24. Prudential Supervision: Principles and Practices

Contents

24.1 Introduction

The second pillar of the Basel accord is "effective supervision". Setting prudential regulatory requirements as per pillar one will achieve little if those standards are not enforced This chapter looks first at the principles and practices of prudential supervision. Then the focus turns to "macro prudential supervision". APRA spells out its key supervision priorities for 2023 here.

24.2 Core Principles

Effective Prudential Supervision is one of the three Pillars (introduced in Basel 2) of the Basel Accord along with minimum capital requirements (pillar one) and effective disclosure (pillar three). The Basel Committee provides guidance on "Core Principles for Effective Banking Supervision", (incorporated into the Basel Framework in 2019) with the latest revisions occurring in 2011 following a post-financial-crisis review of earlier guidance. There are 29 core principles provided under broad headings of: (a) supervisory powers, responsibilities and functions, and (b) prudential regulations and requirements.

The *prudential regulations and requirements* heading incorporates specific issues (considered in other chapters) of: bank governance, risk management processes, capital adequacy, credit risk management, provisioning and problem asset management, concentration risk, related party transactions, country risk, market risk, IRRBB, liquidity risk, operational risk, internal control and audit, financial reporting and external audit, disclosure and transparency, abuse of financial services.

Core principles under the heading of *supervisory powers, responsibilities and functions* cover issues such as: legal authority, independence and accountability (and legal protection) for supervisors, cooperation with other regulators (domestic and foreign), control over permissible activities of banks, powers regarding licensing criteria and approval of bank ownership changes and major acquisitions, the supervisor having a forward looking process for assessment of bank and banking sector risks involving an appropriate range of techniques and powers for collection of information, corrective and sanctioning powers over banks, ability to supervise banking groups and having appropriate home-host supervisory arrangements in place.

The core principles recognize that different jurisdictions will have different legal and institutional arrangements for the allocation of financial sector regulatory and supervisory duties and different financial system structures. Thus, in a number of countries such as Australia, the prudential supervisor (APRA) is responsible for supervision of a broader range of institutions than banks. Also some of the core regulatory principles (such as preventing abuse of financial services) may have more relevance to other regulatory bodies, such as those charged with financial consumer protection (ASIC) or AML/CTF regulation (AUSTRAC).

The Basel standard-setters also [recognize](#) that prudential supervisors will apply different "proportional" standards of supervision and regulation to institutions under their oversight. Smaller, simpler, less systemically important, institutions do not warrant the same level of resources devoted to supervisory activities – such as involved in on-site inspections. Simplified versions of regulatory, reporting and disclosure requirements are also likely to be appropriate. APRA applies different regulatory and supervisory approaches to "significant financial institutions" (defined in Prudential Standard [APS 001](#) for ADIs as having assets greater than $20 billion or complex structures) than to smaller, less complex entities. [Lonsdale (2021)](#) provides some examples (of the proportional approach).

24.3 International Cooperation

Home-Host Regulatory Responsibility

Given the multinational operations of many large banks, an important consideration for prudential regulation and supervision is that of inter-jurisdictional cooperation. The Basel accord allocates primary supervisory responsibility for foreign branches to the home country regulator and for foreign subsidiaries to the host country regulator. This reflects the legal differences between branches (which have no separate legal identity to the parent) and subsidiaries (which are separate legal entities). Nevertheless host regulators will have concerns about activities of subsidiaries of foreign banks and may apply some regulations to them. For example, in introducing the Liquidity Coverage Ratio requirement, APRA applied it to foreign bank branches, but required a minimum ratio of 40, rather than 100 per cent, applied across all currencies. It also required such entities to ensure (and report annually) that they had local operational capacity to liquidate assets as needed.

For large global banks, lending to customers in a third country might be funded and booked in the parent bank's accounts or those of a foreign branch.[1] This may create an interrelationship between prudential regulatory changes in a host and a home country affecting the size and source of international cross-border lending of a global bank, with macro-economic consequences. Researchers at the BIS (BIS Working Papers 853, April 2020) examine the nature and extent of such spillovers.

