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Collect once, use multiple times – the Reserve Bank of New Zealand's data collection approach[1]

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[1] This presentation was prepared for the meeting. The views expressed are those of the authors and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

Collect once, use multiple times

Reserve Bank of New Zealand's data collection approach

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Abstract

Like many, the Reserve Bank of New Zealand (RBNZ) derives banking sector statistics from detailed surveys. In recent years, the Statistics team at the RBNZ has developed new surveys to collect prudential and statistical data from registered banks. The new surveys filled data gaps and improved the consistency of our data. What has changed, however, is how we have gone about this.

In this paper we are discussing the new banking sector data collections to illustrate our approach and vision for collecting data.

The RBNZ's paradigm is to collect data once, use multiple times. This means a centrally managed approach to data collection where on a subject matter (e.g. registered banks' balance sheets) a single data collection can satisfy the needs of supervisors, analysts and statisticians.

Before introducing any changes to our data collections we put significant effort into understanding the questions our internal and external data users are seeking answers to and keep them engaged throughout the process. In our experience, working collaboratively with respondents results in significant data quality gains.

We aim to make sure all data and concepts are consistent within and across surveys. Our detailed bank balance sheet survey is at the centre and all other surveys can be linked back to this collection; the concept of a hub.

Some of the metrics from individual banks are now published. In May 2018 the RBNZ introduced the Bank Financial Strength Dashboard – an easy to use online tool for comparing all New Zealand incorporated banks. In total, 110 metrics are available for each bank.

We are reflecting on our vision for data at RBNZ and looking for opportunities to become more responsive to the demands of data users while considering the burden on respondents.

[1] Unless otherwise stated, views expressed are those of the authors, and do not necessarily represent the views of the Reserve Bank of New Zealand.

Contents

Filling data gaps - in recent years the RBNZ has been on a journey…

Our experience at the Reserve Bank of New Zealand (RBNZ), particularly since the global financial crisis (2008), had been as new policy questions arose demand for data increased. Initial attempts to react quickly and fill some of data gaps were only partial and did not align well to best practise. Over the last five years we have changed our approach. This is our story.

The mandate and customers

As a background, the RBNZ is a relatively small, "full service" central bank with 274 staff[2]. In addition to traditional central bank functions we are the prudential regulator of the financial system.

Our main objective is to promote a sound and dynamic monetary and financial system and to ultimately raise New Zealand's economic wellbeing.

We undertake a range of activities to meet this objective, including:

- formulating and implementing monetary and financial policy
- licensing and prudential supervision of banks, non-bank deposit takers and insurers
- supply and circulation of currency
- operating New Zealand's payments and settlement system

RBNZ is policy maker, regulator, and also has a guardian function. As a result we have a need to collect both prudential and statistical data. This function is a centralised service provided by the RBNZ's Data & Statistics department. We aim to collect data that meets the needs of all users, enabling consistent and coherent analysis for different purposes. Our approach to 'collect once, use multiple times' recognises the burden data collection poses for reporting entities and the need to have a single answer in support of enduring policy questions.

Expectations of data users, the example of registered banks data

Table 1

Data user	Use case and expectations
Prudential supervision	Accurate and timely read of individual supervised entity. Ability to compare entities.
Statistician (official statistics)	Accurate and timely read of entities. Data quality is fit for aggregation and use in statistics compiled in alignment with international standards.
Registered bank providing data	Only relevant data is collected and used for monitoring and decision making. Accurate and timely published data (mainly aggregates) for market share and other business performance analysis.
Financial analysts, economists, etc.	Accurate and timely read of the financial system as a whole with ability to identify drivers for change, e.g. change in funding or credit provision.

[2] Reserve Bank of New Zealand Annual Report 2018-19 https://www.rbnz.govt.nz/about-us/annual-reports/2019-annual-report (accessed 30/09/19).

The intent of the prudential data collection is ultimately to allow individual entities, peer groups and overall system presentation of the data.

Published statistics usually present system aggregated data following internationally agreed standards (e.g. the IMFs Monetary and Financial Statistics Manual). The focus of these statistics is more on financial instruments and (counterparty) institutional sectors. RBNZ is a provider of official statistics and the data collected by RBNZ also informs official statistics, e.g. macro-economic statistics provided by Stats NZ.

Our approach gives users confidence that there is only "one source of the truth" for each supervised entity and even enables a consistent and transparent disclosure regime (RBNZ's Bank Financial Strength Dashboard presentation - more on this later).

Most of the regular data collections run by RBNZ concern the banking sector. In terms of supervision and prudential regulation historically RBNZ's focus had been on banks. The Insurance (Prudential Supervision) Act 2010 introduced an insurer licensing regime and RBNZ became the supervisor and regulator of the licensed insurers. Non-bank deposit takers are regulated by RBNZ but not supervised. (See Appendix A for an overview of New Zealand's financial system).

