Prudential Practice Guide

APG 113 — Internal Ratings-based Approach to Credit Risk

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About this guide

Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk (APS 113) sets out APRA's requirements of authorised deposit-taking institutions (ADIs) in relation to the management and measurement of credit risk under the internal ratings-based approach. This prudential practice guide aims to assist ADIs in complying with those requirements.

Subject to the requirements of APS 113, ADIs have the flexibility to configure their credit risk management framework in the way most suited to achieving their business objectives, having regard to their size, complexity and risk profile.

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Phased roll-out of the IRB approach

1. *Prudential Standard APS 113 Capital Adequacy: Internal Ratings-based Approach to Credit Risk* (APS 113) allows an authorised deposit-taking institution (ADI) to adopt a phased roll-out of the internal ratings-based (IRB) approach to credit risk, subject to APRA's approval. A phased roll-out could include:

   (a) adoption of the IRB approach, in accordance with a specified timetable, across IRB asset classes (or in the case of the retail IRB asset class, across individual sub-asset classes) within a particular business unit;

   (b) adoption of the IRB approach, in accordance with a specified timetable, across business units in the same banking group; and

   (c) moving from the foundation IRB (FIRB) approach to the advanced IRB (AIRB) approach, in accordance with a specified timetable, for certain credit risk components.

Small-business exposures within the retail IRB asset class

2. APS 113 states that an ADI must have policies detailing the criteria that connect small-business obligors for the purpose of the $1 million retail threshold. The criteria that an ADI might consider for this purpose include:

   (a) a linkage by cross-guarantees or cross-default provisions;

   (b) common ownership or management;

   (c) ability to control;

   (d) financial interdependency including cross-collateralisation; or

   (e) other connections that, in the ADI's assessment, would lead it to regard facilities it has provided as representing a common risk.

Specialised lending sub-asset classes

3. For the purposes of APS 113, the following characteristics may assist in the identification of exposures for each specialised lending sub-asset class:

   (a) project finance: a method of funding where the ADI looks primarily to the revenues generated by a single project as both the source of repayment and as security for the exposure. This type of financing is usually for large complex installations that could include, for example, power plants, chemical processing plants, mines, transportation infrastructure, environment and telecommunications infrastructure. Project finance may take the form of financing the construction of a new installation or refinancing an existing installation, with or without improvements.

   In such transactions, an ADI is usually paid solely, or almost exclusively, out of the money generated by the contracts for the facility's output. The obligor is usually a special purpose vehicle (SPV) that is not permitted to perform any function other than developing, owning and operating the installation. The consequence is that repayment depends primarily on the project's cash flow and on the value of the project's assets. In contrast, if repayment of the exposure depends primarily on a well-established, diversified, contractually obligated end-user, it would generally be considered an exposure to that end-user and treated as a corporate exposure;

(b) object finance: a method of funding the acquisition of specific assets (e.g. ships, aircrafts, satellites, rail stock and motor vehicle fleets) where the repayment of the exposure is dependent on the cash flows generated by the specific assets that have been financed and pledged or assigned to the ADI. A primary source of these cash flows might be rental or lease contracts with one or more third parties. In contrast, if the exposure is to an obligor whose financial condition and debt-servicing capacity enables it to repay the debt without undue reliance on the specifically pledged or assigned assets, the exposure would generally be treated as a corporate exposure;

(c) commodities finance: structured short-term lending to finance reserves, inventories or receivables of commodities (e.g. crude oil, metals or crops) where the exposure will be repaid from the proceeds of the sale of the commodity and the obligor has no independent repayment capacity. This is the case when the obligor has no other activities or material assets on its balance sheet. The structured nature of the financing would be designed to compensate for the credit quality of the obligor. The ADI's rating of the exposure would generally reflect its self-liquidating nature and the ADI's capacity to structure the transaction rather than the credit quality of the obligor.

