B	Bank profitability challenges in euro area banks: the role of cyclical and structural factors[99]

Weak profitability among euro area banks is one key risk to financial stability. This special feature examines the main drivers influencing banks' profitability, including bank-specific, macroeconomic and structural factors. The empirical part of the special feature finds that challenges appear to be mainly of a cyclical nature, although there may also be material structural impediments to reigniting bank profitability.

Introduction

Weak bank profitability has been highlighted as a key risk for euro area financial stability in recent issues of the Financial Stability Review. The relevance of low bank profitability for financial stability is at least twofold. First, bank capital represents the first line of defence against unexpected shocks. Therefore, the inability of banks to build capital buffers by retaining earnings hampers their shock-absorption capacity. Second, persistently low profitability could incentivise banks to take on undue risks in order to generate higher returns, which can lead to increased financial fragility going forward.

Looking at the main drivers of weak profitability in the euro area, it has been argued that the recent weakness of bank performance can be explained by both cyclical and structural factors, although views somewhat differ on their relative importance.[100] Against this background, this special feature aims to identify the main determinants of bank profitability in the EU, with special emphasis on distinguishing between cyclical and structural factors.

The article is structured as follows. First, some stylised facts about the profit developments of euro area banks are presented, also in comparison with US banks. Second, the article discusses the main determinants of bank profitability and, third, it presents an empirical analysis based on a large sample of EU banks. The fourth section concludes.

Developments in bank profitability in the euro area and in non-euro area peer countries – a long-term view

In the first decade of this century, until the 2008 financial crisis, bank profitability in the euro area, other EU countries and the United States followed broadly the same trends. A notable difference, however, was that US banks significantly outperformed EU peers in terms of return on assets (ROA) (see Chart B.1), while profitability levels

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[99] Prepared by Christoffer Kok, Csaba Móré and Cosimo Pancaro.

[100] For instance, the IMF's October 2014 Global Financial Stability Report argues that structural weaknesses in bank profitability afflict around 75% of euro area banks – far worse than other peer advanced economies. At the same time, most empirical studies find a significant positive relationship between the business cycle and bank profitability (see below for references on European banks).
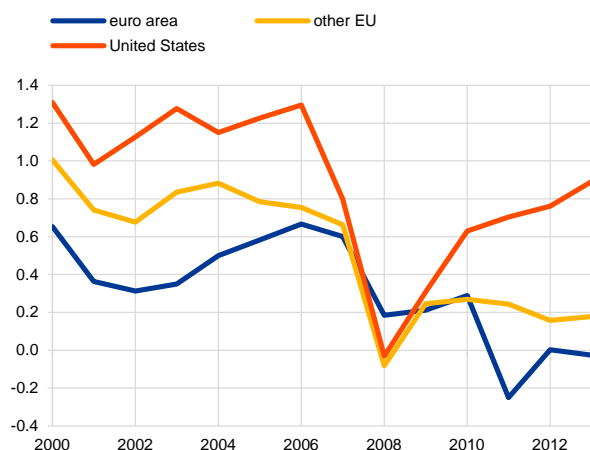
were more comparable across regions when measured by return on equity (ROE) (see Chart B.2).[101]

Chart B.1

EU and US bank profitability has been on diverging paths since the financial crisis

Return on assets of euro area, other EU and US banks

(2003-2013; percentages)

- euro area
- other EU
- United States

Sources: Bloomberg, SNL Financial and ECB calculations.
Note: Weighted averages for a fixed sample of euro area, non-euro area EU and US banks.

Chart B.2

Weak profitability has persisted in the euro area over the past few years, particularly in vulnerable countries

Return on equity of banks in vulnerable and other euro area countries and the United States

(2003-2013; percentages; median values)

- vulnerable euro area
- other euro area
- United States
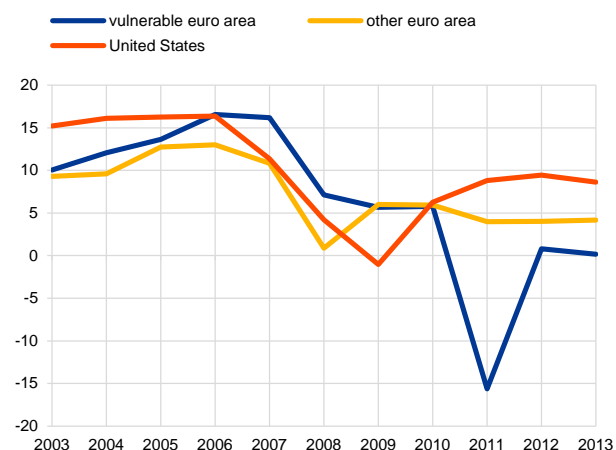
Sources: Bloomberg, SNL Financial and ECB calculations.
Notes: In this chart, vulnerable euro area countries include Cyprus, Ireland, Italy, Portugal, Slovenia and Spain, while other euro area countries include Austria, Belgium, Finland, France, Germany and the Netherlands.

