Reference: 20210012

16 February 2021

Dear

Thank you for your Official Information Act request, received on 18 January 2021. You requested the following:

- *Reserve Bank of New Zealand Report 5696: Reserve Bank Financial System Roundup August 2020*
- *Aide Memoire T2020/2661: August 2020 Monetary Policy Statement*
- *Treasury Report T2020/2699: Indemnifying Alternative Monetary Policy – August 2020*
- *Reserve Bank of New Zealand Report 5709: Extension of Loan Deferral Guidance – Announcement & Talking Points*
- *Treasury Report T2020/2965: Experimental estimates of New Zealand's Wealth Distribution*

On 1 February, the requests for the first and fourth items above were transferred to the Reserve Bank.

Information being released

Please find enclosed the following documents:

Item	Date	Document Description	Decision
1.	6 August 2020	Aide Memoire: August 2020 Monetary Policy Statement	Release in part
2.	6 August 2020	Treasury Report: Indemnifying Alternative Monetary Policy – August 2020	Release in part
3.	28 August 2020	Treasury Report: Experimental estimates of New Zealand's wealth distribution	Release in part

I have decided to release the documents listed above, subject to information being withheld under one or more of the following sections of the Official Information Act, as applicable:

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PO Box 3724
Wellington 6140
New Zealand

tel. +64-4-472-2733

https://treasury.govt.nz

- personal details, under section 9(2)(a) – to protect the privacy of natural persons, including that of deceased natural persons,

- advice still under consideration, section 9(2)(f)(iv) – to maintain the current constitutional conventions protecting the confidentiality of advice tendered by Ministers and officials,

- names and contact details of officials, under section 9(2)(g)(ii) – to maintain the effective conduct of public affairs through protecting ministers, members of government organisations, officers and employees from improper pressure or harassment,

- confidential information, under section 9(2)(h) – to maintain legal professional privilege; and

- direct dial phone numbers of officials, under section 9(2)(k) – to prevent the disclosure of information for improper gain or improper advantage.

Direct dial phone numbers of officials have been redacted under section 9(2)(k) in order to reduce the possibility of staff being exposed to phishing and other scams. This is because information released under the OIA may end up in the public domain, for example, on websites including Treasury's website.

In making my decision, I have considered the public interest considerations in section 9(1) of the Official Information Act.

Please note that this letter (with your personal details removed) and enclosed documents may be published on the Treasury website.

This reply addresses the information you requested. You have the right to ask the Ombudsman to investigate and review my decision.

Yours sincerely

Renee Philip
Manager, Macroeconomics and Fiscal Policy

20210012
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Reference: T2020/2661   MC-1-1-1 (Monetary)

**TE TAI ŌHANGA
THE TREASURY**

Date: 6 Aug 2020

To: Minister of Finance (Hon Grant Robertson)

Deadline: Prior to meeting at 2:30pm, Monday 10 August

Aide Memoire: August 2020 Monetary Policy Statement

You are meeting with the Reserve Bank Governor and the Secretary to the Treasury on Monday 10 August at 2:30pm ahead of the August Monetary Policy Statement (MPS). The decision on the Official Cash Rate (OCR) setting and Alternative Monetary Policy (AMP) tools will be announced at 2:00pm on Wednesday 12 August. This meeting provides you with an opportunity to keep informed about the Reserve Bank's (the Bank's) views on the economic outlook and risks.

This note provides a summary of key aspects of the Bank's initial August MPS baseline scenario. As the Bank's projections were not finalised at the time of writing, they are subject to change.

Key points

- There has been no change to the OCR since March, at which time the Monetary Policy Committee (MPC) committed to 0.25% for 12 months. In May, the Bank announced an increase in its Large-Scale Asset Purchase (LSAP) programme to $60 billion over 12 months from the previous $33 billion limit.

- The Bank expects an improved near-term outlook due to the shorter-than-expected lockdown and significant frontloaded fiscal stimulus. This improvement is expected to be offset in the medium term by the impact of expected extension of border restrictions on services exports, migration, and residential housing demand.

- The Bank expects inflation to fall below the target band of 1-3 percent until late 2022 but still return to the 2 percent target mid-point by the end of the forecast horizon. Unemployment is assumed to remain elevated in the medium-term.

- As of 6 August, markets have not priced in an OCR reduction for the August decision but have priced in reductions in 2021.

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1. Talking points

You may wish to ask the Governor:

- What economic impact does the Bank expect a second domestic outbreak of COVID-19 could have?

- What are the Bank's views on the impact so far of the additional support provided by the LSAP programme?