This type of lending is generally distinguishable from exposures financing the reserves, inventories or receivables of other more diversified corporate obligors as the ADI would be able to rate the credit quality of the latter type of obligors based on their broader ongoing operations. In such cases, the value of the commodity serves as a risk mitigant rather than as the primary source of repayment and the exposure would generally be treated as a corporate exposure; and

(d) income-producing real estate: a method of providing funding for real estate (e.g. office buildings to let, retail space, multi-family residential buildings, industrial or warehouse space and hotels) where the prospects for repayment and recovery of 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. The obligor may, but need not necessarily be, a SPV, an operating company focused on real estate construction or holdings or an operating company with sources of revenue other than real estate. The distinguishing characteristic of income-producing real estate against other corporate exposures that are collateralised by real estate is the strong positive correlation between the prospects for repayment of the exposure and the prospects for recovery in the event of default, with both depending primarily on the cash flows generated by the property.

Equity IRB asset class

4. APS 113 defines the equity IRB asset class. As a guide to identifying such exposures, the following instruments would generally be classified as equity exposures:

(a) an instrument with the same structure as those permitted to be included as Tier 1 capital for an ADI; and

(b) an instrument that embodies an obligation on the part of the issuer and meets any of the following conditions:

(i) the issuer may defer indefinitely the settlement of the obligation;

(ii) the obligation requires (or permits at the issuer's discretion) settlement by issuance of a fixed number of the issuer's equity shares;

(iii) the obligation requires (or permits at the issuer's discretion) settlement by issuance of a variable number of the issuer's equity shares and, *ceteris paribus,* any change in the value of the obligation is attributable to, comparable to and in the same direction as, the change in the value of a fixed number of the issuer's equity shares[1]; or

(iv) the ADI holding the instrument has the option to require that the obligation be settled in equity shares unless, in the case of a traded instrument, the ADI has demonstrated that the instrument trades more like debt of the issuer, or, in the case of non-traded instruments, the ADI can demonstrate that the instrument would generally need to be treated as a debt position.

Documentation of the rating system design

5. Attachment A to APS 113 requires an ADI to document the design of its rating systems. APRA envisages that such documentation would broadly evidence an ADI's compliance with the minimum standards of APS 113 and, as a guide, typically address topics such as:

   (a) portfolio differentiation;

   (b) rating criteria;

   (c) responsibilities of parties that rate obligors and facilities;

   (d) definition of what constitutes a rating exception;

   (e) parties that have authority to approve exceptions;

   (f) frequency of rating reviews; and

   (g) management oversight of the rating process.

Stress-testing

6. Attachment A to APS 113 requires an ADI to consider the effect of mild recession scenarios when stress-testing its assessment of capital adequacy. In doing this, one example might be to use two consecutive quarters of zero economic growth to assess the effect on the ADI's assigned estimates of probability of default (PD), loss given default (LGD) and exposure at default (EAD), taking into account the level of the ADI's international diversification on a conservative basis. Whatever approach is taken, institutions would usually need to consider a wide range of sources when informing, or testing the reasonableness of, their expectations in this area. APRA envisages that an important component of such information would generally include:

   (a) the ADI's own internal evidence on the migration of its credit ratings in economic downturns;

   (b) the extent to which information about the impact of a small deterioration in the credit environment on the ADI's ratings might provide some information on the likely effect of more severe stress circumstances; and

   (c) relevant external evidence on ratings migration.

1 For certain obligations that require or permit settlement by issuance of a variable number of the issuer's equity shares, the change in the monetary value of the obligation is equal to the change in the fair value of a fixed number of equity shares multiplied by a specified factor. Those obligations would meet the conditions of paragraph 4(b)(iii) if both the factor and the referenced number of shares are fixed. For example, an issuer may be required to settle an obligation by issuing shares with a value equal to three times the appreciation in the fair value of 1,000 equity shares. That obligation would be considered to be the same as an obligation that requires settlement by issuance of shares equal to the appreciation in the fair value of 3,000 equity shares.