Unlike the setup of some central banks and financial sector regulators in other jurisdictions the RBNZ mandate includes monetary and financial policy, and prudential supervision of regulated entities (e.g. banks and insurers) – a wide range of objectives which opens up the need and opportunity to centrally coordinate statistical and prudential data collection to avoid duplication of effort and unnecessary burden on data providers. This arrangement is not very common yet in other jurisdictions but recognised as desirable.

About RBNZ data collections

Who do we collect data from?

RBNZ uses its legal authority to regularly collect data from all regulated entities and other financial institutions relevant for financial stability and/or monetary policy. This includes: registered banks, non-bank deposit takers, licensed insurers, fund managers, non-deposit-takers, nominees, and registries.

What do we collect?

To date most of RBNZ's regular data collections are "macro" in nature, and usually monthly or quarterly reports to be provided in a pre-defined MS Excel file. RBNZ mainly seeks summarised data. Most data reporting templates require respondents to aggregate up customer data, i.e. to sum by product or into 'brackets' of loan value. Over time the granularity of data requested has increased but as a general rule RBNZ does not request individual customer data. There are however some exceptions (issuers of securities and bank large or connected credit exposures information). All data supplied to RBNZ is protected and not made available to third parties unless authorised.

The data reporting templates are available on the RBNZ website: https://www.rbnz.govt.nz/statistics/surveys.

Data (quality) expectations

Data providers 'own' their data. RBNZ expects the data submissions to be accurate and no adjustments are made to the data of individual entities to derive summary statistics (e.g. system total). If any validation or data quality issues are identified, revised data submissions are required from the data provider.

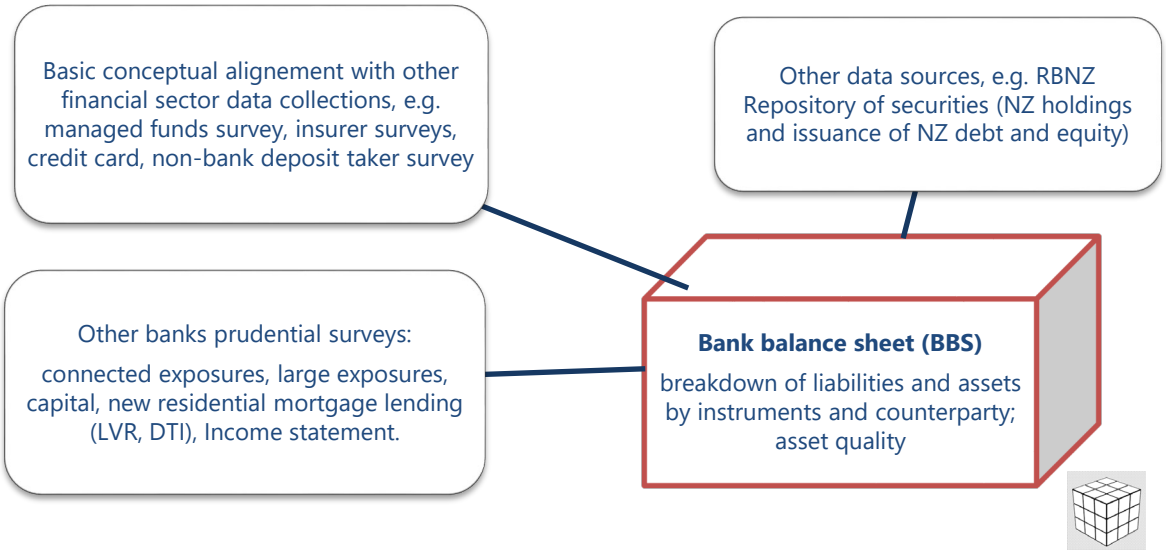
Drivers for change and our vision

In the past – particularly immediately following the global financial crisis (2008) - instead of taking a centralised approach, various teams at RBNZ have drafted (overly simplified) new data requests for regulated entities (mainly banks) to complete. This approach resulted in data quality challenges because different collections had some inconsistent definitions, making it difficult and costly for entities to report and for RBNZ analysts difficult to quality assure. A lot of time and effort was spent on reconciling across surveys to build up a coherent picture of the financial sector.

As the number of regular data collections continued to increase we changed our approach. In this paper we discuss how all recently introduced and redeveloped data collections are designed to achieve consistency across the different dimensions of the financial sector.

We illustrate the example of the redeveloped (registered) bank balance sheet data collection:

Figure 1: A simplified version of the hub concept



In 2015 we started to develop the bank balance sheet (BBS) data collection replacing the previous statistical balance sheet collection from registered banks, the Standard Statistical Return (SSR).

The intent of the new BBS collection was to create a single high level balance sheet which is the central "hub" for the related data collection suite, with the majority of other collections effectively satellites that link back into some or many of the balance sheet's components. The BBS is more granular than the previous SSR. This has enabled much of the linking across surveys. A key outcome is to be able to collect data once but use it multiple times for supervision, macro-prudential and statistical purposes.

