

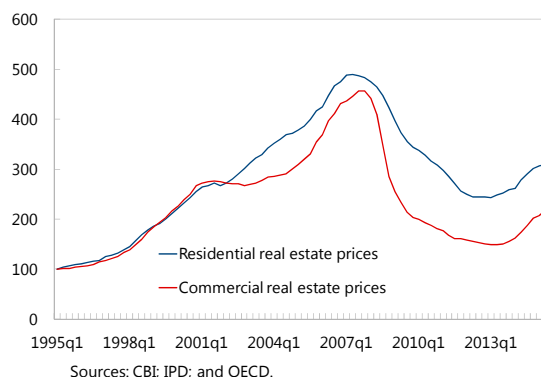
IRELAND: COMMERCIAL REAL ESTATE AND THE SUPERVISORY RESPONSE¹

A. Introduction

1. Commercial real estate (CRE) booms and busts have played a role in many financial crises. Most notably, the US and the UK financial crises in the late 1980s, the crisis in Nordic countries in the early 1990s, as well as the recent Irish and UK crises in 2008 were accompanied by booms and busts in the real estate sector.² Cyclical movements in commercial property prices often exhibit strong linkages with credit cycles due to the predominant reliance on debt financing and cross-country experience has shown that the performance of the commercial property sector affects the performance of the banking sector ([Bank lending and CRE](#)).

2. The Irish financial crisis was exacerbated by a build up of debt tied to investments in commercial property, a collapse of property valuations, and a sharp rise in non-performing loans. The CRE boom leading into the crisis was fueled by fast credit growth, funded by domestic bank loans and cross-border capital flows. Prices in the commercial real estate (CRE) sector doubled and total banking assets tripled from 2000 to 2007. When the crisis hit in late 2007, CRE prices subsequently fell by about 70 percent from their peak in 2007 and caused heavy loan losses on the development property portfolio acquired at the peak of the market ([Honohan Report](#)). As non-performing loans rose rapidly, banks required urgent recapitalization. Large CRE loans were transferred at a steep discount to par to National Asset Management Agency (NAMA) to the value of €42.2 billion³, and the authorities had to recapitalize the banking system in the amount of €64 billion (about 40 percent of GDP). Losses on commercial property accounted for over half of bank capital needs in the crisis.

Property Prices
(Index, 1995Q1=100)



¹ Prepared by Christopher Wilson and Vizhdan Boranova with input from Heedon Kang.

² CRE booms and busts have preceded banking crisis in developed countries ([ECB, 2000](#); [Davis, 1995](#)) and emerging market economies ([Collins and Senhadji, 2002](#); [Davis, 1999](#); [Renaud and others, 2001](#)).

³ The assets were discounted by 57 percent face value. NAMA paid €31.8 billion for assets with a par value of €74 billion. In the context of this transaction, €5.6 billion of the purchase price was deemed to have been paid to the banks as State Aid as this constituted the amount paid in excess of market value.

3. Commercial property markets are now bouncing back rapidly from their lows suggesting a potential risk of return to the boom-bust with spillovers to the banking system.

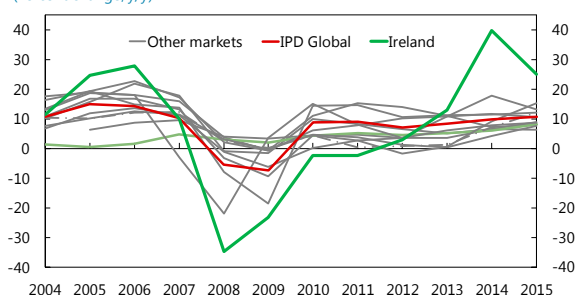
Since 2013, the Irish CRE market has performed strongly, characterized by buoyant investment volumes, and fast moving property prices and rental growth. A lag in new construction to meet demand has been driving vacancy rates down to historical lows and some indicators suggest valuations are entering a new boom phase.⁴ The unwinding of NAMA's holdings of property assets in the coming years could present lucrative lending opportunities for the banks in an effort to boost fees and earnings. Banks are increasing new credit to CRE in a sign that sentiment is shifting to take on greater exposure to this asset class and there is a risk that banks could increase their exposure to CRE while valuations are increasing, implying falling loan-to-value (LTV) ratios, allowing for greater leverage to be taken. This could erode lending standards and expose banks to greater vulnerabilities.

4. This note examines the potential spillover risks to individual banks and the banking system from CRE boom-bust cycles and surveys the potential policy responses. First, it looks at the current trends in the Irish CRE sector. Second, it examines the risks to banks and banking systems. Then, it looks at the microprudential and macroprudential responses by the Central Bank of Ireland and ECB in assessing and mitigating risks to banks from CRE exposures since the financial crisis. Lastly, it considers whether further policy measures are needed.

B. Recent Trends in Irish Commercial Real Estate

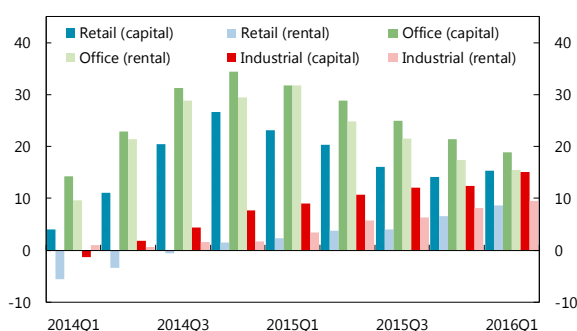
5. CRE price growth has been high in recent years and some indicators suggest valuations are entering a new boom period. Commercial property markets are bouncing back rapidly from their lows, as of 2015Q4 about 60 percent higher than the trough in 2013Q1, though still 48 percent below the peak levels. Capital values in the CRE sector have increased by 25 percent y-o-y since 2014Q2—the fastest growth since 1999—and Irish property has been one of the best performing asset classes in Europe during 2014 and 2015. Rental values have also been increasing rapidly at above 14 percent (y-o-y) during 2015, and are 41 percent higher than the trough in 2013. Performance in the Dublin office sector has been the most robust (Figures 1), and is now spreading beyond Dublin. Analysis of the deviation from a long-term trend of the price-to-rent ratio suggests that the CRE sector was moderately overvalued as of 2015Q3. The metric shows that the CRE prices were also exuberant before the crisis, growing significantly above the rental yield.

⁴ Analysis was conducted as part of the 2016 Ireland FSAP on the valuations of residential and commercial real estate. The results of the analysis was mixed and could not be definitive. The deviation from a long-term trend of the price-to-rent ratio suggests that the CRE sector was moderately overvalued as of 2015Q3, whereas using parametric methods (statistical filters, error correction models, and Markov regime switching model) CRE prices are near the long-run statistical trends.

Figure 1: Performance of the Commercial Real Estate (Compounded Performance)**Total Returns across International Markets 1/**
(Percent change, y/y)

Source: MCSI (IPD).

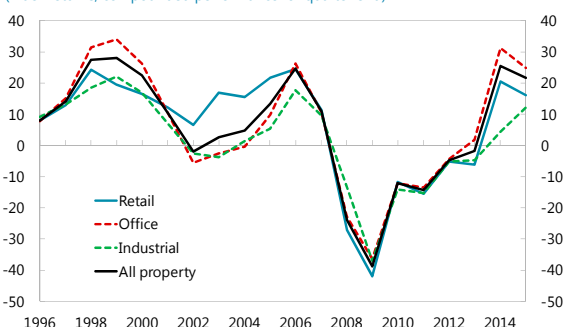
1/ Data are annual returns in local currency. "Other markets" includes data from Belgium, Canada, France, Germany, Japan, Netherlands, New Zealand, Portugal, Spain, UK and USA.