- What is the Bank's view of the outlook for unemployment and underutilisation?

- What economic impact does the Bank expect that the current outbreak in Australia to have and how might it flow through to New Zealand?

- What is the Bank's view of the exchange rate appreciation?

2. August MPS forecasts

The economic impact from COVID-19 is expected to be less severe in the near-term with a muted rebound in the medium-term

- The Bank is projecting the decline in economic growth caused by the COVID-19 pandemic and related containment measures to be less severe than in the May MPS. A faster return to Alert Level 1 and a higher proportion of employees reporting to have worked from home during lockdown have driven this improvement. The Treasury, the Bank and Stats NZ's monthly New Zealand Activity Index (NZAC), as well as other timely indicators, have captured this near-term improvement. The Bank is expecting a quarterly contraction of 15.8 percent in 2020 Q2, smaller than the 21.8 percent contraction forecast in the May MPS.

- The Bank expects the level of GDP to remain low with annual GDP in the year ending December 2020 falling by 6.2 percent, although this is a smaller fall than expected in the May MPS (8.2 percent). The end of the Wage Subsidy Scheme, border closures, and low business and consumer confidence are expected to limit growth.

Frontloaded government spending supports the near-term outlook

- The Bank has assumed $60.5 billion of fiscal stimulus within its forecast horizon, which will provide near-term support to private consumption and GDP. The Bank has assumed each dollar of spending has a larger impact on growth and is more effective than was assumed in the May MPS forecasts. Previously, the Bank have assumed roughly one-third of this spending will flow through to domestic growth. This proportion incorporated assumptions on how much public investment 'crowds out' private investment, and how much of the investment is spent on imports. The latter is important because imports do not contribute directly to domestic GDP. The assumption of more effective fiscal stimulus

reflects findings in the economic literature that crowding out is dampened during periods of economic slack.

Extended border closures diminish this positive effect in the medium-term

- The expected border restrictions until the end of 2021 will directly reduce services exports, worsening the trade balance and lowering GDP. The Bank is projecting an extended border closure on the assumption that a vaccine will only become available around mid-2021 and will require a roll-out period of 6 months before it is widely available. The expected impacts will be partially offset by reduced services imports as New Zealanders are unlikely to travel internationally.

- Border restrictions are also expected to lower net-migration, with flow-on impacts for house price inflation and residential investment. These will dampen growth in both economic activity and productive capacity.

- The Bank is expecting the impact of border restrictions to be magnified through low business and consumer confidence, with business investment particularly affected.

- There is upside risk to these assumptions. A vaccine may become available earlier, or travel bubbles may form prior to the end of 2021.

The trade-weighted index has appreciated

- The New Zealand dollar has appreciated around 8-10 percent on a trade-weighted basis relative to the baseline scenario in the May MPS. The Bank believes this appreciation reflects an increase in global investors' risk appetite, stronger than expected export prices, and lower foreign interest rates.

- The appreciation has resulted in a significant reduction in the Bank's tradables inflation forecast. A faster than expected rebound in global oil prices has partly offset the higher New Zealand dollar in the near-term.

Inflation and employment

- The Bank projects inflation to be below the 1-3 percent target band in the near-term before reaching the 2 percent target mid-point by the end of the forecast horizon in 2023.

- Annual inflation is expected to fall by the start of 2021 as spare capacity emerges. The assumed ongoing elevated level of the New Zealand dollar also restrains tradables inflation in the near-term. Inflation is projected to gradually increase by June 2023 as rising economic activity reduces slack in the economy, partially offset by global import price growth.

- Unemployment is expected to peak just above 8 percent later in 2020 before declining to 5.8 percent by the end of 2023. The unemployment rate is assumed

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to decline slowly as some who lost jobs in sectors hard-hit by COVID-19 take time to re-skill and find new employment. The Bank's projected unemployment excludes the latest unemployment rate for the June 2020 quarter of 4 percent.

Sarah Unwin, Graduate Analyst, Macroeconomic and Fiscal Policy, s9(2)(k)
Renee Philip, Manager, Macroeconomic and Fiscal Policy, s9(2)(k)

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TE TAI ŌHANGA
THE TREASURY

Treasury Report: Indemnifying Alternative Monetary Policy – August 2020

Date:	6 August 2020	Report No:	T2020/2699
		File Number:	MC-1-1-1-2

Action sought

	Action sought	Deadline
Hon Grant Robertson **Minister of Finance**	**Sign** the attached indemnity for further Large Scale Asset Purchases by the Reserve Bank	10 August 2020
	Sign or provide feedback on the attached letter signalling your support for potential Funding for Lending Programmes	
	Refer this report to Associate Minsters of Finance	

Contact for telephone discussion (if required)

Name	Position	Telephone		1st Contact
Elle Hughes	Analyst, Macroeconomic and Fiscal Policy	s9(2)(k)	N/A (mob)	✓
Renee Philip	Manager, Macroeconomic and Fiscal Policy		s9(2)(g)(ii)	

Minister's Office actions (if required)

Return the signed report to Treasury.