The BBS project has helped us move closer to our vision. We are reviewing existing data collections and their alignment with the hub concept. We apply this concept to all new data collections. However for some data collections full harmonisation back to the BBS will be difficult. For example, some compliance concepts cannot be fully harmonised across all surveys given the very specific policy need.

Looking ahead we are also considering the benefits and suitability of collecting even more granular data, which may reduce burden for data providers and better meet the needs of data users.

Making it happen - the change process

To avoid the mistakes of the past we agreed on a centralised and iterative development approach, which was led by the Statistics function. Part of the planning included stakeholder analysis. We needed to better understand the questions the various teams were seeking answers to.

Working with internal stakeholders

We connected with internal data users and invited them to join an internal working group throughout the development of the BBS. The group included supervisors, policy analysts and economists.

We started by asking some simple questions about their data needs such as:

- Why do they need it?
- How will they use it?
- When is it required?

The group assessed the types of instruments that may be needed and the types of breakdowns of the instruments (by institutional sectors or counterparties, pricing, products and industry classifications). Drafting would take many iterations. One of the lessons is that one question probably leads to many. Policy analysts do not always know precisely what they want until the information actually arrives, so the development process is often iterative. Similarly, the definitions of data items will develop over time and need refinement as new events or classification challenges arise.

To be able to start and pilot with small sections of data, and checking in to confirm the new information will align to the business drivers, has proved more valuable than trying to deliver the full new collection in one go.

But working with respondents (our key external stakeholders) has produced some of our biggest gains in data quality.

Working with the key external stakeholders

Over the last five years we have built up our relationships with respondents - with the banks in particular, but also with non-banks (insurers, managed funds, etc.). We engaged with reporting analysts, managers and IT staff. We had many one-on-one meetings and ran workshops. Building relationships, providing clarity of our requests and spending time to discuss is not costless but extremely valuable in the long run.

Developments are costly to the provider and the Bank in terms of:

- Staff time, system changes or enhancements;
- Crowding out of competing stakeholder projects; and
- May require culture as well as simple processing changes.

Building relationships, however, opens the opportunity for respondents to "buy-in" or become a stakeholder in the collection, improve their understanding of why the collection is needed and knowledge as to what questions are being addressed. Respondents can gain some ownership in the collection and can (and do) make suggestions to improve the format and definitions to ensure the end result aligns with their own understanding of how the sector operates, aligns with their own management reports which significantly improves their validation processes, and may start to answer questions they may have of their own - particularly in relation to market share. From the RBNZ's

perspective, we gained more knowledge on the operational aspects of banking and clarity around business definitions.

The key benefit is the improvement in data quality.

The banks contributed and agreed consistent definitions, after thorough consultation (internal and external workshops). As much as practically possible definitions are aligned with industry accepted terminology and diagrams included to visualise the requirements (see Appendix B – a visual decision tree for loans and advances).

We found visual presentation of the requirements helped gathering feedback and helped reduce misunderstandings significantly. For example, workshop participants may appear to have agreed but have walked away with a different understanding as not all participants have precisely the same assumptions in mind.

Definition inconsistencies are both inefficient and burdensome for all involved in surveys and statistical outputs. Consistency in definitions across collections reduces time in the reconciliation process for both the banks and for the RBNZ. Definitions, however, remain subject to refinement and the need to reflect changes in accounting standards.

Other issues impacting on quality include:

- Data providers trying to add metadata layers to existing systems designed for different purpose;
- Seeking information from multiple systems that do not align; and
- Fitting multiple products into one cell in a collection.

In addition to building relationships, the opportunity to trial new collections as well as ultimately parallel running the new collection has enabled all involved to test and provide feedback leading to collection template and definition improvements. Some issues are not actually identifiable until respondents try to complete the collection - good in theory but practise is the test!

New surveys collect both prudential and statistical data

Some of our new collections are for both prudential and statistical data purposes. The bank balance sheet (BBS) collection, introduced in March 2017, is such an example.

The new BBS collection is a single high level balance sheet which is a central hub for related data collection suite, with the majority of other collections effectively satellites that link back into some or many of the balance sheet's components (see Appendix C). A key outcome is being able to collect data once but use it multiple times for prudential and statistical purposes.

From a prudential perspective it captures the key financial instruments, and counterparties, provisions and net adjustments, as well as asset quality measures for individual banks. For statistical outputs, the focus is more on system or banking sector as a whole reporting, with highlights on specific counterparties such as households, businesses and specific financial instruments (i.e. mortgages, consumer loans and deposits). Individual bank responses are aggregated (summed) to enable publication for the system. Statistical outputs tend to be reported gross, in line with international reporting requirements (IMF). By capturing provisions and net adjustments separately, multiple reporting requirements can be met.

We are now collecting more granular data in the BBS than its predecessor, the SSR. By going more granular in our collection design we achieved the versatility discussed above. Instead of requesting summarised data we are collecting more detail which allows data to be used multiple times in different but related data concepts, e.g. net to gross values, and reconciliation across banking surveys.

