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Explaining Central Bank Trust in an Inflation Targeting Country: The Case of the Reserve Bank of New Zealand

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Explaining Central Bank Trust in an Inflation Targeting Country: The Case of the Reserve Bank of New Zealand*

Abstract

Employing data from a representative population survey conducted in New Zealand in 2016, this paper examines factors that influence, or are at least associated with, public trust in the Reserve Bank of New Zealand (RBNZ). The large number of specifically designed questions allows studying the relationship between six dimensions and RBNZ trust: (i) economic situation, (ii) monetary policy knowledge, (iii) nonspecific trust, (iv) interest and information search, (v) politicians and government, and (vi) socio-demographic indicators. Using ordered logit models, we find that at least one indicator from each of these six dimensions has a statistically significant conditional correlation with individuals' trust in RBNZ. Satisfaction with own financial situation, objective knowledge about the RBNZ's main policy objective, responsibility for interest rate setting, subjective knowledge about inflation, trust in government institutions, desire to be informed about RBNZ, age, and full-time self-employment have a positive relationship with RBNZ trust. The reverse is found for respondents who do not keep up with RBNZ and believe that politicians are long-term oriented. In terms of economic relevance, institutional trust has the largest single impact on RBNZ trust and the subjective and objective knowledge indicators show a strong combined influence.

JEL: E52, E58, Z1.

Keywords: Central Bank Trust, Survey, Public Attitudes, Reserve Bank of New Zealand, Monetary Policy.

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1. Introduction

The past decade has witnessed a notable increase in academics' and monetary policymakers' interest in how central banks are perceived by the population, an interest likely fostered by two developments in the 1990s. First, many countries granted their central banks (different degrees of) independence (for a critical discussion of central bank independence, see Hayo and Hefeker 2010). Second, many central banks decided to adopt an explicit inflation target (for a discussion of inflation targeting, see Svensson 1999; Bernanke and Mishkin 1997). Note that, at least to some extent, the former is a prerequisite for the latter (McCallum 1997).

Arguably, the most important practical aspect of central bank independence (CBI) is the insulation of monetary policy from direct political influence (McCallum 1995). But, at least in democratic countries, the delegation of economic policy authority to an institution outside of direct democratic control raises important questions regarding the institution's accountability. The literature typically argues that more transparency in regard to central banks' operation and decision-making processes facilitates accountability and, consequently, safeguards their democratic legitimacy (Geraats 2002). In addition, central bank transparency is potentially relevant for the transmission of monetary policy. Communicating its perception of the economic situation and its planned policies may allow a central bank to influence private-sector expectations as well as actions (Woodford 2003). Indeed, central banks have notably increased their efforts to communicate with the public (Blinder et al. 2008) and transparency and communication play important roles in an inflation-targeting framework (Bernanke and Woodford 2005).

An important related question, but one that is less often discussed, is to whom the central bank should be accountable. As noted above, an important consideration in making central banks independent is to remove them from direct government control. Thus, it does not make much sense to make them accountable to the government or politicians more generally.[1] Instead, a central bank should ultimately be accountable to the sovereign in a democratic country, which is its population. This type of accountability could be achieved by the central bank communicating more directly with the population rather than indirectly through the political system or the media.

There is another reason why it is important to link central banks to the population, one that has to do with the way CBI works. As is extensively documented in the extant literature, it is not only *de jure* central bank independence that is relevant for ensuring low inflation, but also *de facto* central bank independence (de Haan and Kooi 2000). *De facto* CBI is fostered by *de jure* CBI in societies characterised by an effective rule of law, which is typically the case in industrialised countries. However, even in countries with a high degree of *de facto* CBI there can be severe conflicts of interest between the government and the central bank, with the former putting a great deal of pressure on the latter (Berger and de Haan 1999). In such

[1] In democracies based on a separation of power, central banks could be made independent from the executive and accountable to the legislative, in particular the parliament. For instance, in the United States and the euro area, this is regularly accomplished by means of official testimonials. However, whether there is a true separation of powers is debatable, as, at least in parliamentary democracies, it is the parliament that elects the government.

a situation, popular support can help the central bank defend itself against political influence. Thus, there are important linkages between CBI, inflation targeting, and accountability and public support of a country's central bank. Hence, it is important to provide public accountability in an inflation targeting regime governed by an independent central bank.

A fairly recent stream of research looks at how central banks are perceived by the population. Of particular interest is the population's opinion of the central bank's trustworthiness. Arguably, more trusted central banks will find it easier to rally public support for their position when it conflicts with that of the government. Moreover, if they are highly trusted institutions, they should also find it easier to influence private economic actors through communication. Hence, trust is tightly linked to a central bank's credibility.

A number of studies focus on trust in the European Central Bank (ECB); these can be sorted into two groups. The first group of papers constructs averages of individual responses from the Eurobarometer surveys and compares trust at a country level (Fischer and Hahn 2008; Roth et al. 2012; Wälti 2012). The second group focusses on individual responses themselves (Farvaque et al. 2011; Bursian and Fürth 2013; Kaltenthaler et al. 2010; Ehrmann et al. 2013; Hayo and Neuenkirch 2014).

In this paper, we study public trust in the Reserve Bank of New Zealand (RBNZ) using a new representative survey of the New Zealand population in 2016. Our analysis is not concerned with comparisons on an aggregate level and, thus, this study can be placed in the second group of papers. However, almost all the studies in this group suffer from a lack of adequate data, as they utilise databases that have been collected with a different purpose in mind. An exception is Hayo and Neuenkirch (2014), who designed a specific questionnaire with the aim of studying the determinants of trust in the ECB in Germany. The main advantage of designing a specific survey is that questions can be directly targeted towards answering the research question. The main disadvantage is that cross-country comparisons are not easily possible, or, to be more precise, would require a much greater effort in terms of time and resources.

For our public opinion survey on New Zealand, we designed the questionnaire specifically to better understand how the macroeconomy and macroeconomic policy are perceived by nonprofessional economic agents. The questions cover the importance people place on being informed about macroeconomic issues, their attitudes towards specific policy positions, their awareness and knowledge about the macroeconomy, and their trust in macroeconomic institutions. In the present paper, we are concerned with the latter. Hayo and Neumeier (2016) describe the empirical setup, survey methodology, and the questionnaire, as well as provide frequency tables. Here, we are interested in testing a number of hypotheses on determinants of central bank trust as well as discovering new stylised facts. Methodologically, we employ ordered logit regression and general-to-specific modelling.

The starting point for our empirical analysis of trust in the RBNZ is Hayo and Neuenkirch's (2014) study on the ECB. However, we extend the number of explanatory variables; in fact, we employ the largest number of explanatory variables ever used in a central bank trust

study. Not only does this allow addressing important theoretical and economic policy-relevant aspects not resolved in the extant literature, it permits us to control for many potential influences. Our paper makes at least five contributions to the field.

First, this is the first study to analyse public trust in a central bank other than the ECB using a specifically designed, individual-level dataset. By focussing on the RBNZ, it provides a study of a central bank that has been in the vanguard with regard to adopting an explicit inflation targeting regime and one that is characterised by a unique institution, the Policy Targets Agreement (PTA).

Second, an interesting finding in Hayo and Neuenkirch (2014) is that one of the most important determinants of central bank trust is trust in government institutions, which they call 'institutional trust'. Not controlling for institutional trust may lead to invalid conclusions due to possible confusion between specific trust in the central bank and trust in any government institution. This distinction is important from a policy perspective. If trust in a central bank is strongly determined by trust in government institutions more generally, the central bank's opportunity set for raising the level of trust is likely limited. However, there is another potential influence on central bank trust: general trust. There is a large literature arguing that general trust can be used as a proxy for social capital, which again appears to be positively linked to other important economic or institutional variables, such as economic growth, rule of law, corruption, and so forth (see, e.g., Fukuyama 1995; Knack and Keefer 1997; Glaeser et al. 2000; Putnam 2000; Zak and Knack 2001; Bjørnskov 2006). So perhaps institutional trust itself is not an independent influence, but could be derivative with respect to social capital in a society as proxied by general trust. Put differently, the trust individuals have in their central bank as well as other government institutions may simply be a consequence of being generally more trusting. In this study, we control for both potential influences—institutional and general trust. If it turns out that general trust as an indicator of social capital is a powerful driver of central bank trust, this will be even worse news with regard to the central bank's ability to increase the public's trust in itself.

Third, the extant literature shows that greater economic knowledge is associated with more central bank trust. So educating the population on monetary policy matters appears to be a promising way of increasing central bank trust. However, given that monetary policy issues are quite broad and the attention span of individuals is limited, it is important to know what type of economic knowledge is likely going to increase trust. In our study, we included an unprecedentedly broad as well as deep range of knowledge indicators: three subjective and six objective indicators. Including a subjective perspective on knowledge, that is, what the individual thinks she knows about monetary policy, has been shown to be important in financial decisions (see, e.g., Hadar et al. 2013) as well as in the case of central bank trust (Hayo and Neuenkirch 2014). We also account for individual educational attainment, which is typically the only proxy available to measure knowledge in the standard surveys employed in the literature.