Legal Entity Identifier

Often the complex structures of multinational financial institutions can make it difficult to identify the precise boundaries and activities (and thus risks and legal and regulatory compliance) of the group.

The Legal Entity Identifier (LEI)[2] framework coordinated globally by the Global Legal Entity Identifier Foundation (GLEIF) established by the Financial Stability Board (FSB) in 2014 aims to enable clear identification of the legal status of parties to financial contracts, and assist in maintenance of global financial stability (and facilitate know your customer (KYC) requirements for anti-money laundering compliance). While most major jurisdictions and their regulators require financial institutions and their subsidiaries to have LEIs, not all jurisdictions do so – but entities without an LEI may find themselves precluded from dealing in major financial markets. As at mid 2022, ASIC is in the process of requiring those

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[1] For example a loan to a British company might be made by an Australian branch of a US parent bank or by the US parent bank.

[2] The LEI is a 20 digit alpha-numeric code assigned to the entity, and must be renewed each year to remain current.

transacting in OTC derivatives to have an LEI, but otherwise there is no domestic legal or regulatory requirement for entities to have an LEI.

Colleges of Supervisors

A college of supervisors can be thought of as a working group of representatives from banking supervisors in the jurisdiction in which a bank operates. Each college is therefore focused on one particular cross-border banking group. The objective is to share information and achieve cooperation between regulators, both via meetings and other communications, and are not generally seen as decision-making bodies (except in the EU). They are particularly relevant for G-SIBs where assessment of risks must transcend national boundaries.

There is no specified format for a college, and a range of structures can be found. In some cases there may be a core college involving jurisdictions where the banking group is particularly active together with more general colleges incorporating regulators from other jurisdictions. In other cases there may be just one college (or other structures). The college is likely to meet with representatives from the banking group to better understand risk and other issues, and will generally provide feedback to the bank.

The Basel Committee has issued principles for the effective operation of colleges of supervisors.

This Basel Committee document indicated that in 2015, there were international supervisory colleges for ANZ and NAB (but not for CBA or Westpac) among the 68 colleges it identified at that time. APRA indicated in its response to the Interim Report of the Hayne Royal Commission that it was planning in 2019 to implement domestic supervisory colleges for large Australian ADIs.

In 2022, IOSCO published a report examining the potential role of Supervisory Colleges for various types of participants in securities markets and market infrastructure operators.

Trans-Tasman Council on Banking

The New Zealand and Australian banking sectors are highly interrelated via the strong presence of the major Australian banks in New Zealand. The four majors each have subsidiaries in New Zealand which, as a group, dominate the NZ banking sector. And for each of the Australian majors, the NZ operations generally provide over 10 per cent of group profits.

In past decades, some argued that the RBNZ's relatively *laissez-faire* approach to NZ bank regulation reflected its ability to piggy-back on strong prudential regulation of the Australian parents by APRA. But the NZ authorities have changed their approach towards greater regulation and supervision by the RBNZ. This included requiring the NZ operations of the Australian banks to be constituted in the form of

separately capitalized subsidiaries (rather than branches). As per the Basel protocols, this meant that supervision was the direct responsibility of the host regulator (RBNZ) rather than the home regulator (APRA). In the early 2020s further changes were underway including higher capital requirements and the introduction of deposit insurance, and a general review of the Reserve Bank of New Zealand Act.[3]

The Trans-Tasman Council on Banking Supervision (TTC) was formed in February 2005 to coordinate crisis resolution and planning arrangements in Australia and NZ. The members are Australian and NZ regulators and Treasuries. The main resulting requirement was for the prudential regulators in both countries to consult, support, and take into consideration implications for the other country of actions undertaken in dealing with banking problems. The council meets several times each year and considers prudential regulation and financial stability issues, including approaches to the Covid-19 crisis and cyber-security. The latest meeting was in December 2021.

