

Analysis of Capital Requirements for Mortgages in the Irish Banking Sector – A Summary Report



Background to the report

For the past number of years there has been much commentary and debate on a number of aspects of the Irish mortgage market/Irish banking system, in particular the exceptionally high levels of capital that Irish banks are required to hold against mortgage loans and the subsequent impact this has on the banks' ability to lend and at what rate.

Banking & Payments Federation Ireland commissioned this report from Martello Strategic Consulting in order to help develop a greater understanding of the factors behind higher average capital requirements in the Irish banking sector as well as to compare average capital requirements across different countries in the EU. This report is the first major study of Irish banks undertaken on this issue, using detailed data from Irish retail banks, data from the European Central Bank (ECB) and the European Banking Authority (EBA)¹, in addition to primary research and interviews with retail banks participating in the study. The research covers around 12 million data points across 613K mortgage accounts held in retail banks in Ireland, covering €83 billion of mortgage loans. The project has benefited from the cooperation of all the five banks in Ireland who provide mortgages (AIB, Bank of Ireland, Ulster Bank, Permanent TSB and KBC), in sharing data for the period ending 31st December 2019. The research was conducted between June and December 2020.

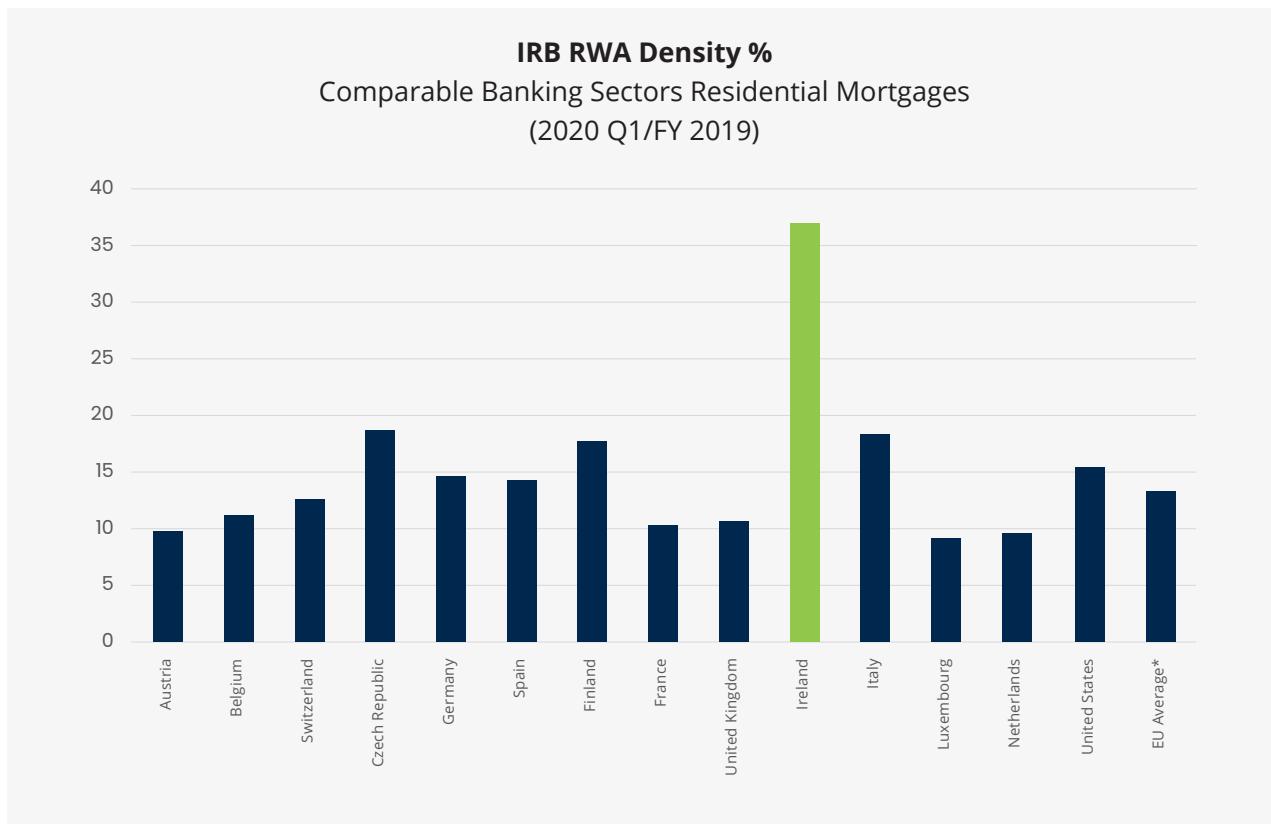
Risk weighted assets are generally defined as a bank's assets adjusted for risk associated with these assets. A bank has different loan types which have different risk profiles; for example, a mortgage loan is lower risk due to being secured on property, compared to a credit card loan which is not secured. Different risk weights are assigned to a bank's assets to reflect their risk profile. Risk weights for mortgages are calculated according to European rules set by regulators. See page 8 for a detailed discussion as to how these risk weights are calculated.