Since 2009, however, euro area and US bank profitability has been on diverging paths, with US banks showing a rebound in bank earnings, contrasting with a more persistent weakness in bank profits in the euro area, particularly in vulnerable countries (see Chart B.2). Arguably, cyclical differences explain much of this divergence, as euro area banks' profitability remained under pressure against a weak macroeconomic backdrop that was prolonged by the sovereign debt crisis (see Chart B.3). By contrast, US banks benefited from a more favourable macroeconomic environment, with most of the improvement in US bank profits being linked to declining loan loss provisions (see Chart B.4).

Focusing on euro area developments, the impact of cyclical factors on bank profitability may have also been exacerbated by other factors of a more structural nature. In fact, bank profitability remained weak in those euro area countries that did not experience a recession in 2012-13. This suggests that structural factors such as deleveraging and de-risking of balance sheets or overcapacity in certain domestic banking markets could have also hindered the recovery of euro area banks' profitability, albeit to varying degrees across countries and individual institutions.

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[101] The difference between ROA and ROE measures can be mainly attributed to the higher balance sheet leverage of EU, and particularly euro area, banks compared with US peers. It can also be attributed to differences in accounting standards, in particular with regard to the netting and offsetting of derivatives, which is limited under IFRS in comparison with US GAAP.

Chart B.3

Cyclical differences explain much of the divergence between euro area and US banks' profitability…

Relationship between bank profitability and GDP growth in the euro area and the United States

(2000-2013; solid lines for the euro area and dotted lines for the United States; percentages)

- return on assets (left-hand scale)
- GDP growth (right-hand scale)
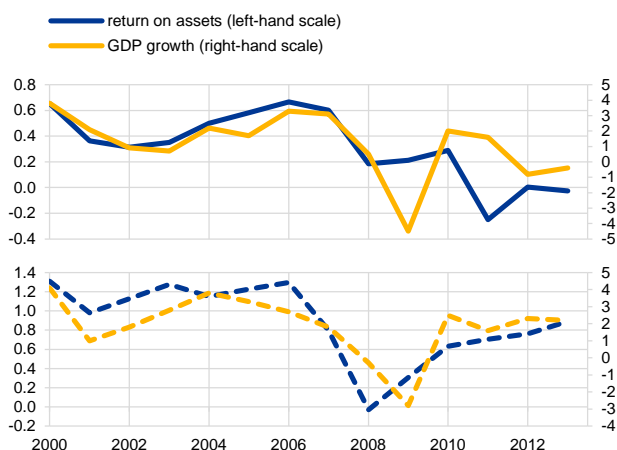
Sources: Bloomberg, Eurostat, SNL Financial and ECB calculations.

Chart B.4

… with loan loss provisioning showing strong pro-cyclical patterns

Relationship between banks' loan loss provisions and GDP growth in the euro area and the United States

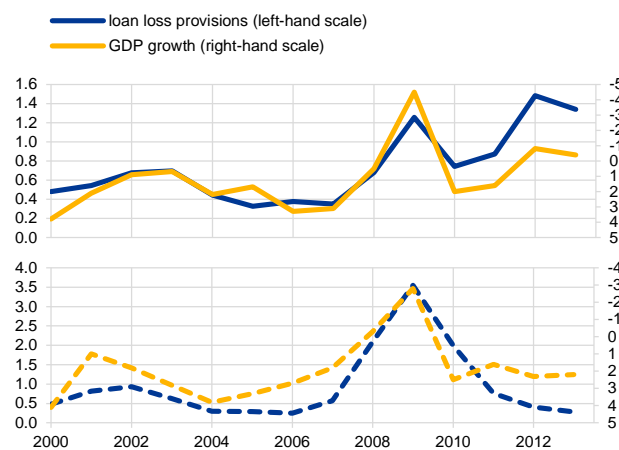(2000-2013; solid lines for the euro area and dotted lines for the United States; percentages)

- loan loss provisions (left-hand scale)
- GDP growth (right-hand scale)

Sources: Bloomberg, Eurostat, SNL Financial and ECB calculations.
Notes: Loan loss provisions as a percentage of total loans. GDP growth is shown on an inverted scale.