24.4 Supervisory Approaches

Prudential supervisors obtain information about the "health" of a bank from a range of sources including data required to be supplied to the regulator by the bank on a regular basis or in response to specific requests, on-site examinations by supervisory staff, off-site monitoring using available data, meetings with bank senior management, information provided by the bank's external auditors or from other regulators (both domestic and foreign).

In Australia, data is collected electronically from ADIs (hereafter referred to as banks) on a monthly basis. The system used has been known as D2A (direct to APRA) which has been replaced with a new *Data Collection System* in 2020. The data collected is about the financial position (balance sheet) and financial performance (income statement) as outlined in reporting standards for *Economic and Financial Statistics* and *Financial Statements*. The data is confidential, and only a small part of it at the individual bank level (or aggregated) is made public in APRA and RBA publications. In contrast, in the USA large amounts of bank level data provided to the regulators via the quarterly *Call Reports* (Reports of Condition and Income) are made public. In 2019 APRA began consulting on the case for increasing the amount of data which

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[3] At July 2022, the NZ requirements involved a total capital ratio of 8 per cent plus a prudential capital buffer (PCB) of CET1 capital of 3.5 per cent for D-SIBs (the subsidiaries of the major Australian banks). By end 2028 the total capital ratio for D-SIBs will be 9 per cent and the PCB an additional 9 per cent (of which 2 per cent will be a D-DIB buffer, 1.5 per cent a counter-cyclical buffer and 5.5% a capital conservation buffer).

might be made public, and in September 2021 released its decision on data to be made available from 2022.

The then APRA CEO John Laker outlined a number of characteristics of APRA's supervision approach in a speech in 2010. These included a "strong emphasis on on-site supervision" involving short targeted discussions following prior review of information, and requirements that APRA be consulted about various planned changes or initiatives. Supervisory teams assigned to each institution were relatively small and for large institutions were based in APRA's head office facilitating sharing of information across institutions. In another speech, APRA General Manager David Lewis emphasized that "[t]o us, 'regulation' can be defined as the application of rules and 'supervision' as the oversight of the effectiveness of a firm's risk management." This implies a "risk-based" approach which is forward-looking for prudential supervision, which is also a characteristic of approaches found in many other jurisdictions. In 2020 APRA published a paper setting out its current supervision philosophy which is based on five foundation elements and three attributes. The foundation elements are: robustness; flexibility; openness; innovativeness; and being constructively tough. The three attributes are that their approach is: risk-based; forward-looking; and outcomes-focused. Each year APRA produces a document detailing its policy and supervision priorities. For 2022 supervision priorities for ADIs included: cyber risk preparedness and responsiveness; risk culture; operational resilience; contingency and continuity frameworks; and tools for evaluating climate related risks. APRA was also focusing on the impact of "banking-like service innovation" including crypto-currencies, Banking as a Service (BaaS), and non-bank payment providers. All of these areas remain priorities in 2023.

Alternative Models

The implementation of any supervisory approach typically involves a number of steps. Figure 1 provides an outline of how the UK's Prudential Regulation Authority (PRA) approaches the task of assessing bank risk. (Somewhat similar approaches are followed by the Canadian OSFI and the Singapore MAS and APRA).

FIGURE 1:THE UK, PRA APPROACH

Source: PRA

First, there is an assessment of "inherent" or "gross" risks arising from the activities of the entity. Supervisory teams will make an assessment of this across characteristics such as credit, liquidity, operational, market risks etc together with a focus on emerging risks from competitive and market developments which could affect business viability. As well as risks to the safety of the individual institution, potential for spill-overs affecting the stability of the financial system will also be considered, particularly for larger institutions with important central roles in the system. Then the strength of the entity's risk mitigation ability will be examined. This will include assessment of features such as Governance, riskCulture, Remuneration, Accountability (giving the acronym GCRA), risk management systems for specific risks, overall strength of risk management, compliance and audit arrangements, together with consideration of the entity's financial resilience as reflected in such features as the entity's capital and liquidity position. In addition to these considerations, the ease with which the institution can be resolved should it enter financial distress, and the general state of business and economic conditions which may affect the strength of all entities will also be considered. Ratings of inherent risk, risk mitigation ability, financial resilience and external factors will be combined in some way to derive a conclusion about what level of supervision is currently appropriate for the entity.