Arrange for presentation of the attached statement to the House.

Refer this report to Associate Ministers of Finance.

Note any feedback on the quality of the report	

Enclosure: Yes (attached)

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Treasury Report: Indemnifying Alternative Monetary Policy – August 2020

Executive Summary

The Reserve Bank (the Bank) has written to request that you amend and restate the indemnity for Large Scale Asset Purchases (LSAPs) agreed in May 2020, to provide the Monetary Policy Committee (MPC) with options for further monetary easing. Specifically, the Governor has requested that you:

- Extend the duration of the LSAP indemnity – to cover purchases made before August 2022 (extended from 30 September 2021). The extension would cover all three bond types the Bank is currently indemnified for under its LSAP programme.

- Increase the cap on LSAPs of NZGBs **–** to cover purchases of nominal New Zealand Government Bonds (NZGBs) up to 60% of the outstanding market (up from 50%).

Taken together, these amendments would allow approximately $30 billion of further asset purchases. This would bring the upper limit of the indemnified programme to approximately $107 billion of purchases of NZGBs, inflation-indexed bonds and LGFA bonds by August 2022, based on BEFU forecasts. Under the PREFU forecasts, the indemnity would cover a smaller number of bonds (around $100 billion) as forecast bond issuance is lower.

Noting the highly uncertain economic outlook, the Bank considers it important that the MPC has sufficient flexibility in the use of the monetary policy tools at its disposable. Given the economic outlook, we consider it likely that the MPC will need to deploy further monetary easing in order to achieve its monetary policy objectives. We consider the MPC should have the option to provide further monetary easing, insofar as the potential gains outweigh the associated fiscal risk and the potential impact on the functioning of the NZGB market.

Expanding the LSAP indemnity as requested would extend the existing fiscal and market functioning impacts of the programme. Incrementally expanding LSAP indemnities also provides you with scope to evaluate the uncertain (but likely positive and potentially diminishing) monetary benefits of LSAPs, and the uncertain (but likely increasing) risks to market functioning. For now, we consider that the benefits of LSAPs continue to outweigh the associated fiscal and debt management risks.

On balance, officials consider that providing the requested indemnity would be expedient in the public interest. Therefore, we recommend that you sign the attached Letter of Indemnity.

Additionally, the Bank's letter notes that it is actively developing a Funding for Lending Programme (FLP) tool, to enhance the MPC's ability to achieve its economic objectives. The Bank intends to begin consultation with financial institutions on the technical and legal design of the FLP soon. This will help to ensure the tool will be effective and can be implemented quickly by the MPC if needed. The effectiveness, risks and fiscal implications of FLP would partly depend on several as-yet-unknown factors, and the economic context at the time of implementation.

Although the Bank is not currently seeking an indemnity for FLP, we suggest that you reply to the Bank to signal your openness to FLP as an AMP tool. To this end, we have drafted a reply letter that signals your general support for the development of an FLP proposal, for

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your signature or feedback. Should the Bank seek your support for a specific FLP proposal, such as through an indemnity request, we will provide you with a full public interest test assessment at that time.

Recommended Action

We recommend that you:

a   **note** that you recently received preliminary analysis for an anticipated indemnity request from the Reserve Bank (T2020/2364 refers).

Expanding the LSAP Indemnity

b   **note** that, as expected, the Reserve Bank has requested the existing (May 2020) LSAP indemnity be amended and restated to:

      a.   expand the cap for LSAPs of nominal NZGBs from 50% to 60% of outstanding nominal NZGBs, and

      b.   extend the duration of the indemnity for LSAPs, to 31 August 2022.

c   **note** that section 65ZD of the Public Finance Act 1989 empowers the Minister of Finance to give indemnities on behalf of the Crown if it appears to the Minister to be necessary or expedient in the public interest to do so.

d   **agree** that the proposed LSAP indemnity (as set out in the attached Letter of Indemnity) is necessary or expedient in the public interest.