Bank Financial Strength Dashboard

Following a regulatory stock take the Bank Financial Strength Dashboard was developed to support the New Zealand bank's disclosure regime[3]. The RBNZ launched the interactive Bank Financial Strength Dashboard in May 2018. In March 2019 the Dashboard won the Central Banking Best Initiative of the Year Award 2018.

The introduction of the BBS, and several other new prudential collections (Capital and Large exposure prudential satellites, Loan-to-value lending positions, Asset quality and an updated Income Statement survey), has enabled consistently defined and timelier data to be available. Data captured in the current Liquidity survey will also be updated over the next couple of years.

Unlike individual banks' disclosure statements which banks publish on their own websites, the Dashboard shows banks' financial information side by side on a comparable basis, and in a central location. The RBNZ updates the Dashboard quarterly, 40 working days after the reporting period, by extracting information from the above surveys submitted by the New Zealand-incorporated banks and their related banks.

The Dashboard features:

- Individual bank data published in an interactive form;
- Banks as contributors and also as users;
- Around 110 metrics sourced from various RBNZ banking data surveys.

It's a Journey that is ongoing…

We have been able to achieve significantly improved regular data collections by working closely with stakeholders. Through this process we have been able to achieve our aim to "collect once and use multiple times" for a significant range of banking sector data. We have reviewed what we need to ensure data and statistics are relevant, fit for purpose, cost efficient and effective both in terms of collection and use.

We want to build on these lessons and lift the bar higher by seeking more granular data, e.g. considering anonymised customer-level transactional data. Most of our data collections are not as detailed and therefore flexible as we would like them to be. Collections are still mainly aggregations of multiple products for some respondents.

We also want to widen the collection tool options and so potentially reduce the need for survey respondents to aggregate data into cells in a MS Excel template. This should reduce the burden on respondents as data remains in its native format as much as possible.

This approach, however, will introduce new challenges. It will increase the effort required by RBNZ as the collecting entity to better understand individual respondent metadata as each bank is likely to have uniquely labelled metadata due to branding and competitive interests in each institution. They built their computer systems to meet their business needs and not our reporting requirements.

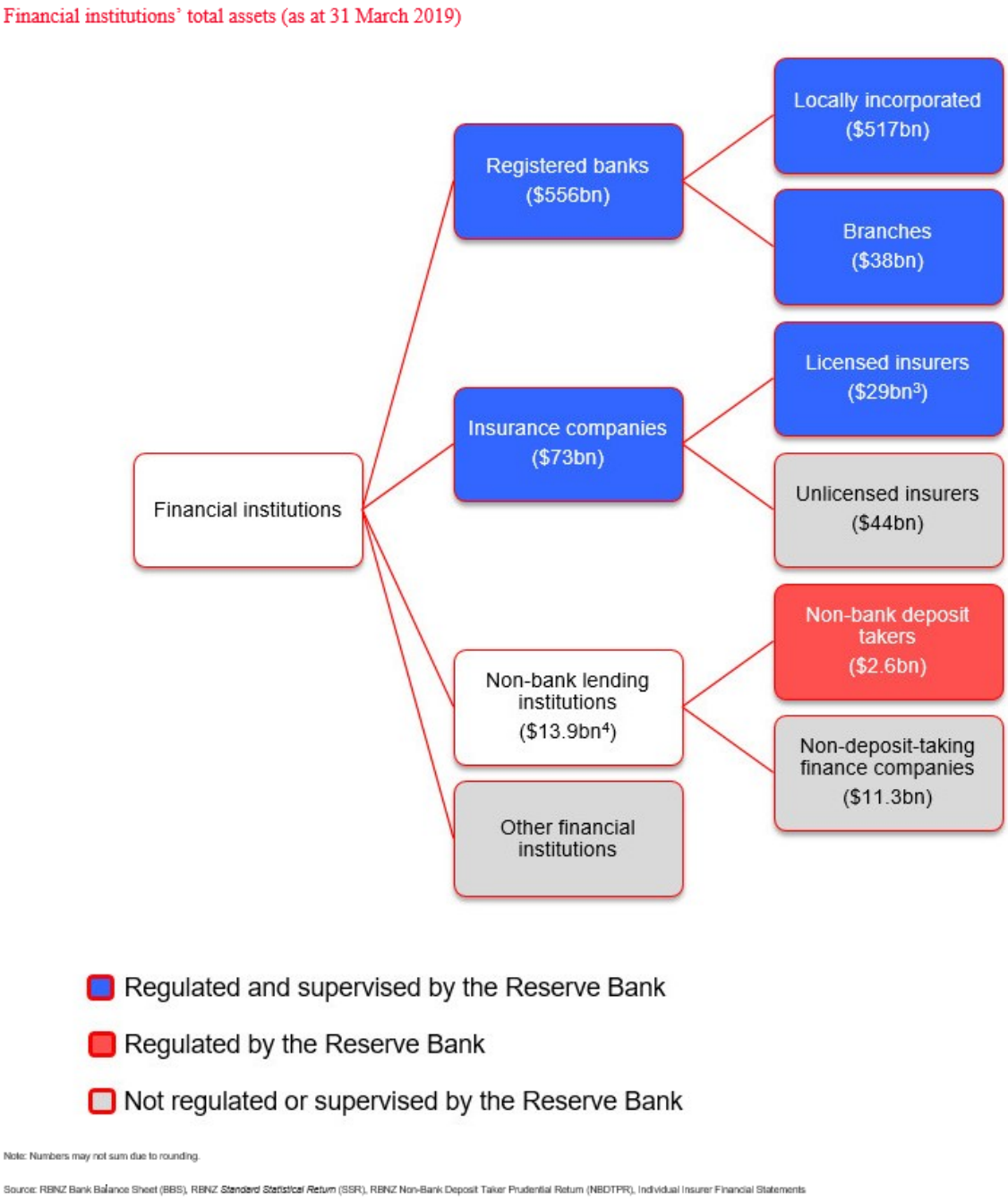
[3] Tobias Irrcher; Liam Gillies; Cavan O'Connor-Close The dashboard - year one: shining a brighter light on the financial strength of banks https://www.rbnz.govt.nz/research-and-publications/reserve-bank-bulletin/2019/rbb2019-82-07 (accessed 18/09/2019)