We also include an important aspect noted in the literature, namely, people's desire to be informed about an economic topic (Blinder and Krueger 2004). Van der Cruijsen et al. (2015) and Hayo and Neuenkirch (2015) employ 'desire to be informed' in the case of European

monetary policy using Dutch and German household data, respectively. Here, we also consider a related aspect—respondents' willingness to keep up with news on RBNZ. Finally, we study whether the level of trust is affected by various information channels used by the respondents to keep up to date with monetary policy. This is not only interesting from the viewpoint of information acquisition, but, as argued above, could also be relevant for a central bank trying to increase its popular support.

Fourth, by adding a new domain of indicators, we control for important aspects involving how citizens view politicians and the political system more generally. We expect that if people adhere to a critical, public-choice-like perspective, they should be pleased about the establishment of an independent central bank. If, on the other hand, they put a great deal of trust in politicians and believe that the political system serves New Zealand's long-term interests, they should be more sceptical of the RBNZ. Therefore, we complement the trust people place in government institutions by controlling for their views about politicians and the effectiveness of the political system. We also account for respondents' attitudes towards inequality. In recent years, there has been a surge in studies discussing whether, and, if so, how monetary policy affects a country's income distribution (for an overview, see Nakajima 2015). Finally, we control for political party preferences, which allows testing whether the RBNZ is perceived as nonpartisan by the population.

Fifth, we consider the standard socio-demographic variables, such as age, sex, household size, and so forth. However, we also include potentially relevant psychological factors in our model, such as estimated time and risk preferences. The influence of people's economic situation is of particular interest to economists. We include both objective and subjective indicators of the respondent's economic situation, such as per capita income, per capita wealth, and satisfaction with own economic situation as well as whether the respondent perceives himself to be a saver or a borrower.

In the next section, we provide a discussion of the context of our analysis, namely, monetary policy in New Zealand and the institutional design of the RBNZ. Section 3 explains the survey, methodology, and the employed variables. Our research hypotheses are discussed in Section 4. In Section 5, we present our estimates of the various factors potentially affecting trust in RBNZ. The estimation results are interpreted in Section 6. Section 7 concludes.

2. Monetary Policy in New Zealand and the RBNZ's Institutional Design

Although studying trust in the ECB is relevant and interesting, a key question is whether the results obtained are externally valid, that is, whether they hold for other central banks. In light of the above discussion about inflation targeting and accountability, we think that the RBNZ is an excellent choice of a different central bank on which to conduct a trust study. The RBNZ was founded in 1934, but it was the Reserve Bank of New Zealand Act of 1989 that laid the basis for CBI in this country and specified inflation as the primary monetary policy objective. In February 1990, New Zealand was the first country to explicitly adopt inflation targeting. Thus, perhaps more so than in any other country, its population should have become accustomed to this specific type of monetary policy regime.

Moreover, the RBNZ has a unique institutional structure in the form of the Policy Targets Agreement (PTA). The PTA is an agreement between the Governor of the RBNZ and the Minister of Finance that regulates the relationship between RBNZ and government. An important aspect of the agreement is fixing the inflation target at a certain level. Conceptually, the PTA can be viewed as an employment contract between a principal (the government) and an agent (the Governor of the RBNZ), where the former can dismiss the latter in the event performance, as measured by the observed inflation rate, is judged substandard (Walsh 1995a). Thus, the RBNZ's institutional setup is often interpreted as an incentive-oriented employment contract between a principal and an agent (Persson and Tabellini 1993; Walsh 1995b).

However, in light of the specific rules governing dismissal of the Governor as well as the practical experience since 1990, we doubt that New Zealand's monetary regime can be satisfactorily interpreted along these lines. So far, no Governor has been relieved of his duties because of an alleged violation of the PTA. In fact, removal of a Governor is not straightforward and it appears to be rather difficult to demonstrate neglect on his part. Since 1990, a number of PTAs have been adopted, which, among other changes, led to adjustments in the inflation target. Initially, it was set to a corridor of 0 to 2 per cent CPI inflation per year. In the PTA signed in 2002, this was adjusted upward to a range between 1 and 3 per cent over the medium term. Given that the negotiations leading to the PTA are confidential, it is not clear whether changes in the PTA were driven by the interests of the Minister of Finance or by those of the newly appointed Governors.

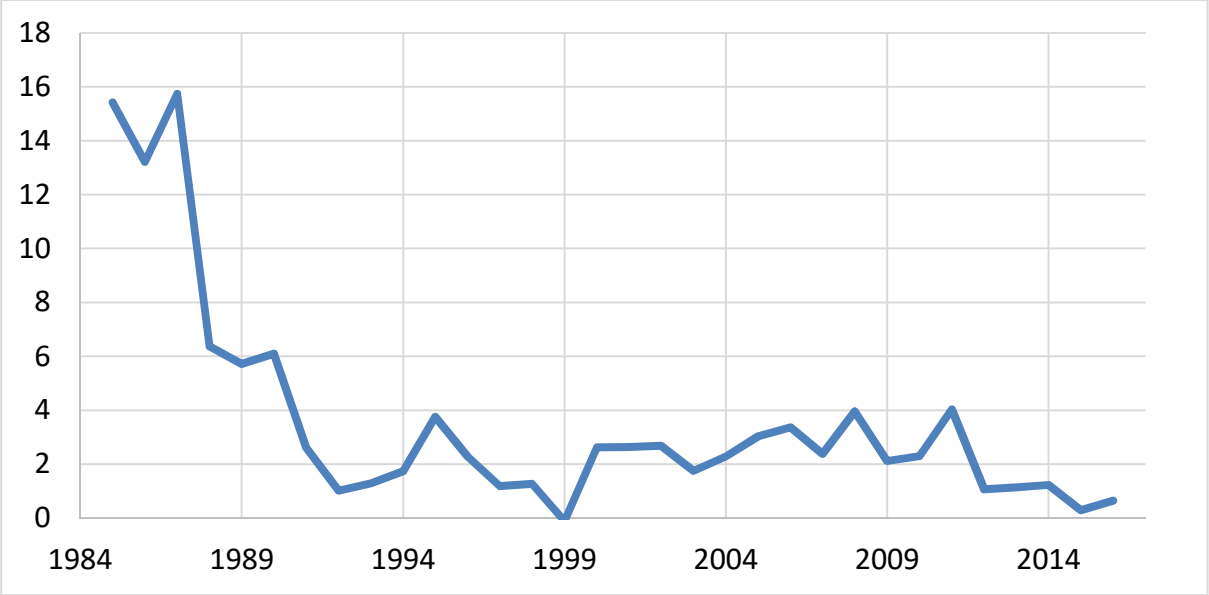
How do these specific institutional characteristics translate into indices used for international comparisons? In terms of *de jure* central bank independence (CBI), RBNZ is not viewed as particularly independent. New Zealand received a CBI score of 0.26 for 2010 and was ranked 72nd among 89 countries (Dincer and Eichengreen 2014). Comparing the RBNZ with the ECB, we find that with 0.81 index points, that is, third place, the latter achieves a much higher CBI value. RBNZ fares better when it comes to central bank transparency. Here, RBNZ receives 14 out of 15 points, which puts it in second place after Sweden (Dincer and Eichengreen 2014). The ECB receives 11 points. However, the way transparency is measured by these authors concentrates on the institutional features of central banks and ignores the fact that decisions are made by individuals or committees. Hayo and Mazhar (2014) propose monetary policy committee transparency as an alternative concept for operationalising central bank transparency. They argue that laypersons are more likely to focus on monetary policy decision makers than on institutional details. New Zealand scores high in regard to monetary policy committee transparency, too, achieving 13.5 out of 15 index points, which ranks it 17th out of 75 countries. The ECB is given 12 points and ranks 25th.

The RBNZ relies on three main channels of communication with the public: OCR announcements (every six weeks), Monetary Policy Statements (every quarter), and Financial Stability Reports (biannually). OCR announcements tend to be short and only briefly explain the economic context within which the decision on the short-term interest rate was taken. Monetary Policy Statements provide more extensive discussion. These statements begin with a summary of the PTA to remind readers of the specific institutional context within which the RBNZ operates. This is followed by several sections discussing

important aspects related to monetary policy in New Zealand. However, the nature of the discussion and the wording likely make it difficult for laypersons to grasp the full meaning of what the RBNZ is trying to convey. Media conferences accompany publication of the Monetary Policy Statements, but whether answers given by the Governor or Chief Economist are accessible to nonprofessionals likely depends on the nature of the questions asked by journalists or other interested parties. Similar to many other central banks (see Fluch 2007), RBNZ provides educational material for the general public on its website (http://www.rbnz.govt.nz/education), but, again similar to other central banks, it does not appear to make a specific effort to 'translate' its policy decisions and assessments into everyday language.

So how can the general public form an opinion about how RBNZ is performing? In addition to comments and discussions found in a variety of media (e.g., newspapers, TV, radio, or the Internet), people could check the inflation rate to assess the success of inflation targeting. The current inflation rate is featured prominently on the first page of the RBNZ website (http://www.rbnz.govt.nz). Figure 1 shows New Zealand's inflation history since the mid-1980s.

Figure 1: New Zealand's Inflation History 1985–2016 (annual CPI growth rate in %)



Source: OECD Main Economic Indicators.