CRE Capital and Rental Value Growth by Sector
(Percent)

Source: MSCI (IPD).

Capital Growth

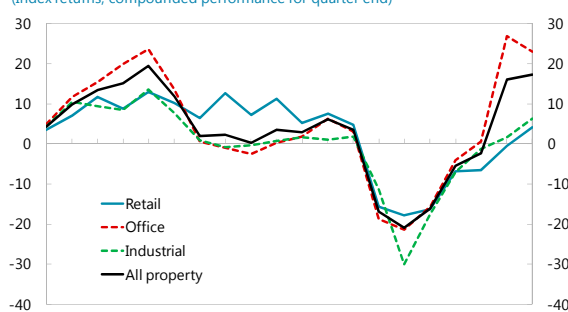
(Index returns, compounded performance for quarter end)



Source: IPD.

Rental Value

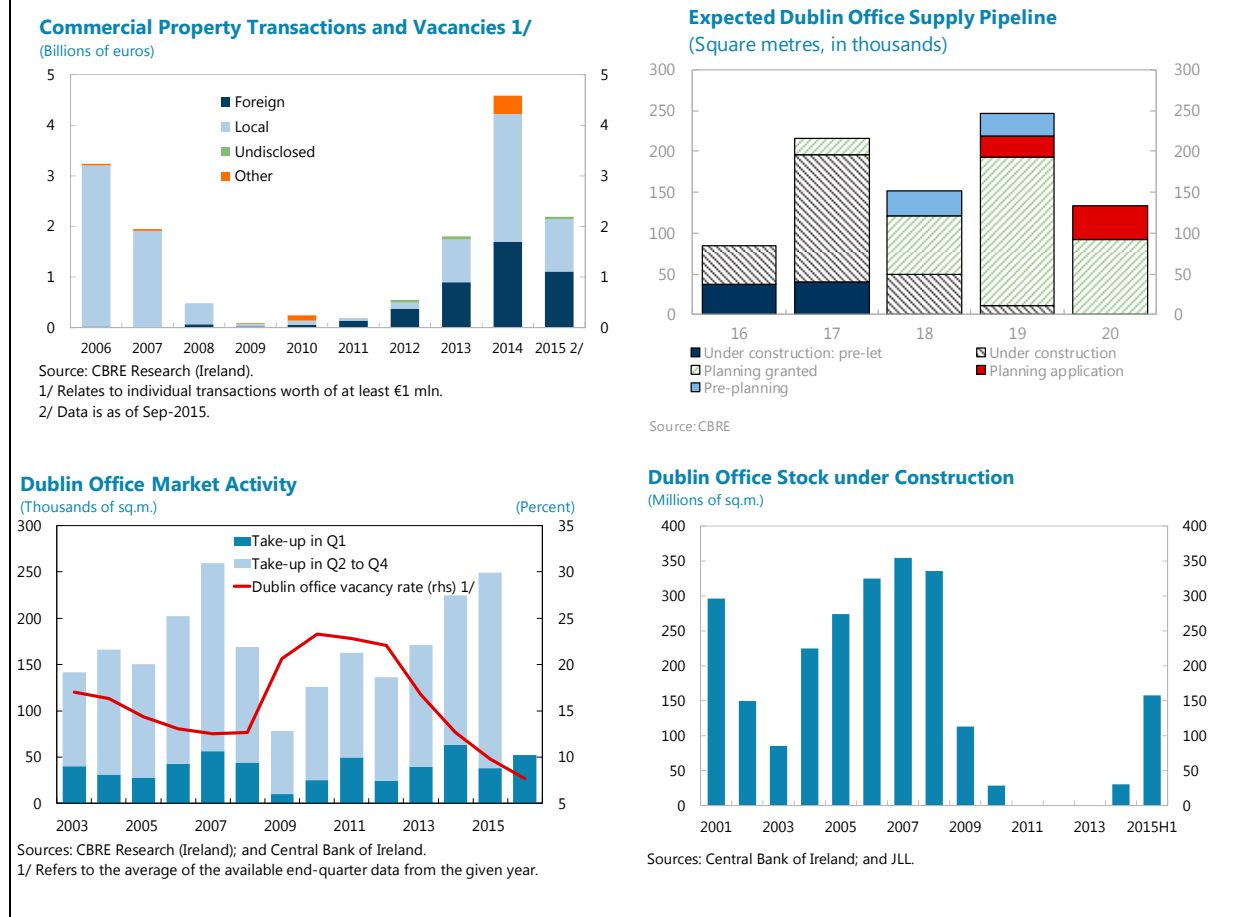
(Index returns, compounded performance for quarter end)



Source: IPD.

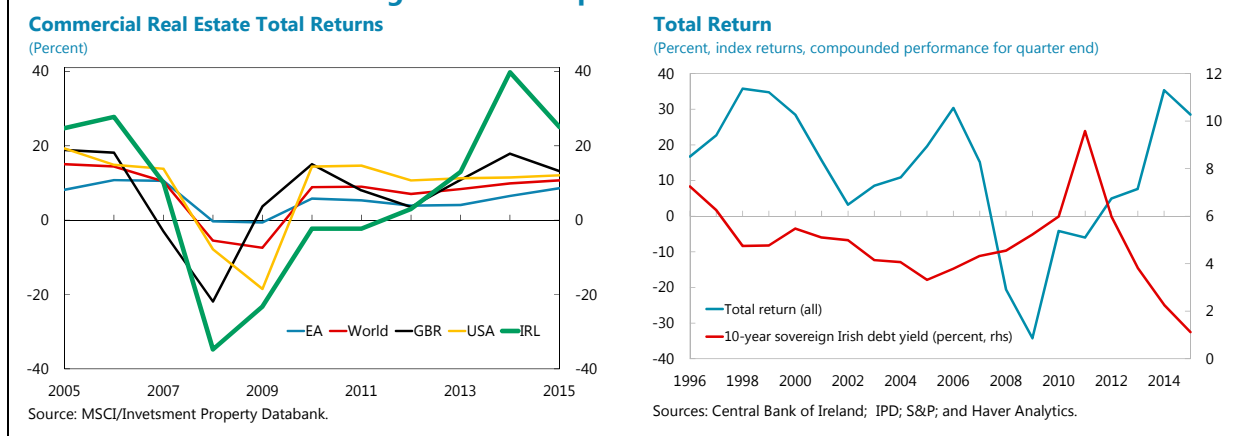
6. A lack of new construction activity has contributed to supply shortages to meet demand. These supply imbalances are driving a large proportion of the gains in the CRE office subsector. The level of CRE stock under construction fell dramatically between 2008 and 2010, reflecting in part the low profitability margins in an environment of depressed prices, construction firms' stretched balance sheets, tighter lending standards by banks and thus limited access to funding by the construction sector. As a result, very little new office space has been delivered to the Dublin market for the last five years. While office development activity has increased in Dublin since 2014, planning statistics suggest that a meaningful increase in supply is unlikely until before 2017 ([CBRE Bi-monthly Report](#)). On the demand side, CBRE data show that the take-up⁵ of Dublin office space during the first three quarters of 2015 was at its highest level since 2007 (Figure 2) and the Dublin city centre vacancy rate has fallen from a peak of 24 percent in 2010 to 8.4 percent in September 2015.

⁵ Take-up refers to all leasing activity in the office market.