Main factors influencing bank profitability

A large body of empirical studies has investigated the role of different factors influencing bank performance. Based on these studies, determinants of bank profitability can be broadly categorised into three groups: (i) bank-specific factors, (ii) macroeconomic factors, and (iii) structural factors.

Bank-specific factors

Bank-specific determinants of profitability typically include factors controlled by bank management, such as bank size, efficiency, risk management, capital and diversification or business strategy.

The evidence from the empirical literature investigating the impact of bank size on profitability is inconclusive. The proponents of size benefits argue that larger banks are likely to have a higher degree of product and loan diversification than smaller banks and should benefit from economies of scale, which in turn leads to higher profits.[102] Other studies suggest that the size/profitability relationship may be either non-linear[103] or, even if large banks are more efficient than small ones, profitability benefits derive from emulating industry best practice in terms of technology and

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[102] See, for instance, Shehzad, C.T., De Haan, J. and Scholtens, B., "The relationship between size, growth and profitability of commercial banks", *Applied Economics*, Vol. 45, 2013, pp. 1751-1765. See also Smirlock, M., "Evidence on the (non) relationship between concentration and profitability in banking", *Journal of Money, Credit, and Banking*, Vol. 17, No 1, 1985, pp.69-83.

[103] See Goddard, J., Molyneux, P. and Wilson, J. O., "Dynamics of Growth and Profitability in Banking", *Journal of Money, Credit and Banking*, Vol. 36, No 6, 2004, pp. 1069-1090.

management structure, rather than from increasing the size of the bank.[104] It has also been argued that economies of scale only exist for smaller banks and that larger banks suffer from diseconomies of scale owing, for example, to agency costs, overhead costs of bureaucratic processes and other costs related to managing large banks.[105]

A number of studies conclude that operational efficiency is an important driver of bank profitability. Most studies find that higher efficiency – typically measured by cost-to-income or cost-to-assets ratios – positively affects bank profitability.[106]

Bank capitalisation (or capital management) is another important factor influencing profitability, according to a number of studies. Existing literature suggests that the impact of bank capital on profitability is ambiguous, although the majority of studies find a positive relationship. On the one hand, banks with higher capital ratios tend to face lower funding costs owing to lower prospective bankruptcy costs.[107] On the other hand, higher capitalisation can be associated with lower risk-taking, which in turn leads to lower (expected) returns.[108]

Risk management and the level of risk are among the most important bank-specific factors determining performance. Empirical evidence suggests that higher credit risk – measured by non-performing loan or provisioning ratios – is associated with lower bank profitability.[109] These results reflect the fact that banks exposed to higher-risk loans incur higher loan losses, which translate into lower bank returns.

A number of recent studies have investigated the impact of diversification on bank performance. While some studies identified a "diversification premium", implying that banks with more diversified revenue streams are more profitable,[110] others found that the higher share of non-interest income is likely to be associated with lower and/or more volatile bank profitability.[111] Another view is that the impact of income diversification on profits is non-linear, i.e. diversification benefits accumulate only up to a certain degree.[112]

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[104] See Berger, A. and Humphrey, D., "Efficiency of financial institutions: International survey and directions for future research", *European Journal of Operational Research*, Vol. 98, 1997, pp. 175-212.

[105] See Tregenna, F., "The fat years: the structure and profitability of the US banking sector in the pre-crisis period", *Cambridge Journal of Economics*, Vol. 33, 2009, pp. 609-632.

[106] See, among others, Molyneux, P. and Thornton, J., "Determinants of European bank profitability: a note", *Journal of Banking and Finance*, 16, 1992, pp. 1173-1178.

[107] See Berger, A. N., "The profit-structure relationship in banking-tests of market-power and efficient-structure hypotheses", *Journal of Money, Credit and Banking*, Vol. 27, 1995, pp. 404-431.

[108] See Goddard et al. (op. cit.) for evidence on a negative relationship.

[109] See Bikker, J.A. and Hu, H., "Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the new Basel capital requirements", *BNL Quarterly Review*, 221, 2002, pp. 143-175.

[110] See Carbo Valverde, S. and Rodriguez Fernandez, F., "The determinants of bank margins in European banking", *Journal of Banking and Finance*, Vol. 31, 2007, pp. 2043-2063.

[111] See Stiroh, K., "Diversification in banking: is noninterest income the answer?", *Journal of Money, Credit and Banking*, 36, 2004, pp. 853-882.

[112] See Gambacorta, L., Scatigna, M. and Yang, J., "Diversification and bank profitability: a nonlinear approach", *Applied Economics Letters*, Vol. 21, 2014, pp. 438-441.