RBNZ already has some experience with granular data. The Repository of Securities captures individual financial instruments and individual legal entities (issuers and holders) data which is used in the regular production of debt instrument statistics.

We will build on our experience.

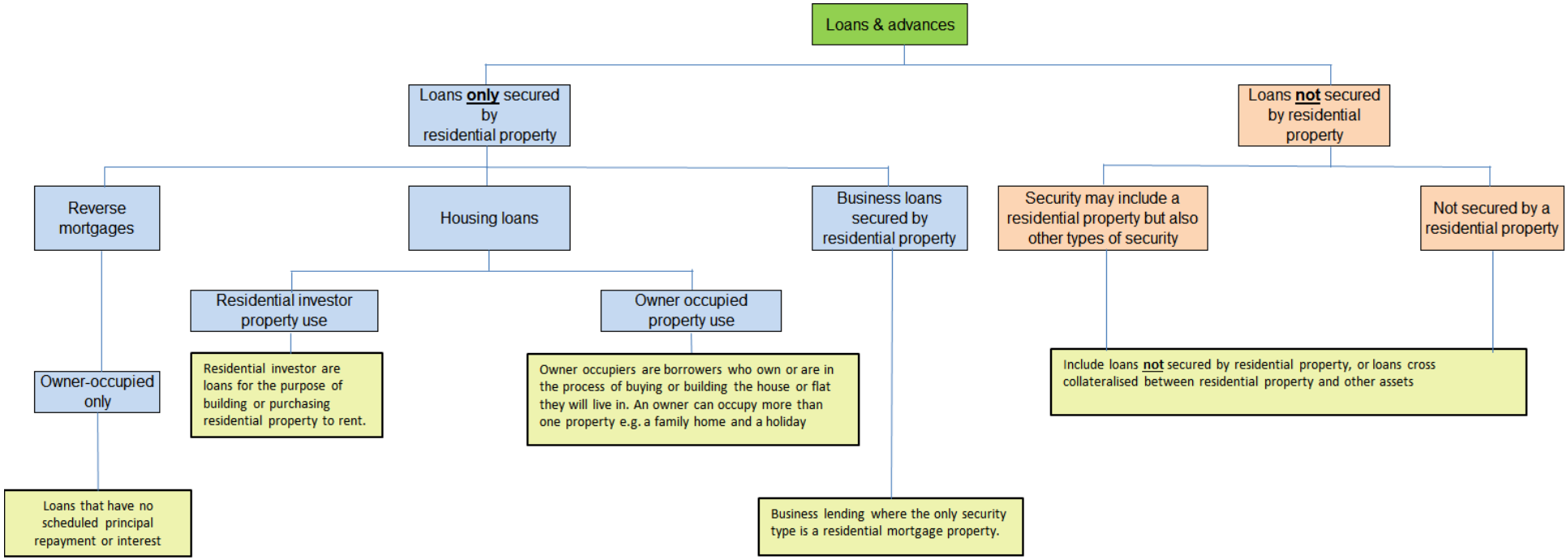
RBNZ is embarking on a multi-year programme investing in its data systems. As part of the modernisation programme we will investigate the feasibility and merits of transactions data for providers and data users.