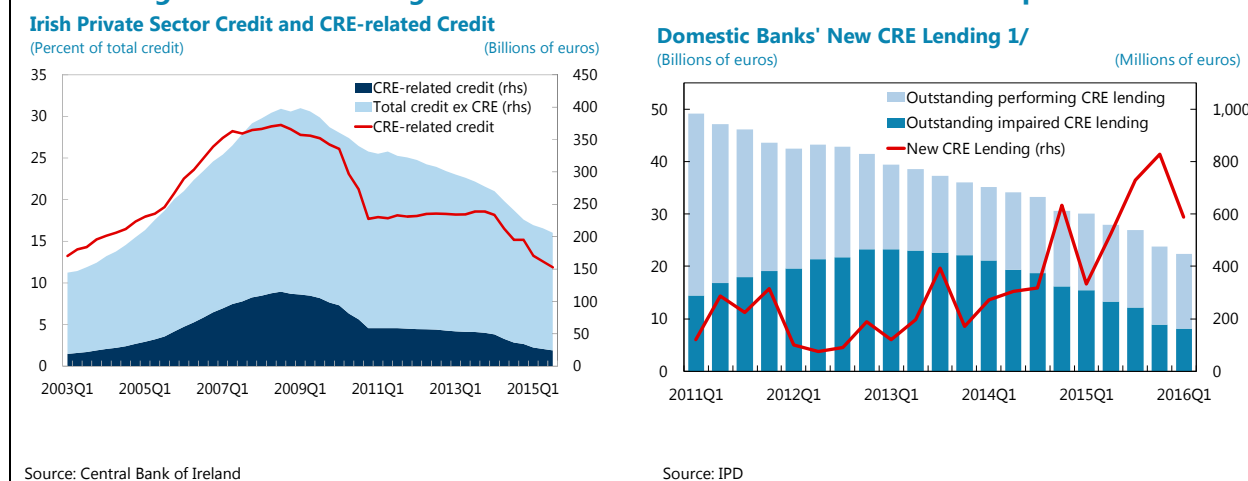
Figure 2: Supply and Demand for Irish CRE

7. High CRE returns have attracted investors in the search for yield as interest rates remain low. Returns on 10-year Irish sovereign debt have trended down to a twenty-year low and the spread between total returns for CRE and the long-term sovereign bonds reached approximately 8.5 percentage points in 2015 (Figure 3). While capital and rental value growth have had a positive impact in terms of CRE returns, the relative strength of the former in recent quarters has seen initial yields fall below the longun average of 5 percent.⁶

⁶ Initial yield is calculated as the annualized returns generated by a portfolio, following the deduction of an estimate of annul recurring irrecoverable property outgoings, expressed as a percentage of the portfolio valuation (European Public Real Estate Association).

Figure 3: Development in the CRE Market

8. Investment in Irish commercial real estate has increased substantially with the majority from foreign direct investment (FDI). The value of investment in Irish commercial property reached €4.5bn in 2014, which was more than 2.5 times the 2013 figure and surpassed the previous high of 2006 by almost 40 percent. Unlike the pre-crisis period, the majority of investment activity is now being funded through foreign investment and equity funds, such as real estate investment trusts (REITs) as opposed to bank funded during the last boom cycle (Figure 4).⁷ Large foreign pension and insurance funds from the U.S., the U.K., and Germany have invested in the Irish CRE market, in part for balance sheet management, matching long-term liabilities with long-term assets. The domestic banking system has been reducing its overall exposure to CRE, yet the flow of new lending has slowly picked-up potentially signaling a greater appetite for CRE exposures.⁸

Figure 4: Outstanding Balance of Private Credit and New Loan Composition

⁷ Property funds such as REITs allow smaller investors access to the market and additional liquidity with listed funds offering equity securities that can be bought and sold during market hours and some unlisted funds willing to return investments at a month's notice.

⁸ CRE represents approximately 15 percent of total bank exposures.

C. Risks to the Banking System from CRE and the Irish Financial Crisis

9. Financial system vulnerabilities associated with the CRE asset class are a result of cyclicity in valuations, leveraged structure, and high exposure to the economic cycle. CRE prices are highly cyclical in both an upturn and downturn.⁹ In an upturn, CRE market prices increase valuations, implying falling LTV ratios and improving credit metrics that allow for greater leverage to be taken on. Historic evidence suggests that increasing debt levels are not accompanied with equal increase in equity levels, making this sector increasingly vulnerable to an economic downturn. In a downturn, the cyclicity stems from the decline in occupancy rates and reduced cash flows to support debt payments. Sharp losses in valuations in turn imply an increase in LTV ratios that can reduce the ability of the entity to refinance and even a technical default as LTV covenants are broken. The structure of the debt is also a contributing factor to the historic volatility of this asset class, as CRE debt is often non-amortizing interest only debt with fixed maturity dates resulting in large bullet redemptions and significant roll-over risk.

10. Collateral valuations play an important component of the cyclicity of the commercial property market. As commercial property prices rise during a cyclical upswing, higher asset valuations strengthen the capital base of banks and other finance providers, increasing lending capacity. Moreover, collateral values rise, default rates fall and those loans that do default have higher recovery rates. That in turn also supports additional credit extension, pushing up prices further in a self-reinforcing cycle. This so-called ‘financial accelerator’ tends to operate until there is clear over-capacity in the sector. The whole process then moves into reverse.¹⁰ During the downswing, as corporate clients default and vacancy rates rise, lenders realizing collateral in a falling market place additional downward pressure on property prices. That lowers collateral values more broadly and in turn adds to the strain on other borrowers and lenders, reinforcing the downward spiral.

11. The downswing in prices and loan loss cycles in commercial real estate markets are usually stronger than in residential markets, for a number of reasons. First, construction cycles for commercial property are typically longer than for residential real estate. Second, the incentive for borrower default on a commercial real estate loan is higher than on a residential loan, given that households in default are still in need of housing. Third, loans for construction and development, which finance projects that are not yet cash-flow generating and are therefore higher risk, tend to form a material proportion of the banking sector’s commercial real estate portfolio. Fourth, the financing model for commercial property tends to contain a higher proportion of short-term or syndicated finance funding. That is subject to regular re-pricing and is inherently more procyclical than a longer-term amortizing residential mortgage. Lastly, commercial property valuations are typically marked to market at the same time as lending has LTV covenants: that combination can put loans in jeopardy when prices fall.

⁹ Financial Stability Board, Risks to Financial Stability from Commercial Real Estate, December 2009.

¹⁰ For a full discussion of the financial accelerator model see Bernanke, Gertler and Gilchrist (1998).

12. In the lead up to the Ireland financial crisis, banks played a crucial role in the financing of CRE. The CRE market was predominantly financed by domestic banks, UK banks and several other European banks; international equity investors had a limited presence in Ireland during this period. Banks lent for the purchase of land for development and existing buildings; they financed construction projects; they lent to non-banks and finance companies that in turn financed real estate; and they lent to non-financial firms based on real estate collateral. The risk appetite of the banks therefore had an impact on the behavior of property investments and transactions. On the other hand, the state of the CRE sector affected the performance of the banking sector.

13. Risks from CRE exposures in the Irish financial crisis significantly impacted the banks. Until late 2007, the Irish commercial property market grew rapidly, driven by strong demand and the capital value of commercial real estate increased by 70 percent during the five years up to September 2007—the peak of the market. When the crisis hit in late 2007, the proportion of non-performing real estate loans became high (a trend that was also observed for other loan portfolios) and banks required urgent recapitalization. Declining property prices increased the proportion of non-performing loans, leading to deterioration in banks' balance sheets and weakened banks' capital bases.¹¹ The National Asset Management Agency (NAMA) was established by the Irish Government in order to take on the role of a “bad bank” and was a key element of the solution to the banking crisis. NAMA took over mostly non-performing real estate-related loans from banks' balance sheets, with the effect that bad assets did not continue to contaminate the remaining performing portfolios. NAMA took over a CRE-related portfolio of EUR 74 billion at a discount of 57 percent. The pricing of the assets that were taken over by NAMA was based on their potential long-term economic value, which effectively meant an indirect recapitalization of banks.