¹ ECB Supervisory Banking Statistics, EBA Transparency Exercise, EBA Risk Dashboard.

Key findings of the report:

1. Risk Weighted Asset (RWA) density on mortgage loans in Ireland is significantly higher than the average for comparable European countries. Average RWA density for mortgages in the Irish banking sector has reached 37%, compared to European averages at around 13.3% as of end 2019.

Chart 1: RWA Density Comparisons across the EU banking sector



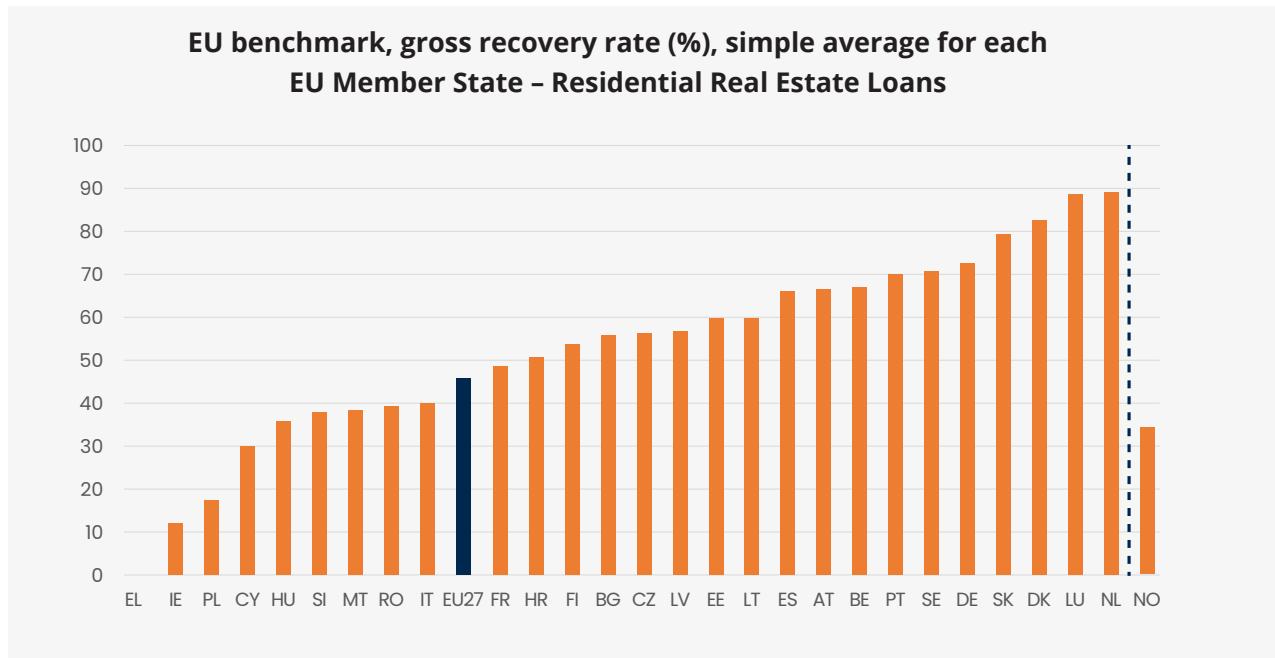
Source: BPFI FY 2019, ECB Q2 2020

*Based on 12.5% CET1 Ratio minimum

2. Extra capital plays a critical role in providing stability in the banking system in the event of significant shocks to the economy and unexpected losses arising in the lending books of banks. (See Page 7 on Capital Requirements). This higher RWA density in Ireland now represents a c€2.5bn additional capital requirement for the five retail banks for “unexpected losses”. This requirement for additional capital, due to higher RWA density and perceived higher risk in the mortgage loan book, increases the cost of mortgages in Ireland when compared to other countries as holding more capital increases the cost of loans.

3. Despite the significant reduction in problem loans² in Ireland and the vast increase in higher quality loans underwritten since 2015 mainly through the changing risk appetite of retail banks as well the introduction of the Central Bank of Ireland (CBI) macro prudential rules³, which limits mortgage borrowing levels according to Loan to Value (LTV) and Loan to Income (LTI) thresholds, the RWA density of Irish mortgage loans, on average, has not fully benefited from this risk reduction in the banking system. The analysis finds that this is mainly due to higher Loss Given Default (LGD) levels used in the RWA calculations, which is mainly based on the 2007 to 2013 experience, effectively trapping capital requirement levels at crisis levels.
4. Recent research by the EBA confirms that Ireland has one of the worst outcomes in Europe in the recovery of security for mortgages under judicial processes. In Europe average recovery rates at the end of enforcement through the judicial process is around 46% compared with only 11% in Ireland. The combination of legal costs, time to recover the security, and lack of success in securing collateral is therefore a factor in driving up the level of capital required for unexpected losses in the Irish mortgage pool. This is one of the main factors in driving up LGD numbers in RWA calculations and is ultimately driving up the cost of Irish mortgages for both the banks who supply mortgages and the mortgage holders in Ireland.

Chart 2: Gross recovery rates across EU member states - Residential Real Estate Loans