Figure 1 makes it apparent that the decrease in the inflation rate occurred remarkably swiftly. However, the main reduction, from 16 per cent to 6 per cent, had already occurred before introduction of inflation targeting. Still, within just a couple of years after adopting the inflation targeting regime, inflation moved into the target range. It is also apparent that in some years, for example, 2008 or 2011, inflation reached 4 per cent and, thus, went outside the target range. At the end of the sample period, the inflation rate dropped out of the lower end of the target range and it remains to be seen whether the RBNZ will bring inflation back on track. Overall, the inflation record since 1990 yields an average of 2.2 per cent, which is clearly consistent with the PTA. Moreover, in all fairness, any target violations, at least so far, were too short-lived to violate the criterion 'over the medium term' (although

this is obviously not a precisely formulated time horizon). Thus, judging from the RBNZ's performance, in conjunction with its high degree of institutional and monetary policy committee transparency, we would expect New Zealanders to have high trust in their central bank.

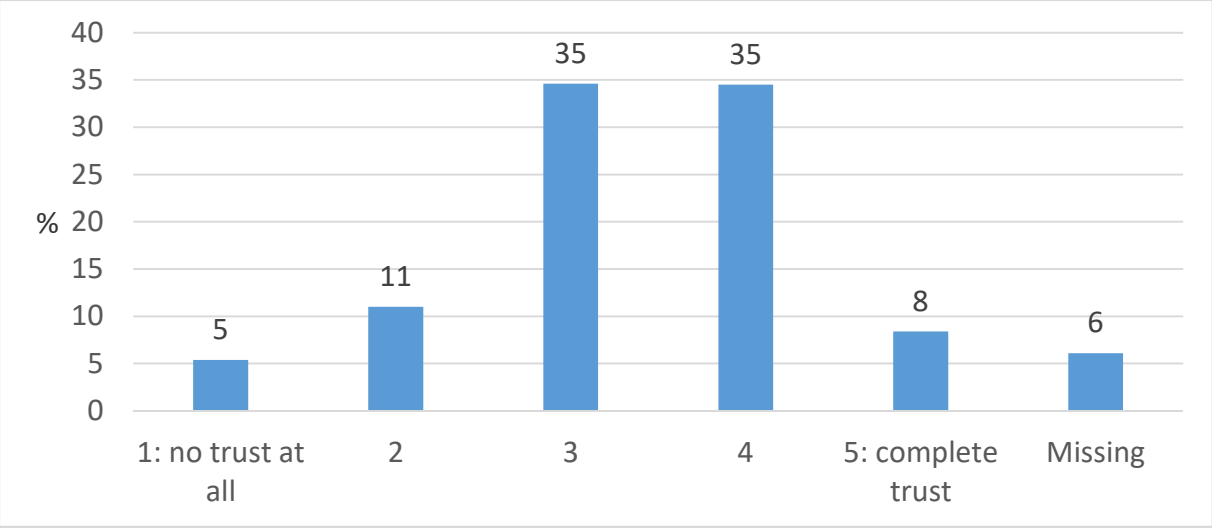
3. Survey Methodology and Variable Descriptions

Our analysis is based on data from a specially designed population survey that was fielded between 13 and 30 May 2016, conducted on our behalf by Research New Zealand. Knowledgeable experts at Research New Zealand, complemented by pre-testing, ensured that our questionnaire would be easily understandable by ordinary New Zealanders. For a detailed description of the survey, the interested reader is referred to the documentation paper (Hayo and Neumeier 2016). Our sample consists of 1,000 representatively selected persons from the New Zealand population aged 18 or above. Methodologically, the survey was conducted online and based on quota sampling involving age, gender, and region. Table A1 of the Appendix contains a description of the variables employed in this study.

Our dependent variable measuring trust in the RBNZ is based on answers to the following suite of questions: How much trust and confidence do you have in each of the following? (The Government of New Zealand; The Parliament of New Zealand; The Reserve Bank of New Zealand; The United Nations; The International Monetary Fund). Respondents were asked to indicate the degree of trust they have in each of the institutions using a five-point scale, ranging from 1 (no trust at all) to 5 (complete trust). Figure 2 shows the distribution of answers with regard to trust in the RBNZ.

We can see that 43 per cent of the population express a notable amount of trust in the RBNZ (codings 4 and 5), whereas only 16 per cent report little or no trust (codings 1 and 2). However, it is difficult to interpret these numbers without a yardstick.

Figure 2: How much trust and confidence do you have in the RBNZ (in %)?



Note: The number of observations is 1,000.

Table 1 puts the numbers into perspective by comparing trust in the RBNZ to that placed in other important national and international institutions.

Table 1: Comparing average trust values across national and international institutions

RBNZ	NZ Parliament	NZ Government	UN	IMF	ECB (Germans)
3.3	2.7	2.8	2.9	2.7	2.6

Note: The 'ECB' column gives average trust of the German population in the European Central Bank in 2011 (see Hayo and Neuenkirch 2014).

Comparing trust in the RBNZ to average trust in other national and international institutions reveals that the RBNZ is viewed as a relatively trustworthy institution. In fact, New Zealanders' average trust in RBNZ is significantly higher than the trust they have in other national institutions, such as parliament or government, or in international organisations, such as the United Nations or the International Monetary Fund.[2] Using information from Hayo and Neuenkirch (2014), we can compare trust in the RBNZ with trust in the ECB, and find that New Zealanders' trust in RBNZ is significantly higher than Germans' trust in the ECB at the 1 per cent level. In terms of magnitude, the difference is substantial, as average RBNZ trust is 25 per cent higher than average ECB trust. In light of the above discussion of CBI and transparency indices, this implies that transparency may be more important for trust than independence. However, it is also possible that the lower degree of trust in the ECB is due to its multinational nature or the specific situation of the European debt crisis.

For the remainder of our analysis, we use trust in the RBNZ as our dependent variable, which runs from 1 to 5, with higher values indicating more trust. Given its ordinal nature, we employ ordered logit estimation. To preserve degrees of freedom, we re-code 'missings' into the middle category (3). All conclusions derived below are robust with regard to this coding decision. We study the influence of many explanatory variables, which can be grouped in six categories. Table A1 in the Appendix contains precise definitions of the employed variables. To avoid including too many variables in our regression, we also use indicators based on a five-point Likert answer scale in the form of five-category ordered variables. At the end of Section 3, we discuss how this decision impacts our conclusions.

Economic Situation

We capture the respondents' economic situation with various indicators. First, we account for household net income. Second, we include households' net wealth situation. As is typical for survey studies relying on people providing voluntary information, both of these personally sensitive variables exhibit a large number of missing observations. We impute the missing values using a regression approach and 10 rounds of imputations. Third, we ask whether our respondents are savers or debtors. Fourth, we measure subjective economic situation by asking about an individual's satisfaction with the current financial situation using

[2] Using mean difference t-tests of unequal variances to test the difference across coefficients (average RBNZ trust – average trust in other institution), we get the following results: New Zealand Government (mean difference: 0.51***), New Zealand Parliament (mean difference: 0.55***), United Nations (mean difference: 0.37***), International Monetary Fund (mean difference: 0.60***), European Central Bank (mean difference: 0.68***).

a question from the German General Social Survey (GGSS/ALLBUS) (Terwey and Baltzer 2013).

Monetary Policy Knowledge

We emphasise the relationship between knowledge and trust by using 10 indicators directly measuring central bank and monetary policy knowledge. We have four variables for evaluating the impact of subjective knowledge on trust in the RBNZ. The first indicator allows respondents to state what they believe to be their level of knowledge of the RBNZ and its monetary policy. The second subjective indicator measures what people report about their degree of information with regard to the inflation rate. The third indicator is based on answers to the question of how well respondents feel informed about the Official Cash Rate (OCR), which is RBNZ's main monetary policy instrument. All three variables are measured on a five-point scale, ranging from 1 (very poor) to 5 (very good). Fourth, we ask whether respondents have heard of the PTA (dummy variable).[3] Objective knowledge is measured with six questions. We have three indicators for assessing respondents' knowledge about the specific institutional setup of the RBNZ: (i) the main objective of the Reserve Bank, (ii) responsibility for setting interest rates, and (iii) the inflation rate agreed upon in the current PTA. The first two indicators are based on multiple-choice questions; for the third, we ask respondents to answer in per cent. There are two indicators measuring knowledge about the monetary policy situation at the time the survey was taken: (iv) the inflation rate and (v) the Official Cash Rate. Again, the interviewees were asked to provide concrete numbers in per cent. Finally, using a multiple-choice question, we ask about (vi) the respondents' understanding of the conduct of monetary policy more generally. Questions (i), (ii), and (vi) are taken from Hayo and Neuenkirch (2014).

Nonspecific Trust

We control for two types of nonspecific trust: institutional and general. Institutional trust is constructed using the first component of a principal component analysis involving trust in the government, parliament, the United Nations, and the International Monetary Fund (see Hayo and Neuenkirch 2014). To measure general trust, we use a question from the World Values Survey, 'Generally speaking, would you say that people can be trusted?', which is coded as a dummy variable.

View of Politicians and Inequality

We employ five questions as indicators of how citizens view politicians, namely, whether (i) most politicians in New Zealand act with the general public's best interests in mind vs serve the interests of particular groups, (ii) most politicians are concerned about their country's long-term well-being vs being only concerned about the next election, (iii) the government conscientiously manages the revenue it collects in taxes vs wastes the revenue it collects in taxes, (iv) the respondent has confidence in her country's politicians vs not having confidence in her country's politicians, and (v) people's incomes should be more equal vs whether, to encourage individual effort, the difference between people's incomes should be

[3] Note that a question based on 'heard about it' was employed as an indicator for objective knowledge by Ehrmann et al. (2013). In contrast, we believe it should rather be interpreted as a subjective indicator.

greater. All these indicators are included in our analysis as five-point Likert scale coded variables, with higher values expressing more sympathy for the alternative listed after 'vs'.