Appendix A: Overview of the New Zealand financial system

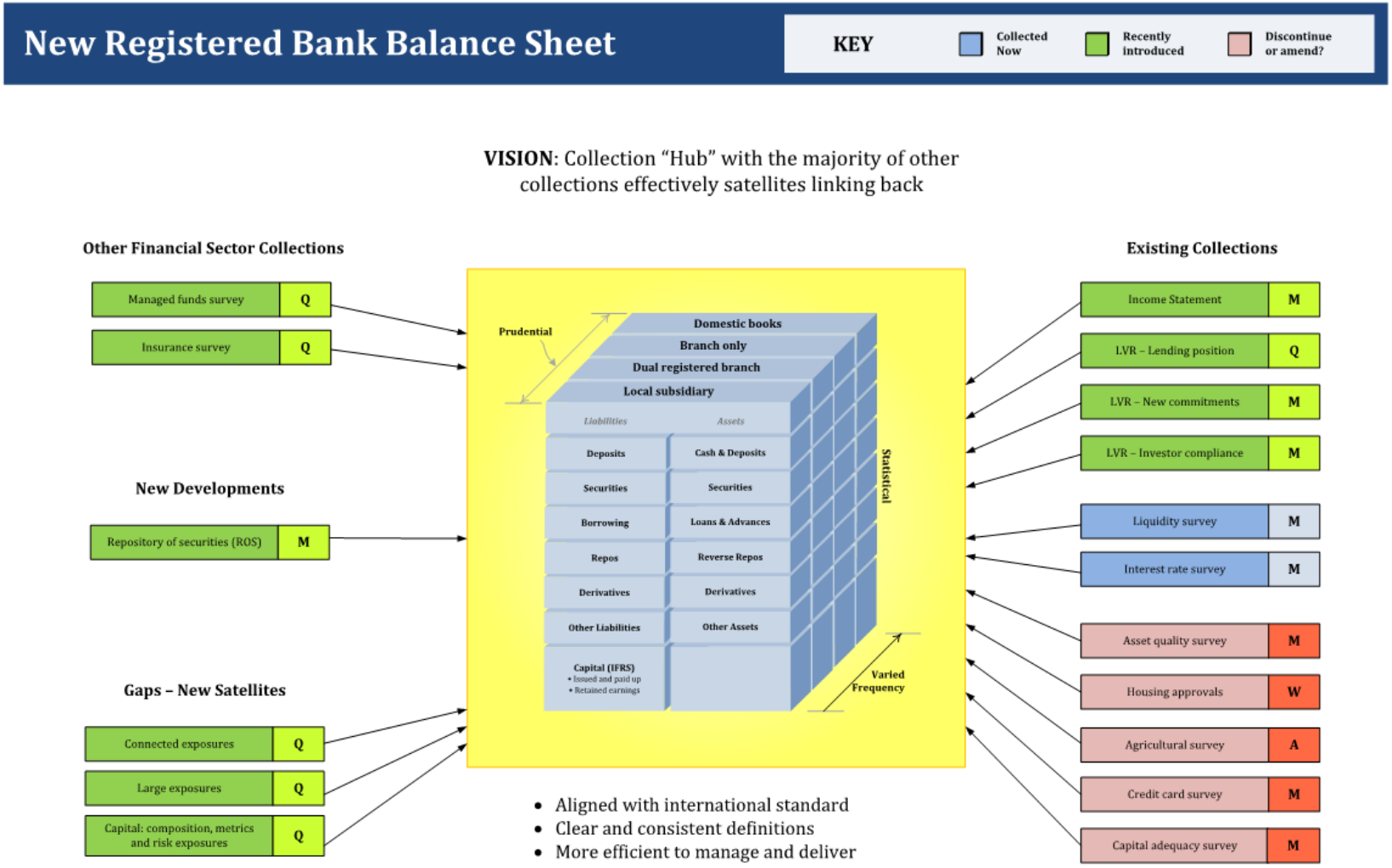


Source: https://www.rbnz.govt.nz/financial-stability/overview-of-the-new-zealand-financial-system (retrieved 4 July 2019)

Appendix B: Loans & advances decision tree



Appendix C: High level vision (as in 2016)



Collect once, use multiple times

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OF NEW ZEALAND
TE PŪTEA MATUA

Collect once, use multiple times

The Reserve Bank of New Zealand's data collection approach. (It is a journey…)

Steffi Schuster & Neil Humphries
Reserve Bank of New Zealand
16th August 2019, 9.15 am – 10.30 am

Collect once, use multiple times…

1. About New Zealand's central bank (RBNZ)
2. RBNZ's data collection approach. It is a journey…
   - Single collection for multiple purposes;
   - Working with stakeholders;
   - Workshops, pilots, trials, parallel runs; and
   - Lessons
3. Bank Financial Strength Dashboard
4. The journey is on-going…

RBNZ functions and objectives

The Reserve Bank of New Zealand (RBNZ) main objective is to promote a sound and dynamic monetary and financial system and to ultimately raise New Zealand's economic wellbeing.