General risk quantification requirements

7. Attachment A to APS 113 includes general risk quantification requirements an ADI is required to follow in determining its PD, LGD and EAD estimates. In fulfilling those requirements, the ADI would generally ensure that the population of exposures represented in the data, the lending standards used when the data were generated and other relevant characteristics, closely match, or are at least comparable with, the ADI's current exposures and lending standards. The ADI would normally be able to demonstrate that the economic or market conditions that underlie the estimation data are relevant to current and foreseeable conditions and that the number of exposures in the sample and the data period used for quantification are sufficient to provide the ADI with confidence in the accuracy and robustness of its estimates. The estimation technique should perform well in out-of-sample tests.

8. Attachment A to APS 113 requires an ADI to have documented policies on re-ageing. These policies could include:

   (a) approval authorities and reporting requirements;

   (b) the minimum age of a facility before it is eligible for re-ageing;

   (c) delinquency levels of facilities that are eligible for re-ageing;

   (d) the maximum number of times that a facility may be re-aged; and

   (e) a re-assessment of the obligor's capacity to repay.

Risk quantification requirements specific to probability of default estimation

9. APS 113 allows an ADI to determine the technique it uses to estimate the average PD for each obligor grade provided the technique takes appropriate account of long-run experience. Such techniques may include:

Internal default experience

In this case, the ADI would generally ensure its estimates are reflective of its underwriting standards and of any differences in the rating system that generated the data and its current rating system. Where only limited data are available or where underwriting standards or rating systems have changed, the ADI would be expected to add a greater margin of conservatism to its PD estimates. An ADI could use data that have been pooled across institutions; in this case, the ADI would normally ensure that the data are relevant to its own circumstances.

Mapping to external data

An ADI could associate or map its internal grades to the rating scale used by an external credit assessment institution, or similar entity, and attribute the default rates observed for the external institution's ratings to the ADI's obligor grades. For this purpose, the ADI could compare its internal rating criteria to the criteria used by the external institution and the internal and external ratings of any common obligors. It is expected that biases or inconsistencies in the mapping approach or underlying data are avoided. When mapping to external data, in order to meet the requirements of APS 113, the ADI would typically ensure that the external institution's criteria underlying the data used for quantification are oriented to the risk of the obligor and do not reflect transaction characteristics. The ADI would normally compare its own and the external credit assessment institution's definition of default.

Statistical default models

An ADI could use a simple average of default probability estimates for individual obligors in a given grade, where such estimates are drawn from statistical default prediction models. The ADI's use of default probability models for this purpose would be expected to meet the requirements detailed in paragraphs 27 to 33 of Attachment A to APS 113.

10. For the purposes of APS 113, a highly leveraged financial institution means a financial entity that is as highly leveraged as a hedge fund. Specifically, a highly leveraged financial institution is one that exhibits a number of characteristics of hedge funds, including:

    (a) use of investment strategies that are intended to generate returns with low correlation to equity and bond indices and/or involve complex investment structures;

    (b) use of high leverage to increase returns;

    (c) use of derivatives for speculative purposes;

    (d) use of short selling; or

    (e) a material element of their fees is performance-related.

Operational criteria for the recognition of financial receivables as eligible collateral under the FIRB approach

11. Attachment B to APS 113 details the operational criteria that must be met in order for an ADI to recognise financial receivables under the FIRB approach. One of those requirements is that the ADI must maintain a continuous and effective monitoring process over the financial receivables taken as collateral. This process could include, as appropriate, ageing reports, control of trade documents, borrowing base certificates, audit of collateral, confirmation of accounts, control of the proceeds of accounts paid, analyses of dilution and regular financial analysis of both the obligor and the receivables' obligors, especially in the case when a small number of large receivables are taken as collateral. Compliance with loan covenants, environmental restrictions and other legal requirements would generally be reviewed on a regular basis. In terms of the margin between the amount of the exposure and the value of the receivables, this would usually be sufficient.

12. In addition, in order to recognise financial receivables, the collateral agreement and the legal process underpinning the transaction would normally allow the ADI to realise the value of the collateral within a reasonable timeframe. The ADI's procedures would generally ensure that any legal conditions required for declaring the default of the customer and timely collection of collateral are observed. In the event of the obligor's financial distress or default, the ADI would generally have the legal authority to sell or assign the receivables to other parties without the consent of the receivables' obligors.