Agree/disagree

e   **sign** the attached Letter of Indemnity.

f   **note** that section 65ZD requires you to present a statement to the House of Representatives if the contingent liability under the indemnity is greater than $10 million.

g   **agree** to present a statement to the House of Representatives that this indemnity has been amended and restated as soon as practicable after the MPC decision on August 12. We have attached suggested wording for your statement.

Agree/disagree

Funding for Lending

h   **note** that, contrary to our earlier expectation, the Reserve Bank is <u>not</u> requesting an indemnity for a Funding for Lending Programme (FLP, i.e. term lending) at this stage.

i   **note** that, instead, the Reserve Bank has informed you they are in the process of developing an FLP, and will keep you informed about the implications for the Crown

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balance sheet and financial risks following consultation with financial institutions on the design of this programme,

j   **agree** to send the attached letter to the Bank to signal your general support for further work to design an FLP as a monetary policy tool.

Agree/disagree

Informing Cabinet

k   **note** the attached talking points to support an oral item at Cabinet on 10 August, informing your colleagues of your decisions.

l   **refer** this report to Associate Ministers of Finance Parker, Shaw and Jones.

Refer/not referred.

Renee Philip
Manager

Hon Grant Robertson
Minister of Finance

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Treasury Report: Indemnifying Alternative Monetary Policy – August 2020

Purpose of Report

1. The Governor of the Reserve Bank (the Bank) has written to you to request that you indemnify further Large Scale Asset Purchases (LSAPs) ahead of the 12 August Monetary Policy Statement (see attached letter). We recently provided you with preliminary analysis on the Bank's expected indemnity request, ahead of receiving the finalised request (T2020/2364 refers). This report provides you with the final LSAP indemnity request, a full public interest assessment of the LSAP indemnity, and analysis of a potential FLP.

2. This report seeks your agreement to the requested indemnity, should you consider that it is necessary or expedient in the public interest.

3. The Reserve Bank has also written to indicate that it is developing a Funding for Lending Programme (FLP) as an alternative monetary policy (AMP) tool. This report informs you of the likely risks, fiscal implications and benefits of an FLP. We recommend that you reply to the Bank signalling your support, in principle, for further work to design and beady to operationalise an FLP.

4. Should you agree to provide the requested LSAP indemnity, this report seeks your agreement to inform the House (Annex 3). Separately, this report provides talking points for you to inform your colleagues of your decisions at Cabinet on 10 August (Annex 2).

Background

5. **You and the Governor have agreed a *Memorandum of Understanding* to manage the fiscal risks associated with the use of AMP tools** (T2020/728 refers). The *Memorandum* agrees a process whereby the Bank may seek indemnities for AMP programmes in advance of their implementation. This allows an assessment of the balance of the potential benefits and fiscal risks. Section 65ZD of the Public Finance Act 1989 (PFA) empowers you, as Minister of Finance, to give an indemnity on behalf of the Crown if it appears to you to be necessary or expedient in the public interest to do so.

6. Under the *Memorandum*, you have so far agreed to indemnify the Bank for interest rate and credit risk losses arising from LSAPs made before 30 September 2021, of:

   - Up to 50% of outstanding nominal NZGBs;

   - Up to 30% of outstanding inflation-indexed NZGBs; and

   - Up to 30% of outstanding LGFA bonds.

7. **The Bank is now seeking to amend and restate the LSAP indemnity agreed in May 2020, to provide the MPC with options for further easing.** The Bank considers that the purchases made to date have been effective in reducing longer-term interest rates and assisting the MPC in meeting its economic objectives. However, the

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economic outlook is highly uncertain. In this environment the Bank considers it important that the MPC has sufficient flexibility in the use of the monetary policy tools at its disposable, while respecting the agreement set out in the *Memorandum.*

8. **Separately, the Bank has written to inform you of its development of a Funding for Lending Programme (FLP) as an AMP tool.** Contrary to our earlier expectation, the Reserve Bank is not requesting an indemnity for an FLP at this stage.

9. To date, the economic response to COVID-19 has relied on a shift toward fiscal policy playing a larger role in economic stabilisation. This was appropriate when cushioning the initial impact of the economic shock. However, it will be important to strengthen the ability of monetary policy to play a more central role in stabilising the economy in the future. Ensuring the Bank has a robust AMP toolkit will assist monetary policy to deliver on its objectives of stable prices and maximum sustainable employment.