Party Preference

It is interesting to study whether RBNZ's trustworthiness is perceived differently by supporters of different political parties. We interpret this as test of the central bank's political neutrality. Respondents were asked: 'If a general election was held this Saturday, to which political party would you give your party vote?' We include respondents supporting the National Party, the Labour Party, New Zealand First, and the Green Party and compute corresponding dummy variables (reference category: other parties and no answer).

Information Desire and Information Channels

To measure the degree of interest in information about the RBNZ and monetary policy more generally, we employ two indicators. First, using a five-point scale variable, we ask our respondents about the importance they attach to being informed about the Reserve Bank and its policies. Second, we construct a dummy variable indicating that they have no inclination to use any source of information to keep up with the Reserve Bank. We also account for several important channels of information acquisition. Thus, we ask respondents about their information channels and construct dummy variables capturing whether they obtain monetary policy information from the media (newspapers, radio, TV), Internet sources, friends and family, colleagues, and/or their bank or other financial-sector institutions.

Other Control Variables

As additional control variables, we include age, female, children in household, ethnicity (NZ European, Maori, or Asian; reference: other), region (Auckland or North Island; reference: South Island), community size (rural or town; reference: city), education (secondary school qualification, polytechnic qualification or trade certificate, Bachelor's degree or higher; reference: lower educational qualification), employment category (self-employed full time, self-employed part time, employed full time, employed part time, unemployed, beneficiary, homemaker, student, or retired), risk preferences, and time preferences (standard and hyperbolic discounting).

4. Deriving Hypotheses and Explorative Dimensions

We use our extensive dataset to explore underlying empirical relationships with the aim of discovering novel stylised facts and to test specific economic hypotheses. It will be interesting to discover which of the dimensions we included in our sample are relevant for RBNZ trust. In particular, we have indicators for many dimensions of knowledge. Not only can we distinguish between subjective and objective knowledge, we are also able to discriminate between various types of knowledge within these categories. For instance, central banks interested in receiving more support from the public in the event of a conflict with the government should be interested to find out which specific aspects of objective knowledge affect the population's degree of trust in the bank. In our view, this type of

information could help central banks in more appropriately and effectively designing education programmes.

Another important aspect of the explorative part of our analysis is discovering whether specific channels of information about monetary policy result in different degrees of trust. For instance, Hayo and Neuenkirch (2014) find that newspaper readers in Germany have less trust in the ECB than those who obtain information from other sources. Moreover, it would be interesting to see whether subjective or objective knowledge matters more for RBNZ trust or whether both dimensions are simultaneously relevant. Hayo and Neuenkirch (2014) show that trust in other government institutions is an important determinant for trust in the ECB. However, their study does not control for an even broader notion of trust, namely, general trust, which is often used as a proxy for social capital (Fukuyama 1995). Thus, it will be interesting to investigate whether general trust is more or less important than institutional trust. Finally, any significant results that we find could be used for constructing hypotheses to be tested in the future using different datasets.

Our specific economic hypotheses are based on behavioural arguments from the extant literature. First, we expect that the economically better-off are more likely to trust the RBNZ, which, as argued above, is a highly transparent central bank devoted to maintaining price stability. That these respondents are well-off implies that they likely have benefitted from the existing economic system, of which the RBNZ is an important institution. Second, it could be that monetary policy affects the distribution of income in a country (Nakajima 2015). We would expect that if the RBNZ is perceived to be distributionally neutral, lenders and borrowers should report the same the level of trust. Moreover, we would not expect to find that respondents who are in favour of more government redistribution are significantly more or less trustful than those who are against more government distribution. Third, assuming that monetary policy in New Zealand is conducted in a generally appropriate way, and we believe this to be the case (see Section 2), those who have more monetary policy knowledge—both objective and subjective—should be more likely to trust RBNZ. Fourth, respondents who are more trusting in public institutions or, even just more trusting in general, are expected to have relatively high trust in RBNZ. Fifth, those who are more interested in RBNZ are more likely to be more trusting of it. Sixth, respondents who keep up with the RBNZ are also expected to be more trusting. Seventh, those who believe that democratically elected politicians are doing a good job are less likely to trust an institution run by bureaucrats. Eight, if the RBNZ is perceived to be politically neutral, there should be no impact of party preferences on RBNZ trust. We summarise our hypotheses in Table 2.

Table 2: Economic hypotheses regarding RBNZ trust

Hypothesis	Expected effect on RBNZ trust
Better economic situation	+
Preferences for redistribution	0
Higher objective monetary policy knowledge	+
Higher subjective monetary policy knowledge	+
Greater degree of nonspecific trust	+
More interest in RBNZ	+

Intensive information search on RBNZ	+
Government perceived to be effective	–
Satisfied with politicians' performance	–
RBNZ perceived to be politically neutral	0

5. Explaining Trust in RBNZ Using an Ordered Logit Model

We employ ordered logit models to estimate the impact of our indicators of public trust in RBNZ. We have 51 explanatory variables, the influence of which we estimate jointly in a general model. Including all potentially relevant variables accounts for both omitted variable bias and standard-error-decreasing complementarity (Hayo 2017). We then derive a parsimonious model using a general-to-specific modelling approach (see Hendry 1993). Given that our sample size is fairly large, we employ standard errors based on White (1980), which are biased but consistent even in the case of heteroscedasticity. The left-hand side of Table 3 sets out estimates from the general model. While the model is jointly significant (see diagnostic information (Row 2) it is apparent that most variables are not individually significant. To determine whether they are insignificant because they do not add additional explanatory power or because they are subject to collinearity, we test these variables as a group. Diagnostic information (Row 3) shows that we cannot reject the testing-down restriction (coefficients are jointly equal to zero) at any reasonable level of significance. To enhance estimation efficiency, we impose the corresponding zero restrictions and obtain the reduced model shown on the right-hand side of Table 3.

Table 3: Explaining trust in RBNZ (ordered logit model)

	General model		Reduced model	
Variables	Coefficients	Standard errors	Coefficients	Standard errors
1) Economic situation				
Income (in NZD1,000)	2.15	3.90		
Net personal wealth (in NZD1,000)	0.33	0.97		
Saving position:				
Neither saver nor debtor		Reference		
Saver	-0.06	0.44		
Debtor	0.28	0.47		
Satisfaction with financial situation	0.16**	0.08	0.13*	0.07
2) Monetary policy knowledge				
Objective knowledge:				
Inflation rate last year	-0.33	0.25		
Official Cash Rate	-0.07	0.21		
RBNZ main policy objective	0.57***	0.16	0.55***	0.16
Responsibility interest rate setting	0.33*	0.18	0.33**	0.15
Monetary policy setting	0.15	0.18		
Mean inflation rate agreed in PTA	0.45	0.48		
Subjective knowledge:				
Feels informed about RBNZ	0.17	0.12		
Feels informed about inflation	0.32***	0.11	0.32***	0.08
Feels informed about OCR	-0.16	0.10		
Heard of PTA	-0.01	0.27		
3) Nonspecific trust				
Institutional trust	1.16***	0.08	1.15***	0.07
General trust	0.02	0.17		
4) Interest and information search				
Desire to be informed about RBNZ	0.28***	0.10	0.27***	0.08
Information channels:				
Information through other means		Reference		
Information through newspaper	0.24	0.32		
Information through radio	0.16	0.30		
Information through TV	0.08	0.23		
Information through Internet	-0.01	0.24		
Information through friends	0.21	0.26		
Information through colleagues	0.002	0.38		
Information through own bank	-0.18	0.33		
Information through financial sector	0.19	0.35		
Do not keep up with RBNZ	-0.49*	0.25	-0.55***	0.21

5) Politicians and government				
Politicians act in public's best interest	0.04	0.09		
Politicians long-term oriented	-0.27***	0.09	-0.16**	0.07
Politicians fiscally competent	0.07	0.10		
Confidence in politicians	0.06	0.10		
Egalitarian attitude	-0.02	0.08		
Political party preferences				
Other parties/no answer			Reference	
National Party	0.03	0.22		
Labour Party	0.38	0.23		
Green Party	-0.37	0.24		
New Zealand First	0.27	0.32		
6) Socio-demographic indicators				
Female	-0.16	0.17		
Age	0.08**	0.04	0.09***	0.03
Children	-0.04	0.19		
Married	0.06	0.18		
Educational attainment				
No qualification/primary school			Reference	
Secondary school qualification	0.17	0.29		
Polytechnic qualification or trade certificate	0.11	0.30		
Bachelor's degree or higher	0.05	0.29		
Employment status				
Other employment/no answer			Reference	
Self-employed full-time	1.03**	0.51	0.92***	0.27
Self-employed part-time	0.53	0.58		
Employed full-time	0.03	0.45		
Employed part-time	0.34	0.49		
Homemaker	-0.44	0.52		
Student	0.16	0.51		
Retired	-0.16	0.53		
Unemployed	0.02	0.61		
Beneficiary	0.33	0.61		
Community size				
City			Reference	
Town	-0.14	0.20		
Rural	0.09	0.22		

Region				
South Island			Reference	
North Island	0.31	0.20		
Auckland	0.06	0.22		
Ethnic background				
Other ethnic background			Reference	
NZ European	0.27	0.24		
Maori	-0.04	0.48		
Asian	0.03	0.32		
Risk and time preferences				
Risk propensity	-0.09	0.12		
Future-oriented time preference	-0.26	0.55		
Short-run impatience	0.50	0.56		
Cut value 1	-1.01	0.96	-1.80***	0.40
Cut value 2	1.11	0.94	0.25	0.37
Cut value 3	4.49***	0.96	3.49***	0.41
Cut value 4	8.09***	1.00	6.98***	0.47
(1) No. of observations	807		807	
(2) Test of joint significance	F(62, 5.5e+07)=7.04***		$Chi^2(10)$=405***	
(3) Testing-down restriction	F(52, 3.3e+07)=0.89			
(4) Testing-down restriction (normal SE)	F(52,2.2e+08)=0.78			

Notes: White (1980) robust standard errors are used. The general model is estimated taking into account that income and wealth are based on 10 imputations. *, **, and *** indicate significance at a 10%, 5%, and 1% level, respectively.