13. In terms of the requirement for the ADI to assess the credit risk of the financial receivables taken as collateral, this analysis could, among other things, include the analysis of the obligor and the type of customers with whom it transacts. Where the ADI relies on the obligor to review the credit risk of its customers, the ADI would generally review the quality of the obligor's credit policies.

Operational criteria for the recognition of commercial and residential real estate as eligible collateral under the FIRB approach

14. Attachment B to APS 113 details the operational criteria that must be met in order for an ADI to recognise commercial and residential real estate under the FIRB approach. One of those requirements is the regular valuation of such properties. In order to satisfy the requirement, statistical methods of valuing collateral (e.g. reference to house price indices and sampling) could be used to update estimates or to identify collateral that may have declined in value and requires re-appraisal. A formal valuation by a qualified professional would generally be expected to be undertaken when information indicates that the value of collateral may have materially declined relative to general market prices or when a credit event such as default occurs.

Operational criteria for the double default approach for certain covered exposures

15. One of the operational requirements for the double default approach for the recognition of certain guarantees and credit derivatives in APS 113 is that the ADI must have procedures to detect excessive correlation between the creditworthiness of the guarantor or credit protection provider and the obligor of the underlying exposure due to their performance being dependent on common factors beyond the systematic risk factor. An example of a situation in which such excessive correlation would arise is when the guarantor or credit protection provider guarantees the debt of a supplier of goods or services and the supplier derives a high proportion of its revenue from the guarantor or credit protection provider.

Minimum operational requirements for the top-down approach for purchased receivables

16. Attachment D to APS 113 includes the operational requirements for use of the top-down approach for default risk for purchased receivables. One of those requirements is that the ADI has policies and procedures for the early detection and control of a deterioration in the seller's financial condition and the quality of the receivables. In particular, the ADI would normally have clear and effective policies, procedures and information systems to monitor compliance with all contractual terms of the facility (e.g. covenants, advancing formulas, concentration limits, early amortisation triggers) as well as policies governing advance rates and eligibility of the receivables. The ADI's systems would generally track covenant violations and waivers as well as exceptions to established policies and procedures. To limit inappropriate draws, the ADI would usually have policies and procedures for detecting, approving, monitoring and correcting over-advances and for managing financially weakened sellers or servicers or deterioration in the quality of pools of receivables. This could include early termination triggers in revolving facilities and other covenant protections, a structured and disciplined approach to managing covenant violations and policies and procedures for initiating legal action and managing problem receivables.

17. Attachment D also requires effective systems for controlling collateral, credit availability and cash. For this requirement, the ADI's policies and procedures would generally:

    (a) specify all material elements of the receivables purchase program, including advance rates, eligible collateral, documentation, concentration limits and how cash remittances are managed. These elements would usually take account of all material relevant factors, including the seller's and servicer's financial condition, risk concentrations and trends in the quality of the receivables and the seller's customer base; and

    (b) ensure that funds are only advanced against specified supporting collateral and documentation (e.g. servicer attestations, invoices, shipping documents, etc).

18. Given the reliance on monitoring and control systems to limit the credit risk associated with purchased receivables, the ADI would usually have an internal process for assessing compliance with all critical policies and procedures, including:

    (a) regular audit of all critical phases of the ADI's receivables purchase program; and

    (b) verification of the separation of duties between the assessment of the seller or servicer and the assessment of the obligor and between the assessment of the seller or servicer and the field audit of the seller or servicer.

Recognised exchanges and clearing houses

19. For the purpose of APS 113, it will generally be appropriate to treat an exchange or clearing organisation as 'recognised' where it meets the following criteria:

    (a) it is subject to authorisation, licensing or other means of recognition by a government or other competent authority;

    (b) it has rules, issued or approved, by the government or other competent authority defining the conditions:

        (i) for the operation of the exchange or clearing house;

        (ii) for access to the exchange or clearing house; and

        (iii) that must be satisfied by a contract before it can be dealt on the exchange or payment effected by the clearing house;

    (c) it has a clearing mechanism that provides for contracts dealt through the exchange or clearing house to be settled;

    (d) it functions regularly;

    (e) the exchange or clearing house has a prudent and frequent margining system where relevant;

    (f) the clearing house guarantees settlement and the exchange requires settlement on a particular day as applicable;

    (g) members of the exchange or clearing house are themselves subject to supervision by the exchange, clearing house or competent authority; and

    (h) the operations of the exchange or clearing house in turn are supervised by government or other competent authority.