14. While new bank lending to CRE sector plays a lesser role nowadays than during the pre-crisis years, and CRE financing relies mostly on equity, an excessive CRE price increase could still pose a risk to the Irish banking sector. First, rising CRE prices could alter banks' aversion and provide incentive for more risk-taking behavior, particularly as new lending is picking up and the unwinding of NAMA's CRE portfolio will provide investment opportunities for banks. Second, even without further new CRE lending, sharp rise in CRE prices could bring about a subsequent reversal, which would hurt banks' collateral values on the existing CRE stock of assets (which is still substantial) and could reduce capitalization. Third, banks could become increasingly exposed to REITs, and thus indirectly to the CRE market. Finally, a sharp volatility in CRE prices may also have supply side effects, as the construction sector takes property prices as a signal and adjusts production accordingly.

¹¹ David and Zhu (2004) conduct an analysis of the determination of commercial property prices and the interaction between commercial property prices and bank lending based on a sample of 17 developed economies.

D. Supervisory Response to Risks from CRE Since the Financial Crisis

15. Banking supervision in the run-up to the 2008-11 banking crisis had shortcomings in Ireland, making it a contributing factor to the crisis. Irish authorities conducted two critical postmortem reports that helped identify and analyze the most serious shortcomings in banking supervision.¹² The pre-crisis supervisory approach, for example, focused on process over outcomes, was unduly deferential and accommodating to the banking industry, and adopted a hands-off approach, particularly to credit risk. These are important lessons that have shaped the Central Bank's strengthening programs of its financial oversight functions in general, and banking supervision in particular.

16. On the European stage, the lessons of the global banking crisis resulted in an overhaul of regulation, supervision, and resolution. The Capital Requirements Directive (CRD IV)/Capital Requirements Regulation (CRR) came into force in 2014, and the Bank Resolution and Recovery Directive (BRRD) in 2015, both with some transitional provisions up to the end of the decade. The Single Supervisory Mechanism (SSM), led by the ECB, is operational since November 2014 and the SRB assumed its functions in January 2016. These new European regulations and institutional arrangements are designed to address the challenges of public banking oversight and resolution at a European level, in lieu of the national decision-making that prevailed until 2014.

17. Supervision of Irish banks is carried out by the Single Supervisory Mechanism (SSM) has been a 'game changer' for bank supervisors and practices.¹³ Significant Institutions (SIs) are directly supervised by the ECB and Less-Significant Institutions (LSIs) indirectly. For SIs, consisting of the larger banks operating in Ireland, a Joint Supervisory Team (JST), led by the ECB and consisting of both ECB and CBI supervisors directly supervise these firms. The SSM has further strengthened the prudential regulation and supervision of banks, enhancing consistency of supervisory practices across the euro area, and building on improvements in intrusive, outcomes-based supervision that had been on-going at the CBI. Concurrently, European legislative and regulatory developments have had a material impact on the role and approach of supervision of the banking sector in Ireland.

18. The response to the collapse of CRE prices during the crisis in Ireland has been far-reaching. First, banks have reduced their overall risk profile, significantly deleveraging and reducing their exposure to CRE (approximately by 15 percent of total assets). Second, the CBI has increased sector risk weights to reflect the higher inherent risk profile of CRE. Third, supervision has been

¹² See: "[The Irish Banking Crisis - Regulatory and Financial Stability Policy 2003-2008](#)" and "[Misjudging Risk: Causes of the Systemic Banking Crisis in Ireland.](#)"

¹³ The SSM officially entered into operation in November 2014. Supervision is performed by the ECB together with the national supervisory authorities of participating member states. For further information see: [ECB/SSM Guide to Banking Supervision.](#)

significantly strengthened through numerous measures.¹⁴ Fourth, improved CRE data collection is planned.

Capital

19. The regulatory capital treatment for Irish banks' exposure to CRE is set out in the Capital Requirements Regulation (CRR)¹⁵ where a range of options are available to determine risk-weights. The CRR allows banks to use either the standardized or IRB approach to determine risk weights for CRE. Under the standardized approach a 50 percent risk weight is permitted when certain strict criteria are met and 100 percent if criteria are not met. Under the IRB approach, banks are able to classify CRE as corporate asset class and the applied risk weight is a result of the applicable risk parameters: probability of default (PD), exposure at default (EAD) and LGD. If a bank is not able to estimate PDs (or meet certain requirements) the exposures are classified as specialized lending (SL) and banks apply prescribed supervisory risk- weights (see Annex III).

20. The CBI has applied a higher sector risk weight for CRE to reflect its inherent risk profile. Given the economic conditions prevailing at the time the CRD IV was introduced, it was determined that speculative CRE lending involved a higher risk and therefore should be subject to the higher capital surcharge. Under Article 128(2) of the CRR, exposures associated with particularly high risks were assigned a 150 percent risk weight. The LTV threshold for high-risk lending is 50 percent for mortgages secured by CRE. Mortgages with LTV ratios above these thresholds may be granted, but those with LTVs below the thresholds benefit from a more favorable risk weighting.

Microprudential supervision measures¹⁶

21. The microprudential activities associated with risks from CRE have been significantly enhanced since the Irish financial crisis. In assessing credit risk, the CBI/SSM consider all the components that determine potential credit losses, and in particular: the probability of a credit event (i.e. default), or correlated credit events, that mainly concerns the borrowers and their ability to repay relevant obligations; the size of exposures subject to credit risk; and the recovery rate of the credit exposures in the event of borrowers defaulting ([SREP Guidelines](#)).

22. In relation to supervision of Irish banks' exposure to CRE, the following activities have been performed since the crisis:

¹⁴ For example, Central Bank of Ireland has increased resources, adopted a more intrusive approach to supervision, and the implementation of the SSM.

¹⁵ Capital Requirements Regulation (EU) No 575/2013 of the European Parliament on the prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012. See <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32013R0575&from=EN>.

¹⁶ A menu of potential microprudential supervisory measures to assess risks from CRE are outlined in Annex IV.

- **Supervisory Review and Evaluation Process (SREP).** The SSM SREP methodology is applied to the Irish banks to assess all material risks, including from CRE exposures. The SREP applies common standards of assessment for all EU banks to determine the appropriate regulatory capital and liquidity requirements for the credit institutions as well as guiding credit institution-specific areas of focus for the future Supervisory Engagement Plans (SEP).¹⁷ Credit risk is a key component of the SREP assessment and as a minimum considers: credit risk strategy and appetite; own funds requirement for credit risk; nature, size and composition of on- and off-balance sheet credit-related items; and, the risk-adjusted performance of the credit portfolio.
- **Thematic risk reviews.** Recent system-wide exercises on the supervision of banks' exposures to claims secured by commercial property include: 2013 balance sheet assessment, loan classification and provisioning with deep dive file reviews; the ECBs Asset Quality Review (AQR) and Comprehensive Assessment (CA),¹⁸ with deep dive file reviews; and Impairment provisioning review, 2014, as a follow-up from the AQR.
- **Credit risk onsite inspections.** Since the implementation of the SSM, the CBI has increased the frequency and loan sample sizes for credit risk inspections for SIs and LSIs. For SIs, credit inspections typically take 3 months end-to-end, while LSIs credit inspections typically take 8 weeks. Credit inspections typically include the sampling of loan files to assess: (i) the management of distressed credits, credit grading reliability/provision adequacy; and, (ii) new lending appetite/compliance with risk appetite and bank policies. For new lending this may include reviewing files where there has been high loan book growth/high levels of policy exceptions or risk appetite breaches. For distressed credits, the Credit Inspection Team typically review higher risk watch cases, and cases where there are concerns regarding provision coverage and/or high provision write-backs.
- **Ongoing supervision.** As part of the supervisory engagement model, the following tasks are undertaken: meetings are held with the chief executive officer (CEO), chief financial officer (CFO), chief risk officer (CRO), chairman of the board, external auditors and independent non-executive directors during which credit risks faced by the credit institution are discussed; assessments of governance, policies, controls, reporting and credit risk assessment etc.; regulatory reporting received on a quarterly frequency (EU reporting

¹⁷ This assessment follows the EBA SREP Guidelines, considering Business Model, Internal Governance & Risk Management, Risks to Capital and Risks to Liquidity, from the perspective of the supervisors' knowledge of the credit institution, a peer comparison, the macro-economic environment in which the credit institution operates, the credit institution's trajectory towards full implementation of the CRD IV/CRR capital and liquidity requirements and the SSMs risk tolerances.