Source: EBA 2020

² According to the EBA, Ireland was the fastest country in Europe at reducing its NPL ratio amongst comparable countries between March 2016 and December 2019 (-73%).

³ The rules set ceilings on the amount of money that can be borrowed to buy residential property using LTV and LTI limits. For example, first time buyers need to have a minimum deposit of 10% and can only borrow up to 3.5 times their gross income. Second and subsequent buyers need to have a minimum deposit of 20% and can only borrow up to 3.5 times of their gross income. Banks and other lenders have the freedom to lend a certain amount above these limits.

5. The study finds that models of future mortgage loan growth of the sector (excluding the impact of COVID-19), show that average RWA density may only fall slowly over the next five years even as better-quality mortgages replace older high-risk ones, if crisis level LGD continues to be locked into the RWA calculations. In other words, Irish mortgages will continue to attract much higher RWA density than other European countries due to historical experience.
6. The study finds that overall collateral levels are very strong in the total mortgage loan pool in the Irish banking sector (estimated at c€184 bn), supporting an average Loan to Value (LTV) of 47%, and weighted LTV of 61%. Collateral levels are important in secure lending such as mortgage lending as they show the value of the secured asset in case a bank needs to recover any unpaid amounts if a borrower defaults. This collateral strength is also true for the problem loan pool, which is defined as loans that are currently in arrears or have been in arrears in the past (€28bn collateral v €12bn of loans). However, the problem loan pool of just 13% of the total number of accounts is capturing 33% of the RWAs for the sector, illustrating that loans which have been impaired at any time, despite recovery, continue to require significant levels of additional capital in the long run.
7. Loans written in recent years (since 2017) have significantly better underlying quality (i.e. less risky) than loans issued before 2009 and have lower than average RWA density (31% v 37%), but still have significantly higher RWA density compared to other countries. Despite Ireland making significant changes and improvements in Loan to Income (LTI) ratios, when compared to European peers, they appear to be having a relatively limited impact in driving down RWA density. For example, according to ECB data Austria and Belgium lend at twice the LTI compared to Ireland, with similar LTVs, but have RWA density of 10% - 11% compared with an RWA Density of 29% in new loans written in Ireland in recent years.

