Future directions for Reserve Bank financial statistics

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*"Statistics..... are to central bankers what evidence is to juries." (*The Economist*, 20 April 2000)*

Central banks around the world rely heavily on timely and accurate data in their decision-making processes. As such, they are both heavy users and producers of various types of statistics. This article looks at the role of the Reserve Bank of New Zealand as a producer of financial statistics, provides some detail on the production of these statistics and outlines the challenges the Bank faces in this area.

1   Introduction

As New Zealand's central bank, the Reserve Bank of New Zealand has three main functions. These functions are: (1) the management of monetary policy to maintain overall price stability; (2) the maintenance of a sound and efficient financial system; and (3) the supply of legal tender to meet the currency needs of the public. In performing these functions, the Reserve Bank relies on a wide variety of information including, importantly, statistics on the trends and latest developments in various economic, financial, and demographic indicators.

Statistics find use at the Bank in several different applications, and it is convenient to consider these in terms of their timeliness and frequency of publication, and their immediacy to the policymaking process. First, data on transactions in financial markets (such as on exchange and interest rates) is continuously monitored by Bank staff to help form a real-time gauge of market conditions, to determine market participants' interpretation of economic news and monetary policy decisions, and as a forward-looking indicator to developments that may have bearing for the stability of New Zealand's financial sector.

Second, though new data on various sectors of the New Zealand economy (such as on housing or the retail sector) is available much less frequently, it is closely assessed by Bank staff for causes and effects. This new data helps inform views on the present state of the economy, and is consequently vital both in establishing 'starting points' for the production of the Bank's forecasts and in contributing to the rationale for a decision on monetary policy.

Finally, the Bank relies on access to long time series of data collected in a robust, consistent and accurate fashion to understand the structure of the New Zealand economy and its evolution over time, and to determine the role for monetary policy as a stabilising influence. These time series are also essential input to the development and estimation of economic models used at the Bank.

Having outlined the importance of timely and accurate data to the Bank, the remainder of this article focuses on the role of the Reserve Bank as a producer of statistics and surveys a selection of the statistics produced in-house. In producing these statistics, the Reserve Bank faces a number of challenges similar to those faced by statisticians around the world. These challenges are discussed in detail below. The article concludes by noting some of the current and planned statistical developments at the Reserve Bank that help ensure that financial statistics for New Zealand remain relevant and are of good quality for use by decision makers, both inside and outside the Bank.

2   The role of the Reserve Bank as a producer of statistics

The Reserve Bank Act 1989 empowers the Bank to collect and publish relevant data from financial institutions for monetary policy or financial stability purposes. With this mandate, the Bank is the key producer of statistics on New Zealand's financial sector that inform users and assist their decision-making processes. The Bank is well placed to collect and disseminate financial statistics, as it has a need for the data itself, has access to the information through

its relationships with financial institutions, and has the expertise and credibility to interpret the statistics produced and to ensure quality.

Commensurate with its legal authority to collect statistics, and its objective of producing quality statistics, the Bank also strives to meet the responsibilities that accompany this role. The reporting burden placed on respondents is closely managed, and the data collected from individual financial institutions is protected by confidentiality provisions.

Statistics produced by the Bank are used externally by financial institutions, journalists, researchers, businesses, other central banks, and the general public. Each of these users has specific requirements that the Bank strives to understand and to meet.

3 Key statistics produced by the RBNZ[1]

The Reserve Bank produces a wide variety of financial statistics that are accessible via our website. A selection of these statistics is discussed in more detail below.

Money and credit aggregates

Money and credit aggregates are derived from the aggregated balance sheets of those financial institutions in an economy whose liabilities are, in practice, 'money'.[2] High-level aggregate components of money and credit have been used by central banks over time for various monetary policy purposes, principally in attempting to control and forecast inflation. Central banks increasingly use the richness of data from the balance sheet surveys supporting money and credit aggregates to deliver a wider range of statistical series that

are useful not just for monetary policy implementation but also for financial stability purposes.[3] The fact that money and credit statistics are usually compiled and published on a timelier and more frequent basis than many other macroeconomic statistics adds to their usefulness.

As with many statistical frameworks, a certain amount of judgement is required by statisticians when compiling money and credit statistics. Though international guidelines exist, the definitions of money and credit are largely left to the discretion of producers. Among other considerations, statisticians need to determine which instruments to include as money and whether statistics should be presented on a functional or institutional basis.