¹⁸ The ECB together with national authorities carry out financial health checks of the banks it supervises directly. The assessment methodology usually comprises two main pillars: an asset quality review to enhance transparency of bank exposures, including the adequacy of asset and collateral valuation and related provisions and a stress test to test the resilience of bank's balance sheets. The AQR and CA was performed in 2014. For details see: [ECB Comprehensive Assessment](#).

templates - COREP and FINREP) are analyzed; financial statements are reviewed on an annual basis; and, analysis of stress testing and concentration risks.

- **Provisioning.** The CBI has increased the frequency and depth of on-site reviews of loan loss provisioning practices since the implementation of the SSM. Credit inspections completed on SIs in 2015 were heavily focused towards non-performing exposures (NPEs)/problem loans. Inspections involve deep loan file reviews including an assessment of the adequacy of loan loss provisions and provision write-backs. Examples of work performed include: reviews of distressed CRE loans to assess policies and procedures in place for the management of distressed credit; assessment, management and classification of distressed credit loans; collateral valuations methodology; adequacy of provisions (including write-backs); credit grading; and management information and reporting.
- **Revised guidelines for provisioning and valuations.** The CBI published guidelines in 2012 and 2013 for impairment provisioning and disclosure.¹⁹ The guidelines clarify expectations of banks when establishing policies and processes for loan loss provisioning.
- **Internal Models.** Thematic risk specialist teams within the ECB provide expert support to the work of JSTs/STs in model approval and on-going model supervision of Pillar I and Pillar II; Point in Time SREP quantification (Pillar II A) and in assessing/challenging Pillar II models (and others including provisioning models). Benchmarking exercises of IRB models has also been undertaken.

CRE Data collection

23. Authorities are planning to improve CRE data collection. The CBI and NAMA will co-fund the development of a CRE statistical system by 2018, which will be maintained by the CSO and give detailed information on sales and lease transactions, and construction activities, such as permissions, commencements, and completions. The CBI staff has made efforts to improve analyses on CRE market developments, which will need to continue with a support of sufficient resource allocation.

E. Conclusions and Recommendations

24. The response to collapse of CRE market bubble in Ireland since the crisis has been significant. Banks have deleveraged and de-risked their portfolios and credit underwriting standards are much more prudent. Capital requirements have been adjusted to take account for the higher inherent risk profile of CRE and supervisors have stepped up their efforts to gain a deeper understanding of risk and risk management. The implementation of the SSM and the new EU rules

¹⁹ See <https://www.centralbank.ie/regulation/industry-sectors/credit-institutions/Documents/Impairment%20Provisioning%20Guidelines%20May%202013.pdf>.

has helped to strengthen the overall approach to identifying and mitigating the risks to banks from CRE and other exposures.

25. Nevertheless, given that potential risks that CRE markets pose for the banking sector, a continued vigilance of CRE market developments is needed. As in other jurisdictions, CRE exposures played a significant role in causing destabilizing losses for banks in the recent Irish financial crisis. While banks are not currently overly exposed to the CRE sector, new lending is picking up and more investment opportunities will become available to banks as CRE construction picks up. Regular monitoring is needed as a way to identify early emerging risks and changes in industry dynamics especially as some indicators suggest valuations are entering a new boom period. While enhancements to regulations will help boost the resilience of banks and banking systems, consistency on the adoption and implementation of regulation is critical. Applying the full suite of supervisory measures forms the basis for an understanding of the risks stemming from CRE exposures and the platform for future measures if needed. A solid supervisory framework in Ireland lays the foundation to implement effective prudential supervision and over the last several years the CBI, together with the ECB, have increased resources and deployed them in on- and off-site supervision that is not only more pro-active than in the past but also directed towards systemic and emergent risks.²⁰

26. Based on the current conditions in the Irish CRE market, the following themes should be prioritized in the engagement with Irish banks:

- **Valuations and provisioning.** There is a need to ensure that prudent practices and conservative assumptions are applied to provisioning write backs given the pace of asset re-valuations recently seen and the risk that values could once again change abruptly.
- **Exposure to REITs.** Given the new role of REITs in the CRE market, the supervisor should assess the potential inter-linkages with the banking system. For example, supervisors should be verifying how banks are analyzing the risk of their exposures to REITs.
- **Accurate measurement of capital is needed.** International evidence shows significant differences in the denominator of bank capital ratios for IRB banks and material differences in bank's regulatory parameters—probability of default and loss given default.²¹ Given the majority of the larger Irish banks use IRB models, the supervisor should pay special attention

²⁰ The IMF conducted an FSAP update in 2016 which included an assessment of the banking sector. In addition, an assessment of compliance with the Basel Core Principles was conducted in 2013. See <http://www.imf.org/external/pubs/ft/scr/2014/cr14137.pdf>.

²¹ The BCBS conducted a fundamental review of the banking and trading book to confirm the accuracy of risk weighted assets. Results showed considerable variation in risk-weights by banks for the same portfolio of risks. The use of models was one factor that contributed to the differences. The European Banking Authority (EBA) also conducted analysis of variability in risk-weights. For a full description of the results see: [Review of Consistency of Risk Weighted Assets - European Banking Authority](#).

to the accurate estimation of risk-weights using benchmarking exercises to identify outliers e.g. EBA benchmarking exercise ([EBA Report on IRB Models](#)).

27. In addition to existing measures, the following measures could be deployed in the event systemic risks from CRE start emerging, including:

- **Countercyclical capital buffer.** The countercyclical capital buffer (CCyB) of Basel III aims to ensure that banking sector capital requirements take account of the macro-financial environment in which banks operate ([Basel III CCyB](#)). Its primary objective is to use a buffer of capital to achieve the broader macroprudential goal of protecting the banking sector from periods of excess aggregate credit growth that have often been associated with the build-up of system-wide risk. Due to its countercyclical nature, the countercyclical capital buffer regime may also help to lean against the build-up phase of the credit cycle in the first place. In downturns, the regime should help to reduce the risk that the supply of credit will be constrained by regulatory capital requirements that could undermine the performance of the real economy and result in additional credit losses in the banking system.
- **Time-varying limits (loan-to-value (LTV) and debt service coverage (DSC) ratio).**²² **Ceilings** on LTV ratios impose a cap on the size of a commercial real estate loan relative to the appraised value of a property and enforce a minimum down payment. Floors on the DSC ratios require net operating income to be a fixed multiple (higher than one) of the size of debt service payments, ensuring that the property has the necessary cash flow to cover the loan payment.²³ Lower LTVs and higher DSCs directly reduce demand for credit by limiting the market to new borrowers that satisfy the lending conditions. This in turn, contains a property price boom if it is financed by bank credit. An announcement of a tightening of the limits can also affect corporations' expectations of future commercial real prices if credible and large enough, and reduce speculative incentives that play a key role in real estate prices bubble dynamics.²⁴ Lower LTVs and higher DSCs can have a secondary benefit of reducing riskiness of the commercial real estate loan market and therefore enhance the resilience of the banking sector indirectly by increasing the quality of corporate credit.
- **Tax measures.** Taxes are a potential tool for authorities to discourage speculative investment in domestic property markets. Property taxes (either based on capital or market

²² For a full discussion on application of LTV and DCS measures for CRE, see IMF Staff Guidance note on macroprudential policy – detailed guidance on instruments 2014, <http://www.imf.org/external/np/pp/eng/2014/110614a.pdf>.