The level of supervision intensity can range from routine (which will differ between small and large entities) through stages where higher risk ratings determine a need for more intense monitoring, formal requirements for remedial actions to be taken by the institution, to (in the worst case) resolution actions.

Australia – APRA'S approach

APRA had traditionally used its PAIRS (Probability and Impact Rating System) and SOARS (Supervisory Oversight and Response System) model to guide the intensity of its supervision of prudentially regulated institutions. The PAIRS model determined both an estimated probability of failure of an institution and the impact of that. These were then inputs to the SOARS model to determine the intensity of supervision to be applied to the institution.

These were replaced in 2020 by its new Supervision Risk and Intensity (SRI) model which divides institutions into tiers reflecting size, complexity etc and devotes more attention to gathering more information about the larger more complex institutions – reflecting a principle of "proportionality" in the approach. That information is both quantitative together with subjective assessments of APRA staff regarding an institution's risk features, governance and controls etc. "Compared to the PAIRS model, new risk categories are being introduced to more explicitly address matters such as: cyber risk; resolvability;

governance, culture, remuneration and accountability; and (in superannuation) member outcomes. In addition, a new feature of the model will be the introduction of a common consideration of external environment factors impacting each industry, in the form of an overlay to the SRI scoring system that can be dialled up or down depending on current and prospective operating conditions." (APRA) The SRI Risk score determines the level of supervisory intensity.

An important feature of APRA's approach is an increased focus on "risk culture", which relates to behaviours, attitudes, and management of risk, and which is not readily assessable using the more traditional supervisory approach based primarily on financial indicators. Following its commissioning of a prudential report on governance at CBA, APRA published the results of a survey of self assessments of governance, culture, and accountability by large Australian financial institutions. APRA's conclusions from the survey were that:

- non-financial risk management requires improvement;
- accountabilities are not always clear, cascaded and effectively enforced;
- acknowledged weaknesses are well-known and some have been long-standing; and
- risk culture is not well understood, and therefore may not be reinforcing the desired behaviours.

The USA "Camels" approach

The approach used by USA supervisors, referred to as a CAMELS rating approach is somewhat different. Specific ratings are given for capital adequacy, asset quality, management, earnings, liquidity, sensitivity to market risk, (giving the acronym CAMELS) which are then combined into an overall rating. Bank management and boards are advised of the rating and, where necessary, remedial actions agreed with the supervisor. A 2018 Federal Reserve Bank of St Louis article by Stackhouse provides an overview (with more detail on each of the components in subsequent articles in the series). One potential benefit of the CAMELS type approach is that specific areas in need of supervisory attention can be identified. By providing CAMELS ratings to bank boards and management (as has been done since 1987), the regulators provide information to the bank about the likelihood of regulatory intervention and weak ratings should incentivize banks to take actions to improve ratings. Gopalan (JAE, 2022) finds that at the time when the process of ratings disclosure began, banks with poor ratings increased loan loss provisions in a more timely manner and shifted away from commercial lending and held more cash.

24.5 Stress-Tests

A relatively recent development has been the use of stress-tests as a method of determining bank financial resilience. A 2019 speech by Andrea Enria (Chair of the Supervisory Board of the ECB) provides an overview of the value which stress-testing can provide for prudential supervision by identifying how a bank would fare in possible adverse future states of the economy. The disclosure of results of stress tests can, it is argued, also assist in enhancing market discipline, but possibly increases the risk of banks attempting to "game" the stress test to show themselves in the best light. Given that stress tests are "what-if" type speculative exercises, there is naturally much debate on how they should best be structured. One such debate relates to whether a "bottom-up" approach in which banks' own models are used to determine the effects on them of the hypothesized scenario, is preferable to a "top-down" approach in which the supervisors' models are used to determine the effects.