Currently in New Zealand, the formal money and credit aggregates are presented on a functional basis and include 12 institutions (nine registered banks and three non-bank financial institutions).[4] These institutions account for approximately 90 percent of 'money'.

In 2004, the surveys used to source information for money and credit aggregates were enhanced to improve the range and quality of data collected. The new data enabled the Bank to supplement functional money and credit statistics with balance sheet and credit data on an institutional basis for registered banks and non-bank financial institutions. Last year, the Bank started to publish a finer breakdown of balance sheet components collected from non-bank financial institutions, splitting this into data from savings institutions, deposit-taking finance companies and non-deposit-taking finance companies. The Bank plans to review its money and credit aggregates in light of revised international standards, discussed further in section 5.

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[1] All statistics disseminated by the Bank can be accessed via our website www.rbnz.govt.nz. An advance release calendar is published on the website that lists all of the statistical releases and their relevant release dates for the next six months. Statistics are released at 3pm each day.

[2] The full denominator for 'money' suggested by the IMF's Monetary and Financial Statistics Manual includes all types of bank and other financial institutions' deposits, cash management funds, and instruments like Bonus Bonds. It includes money held by residents and non-residents and is often referred to as 'broad money'.

[3] For a more detailed discussion on the role and use of money and credit aggregates in contemporary central banking, see Ng (2008).

[4] M3 institutions included in published monetary aggregates - ANZ National Bank Limited, ANZ Investment Services (New Zealand) Limited, ASB Bank Limited, Bank of New Zealand, Citibank NA, New Zealand Branch, Deutsche Bank AG, New Zealand, GE Finance and Insurance, The Hong Kong and Shanghai Banking Corporation Limited, Rabobank New Zealand Limited and Rabobank Nederland, Southland Building Society, TSB Bank Limited, Westpac Banking Corporation.

Trade-weighted exchange rate indices

A trade-weighted index (TWI) of the exchange rate is a measure of the value of the New Zealand dollar (NZD) relative to the currencies of New Zealand's major trading partners. The TWI is the Reserve Bank's preferred summary measure for capturing the medium-term effect of exchange rate changes on domestic economic activity and inflation.

From its inception in 1979 until the end of 1998, the Reserve Bank's TWI was calculated as a weighted average of New Zealand's top five trading partners' bilateral NZD exchange rates using their share of New Zealand's bilateral trade as the weights. In 1999, the Bank adopted a new weighting method to better reflect the indirect effect of exchange rate changes on the New Zealand price level, through its influence on activity. The current TWI weights the currencies partly (50 percent) on the basis of the size, measured in terms of gross domestic product (GDP), of the trading partner's economy, and partly (50 percent) on their share of bilateral trade with New Zealand. Weights are updated each year once both trade and GDP data are available.

In June 2007, two new TWI series were published for the first time. The TWI 5 and TWI 14 are analytical series that were constructed on a consistent basis (ie, by using the current TWI methodology) and backdated. The use of a consistent methodology aids economic analysis by yielding more robust estimates of the changing strength of links between the exchange rate and other macroeconomic variables over time. Similarly, the inclusion of other currencies in the TWI 14 helps paint a more complete picture of the average effective exchange rate faced by New Zealand exporters and importers in their transactions. For a fuller description of the analytical TWI series, see Kite, (2007).
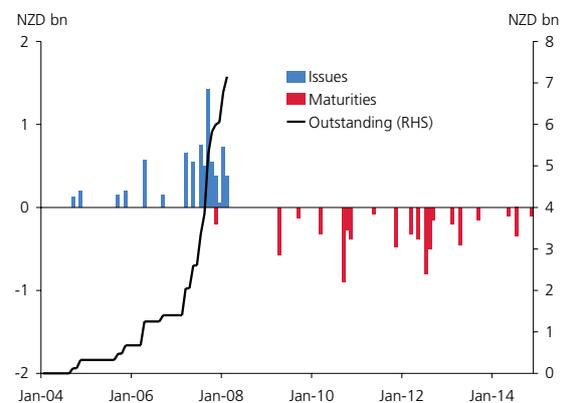
Securities statistics

The Bank publishes a wide range of securities statistics that are largely sourced from administrative systems, such as Austraclear.[5] This data is supplemented with surveys where necessary.

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[5] Austraclear is a system operated by the Reserve Bank for clearing and settlement of high-value debt securities and equities.