20. A recognised exchange or clearing house is to be distinguished from a qualifying central counterparty (QCCP). The required conditions for a CCP to be recognised as qualifying are set out in *Prudential Standard APS 112 Capital Adequacy: Standardised Approach to Credit Risk* (APS 112).

Margin loans

21. APS 113 requires an ADI to risk-weight margin loans, unless these are deducted under paragraphs 15 and 16 of Attachment D to *Prudential Standard APS 111 Capital Adequacy: Measurement of Capital* (APS 111). As a guide, credit risk mitigation techniques typically do not apply to retail products marketed as margin loans or similar such products. Margin loans would usually include exposures in the corporate IRB asset class that meet the retail IRB asset class size criterion but not necessarily the other retail IRB asset class criteria.

Wrong-way risk

22. An ADI is exposed to specific wrong-way risk if future exposure to a specific counterparty is highly positively correlated with the counterparty's probability of default. For example, a company writing put options on its own stock creates exposure to wrong-way risk for the buyer that is specific to the counterparty. Attachment A to APS 113 requires an ADI to have procedures in place to identify, monitor and control cases of specific wrong-way risk. APRA envisages that this process would begin at the inception of a trade and continue through the life of the trade.

23. An ADI is exposed to general wrong-way risk if the probabilities of counterparty defaults are correlated with general market risk factors, so that there may be adverse economic factors that influence many counterparties at once, rather than being specific to a single counterparty. For example, if an ADI enters into an interest rate swap to pay a fixed rate and receive a variable rate from counterparties adversely exposed to increasing interest rates, an increase in interest rates will both increase exposure and increase the likelihood of counterparty default. APRA envisages that an ADI with significant exposure to counterparty credit risk would have in place processes to identify general wrong-way risk.

24. General wrong-way risk may be identified by the use of stress-testing and scenario analyses designed to measure the potential for increased exposure due to changes in risk factors that are positively correlated with counterparty creditworthiness. Such stress-testing would address the possibility of severe shocks occurring when relationships between risk factors have changed. Ideally, general wrong-way risk would be monitored by product, region, industry or other categories that are germane to the business, and reports would be provided to senior management and the appropriate committee of the Board on a regular basis that communicate wrong-way risks and the steps that are being taken to manage that risk.

Collateral management

25. Attachment H of APS 112 requires an ADI to have sufficient resources devoted to the orderly operation of margin agreements with over-the counter (OTC) derivative and securities-financing counterparties, and have collateral management policies in place. APRA envisages that an ADI with significant exposure to counterparty credit risk would ensure that:

    (a) its cash management policies account simultaneously for the liquidity risks of:

        (i) potential incoming margin calls in the context of exchanges of variation margin or other margin types, such as initial or independent margin, under adverse market shocks;

        (ii) potential incoming calls for the return of excess collateral posted by counterparties; and

        (iii) calls resulting from a potential downgrade of its own public rating;

    (b) the nature and horizon of collateral reuse is consistent with its liquidity needs and does not jeopardise its ability to post or return collateral in a timely manner; and

    (c) the collateral management unit produces and maintains appropriate collateral management information and reports this on a regular basis to senior management. Ideally, such internal reporting would include information on the type of collateral (both cash and non-cash) received and posted, as well as the size, ageing and cause for margin call disputes, and trends in those figures.

OTC derivatives position management

26. APRA envisages that an ADI with significant exposure to OTC derivative counterparty credit risk would seek to mitigate operational risk by regularly reconciling trade populations, trade valuations and collateral valuations with counterparties and, where practical, take opportunities to participate in portfolio compression exercises.

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