In a 2015 FRBNY Staff Report (No. 663), Hirtle et al provide a quite detailed outline of how a top-down stress test is structured and illustrate the components and interrelationships in their Figure 1 reproduced below. (The acronym "CLASS" stands for "Capital and Loss Assessment under Stress Scenarios").
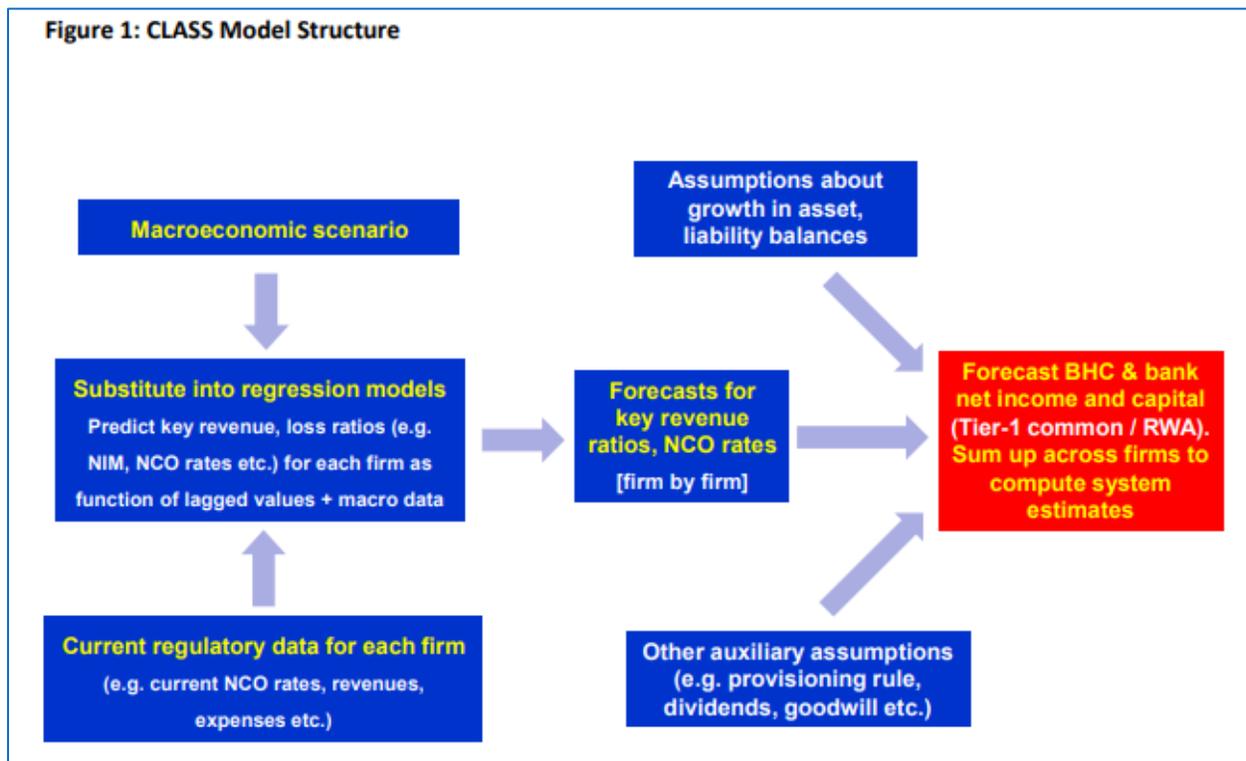

FIGURE 2:STRESS TEST MODEL STRUCTURE (FROM FRBNY STAFF REPORT 663)