All the variables identified as significant in the general model remain significant in the reduced model. As can be seen from diagnostic information (1) in Table 3, despite imputing income and wealth, we lost almost 20 per cent of our respondents due to missing answers across the large number of explanatory variables. Hence, we can improve estimation efficiency by re-estimating the reduced model from Table 3 with as many observations as possible. The results of estimating the reduced model with 923 observations are shown in Model 1 of Table 4.

In addition to realising efficiency gains, we can use the estimates in Model 1 of Table 4 for parameter constancy tests against the reduced model in Table 3. First, we find that all the variables identified through our testing-down process remain significant. Second, by combining the reduced model and Model 1 using a seemingly unrelated regression framework, we test whether the magnitude of the coefficients remains constant across the two equations. The corresponding test statistics is not significant at a 10 per cent level ($Chi^2(10) = 15.8$). Thus, we cannot reject parameter constancy. Given that the sample size increases by 116 observations, that is, by almost 15 per cent, we interpret this as strong evidence of robustness.

Table 4: Analysing the robustness of the reduced model in Table 1

	Model 1		Model 2		Model 3	
Variables	Coef.	SEs	Coef.	SEs	Coef.	SEs
1) Economic situation						
Satisfaction with financial situation	0.13**	0.07	0.13**	0.07	0.14**	0.07
2) Monetary policy knowledge						
Objective knowledge:						
RBNZ main policy objective	0.43***	0.15	0.43***	0.14	0.39***	0.15
Responsib. interest rate setting	0.35**	0.14	0.35**	0.15	0.35**	0.14
Subjective knowledge:						
Feels informed about inflation	0.34***	0.07	0.34***	0.07	0.34***	0.07
3) Nonspecific trust						
Institutional trust	1.19***	0.07	1.19***	0.06	1.17***	0.07
4) Interest and information search						
Desire to be informed about RBNZ	0.27***	0.08	0.27***	0.07	0.29***	0.08
Information channels:						
Does not keep up with RBNZ	-0.49**	0.21	-0.49**	0.22	-0.52**	0.21
5) Politicians and government						
Politicians long-term oriented	-0.15**	0.06	-0.15**	0.06	-0.14**	0.06
6) Socio-demographic indicators						
Age	0.11***	0.02	0.11***	0.02	0.11***	0.02
Self-employed full time	0.93***	0.25	0.93***	0.28	0.99***	0.26
Cut value 1	-1.66***	0.37	-1.66***	0.38	-1.56***	0.37
Cut value 2	0.48	0.35	0.48	0.35	0.59	0.35
Cut value 3	3.75***	0.39	3.75***	0.37	3.83***	0.39
Cut value 4	7.19***	0.45	7.19***	0.43	7.24***	0.45
No. of observations	923		923		923	
Test of joint significance:	$Chi^2(10)$ = 456***		$Chi^2(10)$ = 755***		F(10, 913) = 45.1***	

Notes: White (1980) robust standard errors are used for Model 1, normal standard errors for Model 2, and population weights for Model 3. *, **, and *** indicate significance at a 10%, 5%, and 1% level, respectively.

Although employing robust standard errors has become standard in econometric applications and is recommended by some researchers as part of a perceived 'credibility revolution in empirical economics' (Angrist and Pischke, 2010), not everyone agrees that

their use is appropriate. For instance, Leamer (1988) talks about 'White-washing' standard errors and King and Roberts (2015) argue that the finding of notable differences between normal standard errors and robust standard errors is a clear sign of model misspecification. Thus, in Model 2 of Table 4, we present estimates based on normal standard errors. When comparing the results with those from Model 1, it is apparent that none of our conclusions is affected in any way. We interpret this result as an indication that our model is well-specified.

While Research New Zealand attempted to provide a perfectly representative dataset of the New Zealand population, this was, of course, not completely successful. In Model 3 of Table 4, we present estimates explicitly taking into account the survey nature of our data and applying weights based on the population distribution of the variables age, sex, and region. We again find that our results are robust, as the changes in coefficient are so small that they do not affect our conclusions.

We also consider the consequences of including those variables in Model 1 of Table 4 that are measured using an ordinal scale (Satisfaction with financial situation, Feels informed about inflation, Desire to be informed about RBNZ, Politicians long-term oriented, Age) in the form of dummy variables. Splitting up these variables leads to qualitatively similar results.[4] Considering that we have increased the number of regressors from 10 to 33, the improvement in model fit is tiny, as the pseudo-R^2 only rises from 0.306 to 0.314. Moreover, although the estimated coefficients for the dummies do not imply a perfect linear adjustment, they are reasonably close.[5] Finally, none of the variables already included as dummies in Model 1 of Table 4 loses its significance when splitting up the ordinal variables into dummies.

6. Interpreting the Estimation Results

We use Model 1 of Table 4 as the basic specification for interpreting our estimation results. Given that the estimated coefficients of ordered logit models are difficult to interpret, we compute average marginal effects, which are displayed in Table 5. To economise on space, we discuss the effects for only the extreme categories, that is, 'No Trust at All' and 'Complete Trust'. Note, however, that the largest impact of all explanatory variables is on category 4 of the RBNZ trust variable.

Moving from the top to bottom of Table 5, we find that of our income indicators, only 'Satisfaction with financial situation' has a statistically significant effect on RNBZ trust. A one-unit increase in this variable, which is coded in five answer categories, leads to an increase (decrease) in the probability of choosing 'Complete Trust' ('No Trust at All') by 0.8 percentage points (pp) (0.4 pp). To get a rough idea about the magnitude of a realistic change, we consider a one standard deviation (1.2) increase in 'Satisfaction with financial

[4] Results are omitted due to space constraints, but are available on request.

[5] Satisfaction with financial situation (estimated coefficients for dummies: 0.06, –0.22, 0.31, 0.39), Feels informed about inflation (estimated coefficients for dummies: 0.61, 0.75, 1.03, 1.77), Desire to be informed about RBNZ (estimated coefficients for dummies: 0.31, 0.25, 0.15, 0.10), Politicians long-term oriented (estimated coefficients for dummies: –0.17, –0.42, –0.41, –0.46), Age (estimated coefficients for dummies: –0.24, –0.47, –0.43, –0.55, –0.25, 0.14, 0.27, 0.19, 0.19, 0.21, 0.79, 0.99).

situation' and find that such a change would raise (lower) the likelihood of choosing 'Complete Trust' ('No Trust at All') by about 1 pp (0.5 pp). Thus, we find weak support for the first of the economic hypotheses listed in Table 2. 'Satisfaction with financial situation' is only significant at a 5 per cent level and the economic relevance of a change in this explanatory variable is small. Note that all objective indicators of the respondents' economic situation are insignificant, suggesting that central bank trust in New Zealand is not dependent on economic status.

Table 5: Average marginal effects of the variables from Model 1 of Table 3 on the probability of choosing a particular answer to the question on RBNZ trust (in percentage points)

Variables	No Trust at All	2	3	4	Complete Trust
Satisfaction with financial situation	-0.4	-0.6	-0.8	1.1	0.8
RBNZ main policy objective	-1.4	-2.0	-2.6	3.6	2.4
Responsibility interest rate setting	-1.1	-1.7	-2.1	2.9	2.0
Feels informed about inflation	-1.1	-1.6	-2.1	2.9	1.9
Institutional trust	-3.8	-5.7	-7.1	9.9	6.7
Desire to be informed about RBNZ	-0.9	-1.3	-1.6	2.3	1.5
Does not keep up with RBNZ	1.6	2.3	2.9	-4.1	-2.8
Politicians long-term oriented	0.5	0.7	0.9	-1.3	-0.9
Age	-0.4	-0.5	-0.7	0.9	0.6
Self-employed full time	-3.0	-4.4	-5.6	7.7	5.2

Note: The significance levels for the marginal effects are the same as the ones for the variables in Model 1 of Table 2.

This result is in contrast to most of the literature on the ECB, which reports that central bank trust rises with higher income. Is our finding due to sampling another country and/or central bank or a consequence of our much larger set of explanatory variables? It turns out that it is our richer set of explanatory variables that is responsible (results available on request). While there is not one variable the removal of which makes the objective income indicator significant, excluding the group of variables referring to subjective and objective knowledge, as well as interest in monetary policy, from Model 1 of Table 4 causes per capita household income to become significant. This suggests that the importance of income for central bank trust reported in the literature is not due to what is typically conjectured, namely, the respondent's economic position. Instead, income should be interpreted as a noisy proxy for different degrees of objective and subjective knowledge and interest in monetary policy. Moreover, since we find a positive correlation between income and monetary policy knowledge/interest, it could also be the case that being economically well-off increases interest in and knowledge of monetary policy. Put differently, having a higher income could be one reason why people become interested in acquiring knowledge about RBNZ, which, in turn, leads them to have more trust in the central bank.