²³ DSCs can be complemented with a minimum capitalization rate which is a rate of return on a real estate investment property based on the expected income that the property will generate. It is calculated by dividing the income the property will generate (after fixed costs and variable costs) by the total value of the property.

²⁴ At the same time, the announcement can trigger a temporary increase in non-speculative lending as the borrowers will try to lock-in higher LTVs before they are implemented. This highlights the need for the announcement to be close to the implementation of the measures.

value, or annual rental value) and cyclical transactions taxes (such as capital gains taxes and registration fees) could help dampen the boom phase of a real estate cycle as well as discourage speculative activity.^{25 26}

- **Supply side.** A review of the extent to which a slow supply response also contributes to the price increase would be appropriate.

28. While the capital framework includes macroprudential measures to build resilience to excessive credit growth (e.g. CCyB), such measures are not warranted under current conditions. As a first step, supervisors should ensure banks are accurately measuring capital adequacy such as via assessments of pillar 1 capital, the pillar 2 process and SREP. Microprudential activities should help inform future policy making decisions, including macroprudential measures. Existing data gaps are important to fill in parallel with ongoing analysis of valuations and bank financing. Several factors suggest macroprudential measures are not warranted under current conditions: banks only play a minor role in financing CRE; there is no definitive evidence that valuations are over-stretched; data gaps need to be filled to ensure accurate calibration; a material increase is in the pipeline of new CRE stock to meet demand; and pillar 2 capital add-ons can be applied in a targeted way where banks take on too much risk.

²⁵ See Crowe et. al 2013.

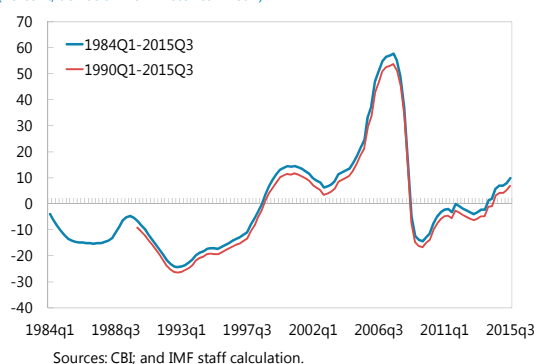
²⁶ For example, in January 2013, Singapore introduced buyer's and seller's stamp duties as complementary to macroprudential measures due to concern about speculative activity by foreigners and domestic corporations. A Seller's Stamp Duty (SSD) of 15 percent on industrial property was imposed if sold within one year, 10 percent if within two years, and 5 percent if within three years. Higher buyer's stamp duty for these groups has been in place since 2009. Hong Kong also introduced a stamp duty on property transactions in an effort to contain upward pressure on property prices by raising borrowing costs. A special stamp duty was imposed in November 2010 which is added to the regular stamp duty rate.

Annex I. Valuation of Irish CRE Prices²⁷

Analysis of Irish CRE property prices was conducted during the Ireland 2016 FSAP using two approaches: (i) non-parametric method (price-to-rent ratio, and (ii) parametric method statistical filters, error correction models, and Markov regime switching model. Overall, the results send mixed signals of the valuation of current CRE prices. While error correction models suggest a marginal undervaluation, the price-to-rent ratio and the MRSMs indicate an early warning of starting a new boom period.

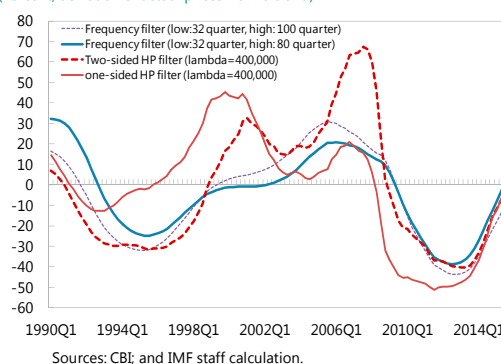
The deviation from a long-term trend of the price-to-rent ratio suggests that the CRE sector was moderately overvalued as of 2015Q3.²⁸ The metric shows that the CRE prices were also exuberant before the crisis, growing significantly above the rental yield. The adjustment after the crisis was higher than that in the residential real estate (RRE) market. From 2014, the ratio breached the historical average again. The absolute level of overvaluation depends on the choice of the period over which the historical average is calculated.

CRE Price-to-Rent Ratio
(Percent, deviation from historical mean)



Results from HP and Band-pass filtering show that CRE prices are near the long-run statistical trends (text figure). Using either one-sided or two-sided HP filter, Irish CRE prices are estimated to be close to the trend. Isolating a component of house prices that lies within an 8-20 year interval, longer than a business cycle, a band-pass filter show that, as of 2015Q3, CRE prices were close to the equilibrium level in the range of +2 percent, while a frequency filter, which extracts components within an 8-25 years interval, indicates 8 percent of undervaluation.²⁹

CRE Price Valuation with Statistical Filters
(Percent, deviation of actual prices from a trend)



Analyses with Markov regime switching models (MRSM) suggest that CRE markets entered into a high regime probability in the second half of 2013, which can be an early warning signal of another prolonged boom as shown in the last cycle. We allow two parameters in the above error correction

²⁷ Analysis of the valuation of CRE was undertaken by Heedon Kang as part of the Ireland 2016 FSAP.

²⁸ Price-to-income ratio in the CRE sector is not available.

²⁹ A full sample asymmetric band-filter is used, where the weights on leads and lags are allowed to differ. Because the CRE price index is non-stationary, it is assumed a unit root process with no detrending. Because the length of the latest boom-bust cycle of CRE prices was shorter than one of RRE prices, we use 8-20 or 8-25 years as the interval, instead of 8-30 years.

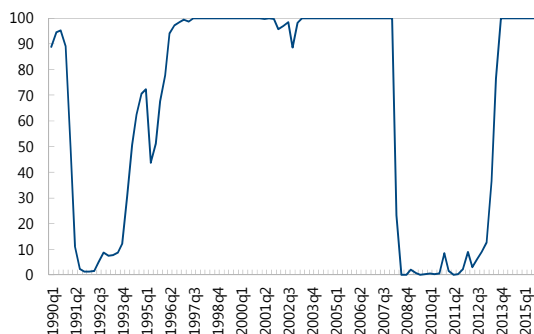
model, a constant term α_{S_t} and the coefficient of price-to-rent ratio γ_{S_t} , to change across two regimes ($S_1 = \text{high}$ or $S_2 = \text{low}$) or three regimes ($S_1 = \text{high}$, $S_2 = \text{normal}$, or $S_3 = \text{low}$). Unlike the MRSM for house prices, variance of the white noise term σ_t^2 is not allowed to change over two states to let the maximum likelihood estimation converge. The probability of being in state $S_t = i$ at time t if CRE prices were in state $S_{t-1} = i$ at time $t - 1$ is p_{ii} .

- Two regimes (high or low): The latest boom-bust cycle in the CRE market lasted for 20 years, which is longer than a normal business cycle. The cycle started around 1993 and ended at 2013. The boom period almost coincided with one in the residential real estate (RRE) market. The estimated transition matrix shows that there is a long swing in the CRE market. That is, once the CRE market enters into a high regime, it tends to stay in the regime for a while: the expected duration of the high regime is estimated to be over nine years (33 quarters). The boom regime has occurred about 65 percent of the sample period 1990-2015, longer than the bust regime.
- Three regimes (high, normal, or low): The MRSM with three regimes appears to capture dynamics of the CRE market better than one with two regimes. It detects a temporary slow-down period between two high growth periods during 1993-2007. It also hints a recent “pick-up” of CRE prices in recent years, which was an early warning signal of a prolonged boom in the last cycle.

