Box 5
Recent developments in banks’ price-to-book ratios and their determinants

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The market valuations of euro area banks have remained low since the global financial crisis, lagging behind those of many international peers. Price-to-book (P/B) ratios offer a yardstick of bank franchise value, where a P/B ratio greater than one suggests that a bank can generate market value commensurate to the value of its tangible assets. In this way, a P/B ratio lower than unity suggests investor concern about shareholder value, and manifests itself in a higher cost of capital should the bank opt to issue additional equity. This box investigates the determinants of P/B ratios, assessing to what extent bank and country-specific factors have contributed to hampering their recovery.

P/B ratios of euro area banks have remained below one for over eight years now. Prior to the global financial crisis, the long-term weighted average of the P/B ratios of euro area and US banks stood at around 2 and 2.4, respectively. While this ratio decreased strongly after the recession of the early 2000s, its subsequent recovery was quick, taking four and eight quarters in the United States and the euro area, respectively (see Chart A, left panel). During the 2008-09 crisis, however, both US and euro area banks’ P/B ratios fell to much lower levels, although those of US banks dropped below one for a shorter period of time.
This box takes a multi-country empirical approach to investigate the path of P/B ratios in the last decade. A fixed effects panel econometric model extends Calomiris and Nissim (2014) by introducing a multi-country set-up and includes variables capturing bank-specific characteristics, market sentiment and the macroeconomic environment. The explanatory variables are drawn from the existing literature on the determinants of the P/B ratio. The sample used is composed of 70 globally active banks, equally divided into euro area and US institutions. In particular, the top 35 listed banks by total assets are selected for each geographical area; eight global systemically important banks are included in each group. The analysis relies on quarterly data and spans the period from the first quarter of 2000 to the fourth quarter of 2018. The role played by complex assets is instead discussed in Box 7.

The model results suggest that bank market valuations can be explained by bank profitability developments, the degree of management and operational efficiency, the amount of regulatory capital and the macroeconomic outlook. Stronger expected economic growth and higher profitability ratios are associated with higher P/B ratios, while higher bank capital is associated with lower ratios. In addition, while weaker operational efficiency and management quality, approximated by cost-to-income ratios, reduces bank valuations, its effect appears to be stronger for US than euro area banks. At the same time, high non-performing loan (NPL) ratios depress the P/B ratios of all banks. Most of the signs and magnitudes of the estimated coefficients are in line with the

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The literature suggests that the model explains nearly 50% of the total variation in P/B ratios. Accordingly, the implied P/B ratios stemming from the model appear to fit the evolution of actual ratios rather well (see Chart A, right panel).

**Chart B**

The contribution of the economic outlook and profitability has turned positive in the past five years, although the weakened economic environment is challenging the recovery in bank valuations.

Selected determinants and signs used in the econometric specification (left panel), change of the implied P/B ratio of euro area banks and main contributors (middle panel) and projected ratios (right panel)

(middle panel: percentage points; right panel: percentages)

Sources: Bloomberg and ECB calculations.

The post-crisis weakness in euro area banks' P/B ratios has evolved, initially associated with weak growth and later with faltering bank profitability. In the first phase of the crisis, the fall in market valuations can be explained mainly by macroeconomic conditions (see Chart B, middle panel, light blue bar), with a large unexplained drop that may have corrected the pre-crisis deviation of the ratios from fundamentals. During the sovereign debt crisis, however, weak bank profitability played a more decisive role in depressing P/B ratios (yellow bar). During the more recent period, P/B ratios have increased, albeit to a smaller extent than what the model would have predicted. This recovery can be attributed to the improved macroeconomic outlook, the strengthening of bank profitability and the resolution of NPLs (red bar), marginally offset by continued capital increases (green bar).

The ongoing economic slowdown will however make the recovery in bank valuations more challenging going forward. As the macroeconomic cycle and outlook turn, one of the main factors...

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supporting the recovery in P/B ratios will wane when banks need it most, adding further market pressure for some banks. According to December 2018 projections, P/B ratios of euro area banks were expected to increase to 0.85 in 2019, largely stabilising thereafter. Downward revisions in GDP between December 2018 and March 2019 implied that P/B ratios would only recover marginally in the next year (see Section 3.2 for a more detailed discussion on the scenarios and bank profitability developments). These conditional forecasts are obtained by projecting forward GDP expectations and bank profitability with scenario inputs and by keeping the other exogenous variables fixed at their last available value (i.e. the fourth quarter of 2018). The limited recovery in market valuations is concerning as it points to continued doubts on the part of analysts about the ability of euro area banks to earn a return on equity corresponding to their cost of equity.