Aggregate statistics are available on the total issuance, turnover and ownership of government bonds and treasury bills. These statistics are also broken down to separately identify non-resident holdings. This year, statistics on non-resident holdings of securities were enhanced by separately identifying bonds issued in the New Zealand debt market by a non-resident issuer, known as 'Kauri Bonds'. As the graphs below illustrate, there has been a significant increase in Kauri Bond issuance over the past year.

Figure 1

Kauri Bond issuance

Source: RBNZ

Figure 2

Kauri Bonds
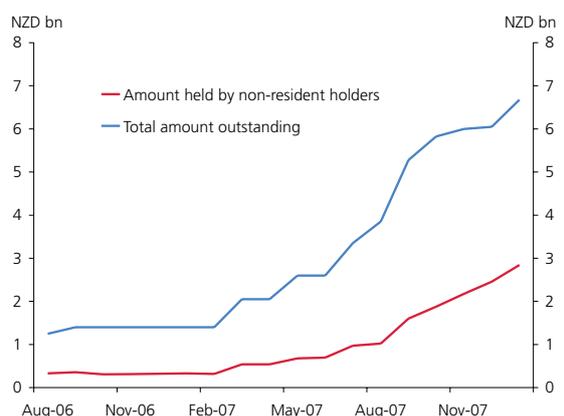
Source: RBNZ.

The Bank is currently contributing to international work on the development of statistical standards for securities statistics and investigating the possible development of a security-by-security database. These databases separately identify all securities on issue by issuer and issue date, and are then easily integrated with a range of survey or market information, such as the residence of bond holders, resulting in a comprehensive securities profile.

Security-by-security reporting ensures a higher degree of accuracy and consistency of data and gives users much more flexibility in using the data. A security-by-security database can significantly reduce respondents' reporting burden, as data is extracted straight from reporting systems with no classification or aggregation required. The main disadvantage of these databases lies in the considerable development costs.

Managed funds statistics

Managed funds allow investors with relatively small funds available for investment to 'pool' their resources with other investors to access investment opportunities. On behalf of these investors, a fund manager will invest in a variety of securities, the type and mix of which will depend on the fund's investment goals and the manager's mandate.

The purpose of the managed funds statistics produced by the Bank is to improve the understanding of the role of fund management in New Zealand and the savings behaviour of New Zealand households. Data is sourced from a quarterly survey of large fund managers,[6] supplemented by an annual survey of smaller funds.

The Bank expects there to be more interest in managed funds statistics with the recent introduction of Kiwisaver and the survey is currently being enhanced to separately identify Kiwisaver funds under management (FUM). Almost all Kiwisaver funds are invested with large fund managers and from March 2008 will be included in the quarterly survey. The first Kiwisaver FUM estimates are expected to be released in the second half of this year.

Credit card statistics

The credit card statistics published by the Bank are popular with users, as they are a timely measure of consumer borrowing. Analysts use these statistics to better understand the evolving financial position of households, and as an early indicator of retail spending.

Credit card data is sourced from a monthly survey of all New Zealand credit card issuers. Statistics are published on the

spending on New Zealand-issued cards split into domestic and international spending, the spending in New Zealand on cards issued overseas, and on interest rates, outstanding balances and credit card limits.

Household financial assets and liabilities

Statistics on the financial assets and liabilities of households assist the Bank in formulating and implementing monetary policy by aiding better understanding of the workings of the financial system and the savings behaviour of New Zealand households.

The data used to compile New Zealand household financial assets and liabilities are drawn predominantly from Reserve Bank surveys and also from several other sources, forming a major part of New Zealand's aggregate financial household balance sheet. Coverage is incomplete, as significant elements of household financial net worth are not represented, such as the equity held in farms and unincorporated businesses.

The Bank plans to continue its incremental development of these statistics.

Expectations surveys

The importance of expectations in the economic and financial decisions of households and firms is now universally accepted. For monetary policy, the public's expectations of future inflation, and how they might react to policy decisions, are particularly important and need to be taken into account in the policymaking process.

The Bank has two expectations surveys, which are run on its behalf by a market research company. One is a survey of business decision makers and analysts, and collects their forward-looking expectations on a wide range of macroeconomic variables, including inflation. The second is a household survey, which collects inflation expectations from the general public.

The Bank is currently reviewing the business expectations survey and is looking to make improvements that will further enhance survey quality.

In addition to collecting the above statistics, the Bank also

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6   Note the New Zealand Super Fund is not included.

publishes a variety of statistics produced by other statistical agencies, including key macroeconomic data from Statistics NZ and financial markets data from Reuters.