Evaluation of CRE Prices with Markov Regime Switching Models

Probability of High Regime

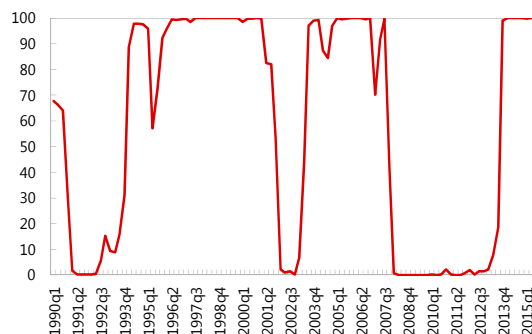
(Percent, number of states = 2)



Sources: CB; CEIC; and IMF staff calculation.

Probability of High Regime

(Percent, number of states = 3)



Sources: CB; OECD; CEIC; and IMF staff calculation.

Annex II. Treatment of CRE under Basel II

The Basel II framework permits two overall approaches to determine risk-weights for CRE exposures: the standardized and the Internal Ratings-Based (IRB) approach.

The standardized approach

Under the standardized approach, claims secured by commercial real estate are assigned a 100 percent risk-weight which recognizes that commercial property has been a cause of troubled assets in the banking industry over several decades.³⁰ However, the framework permits a lower risk-weight in exceptional circumstances such as (i) well-developed and long established markets; and (ii) mortgages on office and/or multi-purpose commercial premises and/or multi-tenanted commercial premises may have the potential to receive a preferential risk weight of 50 percent for the tranche of the loan that does not exceed the lower of 50 percent of the market value or 60 percent of the mortgage lending value of the property securing the loan. Any exposure beyond these limits will receive a 100 percent risk weight. This exceptional treatment will be subject to very strict conditions and in particular, two tests must be fulfilled:

- i. losses stemming from commercial real estate lending up to the lower of 50 percent of the market value or 60 percent of loan-to value (LTV) based on mortgage-lending-value (MLV) must not exceed 0.3 percent of the outstanding loans in any given year; and that
- ii. overall losses stemming from commercial real estate lending must not exceed 0.5 percent of the outstanding loans in any given year.

If either of these tests is not satisfied in a given year, the eligibility to use this treatment will cease and the original eligibility criteria would need to be satisfied again before it could be applied in the future. Countries applying such a treatment must publicly disclose that these and other additional conditions (that are available from the Basel Committee Secretariat) are met. When claims benefiting from such an exceptional treatment have fallen past due, they will be risk-weighted at 100 percent.

The IRB approach

For banks accredited to use the IRB approach, there are a number of options to classify the asset and assign risk-weights. First, the corporate asset class where a probability of default (PD), exposure at default (EAD), and loss given default (LGD) are assigned to each individual exposure based on the bank's credit risk grading system. Second, within the corporate asset class there are five sub-classes of specialized lending (SL) which are separately identified, two of which relate to commercial

³⁰ Basel Committee on Banking Supervision, International Convergence of Capital Measurement and Capital Standards, A revised Framework, June 2006, paragraph 74.

property: income producing real estate (IPRE) and high-volatility commercial real estate (HVCRE). Each treatment provides a separate set of requirements to determine the risk-weight.

Income-producing real estate (IPRE)³¹ refers to a method of providing funding to real estate (such as, office buildings to let, retail space, multifamily residential buildings, industrial or warehouse space, and hotels) where the prospects for repayment and recovery on the exposure depend primarily on the cash flows generated by the asset. The primary source of these cash flows would generally be lease or rental payments or the sale of the asset. HVCRE lending³² is the financing of commercial real estate that exhibits higher loss rate volatility (i.e. higher asset correlation) compared to other types of SL. Banks that do not meet the requirements for the estimation of PD under the corporate foundation approach for their SL assets are required to map their internal risk grades to five supervisory categories, each of which is associated with a specific unexpected loss risk weight – see below.³³

The SL categories: project finance, object finance, commodities finance, IPRE, and HVCRE

Supervisory categories and unexpected loss risk weights for IPRE is as follows:

Strong	Good	Satisfactory	Weak	Default
70%	90%	115%	250%	0%

Supervisory categories and unexpected loss risk weights for HVCRE is as follows:

Strong	Good	Satisfactory	Weak	Default
95%	120%	140%	250%	0%

³¹ Ibid, paragraph 226.

³² Ibid, paragraph 227.

³³ Ibid, paragraph 280.

Annex III. Capital Treatment of CRE under the Capital Requirements Regulation

For banks applying the standardized approach (SA) to determine risk-weighted assets, the Capital Requirements Regulation (CRR) allows a preferential treatment of 50 percent for exposures fully and completely secured by mortgages on CRE if certain criteria are met, including:

- (a) the value of the property shall not materially depend upon the credit quality of the borrower. Institutions may exclude situations where purely macro-economic factors affect both the value of the property and the performance of the borrower from their determination of the materiality of such dependence;
- (b) the risk of the borrower shall not materially depend upon the performance of the underlying property or project, but on the underlying capacity of the borrower to repay the debt from other sources, and as a consequence, the repayment of the facility shall not materially depend on any cash flow generated by the underlying property serving as collateral;
- (c) legal certainty of collateral pledged as collateral, value is monitored regularly (at least annually) and the valuation is conducted by an independent valuer at or less than the market value; and
- (d) the 50 percent risk weight shall be assigned to the part of the loan that does not exceed 50 percent of the market value of the property or 60 percent of the mortgage lending value of the property in question in those Member States that have laid down rigorous criteria for the assessment of the mortgage lending value in statutory or regulatory provisions.

If these criteria are not met, a 100 percent risk weight is applicable. The CRR permits a derogation from point (b) for exposures fully and completely secured by mortgages on commercial immovable property which is situated within the territory of a Member State, where the competent authority of that Member State has published evidence showing that a well developed and long-established commercial immovable property market is present in that territory with loss rates which do not exceed the following limits:

- (a) losses stemming from lending collateralized by commercial immovable property up to 50 percent of the market value or 60 percent of the mortgage lending value, unless otherwise determined under Article 124(2), do not exceed 0,3 percent of the outstanding loans collateralized by commercial immovable property;
- (b) overall losses stemming from lending collateralized by commercial immovable property do not exceed 0,5 percent of the outstanding loans collateralized by commercial immovable property.

For IRB banks, treatment is based broadly of two approaches: either classified as corporate or specialized lending (SL).

For SL exposures in respect of which an institution is not able to estimate PDs or the institutions' PD estimates do not meet certain minimum requirements, the institution assigns risk weights to these exposures in accordance with Table 1, as follows:

Table 1

Remaining maturity	Category 1	Category 2	Category 3	Category 4	Category 5
Less than 2.5 years	50%	70%	115%	250%	0%
Equal or more than 2.5 years	70%	90%	115%	250%	0%

In assigning risk weights to specialized lending exposures institutions shall take into account the following factors: financial strength, political and legal environment, transaction and/or asset characteristics, strength of the sponsor and developer, including any public private partnership income stream, and security package (CRR Article 153).