As well as the macroeconomic scenario (and other relevant assumptions) about certain variables, an important ingredient is the use of regression models which relate key financial ratios of banks (such as NIM, Loan Loss Provision ratio, etc) to macroeconomic variables and other bank characteristics. These regression equations (where "macro" stands for a vector of relevant explanatory variables) typically take the form of either

$$ratio_t = \alpha + \beta_1\, ratio_{t-1} + \beta_2\, macro_t + \varepsilon_t$$

when the bank data used is aggregated across all banks, or

$$ratio_{it} = \alpha + \beta_1\, ratio_{i,t-1} + \beta_2\, macro_t + \beta_3 X_{t,i} + \varepsilon_t$$

when individual data for a panel of banks (with $X_{t,i}$ denoting individual bank characteristics – of bank i at time t) has been used to estimate the regression coefficients. Having previously estimated the regression equations using historical data, the scenario values for the macro variables are used to predict the values of the dependent variables for deriving stress test outcomes.

APRA's 2020 Information paper on stress testing explains that there are at least three types of approaches which combine varying elements of top-down and bottom-up methods. One is where APRA provides a common scenario, and large banks use their own data, models, judgement etc (subject to some consistency requirements) to estimate likely earnings losses and reductions in capital and capital ratios. A second is a pure bottom-up approach in which banks undertake their own internal stress tests using their own scenarios. The third is where APRA itself estimates the effects of its assumed scenario on each bank, and can provide a check of results of bank estimates under the first approach.

APRA has been using stress tests as a core prudential tool in its supervisory approach since the Global Financial Crisis of 2007-9, and in 2020 used a "severe downside" scenario for assessing banking system capability for coping with the Covid 19 crisis effects on the economy. This scenario included assumptions of a GDP fall of 20 per cent in 2020, unemployment rising to over 13 per cent, house prices falling by over 30 per cent and commercial property prices by over 40 per cent. These assumptions reflected underlying assumptions of recurring economic and social restrictions in response to Covid outbreaks throughout 2021, and international borders not being properly re-opened until 2022. A weak economic recovery was assumed reflecting low confidence and consequences of business failures.

It is worth noting that such scenarios must make assumptions about how banks react to the development of the crisis envisaged. Generally it is assumed, for the purposes of the test, that they do not respond by raising new capital or cutting back on lending. These assumptions provide results that are, in some sense,

a "worst case" outcome for bank capital strength in a situation in which bank lending is able to be sustained.

From its 2020 severe downside scenario, APRA estimated that aggregate bank profitability would fall from $24 billion p.a. to a loss of $37 billion p.a. in the worst year, with the average CET1 ratio falling from 11.6 per cent to 6.6 per cent. (One factor contributing to the CET1 ratio fall, in addition to losses depleting capital, is that declining credit quality causes the risk weights applied to loans to increase thus, somewhat paradoxically, causing RWA to increase). The fact that the Australian banking system appeared able to "ride out" such a severe economic crisis scenario was a source of some comfort to the prudential regulator. In the event, the impact of the pandemic on macro-economic conditions was nowhere near as dire as assumed in the stress test.

24.6 Predicting and Improving Supervisory Ratings

A number of studies, such as the 2019 Federal Reserve paper by Gaul et al have examined the extent to which statistical models such as a Logit model using as inputs specific financial statement data (reported to the regulator) are able to predict high CAMEL ratings. It would appear to be possible to use such an approach to determine relatively accurately whether supervisors would give a "high" versus "low" rating.

There is also a significant academic literature which attempts to predict bank financial distress and failure by reference to market information as well as bank characteristics, such as capital adequacy, liquidity, business risk measures etc. Some of the variables examined include: price to book ratios, share price volatility, credit spreads on bank debt (including credit default swap spreads), ratings by credit rating agencies. Kerry JRMFI (2020) examines the extent to which various market based metrics are more useful signals of failure than are accounting based metrics. There would appear to be scope for incorporating some of these variables into supervisory ratings models – unless it is believed that the subjective ratings somehow appropriately incorporate such information. That does not appear to be the case. Sarin and Summers in a 2017 Brookings Institute paper for example examine the lack of close relationship in recent years between standard regulatory/supervisory measures of risk for large banks and market data and argue that "more effective than increasing capital requirements will be steps to assure prompt response to situations where markets suggest capital shortfalls."