Regarding our battery of knowledge indicators, we find three significant variables, all of which have a positive influence on RBNZ trust. Hence, we discover evidence supporting the

second and third hypotheses in Table 2. The two significant objective knowledge indicators are 'RBNZ main policy objective' and 'Responsibility interest rate setting'. Although previous literature shows that trust is positively affected by more knowledge, it does not clearly differentiate between types of knowledge. We can derive more precise conclusions. We interpret our results as indicating the importance of raising people's objective knowledge about the general institutional design of monetary policy. Having more specific knowledge, for instance, related to the PTA, the conduct of monetary policy, or the current state of monetary policy does not appear to be relevant for trust in RBNZ. In contrast, trust is enhanced when respondents feel that they know a lot about the primary monetary policy target in New Zealand, the inflation rate. In terms of the quantitative effects, changing the dummy variable 'RBNZ main policy objective', which is significant at a 1 per cent level, from 0 to 1 raises (lowers) the likelihood of selecting 'Complete Trust' ('No Trust at All') by 2.4 pp (1.4 pp). The impact of changes in 'Responsibility interest rate setting', which is significant at only a 5 per cent level, is smaller, with marginal effects of 2 pp on the likelihood of choosing 'Complete Trust' and 1.1 pp for 'No Trust at All'. If 'Feels informed about inflation', a subjective knowledge indicator measured on a five-point Likert scale, is increased by one unit, the probability of answering 'Complete Trust' ('No Trust at All') increases by 1.9 pp (1.1 pp). Taking into account its standard deviation (1.1) alters these effects to 2.1 and 1.2, respectively. Thus, we find both the objective as well as the subjective knowledge dimension to be relevant for explaining RBNZ trust. A widely used proxy for knowledge in the literature—level of educational attainment—is not significant in our regression. Is this due to our inclusion of specific knowledge indicators or does education really have no explanatory power? Replacing the three knowledge indicators in Model 1 of Table 4 with the three education dummies included in the general model in Table 3 does not make them jointly significant. Thus, at least in the case of New Zealand, education is not a good proxy for monetary policy knowledge.

Comparing the magnitude of the average marginal effects listed in Table 5 shows that 'Institutional trust', which is significant at a 1 per cent level, has the greatest impact on trust in RBNZ. This result is consistent with our conjecture in Table 2. A one-unit increase in 'Institutional trust' increases (decreases) the probability of choosing 'Complete Trust' ('No Trust at All') by 7 pp (4 pp). The likelihood of selecting a trust level of 4 rises by almost 10 pp after a one-unit increase in 'Institutional trust', which we regard as a strong impact. An increase of 'Institutional trust' by one standard deviation (1.6) raises (lowers) the likelihood of choosing 'Complete Trust' ('No Trust at All') by about 11 pp (6 pp). Thus, 'Institutional trust' has a particularly strong impact on RNBZ trust, which reiterates a key finding from Hayo and Neuenkirch's (2014) study of the German population's trust in the ECB. In contrast, general trust, which has been identified as an important variable in other contexts, does not have a significant impact on RBNZ trust after controlling for institutional trust. However, when replacing 'Institutional trust' in Model 1 of Table 4 with 'General trust', the latter becomes significant at a 1 per cent level. This suggests that 'General trust' can be used as a proxy in studies on central bank trust when no institutional trust indicator is available.

'Desire to be informed about RBNZ', coded on a five-point scale, is also significant at a 1 per cent level and has a positive impact on RBNZ trust: a one-unit change increases (decreases)

the probability of selecting 'Complete Trust' ('No Trust at All') by 1.5 pp (0.9 pp). This is in line with the expected sign in Table 2. Computing the impact of a one standard deviation change (1.1) yields an impact of almost 1.7 pp and 1 pp, respectively. Thus, people's interest in monetary policy appears to be a moderately important determinant of RBNZ trust. The willingness of respondents to acquire information about the RBNZ is relevant, too: those who 'Do not keep up with RBNZ' have, at a 1 per cent level, significantly less trust. For this group, the likelihood of answering 'Complete Trust' ('No Trust at All') falls (increases) by 2.8 pp (1.6 pp).

None of the information channels are significant. Hence, for RBNZ trust, it appears to be irrelevant how citizens' acquire monetary policy information. This stands in sharp contrast to Hayo and Neuenkirch's (2014) finding that newspaper-reading respondents have significantly less trust in the ECB than those who inform themselves by different means. However, we believe that the conflicting results could be explained by different degrees of topic saliency, as the RBNZ's monetary policy in 2016 was much less critically discussed in New Zealand's media than was the ECB's monetary policy by the German media in 2011. In addition, the insignificant estimates could be interpreted as evidence of news reports about RBNZ being neutral across different information channels.

Another novel finding of our study is that respondents' attitudes towards politicians matter for RBNZ trust. We do not find any evidence for the hypothesis listed in Table 2 that respondents who think that the government is effective have more trust in the ECB. However, we do discover that those who agree more (on a five-point scale) that politicians are long-term oriented have a lower probability of trusting the RBNZ at a 5 per cent significance level. This is consistent with the corresponding hypothesis in Table 2 and can be interpreted as evidence that those who believe that politicians are concerned about New Zealand's long-term well-being are distrustful of an institution that is independent of government or democratic control. A one-unit increase in 'Politicians long-term oriented' leads to an increase (decrease) in the probability of choosing 'Complete Trust' ('No Trust at All') of 0.9 pp (0.5 pp). Considering the variable's standard deviation (1.2) yields values of 1 pp and 0.6 pp, respectively.

The insignificant variables are interesting. Trust in RBNZ is not affected by respondents' attitude towards inequality, which suggests that monetary policy is not perceived as an important factor for the income distribution. This result can be interpreted in two ways. First, the discussion in the economics literature on the effects of monetary policy on inequality may not be reflected in normal people's perception of how monetary policy works. Second, those respondents who think that monetary policy increases income inequality are exactly offset by those who believe the reverse. When we look at the unconditional relationship between the two variables, we find that the hypothesis that they are independently distributed can be rejected at a 1 per cent level of significance.[6] Kendall's tau-b rank correlation coefficient is –0.08, which shows that the two variables are weakly negatively correlated, that is, respondents with a stronger preference for income equality

[6] Likelihood ratio test: $Chi^2(16) = 46.6***$.

are less likely to fully trust the RBNZ. However, this effect does not survive after controlling for other influences.

None of the political party preferences is significant. When we study the relationship unconditionally, we find that respondents supporting the National Party, the Labour Party, and New Zealand First have significantly more trust in the RBNZ than those supporting other parties. However, this effect is lost when controlling for other factors and hence, when conditioning on these variables, the RBNZ appears to be politically neutral. Thus, considering our insignificant findings on (i) savers/borrowers, (ii) attitudes towards inequality, and (iii) political party preferences, we conclude that the RBNZ is perceived to be distributionally and politically neutral, which is in line with the conjectures in Table 2.

Older and self-employed respondents put more trust in the RBNZ. Both variables are significant at a 1 per cent level. A five-year age increase raises (lowers) the likelihood of answering 'Complete Trust' ('No Trust at All') by almost 0.6 pp (0.4 pp). Considering the standard deviation (3.3) leads to an impact of 2 pp and 1.3 pp, respectively. For those who are self-employed on a full-time basis, the probability of selecting 'Complete Trust' ('No Trust at All') is higher (lower) by more than 5 pp (3 pp). Thus, both effects have a moderate influence on RBNZ trust. All other socio-demographic variables are insignificant, that is, location, ethnic, demographic, and psychological influences such as time or risk preferences do not appear to affect New Zealanders' trust in RBNZ.

7. Conclusion

Many economists emphasise the potential advantages of central banks being free of political influence, especially in inflation targeting regimes. However, such freedom creates an accountability problem, as the population no longer has any influence on monetary policy through the usual democratic process. Arguably, this implies that the central bank has an obligation to become more directly accountable to the population than, say, the Treasury, which is headed by a politician who holds the post based on the outcome of an election. Moreover, in times of conflict between government and the central bank, it can be crucial for the latter to receive public support for its position. Thus, for both ensuring accountability and warding off political influence, it is important that the population supports the central bank. Following the extant literature, we operationalise central bank support empirically by the degree of trust the population has in its central bank.

We utilise unique survey data collected in May 2016 to study factors influencing trust in the Reserve Bank of New Zealand (RBNZ). Using this representative sample of 1,000 respondents from the New Zealand population, we show that the RBNZ enjoys a comfortable amount of trust. The level of public trust is not only higher than that enjoyed by other important government institutions in New Zealand or worldwide, it is also higher than the trust Germans have in the ECB. It thus appears that the RBNZ and its policies are supported by New Zealanders.

In the analytical part of the paper, we study a multitude of factors that could have an impact on RBNZ trust. We employ an unprecedented number of explanatory variables, covering six

potentially relevant dimensions: economic situation, monetary policy knowledge, nonspecific trust, interest and information search, politicians and government, and socio-demographic indicators. In a consistent testing-down process, we derive a parsimonious model containing 10 indicators. These variables are significant individually at a 5 per cent level or lower and each of the six dimensions is represented by at least one variable. Extending the sample size by almost 15 per cent and computing a parameter constancy test demonstrates that our estimation results are robust.