A recent strand of research focuses on the identification of bank business models and the comparison of bank performance and risk across these business models.[113] Results from these studies suggest that retail (or diversified retail) banks tend to outperform banks with other business models, such as wholesale and investment banks.

Furthermore, some bank-level studies investigate the relationship between ownership type and bank performance, with results varying according to the geographical region and/or time period under investigation. More recent evidence for European banks suggests that mutual banks and government-owned banks exhibit lower profitability than privately-owned banks.[114]

Macroeconomic factors

A number of studies incorporate macroeconomic variables into the analysis in order to examine cyclical patterns in bank performance and behaviour. It is generally found that bank profitability tends to be pro-cyclical, driven in particular by the cyclical patterns in lending and other financial intermediation activities and loan loss provisions.[115] First, an increase in economic activity through higher demand for bank intermediation services (including lending and securities underwriting, advisory services and trading activities) will tend to increase banks' net interest income and income generated from fees and commissions. Second, weaker economic activity contributes to a worsening of bank asset quality and higher loan loss provisioning, thus exerting a negative influence on bank profits.

Among other macroeconomic factors, inflation as well as the level and the term structure of interest rates are thought to have an impact on bank profitability. In particular, the slope of the yield curve is expected to positively influence bank profits via higher interest income (a wider margin) from maturity transformation activities.[116] The effects may, however, differ across banks depending on their interest rate sensitivity.

Structural factors

Turning to structural factors affecting bank profitability, industry structure is the most frequently examined variable in this respect.[117] Two alternative hypotheses exist on the relationship between market structure (market concentration) and bank profitability. The "structure-conduct-performance" hypothesis argues that more concentrated markets lead to collusive behaviour, giving banks the opportunity to earn monopolistic profits. By contrast, the "efficient structure" hypothesis states that

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[113] See, for instance, Gambacorta, L. and van Rixtel, A., "Structural bank regulation initiatives: approaches and implications", *BIS Working Papers*, No 412, 2013.

[114] See Iannotta, G., Nocera, G. and Sironi, A., "Ownership structure, risk and performance in the European banking industry", *Journal of Banking and Finance*, 31, 2007, pp. 2127-2149.

[115] See Albertazzi, U. and Gambacorta, L., "Bank profitability and the business cycle", *Journal of Financial Stability*, Vol. 5, 2009, pp. 393-409.

[116] See, for example, Greenspan, A., "Risk and uncertainty in monetary policy", speech at the meeting of the American Economic Association, San Diego, California, 3 January 2004.

[117] For a recent study, see Mirzaei, A., Moore, T. and Liu, G., "Does market structure matter on banks' profitability and stability? Emerging vs. advanced economies", *Journal of Banking and Finance*, Vol. 37, 2013, pp. 2920-2937.

the positive relationship between profitability and concentration can be driven by efficiency, in that more efficient banks gain market share and improve profitability.

Evidence on the impact of capital market orientation on bank profitability is ambiguous.[118] A possible explanation for a positive relationship could be that in a financial system geared towards more capital market financing, banks may be forced to focus more strongly on profitability objectives.[119] Among other factors of a more structural nature, the supervisory regimes (i.e. the stringency with which supervisory power is applied) could also be expected to have an impact on banks' performance. The empirical evidence is, however, ambiguous.[120]

Determinants of EU banks' profitability: an empirical assessment

In the following, an empirical analysis is conducted to shed further light on the main determinants of EU banks' profitability, focusing on the different factors highlighted in the previous section, namely (i) bank-specific characteristics, (ii) macroeconomic and financial conditions, and (iii) structural market features.[121] The empirical analysis is based on a large sample of 98 EU banks.[122] In the analysis, profitability is measured by ROA.[123]

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[118] For evidence on the lack of relationship between bank performance and capital market orientation in countries that are more developed financially, see Demirguc-Kunt, A. and Huizinga, H., "Financial Structure and Bank Profitability", *Policy Research Working Papers*, No 2430, World Bank, 2000. Other studies find that a higher degree of capital market orientation is associated with higher bank profitability; see, for example, Beckmann, R., "Profitability of Western European banking systems: panel evidence on structural and cyclical determinants", *Deutsche Bundesbank Discussion Papers*, No 17/2007; and Gropp, R., Kok, C. and Lichtenberger, J., "The dynamics of bank spreads and financial structure", *Quarterly Journal of Finance*, Vol. 4, No 4, 2014.

[119] Llewellyn, D., "Competition and Profitability in European Banking: Why Are British Banks So Profitable?", *Economic Notes*, Vol. 3, 2005, pp. 279-311.