24.7 Macro-Prudential Regulation

Interest in macro-prudential regulation was stimulated by the Global Financial Crisis (GFC). Although the term had been in use since at least the early 1990s, the concept itself is not well defined. But it can be broadly interpreted as policies designed to achieve financial system stability and preventing adverse spillovers onto economic activity. It differs from (micro) prudential regulation which focuses upon the health of an individual financial institution in recognizing that the whole is more than the sum of the parts, and that the interactions between otherwise healthy financial institutions can contribute to instability of the financial system. It differs from monetary policy in not being focused upon activities designed to achieve desirable outcomes for particular economic aggregates (inflation, output growth etc), but upon financial system characteristics which may hinder achieving such desirable outcomes due to instability.

Macro-prudential regulation has two dimensions. In the cross-section dimension it is concerned with how the structure of the financial sector affects its response to shocks to the system. Do interrelationships and institutional practices, amplify or dampen the effects of shocks? In the time-series dimension, the focus is upon whether excessive risk-taking can emerge over time to threaten economic and financial stability.

Examples of problems arising in the cross-section dimension are easy to find from the GFC. A complex web of bilateral counterparty exposures in over the counter (OTC) derivative markets meant that the failure of one institution would impact a large number of other institutions. Because market participants do not know the exposures of others, unwillingness to enter new exposures can occur if there are concerns about the possible failure of any significant institution.

One consequence of this has been regulatory desire to shift OTC derivatives onto organized exchanges, or involve Central Clearing Counterparties (CCPs) for OTC trading. (See Chapter 27). Under such arrangements, bilateral trades are novated to a central clearing house, generating a "hub and spoke" type of arrangement for exposures where the CCP (the hub) manages its counterparty exposures by netting offsetting trades and appropriate margining policies. Individual institutions which have entered trades with a counterparty which subsequently fails are thus not exposed to default risk.

Another example can be found in the consequences of many large institutions making extensive use of high leveraged, collateralized borrowings such as by repurchase agreements (repos). (See Chapter 12). This led to what has been described as a "margin-price" spiral, with institutions finding that they were exposed to interrelated "asset-liquidity" and "funding-liquidity" risk. When asset prices fell, counterparties who had lent funds by way of repos, made margin calls or refused to continue providing funds. Borrowing institutions were thus faced with a need to sell assets, but with such responses being

widespread, this put further downward pressure on asset prices, prompting further margin calls, asset sales and so on in a downward spiral.

A consequence of this has been greater regulatory attention on liquidity management, reflected in new proposals related to both funding arrangements and liquid asset holdings. (See Chapter 19). On the latter score, the objective is to ensure adequate holdings of gilt-edged securities which can be sold in a crisis without leading to an increase in the credit-risk spread and reduced asset prices which prompted the margin-price spiral. (Macro-economic policy can adjust system wide liquidity to offset pressures on the level of official interest rates arising from such sales). On the former score, the objective is to ensure that institutions which fund themselves with non-stable sources of funding have sufficient liquid assets to cope with outflows of such funds.

Because the transmission of shocks through the financial system depends upon the network of financial arrangements, and because failures of large important institutions have greater spillover effects, there is considerable interest in developing network models of the financial system. In such models, key institutions and their financial links to others are identified. Then, by tracing the consequences of a failure or stress of a key institution, their role in amplifying or mitigating shocks can, hopefully, be assessed. Such analysis can underpin the determination of additional capital requirements for systemically important financial institutions (SIFIs) – in order to reduce their chance of failure. It can also assist regulators in determining what are the most suitable responses to prevent transmission of a shock.