We use this model to explore new empirical relationships as well as test economic conjectures, with success on both fronts. For example, we provide new stylised facts about which aspects of monetary policy are particularly relevant for RBNZ trust. We discover that respondents who put more trust in RBNZ are financially satisfied, have more objective and subjective knowledge, have higher trust in government institutions, are interested in RBNZ, are older, and are self-employed. Quite the reverse impact is found for Respondents who do not acquire information about RBNZ and believe that politicians foster the long-term well-being of their country have less trust in the RBNZ. Institutional trust has the greatest impact, followed by the accumulated impact of the three knowledge variables. Some factors that we thought had potential to influence trust turned out not to contribute to trust in RBNZ after controlling for other factors. First, the objective economic situation of the respondents has no influence. Second, after controlling for institutional trust, individuals' general level of trust does not matter. Third, RBNZ trust is neither significantly influenced by party preferences nor attitudes towards income inequality. Fourth, psychological factors, such as time and risk preferences, have no significant influence on trust in RBNZ. Finally, when it comes to trusting the RBNZ, there are no significant differences between men and women.

A number of findings from the literature on trust in the ECB can be extended to the case of New Zealand. In particular, institutional trust, objective and subjective knowledge, and desire to be informed, as well as age, have been found to be significant predictors of ECB trust (Hayo and Neuenkirch 2014). Thus, our findings provide some external validity for the importance of these variables as general predictors of central bank trust.

Our results lead to several recommendations for the RBNZ should it be interested in increasing the public's trust in itself. There are a number of variables that are clearly outside the (direct) control of monetary policymakers, for example, institutional trust, age, employment status, and individual financial satisfaction. However, monetary policy knowledge and information acquisition are potentially malleable by the central bank. Thus, it might be worthwhile for central banks to spend some effort on improving citizens' knowledge. Central banks already take a variety of approaches towards educating the public (see Fluch 2007), but we now know which specific aspects of monetary policy knowledge are most relevant for raising central bank trust, at least in New Zealand. Specifically, knowing the primary objective of monetary policy as well as being aware of the central bank's independence in terms of monetary policy increase nonprofessionals' trust in the central bank. Thus, concentrating educational efforts on these aspects could increase public trust in the central bank. If such educational efforts could also make people believe that they are well informed about inflation, their trust in the central bank could become even stronger Note that the impact of knowledge is in addition to the positive influence of citizens' desire

to learn about monetary policy. If the RBNZ was able to stimulate interest in monetary policy, New Zealanders' trust in their central bank would likely rise even more.

An important question is whether our results can be generalised to countries other than New Zealand. Given the lack of suitable data, we cannot know with certainty, but it is interesting that among the three knowledge variables available in the survey on Germany discussed in Hayo and Neuenkirch (2014), understanding the main monetary policy objective and knowing that the central bank can use its monetary policy instrument independently have the strongest influence on trust in the ECB.[7] We interpret these similar results as tentative evidence for the external validity of our results for the RBNZ.

Increasing knowledge about and raising interest in central banks is easier said than done, of course. We do not think that survey methodology can provide concrete didactic approaches for increasing interest in and knowledge about monetary policy affairs. However, our survey did identify specific groups characterised by low knowledge of and interest in monetary policy. It might be possible to involve members of these groups in in-depth discussions and, perhaps, learning experiments. Developing appropriate learning tools is an interesting topic for further research. We plan to contribute to such a project by studying determinants of public knowledge and interest in monetary policy.

References

Angrist, J. D. and J.-S. Pischke (2010), The Credibility Revolution in Empirical Economics: How Better Research Design is Taking the Con out of Econometrics, *Journal of Economic Perspectives* 24, 3–30.

Berger, H. and de Haan, J. (1999), A State Within a State? An Event Study on the Bundesbank, *Scottish Journal of Political Economy* 46, 17–39.

Bernanke, B. and F. Mishkin (1997), Inflation Targeting: A New Framework for Monetary Policy? *Journal of Economic Perspectives* 11, 97–116.

Bernanke, B. and M. Woodford (2005), *The Inflation Targeting Debate*, Chicago: University of Chicago Press.

Bjørnskov, C. (2006), The Multiple Facets of Social Capital, *European Journal of Political Economy* 22, 22–40.

Blinder, A. S., M. Ehrmann, M. Fratzscher, J. de Haan, and D.-J. Jansen (2008), Central bank communication and monetary policy: A survey of theory and evidence, *Journal of Economic Literature* 46, 910–45.

[7] These results are not presented in Hayo and Neuenkirch (2014) but are available on request. The relationship between trust and monetary policy knowledge appears to be somewhat weaker in the case of the ECB and the German population. Whether this reflects structural differences between the two countries and/or their central banks, or whether it is due to the German survey having been conducted in 2011 during the European economic and debt crises, is unclear.

Blinder, A. S. and A. B. Krueger (2004), What Does the Public Know About Economic Policy, and How Does it Know it? *Brookings Papers on Economic Activity* 1, 327–87.

Bursian, D. and S. Fürth (2013), Trust Me! I am a European Central Banker, *SAFE Working Paper Series* No. 31. Goethe University Frankfurt.

de Haan J. and W. Kooi (2000), Does Central Bank Independence Really Matter? New Evidence for Developing Countries Using a New Indicator, *Journal of Banking and Finance* 24, 643–664.

Dincer, N. N. and B. Eichengreen (2014), Central Bank Transparency and Independence: Updates and New Measures, *International Journal of Central Banking* 10, 189–259.

Ehrmann, M., M. Soudan, and L. Stracca (2013), Explaining European Union Citizens' Trust in the European Central Bank in Normal and Crisis Times, *Scandinavian Journal of Economics* 115, 781–807.

Farvaque, E., M. A. Hayat, and A. Mihailov (2011), Who Supports the ECB? Evidence from Eurobarometer Survey Data, *Economics & Management Discussion Papers* em-dp2011-04. Henley Business School, Reading University.

Fischer, J. A. V. and V. Hahn (2008), Determinants of Trust in the European Central Bank, *Working Paper Series in Economics and Finance* 695. Stockholm School of Economics.

Fluch, M. (2007), Selected Central Banks' Economic and Financial Literacy Programs, *Monetary Policy and the Economy* Q3/07, OeNB.

Fukuyama, F. (1995), *Trust. The Social Virtues and Creation of Prosperity*, London: Hamish Hamilton.

Geraats, P. M. (2002), Central Bank Transparency, *Economic Journal* 112, F532–F565.

Glaeser, E. L., D. Laibson, J. A. Scheinkman, and C. L. Soutter (2000), Measuring Trust, *Quarterly Journal of Economics* 115, 811–846.

Hadar, L., S. Sood, and C. R. Fox (2013), Subjective Knowledge in Consumer Financial Decisions, *Journal of Marketing Research* 50, 303–316.

Hayo, B. (2017), On Standard-Error-Decreasing Complementarity: Why Collinearity is Not the Whole Story, *Journal of Quantitative Economics*, forthcoming.

Hayo, B. and C. Hefeker (2010), The Complex Relationship Between Central Bank Independence and Inflation, in: P. L. Siklos, M. T. Bohl, and M. E. Wohar (eds.), *Challenges in Central Banking*, Cambridge: Cambridge University Press, 179–217.

Hayo, B. and U. Mazhar (2014), Monetary Policy Committee Transparency: Measurement, Determinants, and Economic Effects, *Open Economies Review* 25, 739–770.

Hayo, B. and E. Neuenkirch (2014), The German Public and its Trust in the ECB: The Role of Knowledge and Information Search, *Journal of International Money and Finance* 47, 286–303.

Hayo, B. and E. Neuenkirch (2015), The Influence of Media Use on Laymen's Monetary Policy Knowledge in Germany, *MAGKS Joint Discussion Paper Series* 11-2015, University of Marburg.

Hayo, B. and F. Neumeier (2016), Survey on New Zealanders' Attitudes Towards and Knowledge of Macroeconomic Policy Issues: Documentation of Survey Methodology and Descriptive Results, *MAGKS Joint Discussion Paper Series* 30-2016, University of Marburg.

Hendry, D. F. (1993). *Econometrics: Alchemy or Science?* Oxford: Blackwell.

Kaltenthaler, K., C. K. Anderson, and W. J. Miller (2010), Accountability and Independent Central Banks: Europeans and Distrust of the European Central Bank, *Journal of Common Market Studies* 48, 1261–1281.

King, G. and M. E. Roberts (2015), How Robust Standard Errors Expose Methodological Problems They Do Not Fix, and What to Do About It, *Political Analysis* 23, 159–179.

Knack, S. and P. Keefer (1997), Does Social Capital Have an Economic Pay-Off? A Cross-Country Investigation, *Quarterly Journal of Economics* 112, 1251–1288.

Leamer, E. E. (1988), Things that Bother Me, *Economic Record* 65, 331–335.

McCallum, B. T. (1995), Two Fallacies Concerning Central-Bank Independence, *American Economic Review* 82, 273–286.

McCallum, B. T. (1997), Crucial Issues Concerning Central Bank Independence, *Journal of Monetary Economics* 39, 99–112.

Nakajima, M. (2015), The Redistributive Consequences of Monetary Policy, *Federal Reserve Bank of Philadelphia Business Review* 2, 9–16.

