage more?*

The different scales of deleveraging in Europe and America, together with the current market environment in Europe – also following the Comprehensive Assessment of the 120 largest banks in the euro area (14 of which are Italian) carried out by the ECB and the national supervisory authorities ahead of the entry into force of the Single Supervisory Mechanism in November 2014¹³ – suggest that EU banks might need to deleverage more. If this is the case, then the deleveraging by the US banks might be a useful benchmark for shedding light on what could ensue for EU banks that keep curtailing their leverage.

We therefore carry out a *what if* exercise to explore the alternative paths to the deleveraging that might be needed by our sample EU banks. We assume a target average leverage ratio of 21.6, corresponding to a 57 per cent decline in leverage from the peak, a number which is consistent with the deleveraging achieved by the largest US banks. This target would require an additional 17.2 per cent decline from the June 2013 leverage ratio. We explore three alternative scenarios for the additional deleveraging:

- i)* Reducing assets only;
- ii)* Increasing equity only;
- iii)* Reducing assets and increasing equity.

The results (Table 3) show that in scenario *i*) achieving the target leverage ratio would translate into a further fall of 17.3 per cent in assets from the June 2013 level, equal to 39.4 percentage points of the sample countries' GDP. In scenario *ii*) the target leverage ratio would be achieved with an additional growth of 20.9 per cent in banks' equity, equal to 1.8 percentage points of the sample countries' GDP.

In the more realistic scenario *iii*) we assume a mix of contraction in assets and increase in equity, replicating the asset and equity effects observed in the period December 2011 to June 2013. Under this scenario, we would observe a decrease of 6.1 per cent in assets together with an increase of 13.5 per cent in equity (13.9 and 1.2 percentage points of GDP respectively) to achieve the target leverage ratio.

¹³ See Banca d'Italia (2014) for more details on the road to Banking Union.

**Table 3. Scenario analysis of deleveraging paths
of European banks (1)**
(millions of euros and per cent)

Scenarios	<i>i</i>	<i>ii</i>	<i>iii</i>
	Decrease in assets only	Increase in equity only	Mix of decrease in assets and increase in equity (2)
Decrease in assets from June 13 level	4,483,326	--	1,578,131
<i>percentage change</i>	-17.3		-6.1
<i>share of GDP</i>	39.4		13.9
Increase in equity from June 13 level	--	207,212	134,295
<i>percentage change</i>		20.9	13.5
<i>share of GDP</i>		1.8	1.2

(1) The target leverage ratio for the scenario analysis is 21.6 per cent. This would lead European banks to a 57 per cent decline in the ratio from the peak, a result comparable to that achieved by the 10 largest US banks. The leverage ratio is computed as the ratio of total assets to tangible common equity. (2) The assumed changes in assets and equity reflect the contributions of asset and equity effects to the change in leverage observed from December 2011 to June 2013.

While we acknowledge that the first two scenarios are extreme, the third one is more realistic though it still entails a sizeable adjustment. Under this scenario, a substantial contribution to the assumed “still-to-be-done” deleveraging could come from a normalization of banks’ sovereign exposure, as briefly mentioned in Section 3. In fact, if banks were to reduce their sovereign portfolios to the levels of December 2011, their assets would decline by 4.1 per cent, an amount equal to about 1/3 of the assumed asset decline under scenario *iii*). This measure would reduce the average leverage ratio by 1 point, to 25.1.

More extreme hypotheses in terms of decline in sovereign exposure would improve leverage further: halving the June 2013 banks’ sovereign exposure would translate into a 5 per cent decline in assets and a leverage ratio of 24.8.

Hence, even if insufficient per se relative to the target, severing the banks-sovereign link – which could be accomplished *ceteris paribus* by lowering bank appetite for sovereign exposure – would be important for achieving a lower level of leverage and accordingly improving banks’ soundness.

Capital increases should also continue to play a key role in the remaining part of the deleveraging process. Consider, for example, that the Bank of Italy (2014) reports that in the first few months of 2014 nine Italian banking groups (of which 8 involved in the Comprehensive Assessment) completed or announced capital increases totalling about €10 billion. Market rumours and available information also indicate that several other banks across Europe have already or intend to raise their capital further in the coming months.¹⁴ These could also be driven by domestic policy initiatives as a number of authorities have recently announced that they will ask large banks to hold more capital than required under the Basel III minima.¹⁵

¹⁴ For example, Deutsche Bank announced it would issue €1.5 billion of CoCos this year and a total of €5 billion by end-2015. It also reportedly acknowledged that it could not exclude the possibility of having to raise further equity. Some Landesbanken are also expected to issue additional capital to replace legacy Tier 1 issuance and improve capitalization (International Monetary Fund, 2014).

¹⁵ These are the cases of the Netherlands (De Nederlandsche Bank, 2014) and Sweden (Finansinspektionen, 2014).

With the aim of reducing deleveraging towards the target, some role could also be played by asset disposals, particularly of non-performing and/or non-strategic assets, as a number of initiatives in this regard have already been announced or are on-going (IMF, 2014).

Another issue related to any further deleveraging is its timing. The EU banks in the sample further reduced their leverage ratio from 26.1 in June 2013 (end of our sample time window) to 25.5 in December 2013. Hence, during 2013 as a whole the average leverage ratio fell by 2.5 points, a pace comparable to the one observed in 2012 when it decreased by 2.6 points. Maintaining this speed of deleveraging (at about 2.5-2.6 points a year), the assumed target leverage ratio of 21.6 would be reached by the first half of 2015.

This deleveraging path also appears consistent with the decision by the ECB (2014) on the period of time granted to the banks to cover any capital shortfall that might result from the Comprehensive Assessment. In fact, the six to nine month period from October 2014 allowing banks to raise capital (via retained earnings, reduced bonus payments, issues of common equity or CoCos, or asset sales) should terminate between April and July 2015, just about when we expect banks to have completed their deleveraging (i.e. around mid-2015).

5. Conclusions

European banks reduced their leverage ratio significantly from its peak in December 2008 to December 2013. Over the sub-period December 2011 to June 2013, for which more abundant information is available, about 2/3 of the deleveraging was achieved by raising common equity and 1/3 by reducing balance sheet assets. Overall, deleveraging was more on the “good” than on the “ugly” side, even though very few banks only pursued deleveraging also through a reduction in bad assets. In the near future more banks might be able to dispose bad assets as balance sheet valuations become more aligned to market prices. This could contribute to the additional deleveraging that we think European banks require in order to go back to providing adequate credit to the economy in a stable financial environment. We also claim that the deleveraging carried out to date is more substantive than it appears *prima facie* given the generalized increase in banks’ sovereign exposure, a normalization of which is certainly desirable. Finally, we argue that the time period granted to banks by the ECB to raise capital after the comprehensive assessment is compatible with the time that might be needed for European banks to complete their deleveraging process if this were to continue at the speed observed to date and the target were to coincide with the level observed in the US.

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