The time-series dimension of macro-prudential regulation is the determination of whether there are forces building-up over time in the financial system which increase its susceptibility to crisis. Looking at past financial crises, there are a mix of macro-economic fundamentals and financial market indicators which appear to be important. Financial crises appear to be preceded by developments such as large and persistent government deficits, large and persistent current account deficits on the balance of payments, and high inflation. But also important is the behaviour of asset prices in the form of stock market bull runs and housing price "bubbles", as well as the development of high leverage and risk-taking. (See Reinhart and Rogoff "This Time is Different").

Recognizing whether such developments are indicative of unsustainable conditions or reflect "fundamental" factors is particularly difficult. Over past decades, Central Banks have been reluctant to act against asset price inflation, but that is now tending to change, with "leaning into the wind" strategies becoming more accepted.

The other development is in terms of trying to moderate practices in financial markets which might generate such developments. Executive remuneration is one such area, where concerns that bonus-based remuneration has given inappropriate incentives for excessive short-term risk taking. Another area lies in the interaction of regulation and bank risk-management decision making. As a "boom" develops, increased asset valuations can improve the credit ratings of bank customers (reducing capital requirements for loans) and provide banks with incentive and rationale to provide increased loan funding, thus exacerbating the boom. Removing such "pro-cyclicality" is an important component of the ongoing regulatory reform agenda.

MacroPrudential Regulation in Australia

There has been little use of macro-prudential regulation in Australia to date. While a counter-cyclical capital buffer (CCyB), announced in 2013 and introduced in 2016, applies to ADIs its value has remained set at zero. However, APRA plans to set the buffer at a "normal" level of one percent of RWA when the recent changes to the capital framework come into effect in 2023, and to widen its range to between 0 and 3.5 per cent. It also produces an annual information paper on systemic risk considerations relevant to the setting of the CCyB.

The most noticeable use of macro-prudential policy to date has been in October 2021 when APRA "told lenders it expects they will assess new borrowers' ability to meet their loan repayments at an interest rate that is at least 3.0 percentage points above the loan product rate. This compares to a buffer of 2.5 percentage points that is commonly used by ADIs today". (Such a change reduces the maximum amount borrowers can borrow relative to their income). This reflected a view of the Council of Financial Regulators that there were financial stability risks arising from growth in bank lending for housing and growth in housing prices and increasing indebtedness of many households. APRA preferred taking this action to other possible alternatives such as imposing limits on high debt-to-income limits, since this "would be more operationally complex to deploy consistently, and may lead to higher interest rates for some borrowers as lenders effectively seek to ration credit to this cohort".

In November 2021, APRA released an information paper setting out the framework under which it would use macro-prudential tools. For identifying systemic risks, the main indicators used are: "credit growth and leverage; growth in asset prices; lending conditions; and financial resilience". Available tools which could be used are shown in Figure 3, many of which have been used by regulators overseas. The framework was finalized in 2022, and included in APS220, for application from September 2022.

Fundamental to the framework is that ADIs must have systems in place which will enable them to implement changes such as limiting high-risk lending growth if required by APRA. "Across the ditch" (ie in New Zealand) the RBNZ is considering maximum loan-to-valuation and debt-to-income restrictions as well as interest rate floors because of concerns about unsustainable house prices creating a threat to financial stability.

Capital	Credit	Liquidity or market	Structure
• Countercyclical capital buffer • Dynamic provisions • Restrictions on capital distributions • Time-varying leverage ratio caps • Sectoral capital requirements	• Lending limits for higher risk loans • Minimum lending standards, such as serviceability assessment criteria	• Reserve requirements • Caps on loan-to-deposit ratios • Time-varying net stable funding ratio requirements or liquidity coverage ratios • Margin requirements	• Exposure limits, such as interbank • Concentration limits to particular counterparties

FIGURE 3: APRA'S MACRO PRUDENTIAL TOOLKIT (SOURCE APRA)