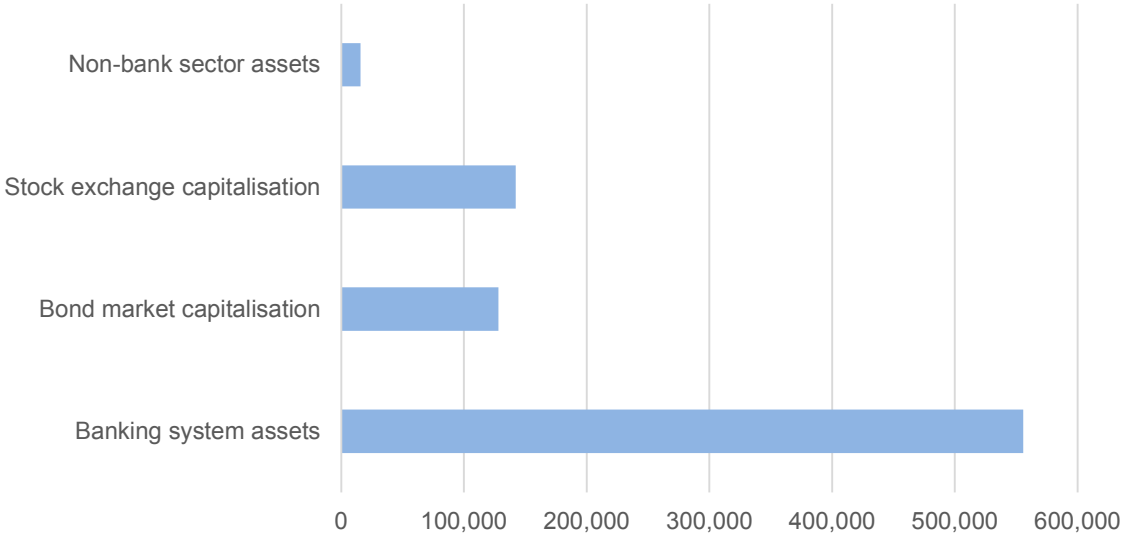
Our activities:

- formulating and implementing monetary and financial policy
- licensing and prudential supervision of banks, insurers and other deposit taking firms
- supply and circulation of currency
- operating New Zealand's payments and settlement system

RBNZ is policy maker, regulator, and also has a guardian function. As a result we have a need to collect both prudential and statistical data.

NZ's financial system

Size of New Zealand's financial sector (March 2019, NZ$ billion)



Source: RBNZ, NZX
Note: Bond market capitalisation excludes private debt placements. Stock exchange capitalisation excludes unlisted share holdings.

Surveys and guiding principles

All regular data collections are:
- Relevant
- Fit for purpose
- Cost effective

RBNZ collects regular data from all regulated entities and other financial institutions relevant for financial stability and/or monetary policy:

- All registered banks, non-bank deposit-takers & licenced insurers file prudential data returns
- Funds manager (e.g. superannuation), non-deposit taking non-banks, etc. provide statistical returns

We expect data to be accurate and will not make adjustments. If changes are needed the data provider will have to resubmit.

- Consistency of aggregates and individual entities reported data (e.g. enables accurate market share analysis)

We work with data providers when (re)designing data collections.

Stock-take and new approach

As data demands increased (post 2008) not all data collections were aligned, causing inefficiencies.

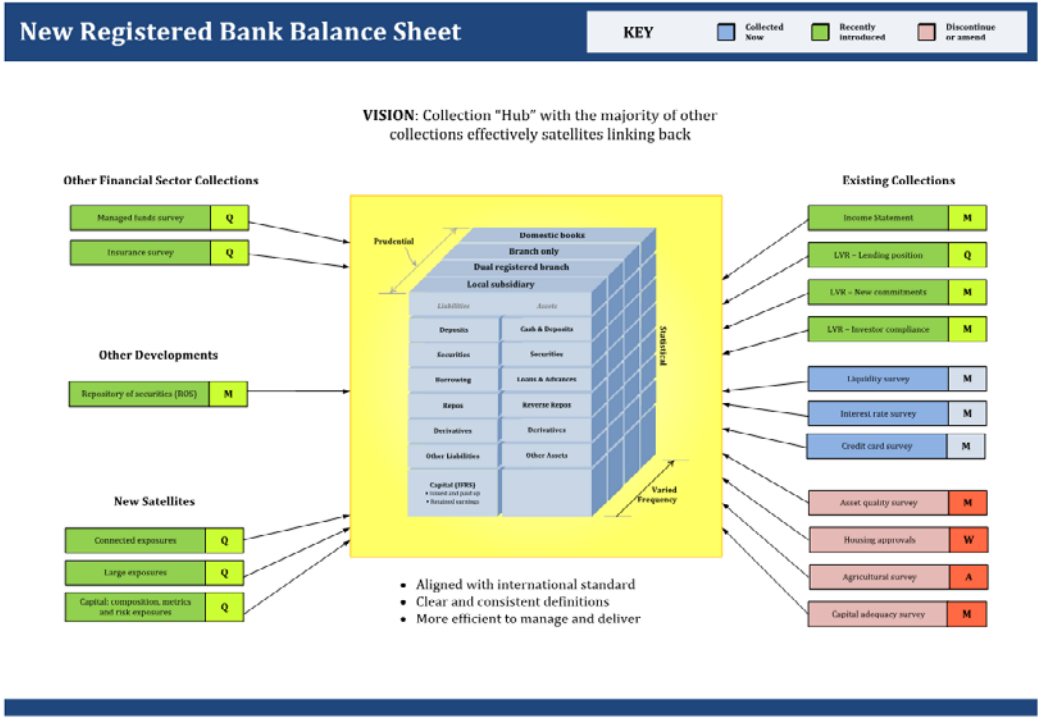
Our approach last 5 years: All recently introduced and redeveloped data collections are designed to achieve consistency across the different dimensions of the financial sector.