Persson, T. and G. Tabellini (1993), Designing Institutions for Monetary Stability, *Carnegie-Rochester Conference Series on Public Policy* 39, 53–84.

Putnam, R. (2000), *Bowling Alone: The Collapse and Revival of American Community*, New York: Simon & Schuster.

Roth, F., D. Gros, and F. Nowak-Lehmann (2012), Has the Financial Crisis Eroded Citizens' Trust in the European Central Bank? Panel Data Evidence for the Euro Area 1999–2011, *CERGE Discussion Papers* 124, University of Göttingen.

Svensson, L. E. O. (1999), Inflation Targeting as a Monetary Policy Rule, *Journal of Monetary Economics* 43, 607–654.

Terwey, M. and S. Baltzer (2013), ALLBUS 2012—Variable Report, *GESIS-Variable Reports* No. 2013/16.

Van der Cruijsen, C. A. B., D.-J. Jansen, and J. de Haan (2015), How Much Does the Public Know About ECB's Monetary Policy? Evidence from a Survey of Dutch Households, *International Journal of Central Banking* 11, 169–218.

Walsh, C. E. (1995a), Is New Zealand's Reserve Bank Act of 1989 an Optimal Central Bank Contract? *Journal of Money, Credit, and Banking* 27, 1179–1191.

Walsh, C. E. (1995b), Optimal Contracts for Central Bankers, *American Economic Review* 85, 150–167.

Wälti, S. (2012), Trust No More? The Impact of the Crisis on Citizens' Trust in Central Banks, *Journal of International Money and Finance* 31, 593–605.

White, H. (1980), A Heteroskedasticity−Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity, *Econometrica* 48, 817–838.

Woodford, M. (2003), *Interest and Prices: Foundations of a Theory of Monetary Policy*, Princeton: Princeton University Press.

Zak, P. J. and S. Knack (2001), Trust and Growth, *Economic Journal* 111, 295–321.

Appendix

Table A1: Variable Descriptions

Variable	Coding and Comments	Mean	Standard Deviation	Min	Max
Trust in RBNZ	5-point Likert scale ranging from (1) 'No trust and confidence at all' to (5) 'Complete trust and confidence'; Don't know (coded 3).	3.30	0.96	1	5
Income	In NZD1,000. We added 184 observations through 10 rounds of imputations using: Age, Age squared, education dummies, Saver, Future-oriented time preference, Self-employed full time, Employed full time, Employed part time, Retired, Student, Unemployed, Beneficiary. Descriptive statistics for imputation 10.	34.0	27.1	2.7	240
Net personal wealth	In NZD1,000. We added 224 observations through 10 rounds of imputations using: Age, Age squared, education dummies, Saver, Future-oriented time preference, Self-employed full time, Employed full time, Employed part time, Retired, Student, Unemployed, Beneficiary. Descriptive statistics for imputation 10.	35.2	88.0	-375	500
Saver	Dummy	0.63	0.48	0	1
Debtor	Dummy	0.30	0.46	0	1
Satisfaction with financial situation	Very dissatisfied (coded 1) Dissatisfied (coded 2) Neither satisfied nor dissatisfied (coded 3) Satisfied (coded 4) Very satisfied (coded 5) Don't know (coded 3)	3.31	1.12	1	5
Inflation rate last year	Dummy. Coded as 1, i.e., correct, if the inflation rate given lies between 0 and 1 (correct value 0.3%).	0.15	0.36	0	1
Official Cash Rate	Dummy. Coded as 1, i.e., correct, if it lies between –1.75 and 2.75	0.36	0.48	0	1

	(correct value 2.25%).				
RBNZ main policy objective	Dummy. Coded as 1, i.e., correct, if answer is 'maintain price stability'.	0.41	0.49	0	1
Responsibility interest rate setting	Dummy. Coded as 1, i.e., correct, if answer is 'interest rate set by RBNZ'.	0.56	0.50	0	1
Monetary policy setting	Dummy. Coded as 1, i.e., correct, if answer is 'increase interest rates'.	0.33	0.47	0	1
Mean inflation rate agreed in PTA	Dummy. Coded as 1, i.e., correct, if it lies between 1 and 3 (mid-value PTA = 2%).	0.06	0.23	0	1
Feels informed about RBNZ	Very poor (coded 1), Poor (coded 2), Neither poor nor good (coded 3), Good (coded 4), Very good (coded 5)	2.72	0.96	1	5
Feels informed about inflation	Very poor (coded 1), Poor (coded 2), Neither poor nor good (coded 3), Good (coded 4), Very good (coded 5)	3.42	1.17	1	5
Feels informed about OCR	Very poor (coded 1), Poor (coded 2), Neither poor nor good (coded 3), Good (coded 4), Very good (coded 5)	3.10	1.34	1	5
Heard of PTA	Dummy. Coded as 1 if respondent has heard of the Policy Targets Agreement.	0.15	0.36	0	1
Institutional trust	Principal component based on trust in government, trust in parliament, trust in United Nations, and trust in International Monetary Fund.	-3e-09	1.55	-3.50	4.38
General trust	Dummy	0.34	0.47	0	1
Desire to be informed about RBNZ	Not at all important (coded 1), Unimportant (coded 2), Neither important nor unimportant (coded 3), Important (coded 4), Very important (coded 5), Don't know (coded 3)	3.18	1.06	1	5
Information through newspaper	Dummy	0.11	0.31	0	1
Information through radio	Dummy	0.08	0.27	0	1
Information through TV	Dummy	0.18	0.39	0	1
Information through Internet	Dummy	0.22	0.42	0	1
Information through friends	Dummy	0.12	0.32	0	1
Information through colleagues	Dummy	0.07	0.26	0	1
Information through own bank	Dummy	0.06	0.24	0	1

Information through financial sector	Dummy	0.06	0.24	0	1
Does not keep up with RBNZ	Dummy	0.12	0.32	0	1
Politicians act in public's best interest	5-point Likert scale ranging from (1) 'Most politicians in New Zealand serve the interests of particular groups' to (5) 'Most politicians in New Zealand act with the general public's best interests in mind'.	3.02	0.93	1	5
Politicians long-term oriented	5-point Likert scale ranging from (1) 'Most politicians are only concerned about the next election' to (5) 'Most politicians are concerned about New Zealand's long-term well-being'.	2.38	1.15	1	5
Politicians fiscally competent	5-point Likert scale ranging from (1) 'The Government wastes the revenue it collects in taxes' to (5) 'The Government conscientiously manages the revenue it collects in taxes'.	2.73	1.11	1	5
Confidence in politicians	5-point Likert scale ranging from (1) 'I do not have confidence in New Zealand politicians' to (5) 'Overall, I have confidence in New Zealand politicians'.	2.59	1.12	1	5
Egalitarian attitude	5-point Likert scale ranging from (1) 'To encourage individual effort, the difference between people's incomes should be greater' to (5) 'People's incomes should be more equal'.	3.32	1.20	1	5
National Party	Dummy	0.29	0.45	0	1
Labour Party	Dummy	0.23	0.42	0	1
Green Party	Dummy	0.14	0.34	0	1
New Zealand First	Dummy	0.08	0.28	0	1
Female	Dummy	0.52	0.50	0	1
Age	5-year intervals starting from 18 years	6.58	3.33	1	13
Children	Dummy	0.31	0.46	0	1
Married	Dummy	0.62	0.48	0	1
Secondary school qualification	Dummy	0.26	0.44	0	1
Polytechnic qualification or	Dummy	0.20	0.40	0	1

trade certificate					
Bachelor's degree or higher	Dummy	0.41	0.49	0	1
Self-employed full time	Dummy	0.06	0.24	0	1
Self-employed part time	Dummy	0.05	0.22	0	1
Employed full time	Dummy	0.38	0.49	0	1
Employed part time	Dummy	0.11	0.32	0	1
Homemaker	Dummy	0.06	0.24	0	1
Student	Dummy	0.08	0.27	0	1
Retired	Dummy	0.12	0.33	0	1
Unemployed	Dummy	0.05	0.21	0	1
Beneficiary	Dummy	0.04	0.20	0	1
Town	Dummy	0.28	0.45	0	1
Rural	Dummy	0.20	0.40	0	1
North Island	Dummy	0.43	0.50	0	1
Auckland	Dummy	0.32	0.47	0	1
NZ European	Dummy	0.68	0.47	0	1
Maori	Dummy	0.04	0.19	0	1
Asian	Dummy	0.10	0.30	0	1
Risk propensity	Continuous variable which varies between −1 (maximum risk aversion) and +1 (maximum risk propensity). We assessed the interviewees' risk preferences by confronting the interviewees with the choice of either receiving a safe payoff or taking part in a lottery (for more information, see Hayo and Neumeier 2016).	0.03	0.65	-1	1

Future-oriented time preference	Continuous variable running from 0 (completely impatient) to 1 (completely patient). Two experiments are conducted to assess the respondents' time preferences in order to account for the fact that many people are more patient in the long run than in the short run (for more information, see Hayo and Neumeier 2016).	0.61	0.28	0.29	1
Short-run impatience	Continuous variable running from 0 (completely impatient) to 1 (completely patient). Two experiments are conducted to assess the respondents' time preferences in order to account for the fact that many people are more patient in the long run than in the short run (for more information, see Hayo and Neumeier 2016).	0.56	0.27	0.29	1

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