4 Challenges of producing financial statistics

In common with other central banks and statistical agencies, the Bank faces many challenges in collecting and disseminating statistics, and these are discussed in more detail below.

Ensuring relevance

One of the biggest challenges in producing statistics is in ensuring that they remain relevant to users. In the case of financial statistics, a rapidly changing financial sector that creates new products regularly can be difficult to measure. Also, the globalisation of financial markets means that traditional national boundaries and concepts like resident and non-resident are becoming more difficult to distinguish.

In order to ensure that financial statistics remain relevant, it is essential for Bank statisticians to actively monitor financial sector developments and to be proactive in meeting users' needs. For example, in coming years, the role of the Bank will expand to include the regulation of registered deposit takers. In the lead-up to taking on these new responsibilities, the Bank is working to determine its additional statistical needs. This is particularly important, as implementing new data collections and producing new statistics requires long lead times.

Ensuring quality

Traditionally, the quality of statistics was measured solely by the accuracy of those statistics; ie, by the frequency and extent of their revision after first release. However, statisticians have recently started to view quality more widely. For example, statistics that are highly accurate may yet be deemed to be of low quality if they cannot be accessed by users or if they are released too late to be useful.

In 2003, the OECD released a Quality Framework for OECD statistics. The framework was based on findings from a variety of studies on quality conducted by statistical organisations around the world. The framework included a definition of quality that recognised that achieving quality is costly and that statistics are in fact of quality if they are fit for the purpose for which they will be used. The framework also discussed the different dimensions that can be used to measure the quality of statistics – relevance, accuracy, credibility, timeliness, accessibility, interpretability and coherence – which are discussed further in box 1.

Despite several challenges in ensuring that statistics are fit for intended use, the Bank remains committed to producing quality statistics, and works closely with respondents to improve the quality of financial statistics produced in New Zealand.

Timeliness and accuracy trade-off

As with many other endeavours, there is a natural trade-off between quality and speed in the production of statistics. Where data is sourced in a timely manner from respondents, it is often not given the scrutiny accorded to audited accounts, for example, and may contain errors. Tight processing timeframes mean that less time is available for statisticians to investigate data in detail before publication. More time to source data and to compile statistics generally enables higher accuracy to be achieved.

Decision makers usually want information as quickly as possible. If policymakers are unaware of the quality-speed trade-off, policy mistakes may be made, which can be costly for the economy. However, if there is transparency around the quality of statistics – for example, by labelling series "experimental" where quality does not reach a desired standard – policymakers are able to take this into account when making decisions. The Bank aims to be transparent, to the extent it can for confidentiality reasons, about why revisions occur.

Quality is defined as "fitness for use" in terms of user needs.

Dimensions of quality

Relevance

Relevance is a qualitative assessment of the value contributed by the statistics, characterised by the degree to which the statistics serve to address the purposes for which they are sought by users.

Accuracy

Accuracy is the degree to which the statistics correctly estimate or describe the quantities or characteristics they are designed to measure. Accuracy refers to the closeness between the values provided and the (unknown) true values.

Credibility

Credibility refers to the confidence that users place in those products, based simply on their image of the data producer; i e, the brand image. One important aspect is trust in the objectivity of the data, which is enhanced by the independence of the producer.

Timeliness

Timeliness reflects the length of time between the availability of statistics and the event or phenomenon they describe, but considered in the context of the time period that permits the information to be of value and still acted upon.

Accessibility

Accessibility reflects how readily the data can be located and used. It includes the suitability of the form in which the data are available, the media of dissemination, and the availability of metadata and user support services. It also includes the affordability of the data to users in relation to its value to them.

Interpretability

Interpretability reflects the ease with which users can understand and properly use the statistics. This includes, for example, the adequacy of the definitions of concepts, target populations, variables and terminology.

Coherence

Coherence reflects the degree to which statistics are logically connected and mutually consistent. It implies that the same term should not be used without explanation for different concepts.

Managing respondent burden

Statisticians are responsible for minimising the reporting burden placed on business while satisfying the statistical needs of users. In order to do so, the Bank weighs the benefits of producing or developing new statistics against the costs associated with their production. Compiling statistics is often an expensive exercise and the process may be onerous for some respondents. However, unavailability, late provision, or insufficiently accurate statistics also impose costs, which can be difficult to quantify.

Managing the reporting burden placed on business is important to the Bank and, like many other producers of statistics, we continue to investigate administrative data sources, such as payment systems, which place no extra load on respondents to produce new statistics and to replace current data collections.