[120] For example, while Barth et al. (2006) find no relationship between "official supervisory power" and bank profitability, Maddaloni and Peydro (2011) find that supervisory power affects bank lending standards and loan supply; see Barth, R., Caprio Jr., G. and Levine, R., *Rethinking Bank Regulation: Till Angels Govern*, Cambridge University Press, New York, 2006; and Maddaloni, A. and Peydro, J.-L., "Bank risk-taking, securitization, supervision and low interest rates: evidence from US and euro area lending standards", *Review of Financial Studies*, Vol. 24, 2011, pp. 2121-2165.

[121] The banking data were taken from Bloomberg. The macroeconomic variables were sourced from the World Bank's World Development Indicator database. The structural indicators are from the Banking Structural Statistical Indicators database.

[122] In the analysis, we use an unbalanced panel of annual data from 1994 to 2014 for a sample of European banks established in 19 European countries, based on banks' consolidated financial statements. The 19 countries taken into account in the analysis are Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovenia, Spain, Sweden and the United Kingdom. The most represented countries are Germany (20 banks), Italy (12 banks) and France (9 banks). There is only one bank each from Finland, Ireland, Hungary and Poland in the sample. The selection of banks included in the sample was constrained by limited data availability. The coverage of banks tends to increase over time, i.e. the most recent years typically have the widest coverage. The dataset includes 98 banks after the implementation of some outlier filtering. More specifically, banks for which less than five years of observations were available were dropped from the sample.

[123] The ROA is computed as the ratio of net income over average total assets.

A dynamic modelling approach is adopted in order to account for the potential time persistence of profitability.[124] The main feature of a dynamic panel data specification is the inclusion of the lagged dependent variable among the regressors of the estimated model:[125]

$$\Delta y_{it} = \alpha \Delta y_{it-1} + \beta \Delta \boldsymbol{X}_t + \Delta \varepsilon_{it}$$

where Δy_{it} is the first difference of the main variable of interest (i.e. ROA) and Δy_{it-1} is the first difference of the lagged dependent variable for each individual bank i at time t. Furthermore, $\boldsymbol{\Delta X}_t$ is a vector (k x 1) containing the first difference additional k explanatory variables and $\Delta \varepsilon_{it}$ is the first difference of the zero-mean bank-specific error term. Notably, in all the estimated specifications of the model, the bank-specific variables are treated as endogenous, while the other regressors are treated as exogenous.

More specifically, the bank-specific variables included in the model as regressors, in addition to the lag of the dependent variable, are: (i) the bank size, which captures the effect of scale efficiency and is measured as the logarithm of the bank's total assets; (ii) equity over total assets as a proxy for the solvency position; (iii) loan loss provisions over total loans as a proxy for credit risk; (iv) loan growth[126]; (v) a measure of cost efficiency defined as operating expenses over total assets; (vi) the retail ratio defined as the ratio of customer deposits plus net customer loans over total assets[127]; and (vii) a measure of income diversification, defined as the share of non-interest income over total revenue. The latter two variables are used as proxies for the bank's business model.

The macroeconomic variables included in the model as independent variables are: (i) real GDP growth, (ii) the inflation rate, and (iii) the credit extended by the banking system to the private sector as a ratio to GDP.

As regards the structural indicators, two variables capturing the degree of concentration of each country's banking sector are included: (i) the Herfindahl

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[124] For example, Berger et al. (2000) argue that banks' profitability tends to be persistent over time, mainly owing to imperfect market competition and limited informational transparency in the banking markets; see Berger, A. N., Bonime, S. D., Covitz, D. M. and Hancock, D., "Why are bank profits so persistent? The roles of product market competition, informational opacity, and regional/macroeconomic shocks", *Journal of Banking and Finance*, Vol. 24, 2000, pp.1203-1235.

[125] The inclusion of a lagged dependent variable in a panel framework might yield biased and inconsistent estimates owing to the correlation between the lagged dependent variables and the error terms. This is referred to as dynamic panel bias; see Nickell, S., "Biases in dynamic models with fixed effects", *Econometrica*, Vol. 49, 1981, pp. 1417-1426; and Kiviet, J., "On bias, inconsistency, and efficiency of various estimators in dynamic panel data model", *Journal of Econometrics*, Vol. 68, 1995, pp. 53-78. To address this issue and to tackle the possible endogeneity of the bank-specific explanatory variables owing to their possible correlation with the error term, equation (1) is estimated using the generalised method of moments (GMM), as proposed by Arellano and Bond (1991). In this context, the explanatory variables are instrumented by using "internal" instruments; see Arellano, M. and Bond, S. R., "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *Review of Economic Studies*, Vol. 58, 1991, pp. 277-297.