Annex IV. Microprudential Measures to Assess Risks Associated With CRE Exposures

In the international context, the major cause of serious banking problems continues to be directly related to weaknesses in banks' credit risk management.³⁴ Supervisors should therefore pay attention to banks' credit risk management to identify, measure, monitor, and control credit risk as well as to determine that they hold adequate capital against these risks ([Principles for the Management of Credit Risk](#)). Supervisors have a range of tools to assess the risks stemming from CRE and address the boom and bust cycle. The following are a suite of microprudential measures to assess risks associated with banks exposures to CRE:³⁵

- **Systemic risk monitoring.** Regular monitoring of the CRE industry is needed to identify early emerging risks, construction activity, sources of financing, and system exposures.
- **Industry outreach.** Industry outreach is a way for the supervisor and authorities to better understand the industry by “bringing all sides of the industry together” – developers, investors, lenders occupiers, surveyors, auctioneers, researchers and regulators – to discuss developments in the commercial property sector.
- **Assessment of credit risk underwriting standards.**³⁶ Sound credit risk underwriting standards should be assessed with intensive supervisory scrutiny. For example: whether banks are applying suitable underwriting that take account of portfolio risks and likely correlations between loans; reviewing the incentives and financial backing of developers to ensure that they retain sufficient ‘skin in the game’; and designing and utilizing more rigorous stress tests of land and collateral valuations so that LTV ratios and covenants are applied to stress-adjusted values.³⁷ Moreover, lessons from the changes in financing conditions for the CRE sector need to be properly evaluated ex ante e.g. liquidity in the commercial mortgage backed security market and possibilities of sources of contingent funding.
- **Monitor trends in collateral valuations.** Collateral valuations of CRE are an important aspect of risks to financial stability. While discretion is left to the national supervisor in the approval of IRB models, the Basel framework does provide some guidance to determine the

³⁴ Examples include: lax credit standards for borrowers and counterparties, poor portfolio risk management, or a lack of attention to changes in economic or other circumstances that can lead to deterioration in the credit standing of a bank's counterparties.

³⁵ In practice, many of these activities are interconnected, however, for this discussion they have been dealt with separately.

³⁶ The BCBS published a guide for sound credit risk assessment and valuation for loans. See <https://www.bis.org/publ/bcbs126.htm>.

³⁷ Financial Stability Board, Workshop on Commercial Real Estate (CRE) Underwriting, June 2013.

quality of CRE assets based on: market conditions, financial ratios (LTV, interest rate coverage), stress analysis, cash-flow predictability, asset characteristics, strength of sponsor, and security measures. Given that many of these guiding indicators of quality are potentially prone to pro-cyclicality, it is important supervisors to monitor bank policies.

- **Managing concentration risk and large exposure limits.** Banks should have adequate policies and processes to identify, measure, evaluate, monitor, report and control or mitigate concentrations from CRE asset class and apply internal limits to reflecting the bank's risk appetite, risk profile and capital strength.³⁸ Policies to limit sector concentrations should be well established and routinely reviewed in light of changing macroeconomic and market factors.
- **Prudent provisioning practices.** Accurate provisioning plays a crucial role in building resilience of a bank to credit risk losses. Adequate provisioning coverage for NPLs, valuations based on stressed collateral values at foreclosure and governance by the Board of Directors is needed. Furthermore, there is a need to ensure conservative assumptions are applied to provisioning write backs and clear policies for the upgrading of exposures from "nonperforming" to "performing".³⁹
- **On- and off-site supervision.** Supervisors should actively assess banks' and the banking system's exposure to CRE assets as part of routine offsite and onsite activities. CRE assets should be reported separately as part of the regulatory reporting framework and an integral part of ongoing monitoring. Supervisors should review bank underwriting standards on a regular basis (e.g. bi-annually), conduct thematic and targeted onsite examinations to perform file reviews as a way to verify application of credit underwriting standards, accuracy of credit risk grading systems, quality of hind-sighting and challenge by risk management to verify quantitative and qualitative inputs to credit assessments.
- **Pillar 2 capital add-ons.** As part of the annual supervisory review and evaluation process (SREP) of pillar II, supervisors assess all material risks that a bank is exposed to, including from CRE. Supervisors should conduct an assessment of a bank's inherent risk exposure from CRE as well as the quality of risk management. Supervisors have the opportunity to apply higher minimum capital requirements for individual banks where the risk profile warrants.
- **Verifying the accurate measurement of risk-weighted assets for CRE exposures through the capital framework.** For banks using the SA, supervisors should confirm that the appropriate risk weight is being applied, and where banks are applying a preferential risk

³⁸ Concentration risk is one of the key principles in the Basel Core Principles for Effective Banking Supervision (2012). See [Basel Core Principles](#).

³⁹ The BCBS published guidance on the prudential treatment of assets and definitions of NPLs and forbearance. See <http://www.bis.org/bcbs/publ/d367.htm>.

weight of 50 percent that the strict criteria laid down in the regulations are met.⁴⁰ For banks using the IRB approach for CRE, credit risk assessment models involve extensive judgment and effective model validation procedures are crucial ([BCBS Sound Credit Risk](#)). The BCBS published guidelines for back-testing counterparty credit risk models⁴¹ covering model validation, monitoring and back-testing. Analysis shows the IRB approach results in significant variability in risk weights.⁴²

⁴⁰ BCBS, 2006, see paragraphs 74 which states that “in view of the experience in numerous countries that commercial property lending has been recurring cause of troubled assets in the banking industry over the past few decades, the Committee holds the view that mortgages on commercial real estate do not, in principle, justify other than a 100 percent weighting of the loans secured”.

⁴¹ See <http://www.bis.org/publ/bcbs185.pdf>.

⁴² Analysis performed by the BCBS showed excessive variability in risk-weighted assets in the banking book. See <http://www.bis.org/bcbs/publ/d362.htm>. Analysis by the EBA shows that supervisory practices covering IRB models vary. See <https://www.eba.europa.eu/documents/10180/15947/20131217+Report+on+the+comparability+of+supervisory+rules+and+practices.pdf>.

References

- Basel Committee on Banking Supervision (2000), "Principles for the Management of Credit Risk," BIS. <http://www.bis.org/publ/bcbs75.htm>.
- Basel Committee on Banking Supervision (2006), "Sound Credit Risk Assessment and Valuation for Loans," BIS. <http://www.bis.org/publ/bcbs126.pdf>.
- Benford, James and Burrows, Oliver, 2013, Commercial Property and Financial Stability, Bank of England, Quarterly Bulletin Q1.
- Bernanke, Ben S. & Gertler, Mark & Gilchrist, Simon, 1999. 'The Financial Accelerator in a Quantitative Business Cycle Framework,' Handbook of Macroeconomics, in J.B. Taylor & M. Woodford (ed), Handbook of Macroeconomics, edition 1, volume 1, chapter 1, pages 1341-1393.
- Central Bank of Ireland (2015), Macro-Financial Review II, Dublin: Central Bank of Ireland.
- "Concentrations in Commercial Real Estate Lending, Sound Risk Management Practices," 71 Federal Register 238 (December 12, 2006), pp. 74580–74588.
- Crowe, Christopher, Giovanni Dell'Ariccia, Deniz Igan, and Paul Ranabal, 2011, "How to Deal with real Estate Booms: Lessons from Country Experiences", IMF Working Paper WP/11/91.
- Davis, Philip and Zhu, Haibin, 2004, Bank Lending and Commercial Property Cycles: Some Cross-country Evidence, BIS Working Papers, March 2004. [CRE and bank lending](#).
- Friend, Keith, 2013, An Analysis of the Impact of the Commercial Real Estate Concentration Guidance, Office of the Comptroller of the Currency.
- Honohan, Patrick (2010), "The Irish Banking Crisis: Regulatory and Financial Stability Policy 2003-2008," A Report to the Minister for Finance by the Governor of the Central Bank (31 May).
- Zhu, Haibin, 2002, "The Case of the Missing Commercial Real Estate Cycle," BIS, BIS Quarterly Review, September 2002.