5 Future developments in financial statistics

In order to ensure that statistics remain relevant and that evolving user needs are met, the Bank devotes resources to development work. This section describes some of the statistical development work currently under way or planned for the future. The Reserve Bank welcomes any comments or suggestions on these development projects.

New mortgage approvals and drawdown series

The Bank has particular interest in the housing market and monitors developments using a variety of data produced by a range of official and private sector agencies. These data tend to measure housing transactions after the fact; for example, the number of house sales or money actually lent for house purchases can only be known after a house is sold or a mortgage is drawn down. In an attempt to get an early indicator of housing demand, the Bank approached the four main banks, representing 90 percent of housing lending in New Zealand, to collect mortgage approvals data on a weekly basis. At this stage, three of the four banks supply data to the Bank.

The data does not currently meet the Bank's usual quality standards for publication. However, the series has proved valuable by giving the Bank an early indication of developments in the housing market over the past year. Since this series has already become a useful indicator internally, we intend to start releasing weekly mortgage approvals data this year as an experimental series. Further work on developing and enhancing the series is also planned. Below is a graph of the annual percentage growth of the value of mortgage approvals for the three banks supplying data.[7]

In addition to approvals statistics, the Bank is also looking to re-release in the second half of this year previously published tables containing statistics on mortgage drawdown activity.

Figure 3
Estimated annual percentage change in value of mortgage approvals

Review of Monetary and Financial Statistics Manual

The International Monetary Fund has published new international guidelines for the presentation of monetary and financial statistics. These guidelines – set out in the *Monetary and Financial Statistics Manual* (*MFSM2000*) – provide a framework for identifying, classifying, and recording stocks and flows of financial assets and liabilities in an economy. The manual also identifies a set of analytically useful aggregates that can be produced. The concepts and principles set out in the *MFSM2000* are harmonised with those of the *System of National Accounts 1993* (SNA93), helping to promote comparability across the major sets of macroeconomic statistics within a country and across countries. This comparability enhances users' understanding of statistics and the analytical value of the statistics.

Implementation of the conceptual framework will require a long-term commitment, with priority given to the most relevant aspects. This year, the Bank will review the requirements for *MFSM2000* implementation and determine how best to proceed. While implementing the new standards could significantly increase the range and quality of financial statistics, it could also impose significant costs stemming from possible survey redevelopments and from the collection of information from a wider range of respondents.

Seasonal adjustment review

One of the objectives of analysing time series is to identify,

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[7] This series is indicative of mortgage approval activity and subject to revision.

in a timely manner, any changes in the direction and level of the series. Many time series have a recurring seasonal pattern that obscures their underlying trend. Seasonal adjustment is the process of estimating and removing these varying seasonal effects from the series in order to reveal the more important, and presumably more stable, non-seasonal features. Seasonal adjustment enables the direct comparison of consecutive and non-consecutive time periods at a higher than annual frequency (eg monthly) and makes the identification of turning points in a series easier.

It is good practice to review seasonal adjustment diagnostics at least annually to ensure that seasonal adjustment is appropriate and that the resulting series are of high quality. Poor use of seasonal adjustment can lead to multiple revisions and misinformation.

The Bank currently seasonally adjusts a limited number of credit series. The planned seasonal adjustment review has two parts: assessing the quality of published seasonally adjusted series, and producing new seasonally adjusted series.

Institutional Sector Accounts

In addition to the development work listed above, the Reserve Bank is currently working jointly with Statistics New Zealand to develop institutional sector accounts for New Zealand. Macroeconomic developments, such as growth and inflation, are driven by the actions of economic agents in the economy and institutional sector accounts enhance our ability to understand that economy by grouping agents with similar behaviour into institutional sectors (eg, households, non-financial corporations, financial corporations and government).

6 Conclusion

This article has discussed the important role the Reserve Bank has as the key producer of financial statistics in New Zealand. The Bank is well placed to perform this role, as it is a heavy user of statistics and has the expertise to assure the statistics produced for quality.

Producing statistics has its challenges, predominantly in ensuring that they remain relevant to users and are of appropriate quality for the purpose for which they will be used. In producing financial statistics, the Bank aims to satisfy the evolving needs of users both inside and outside the Bank, while minimising the burden it places on respondents. This is illustrated by the variety of development work planned over the coming years, such as the publication of a mortgage approvals series.

The article also discussed a number of statistics currently produced by the Bank. Though no longer under development, these statistics require continual investment to ensure that they remain relevant and of good quality in a rapidly changing financial sector.

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