[126] Loan loss provisions over total loans and loan growth could be also categorised as cyclical factors, particularly when considered at an aggregate level.

[127] See Martel, M.M., van Rixtel, A., and Mota, E.G., "Business models of international banks in the wake of the 2007-2009 global financial crisis", *Banco de Espana Revista de Estabilidad Financiera*, No 22, 2012; and Gambacorta, L. and van Rixtel, A. (op. cit.).

index[128], and (ii) the top-five bank concentration (CR5) index, defined as the market share of the top five institutions in terms of assets. Furthermore, an indicator of the official supervisory power, sourced from Barth, Caprio and Levine,[129] is also included. This indicator measures the extent to which official supervisory authorities have the authority to take specific actions to prevent and correct problems.

Finally, time dummies are also included among the explanatory variables to ensure the absence of correlation across banks in their idiosyncratic error terms.

Table B.1 shows the regression results for six different specifications based on the explanatory variables discussed above. Throughout the different specifications, all the estimated coefficients display the expected signs when significant.

It is found that the lagged dependent variable is not a significant regressor, which suggests only weak persistence of profitability over time. This result could be driven by the marked decline in ROA experienced by European banks in recent years owing, in particular, to the headwinds stemming from the financial crisis.

Bank size is found to be negatively and significantly related to banks' returns, suggesting that larger institutions over the sample period have been less profitable. This could be explained by the more complex and, thus, more costly structure often characteristic of larger banks.[130]

Furthermore, the results indicate that, on average, a higher capital ratio is positively and significantly associated with higher profitability. This could reflect the fact that well-capitalised banks have more room for manoeuvre to seek profit opportunities.

Not surprisingly, an increase in the ratio of operating expenses over total assets tends to be negatively related to bank profitability.

The estimated coefficient of the retail ratio, which is meant to assess the relative importance of banks' retail business activities, is generally positive and significant. This seems to suggest that more traditional banks tend to have higher returns on assets. This is also corroborated by the fact that the share of non-interest income over total revenue has a negative sign, in line with the results from Stiroh.[131] Therefore, greater reliance on non-interest income in general seems to be associated with comparatively weaker bank profitability. This finding could be especially driven

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[128] The Herfindahl index is defined as the sum of the squares of bank sizes measured as market shares in terms of assets.

[129] In Barth et al. (op. cit.), the authors provide a database of bank regulatory and supervisory policies in 180 countries from 1999 to 2011 based on an extensive survey.

[130] However, it is important to note that bank size is significant only at 10% in three of the six specifications and it is not significant when the top-five bank concentration index and the official supervisory power indicators are added. This might indicate that the evidence on the relationship between bank size and profitability is not conclusive.

[131] Stiroh, K., op. cit.

by the income generated by risky, highly volatile and unreliable trading activities that for some banks represent a primary source of non-interest income.[132]

Loan growth is positively and significantly related to ROA, suggesting that, all other things being equal, an expansion of the loan book might create new business opportunities for banks and, thus, be associated with higher incomes.

Loan loss provisions are negatively and significantly related to banks' profitability. This negative relationship might be explained by the fact that worsening asset quality is accompanied by rising forgone interest and costs of provisions. Hence, banks might enhance their profitability by strengthening their risk management policies and, in particular, by enhancing their screening and monitoring of credit risk.