Example: redeveloped (registered) bank balance sheet data collection

The vision: the bank balance sheet (stock positions at the end of each month) is a hub and the majority of other data collections can be linked to it.

Single collection for multiple use…

Prudential, Macro-prudential & Statistical purposes (Gross & Net)



As at 2017

Work with stakeholders…

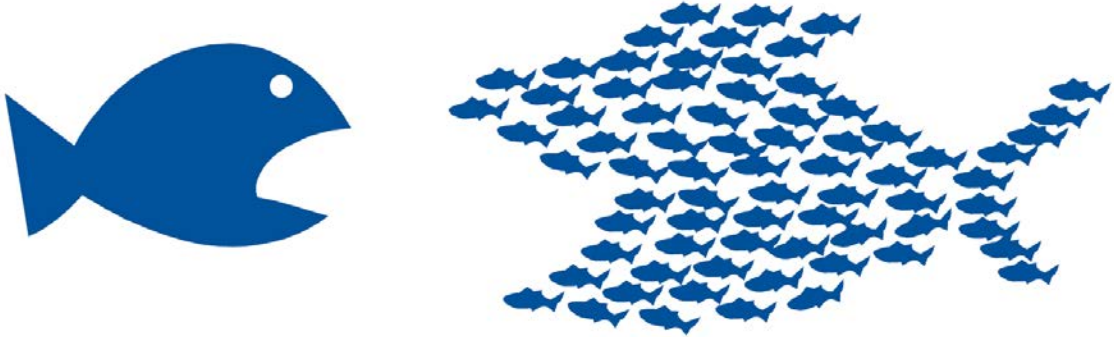
Internal

- Better understand questions that policy makers want answers to…
- Take users on a journey…
- Why, How, When? One question can lead to many…

External

- Relationship building, one-on-one, peer group & workshops
- “Buy-in” and “ownership” i.e. industry agreed and consistent definitions
  → data quality improvements

Workshops, Pilots, Trials, Parallel runs…



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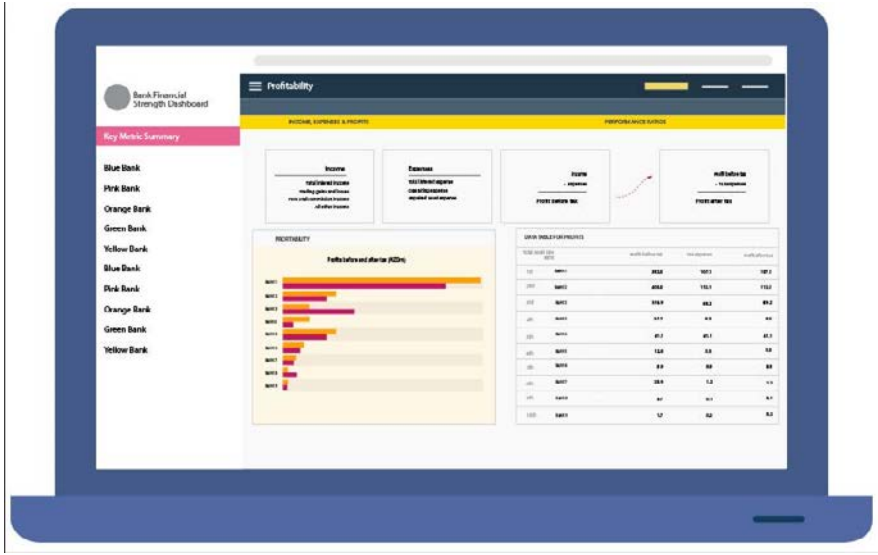
Bank Financial Strength Dashboard

In March 2019 RBNZ received the Central Banking Best ‘Initiative of the Year’ award for the Bank Financial Strength Dashboard.



The journey is ongoing…

All regular data collections are:
- Relevant
- Fit for purpose
- Cost effective

Next…
- Modernising all data collections (end to end)
- Reduce level of aggregation
- Explore use cases for loan-level data

More challenges…
- Reduce burden on respondents
- Increase effort to understand and align meta data
- Evolution of user needs (e.g. supervision and policy analysis)

Thank you

Steffi Schuster & Neil Humphries

Reserve Bank of New Zealand

16th August 2019, 9.15 am – 10.30 am