In this summary document, in addition to the main findings from the report we also introduce basic concepts that are commonly used in bank capital and risk management framework.

Basic Concepts:

Expected Losses: Banks' main business is lending and as with any other business this involves calculated risk taking. In banking, losses of interest and principal occur all the time - there are always some borrowers that default on their obligations – the reasons are many and varied. While it is impossible to know in advance the quantity of losses/default a bank will experience each year, a bank will forecast the average level of credit losses it can reasonably expect to experience. These losses are generally referred to as Expected Losses (EL).

Unexpected Losses: Sometimes, losses in each year or over a period can exceed these expected loss levels and are known as Unexpected Losses (UL). Of course, banks are conscious that these type of losses will occur now and then, but it is difficult to know exactly when, or to know their duration. As a result, bank capital is needed to cover for these unexpected losses.

Capital Requirements: These are the rules that force a bank to maintain a minimum ratio of capital to assets (in this report we are talking specifically about mortgages). In other words, banks need to hold a certain amount of capital for each loan they issue so that in the event that these loans are not paid back, banks can sustain unexpected losses. Total capital requirement for a bank is set as a percentage of its loan book size.

Risk Weighted Assets (RWAs)⁴: The ratio or percentage to calculate total capital requirement is not applied to the total loan book of a bank as different loan types have different risk profiles from a regulatory perspective; for example, a mortgage loan is lower risk due to being secured on property, compared to a credit card loan which is not secured. Different risk weights are assigned to a bank's assets to reflect their risk profile. When these weights are applied to each asset class and added up, we get a total Risk Weighted Assets (RWAs) base number where percentage requirements are applied. (See Table on Calculations on Page 9).

Probability of Default (PD) is defined as the likelihood that a customer will default on their obligation within the next year. This is then adjusted to a long run average value of one-year default rates with available data.

Loss Given Default (LGD) is defined as the estimated loss that will arise if a customer defaults. This is calculated after taking into account the value of collateral if default happens after cost of recovery is taken into account.

Exposure At Default (EAD) is defined as an estimate of the amount expected to be owed by a customer at the time of the customer's default.

⁴We provide further detail following the main findings section in relation to the link between capital requirements and RWA calculations.

Capital Requirements and RWA Calculations:

Below, we present an illustration of various components of the capital requirements for banks, some of which are set by regulations and some are set by supervisors and are bank specific. When all these different components are added together, we get a total minimum ratio of capital to assets.

Pillar 1 is the minimum amount of capital which banks must hold at 8% of their RWA which applies to all banks. Pillar 2 is applied by supervisors to banks on a case-by-case basis based on the Supervisory Review and Evaluation Process (SREP) where banks are assessed by the supervisors for bank specific risks depending on the individual bank's business model and risk profile. In addition to these Pillar 1 and 2 requirements, banks are expected to hold additional capital by way of various buffers some of which are set by regulations and others by supervisors/Central Banks.

Table 1: Overall Capital Requirements

Pillar 2 Guidance (set by supervisors) (bank specific)
Systemic Risk Buffer (1%-5%) (set by Member States)
Systemically Important Institution (SII) Buffer (0%-3.5%) (set by supervisors) Other Systemically Important Institution (OSII) Buffer (0%-2%) (set by supervisors)
Countercyclical Capital Buffer (CCyB) (0%- 2.5%) (set by national central banks)
Capital Conservation Buffer (CCB) (2.5%) (set by regulations)
Pillar 2 requirement (set by supervisors) (bank specific)
Pillar 1 requirement (8%) (set by regulations)

Note: Pillar 1, CCB, CCyB are set by regulations, whereas Pillar 2 Requirement and Guidance as well as Systemic Risk Buffers and Systemically Important Risk buffers are set by National Competent Authorities which can be central banks or the department of finance of the country, depending on the specific country.