Table B.1

Regression results – determinants of EU banks' return on assets

		(1)	(2)	(3)	(4)	(5)	(6)
Bank-specific factors	Return on assets (lagged one period)	-0.156 (-0.179)	-0.149 (-0.173)	-0.188 (-0.184)	-0.188 (-0.179)	-0.212 (-0.166)	-0.188 (-0.174)
	Bank size	-1.238* (-0.714)	-1.128* (-0.625)	-1.269* (-0.700)	-1.07 (-0.717)	-0.624 (-0.782)	-1.624** (-0.808)
	Equity-to-total-asset ratio	0.375** (-0.182)	0.377** (-0.159)	0.348** (-0.166)	0.368** (-0.168)	0.370* (-0.210)	0.289* (-0.173)
	Loan loss provisions over total loans	-0.538** (-0.263)	-0.466* (-0.269)	-0.469* (-0.260)	-0.511* (-0.265)	-0.739** (-0.311)	-0.471* (-0.260)
	Loan growth (bank level)	0.002** (-0.001)	0.002* (-0.001)	0.002* (-0.001)	0.002* (-0.001)	0.002** (-0.001)	0.003** (-0.001)
	Efficiency measure (cost-to-income ratio)	-0.261* (-0.156)	-0.173 (-0.141)	-0.175 (-0.185)	-0.169 (-0.166)	-0.116 (-0.138)	-0.0094 (-0.144)
	Retail ratio	0.037* (-0.019)	0.036 (-0.022)	0.077** (-0.031)	0.068** (-0.026)	0.046 (-0.030)	0.081** (-0.036)
	Diversification measure	-0.007 (-0.006)	-0.006 (-0.005)	-0.006 (-0.005)	-0.007 (-0.005)	-0.009 (-0.006)	-0.007* (-0.004)
Macroeconomic factors	Inflation rate		0.024 (-0.044)				0.073 (-0.056)
	Real GDP growth		0.159*** (-0.051)				0.166*** (-0.047)
	Credit-to-GDP ratio (%)		0.012** (-0.005)				0.0193** (-0.008)
Structural factors	Herfindahl index for credit institutions (total assets)			0.215** (-0.090)			0.270*** (-0.097)
	Shares of the five largest credit institutions (CR5)				0.061** (-0.026)		
	Supervisory power index					0.078 (-0.093)	0.035 (-0.040)
	Number of observations	989	959	898	892	793	793

Heteroskedasticity and autocorrelation robust standard errors in parentheses

* p<0.10; ** p<0.05; *** p<0.01

As regards macroeconomic variables, while the inflation rate is not significant, both real GDP growth and the credit extended by the banking system to the private sector over GDP are positively and significantly related to banks' ROA.

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[132] This finding, however, may be contaminated by the inclusion of the global financial crisis years, which had a historically strong negative impact on trading income and which may not be reflective of a "standard" financial cycle impact.

As regards the banking sector structural factors, both concentration indexes exhibit a positive and significant relationship with ROA. This finding suggests that in a highly concentrated banking system, banks are either more efficient or in a better position to exploit their market power to operate with higher intermediation margins and thus obtain higher returns.

Finally, the estimated coefficient of the official supervisory power indicator has a positive sign. While the coefficient is not statistically significant (at the 10% probability level), this may nevertheless indicate that more stringent supervision improves bank performance, possibly reflecting stronger incentives for good risk management and more adequate capital buffers.[133]

Chart B.5

Bank-specific factors were important in the pre-crisis period, while since 2008 profits have been mainly driven by macroeconomic and "crisis-related" (other) factors

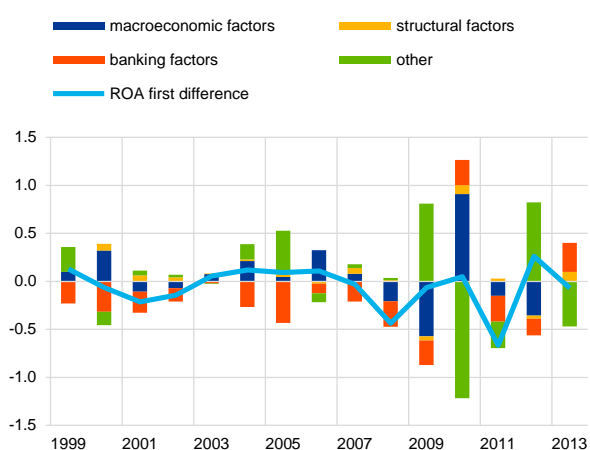Decomposition of the average contribution of the explanatory factors to bank profitability over time

Chart B.5 displays a decomposition of the average contribution of the different explanatory factors to bank profitability over time.[134] It can be observed that, until 2008, banking factors were the most important contributors to the evolution of ROA, while macroeconomic factors were also important and mostly made a positive contribution to bank profit generation. From 2009 onwards, however, the developments in bank profits seem to have been mainly driven by macroeconomic factors together with unobserved "other" factors[135] that likely reflect the extraordinary losses and rises in funding costs resulting from the financial and sovereign debt crises.

One way of using the empirical analysis to assess EU banks' low profitability levels observed in recent years is to measure how the indicators of the identified bank profitability determinants stand at the current juncture compared with their historical averages.

In this respect, Chart B.6 illustrates that, from a historical perspective, the main factors currently suppressing European banks' profitability are of a cyclical nature. Indeed, compared with their historical averages, GDP growth is currently very low and, at an aggregate level, loan growth is subdued and loan loss provisions are historically high. At the same time, other bank-specific determinants and structural indicators are broadly in line with their historical averages.