So how are Risk Weighted Assets calculated?

As mentioned above, banks can use two approaches in order to calculate RWAs, namely the Standardised Approach (SA) and the Internal Ratings Based (IRB) approach. In this report we refer to these two approaches being used in the context of credit risk as our focus is on mortgages. Banks can choose to use the internal models approach depending on their business models and size as internal models provide greater detail on the overall risk profile of loans. However it is important to note that internal risk models developed by banks have to be approved by supervisors.

1. The Standardised Approach

Under the SA approach, risk weights are assigned to different asset types by supervisors by way of pre-defined legislative requirements. For example, for sovereign bond assets that banks hold, the risk weight is 0% which means that banks do not have to hold capital as these sovereign bonds are seen as not risky assets. For assets secured by residential property, which are mortgages, risk weight is set at 35%. In other words, banks will have to hold the required percentage on 35% of their total mortgage assets. For commercial mortgages risk weighting is set at 100% which means the total commercial mortgage book is used to calculate the required capital to be held.

2. The IRB Approach

Under the IRB approach, banks use their own assessment to calculate the risk weighting assigned to each asset type which then needs to be approved by the supervisors. In order to be able to use the IRB approach, banks have to satisfy certain minimum criteria which are set by the supervisors. In addition, banks need to get supervisory approval in order to be able to use IRB approach as well as receive approval from supervisors if they wish to make changes to any of the parameters that they are using.

Under the IRB approach:

- Banks first categorise their asset classes as defined by regulations. Main categories used by the banks are corporate, sovereign, bank, retail and equity.
- These main categories are further divided into subcategories.
- After this they estimate risk parameters that are input to the risk weighting calculations. Main risk parameters that are used are probability of default (PD), loss given default (LGD), exposure at default (EAD) and maturity of the asset.

The link between Capital Requirements and RWAs

Table 2: Worked Example on the link between Capital Requirements and RWAs

	Total Mortgages (bn)	RWA	Starting Capital Requirement Base (bn)	Capital (CET1)	Final Capital Requirement (per €100bn)
Ireland	€100	32%	€32	18%	€5.76
Spain	€100	14%	€14	12%	€1.68
France	€100	11%	€11	15%	€1.65
Eurozone Average	€100	14%	€14	15%	€2.1

Let's take three banks, one in Ireland, Spain and France with a simple balance sheet consisting of performing mortgages of €100 billion and compare the capital required to be set aside for the full amount of mortgage loans.

In this example, we assume that all three banks use the IRB Approach with parameters explained above used for the calculation of the RWA density. Note that these parameters are set by the banks in their internal models **within regulatory requirements** and then checked by supervisors and adjusted necessarily for approval. So, for the bank in Ireland, RWA density is calculated as 32%, which means the starting point for capital requirement calculations for the €100bn mortgage book is €32bn. Then we apply the average capital requirement percentage which is 18%⁵ to this amount and we end up with €5.76bn. In other words, for a €100bn mortgage book, a bank in Ireland ends up holding €5.76 billion capital as opposed to the eurozone average of €2.1bn for a similar size mortgage loan portfolio. **The bank in Ireland holds nearly 2.74 times more capital compared to the Eurozone average and 3.4 times the requirement in Spain and France.**

Risk Weighted Assets under Review in the EU

The ECB's supervisory arm, the Single Supervisory Mechanism (SSM), started a project entitled the targeted review of internal models (TRIM) in 2016 which concluded in 2020, however recommendations from the exercise have not been fully applied by all effected banks yet. Its aim was to reduce inconsistencies and unwarranted variability when banks use internal models to calculate their risk-weighted assets. By combining data and approaches across more than 100 significant banking institutions within the eurozone, the project assesses the internal models currently used by banks to see if they comply with regulatory requirements, and whether their results are reliable and comparable. It is important to note that internal risk models developed by banks **have to be** approved by supervisors.

⁵This is the average percentage capital held by banks in Ireland, from the ECB supervisory statistics.



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