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[133] Here it is worth mentioning that throughout all the specifications, the Hansen test of over-identifying restrictions confirms that the (internal) instruments are valid, and the Arellano-Bond test rejects significant second-order serial correlation in the error term. These test results indicate the overall validity of the GMM approach. Furthermore, the Wald test indicates that all the estimated coefficients are jointly significant.

[134] Model specification (6) in Table B.1 was re-estimated including only the significant explanatory factors. Then, the newly estimated coefficients, which are consistent in significance and sign with those reported for specification (6) in Table B.1, are used to derive the decomposition of the average contribution to bank profitability reported in Chart B.5.

[135] The "other" category reflects the contribution of the time-fixed effects and the model residual, i.e. unobserved explanatory factors that are not captured by the variables included in the model.

Following a similar approach, the presented analysis may contribute to improving the understanding of European banks underperformance compared with their international peers.

Chart B.6

Currently, EU bank profitability is mainly being suppressed by weak cyclical factors

Current state of EU banks' profitability determinants against historical benchmarks (sample average)
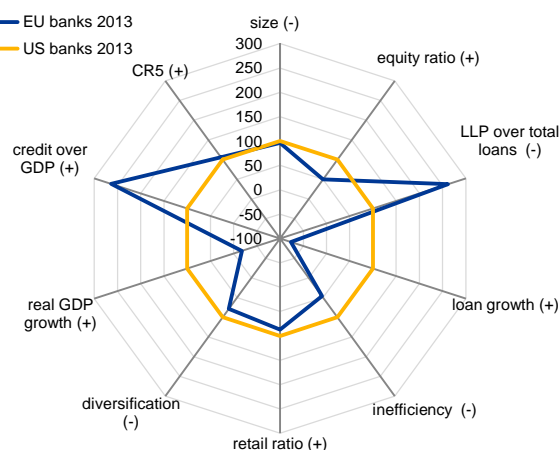
(1994-2013; ratios and percentages)
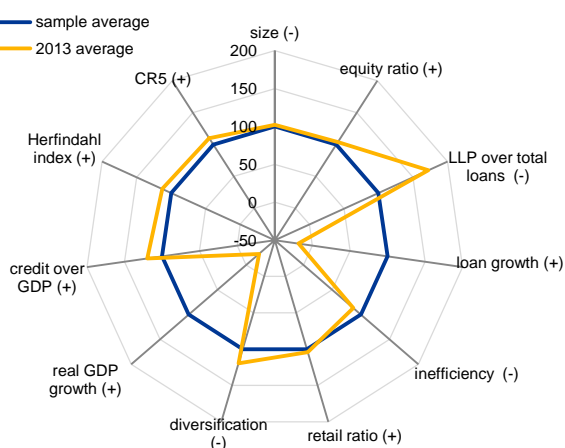
Sources: Bloomberg, Eurostat, SNL Financial and ECB calculations.
Notes: The historical averages have been normalised to 100. Current values of the indicators are measured in terms of deviations from historical averages.

Chart B.7

The importance of cyclical developments for EU bank profitability is confirmed when comparing it with that of their US peers

Current state of EU banks' profitability determinants against their US peers (US measures normalised to 100)

(end-2013; ratios and percentages)

Sources: Bloomberg, Eurostat, SNL Financial and ECB calculations.
Notes: The US-based indicators have been normalised to 100. Current values of the EU-based indicators are measured in terms of deviations from the US indicators. 24 large US banks are considered.

This is explored in Chart B.7, which shows the current indicators of bank profitability determinants in Europe as compared with the United States.[136] It can be seen that cyclical indicators in Europe are substantially less conducive to bank profit generation than in the United States. As regards the less cyclical indicators, the picture is more mixed. While, on average, US banks are better capitalised (on a leverage ratio basis) and operate with a higher retail ratio than their EU peers, their operating expense ratios are slightly higher and their dependence on non-interest income is also somewhat more pronounced than in Europe. Bank size and concentration indices are broadly similar, on average, in the two regions.

Concluding remarks

This article has provided evidence that European banks' profitability is determined by a confluence of factors, including bank-specific characteristics, macroeconomic factors and structural market features.

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[136] In this context, it is important to mention that the variables included in Chart B.7 are significant explanatory factors only for European banks' profitability since the regression analysis uses data for European banks only.

However, the main challenges that EU banks face in terms of their profit generation capacity appear to be mostly of a cyclical nature, although there may also be some material bank-specific and structural impediments. At the same time, some of the recent policy initiatives at the European level, such as the banking union, which is already well advanced, as well as the initiatives to foster a capital markets union in the EU, may help to alleviate a number of both cyclical and structural factors currently depressing bank profits.