Amending and Restating the LSAP Indemnity

The Bank's Request

10. Our previous advice summarised an expected request by the Bank for an expansion of the LSAP indemnity (T2020/2364 refers). We indicated that, pending further analysis, we were likely to conclude that it would be expedient in the public interest to amend the indemnity as requested by the Bank. As expected, the Governor has written to you in accordance with the *Memorandum* requesting further indemnification for LSAPs (see attached letter). Below we provide our final analysis of the request.

11. **We consider that the proposed indemnity is expedient in the public interest.** Annex 1 provides more detailed advice on whether the proposed indemnity meets the public interest test assessment under Section 65ZD of the PFA. It is a matter for you to decide whether the proposed indemnity is necessary or expedient in the public interest.

12. There remains a clearly identifiable public interest in the MPC achieving its economic objectives. We also consider it likely that the MPC will need to deploy further monetary easing in order to achieve its objectives, given the uncertain economic outlook and significant downside risks. In this context, there is a clear public interest in the MPC being able to deploy further AMP tools to meet its economic objectives, when/if it considers that necessary. Therefore, we consider the MPC should have the option to provide further monetary easing, insofar as reasonably balances the associated fiscal risk. While the MPC could increase the pace of LSAPs under the current indemnity if needed, it has limited space to expand the overall programme further within the limits of the current indemnity.

13. **The MPC has limited space to increase its LSAP Programme under the current indemnity.** Based on BEFU 2020 and LGFA forecasts, we estimate that the existing indemnity covers the Bank for purchases of around $74 billion of bonds through to September 2021. This is slightly more than the $60 billion upper limit of the MPC's announced LSAP programme. This programme comprises purchases of nominal NZGBs, inflation-indexed NZGBs and LGFA bonds.

14. The Bank has undertaken $23.9 billion of LSAPs to date, and is continuing to undertake purchases at a rate of around $1 billion per week. If the Bank continued at its current rate of purchases, it would reach the indemnity cap by around June 2021.

15. **The Bank considers the MPC should have scope to increase the scale of LSAPs.** This reflects the uncertain economic outlook and the greater persistence of the shock than originally expected. Therefore, the Governor has requested that you amend and restate the existing LSAP indemnity to:

   a   <u>Extend the duration of the LSAP indemnity</u> – to cover purchases made before August 2022 (extended from 30 September 2021). The extension would cover all three bond types the Bank is currently indemnified for under its LSAP programme. As bond issuance is forecast to grow over time, the later end point on its own is forecast to increase the indemnity's coverage from around $74 billion of bonds to around $91 billion of bonds.

   b   <u>Increase the cap on LSAPs of NZGBs</u> **–** to cover purchases of nominal NZGBs up to 60% of the outstanding market (up from 50%).

16. Taken together, these amendments would allow approximately $32 billion of further asset purchases, based on BEFU 2020 forecasts. This would bring the upper limit of the indemnified programme to approximately $107 billion of purchases of NZGBs, inflation-indexed bonds and Local Government Funding Agency (LGFA) bonds by August 2022. The dollar amount the indemnity covers will depend on actual bond issuance. Forecast bond issuance is lower in PREFU than in BEFU, and using PREFU forecasts the indemnity would cover around $100 billion of purchases.

17. As with the existing indemnity, this would indemnify financial losses arising from realised interest rate and credit risk. Conversely, the Bank would transfer any financial gains arising from the Programme to the Crown. Table 1, below, illustrates the additional LSAPs that the proposed amendments would indemnify.

Table 1 – Indemnity coverage and usage

		Nominal NZGBs	Inflation indexed NZGBs	LGFAs	Total
Current indemnity	Forecast bonds outstanding as at 30 September 2021 ($b)	130.3	18.8	12.2	161.3
	Indemnity coverage (% of market)	50%	30%	30%	-
	Indemnity coverage ($b)	**65.1**	**5.7**	**3.7**	**74.4**
Proposed indemnity	Forecast bonds outstanding as at 31 August 2022 ($b)	162.4	19.9	13.0	195.3
	Indemnity coverage (% of market)	60%	30%	30%	-
	Indemnity coverage ($b)	**97.4**	**6.0**	**3.9**	**107.3**
Actual LSAP purchases undertaken up to 5 August 2020 ($b)		22.0	0.8	1.1	23.9

Note: Forecasts of bonds on issue as of 30 September 2021 and August 2022 have been estimated by interpolating between financial year end forecasts from BEFU 2020 (for NZGBs) and the LGFA Statement of Intent (for LGFA bonds). The nominal and inflation-indexed NZGB split is a draft internal Treasury estimate used for planning purposes.

Effectiveness of LSAPs

18. **To date, the LSAP programme appears to have supported the economy**, as outlined in our previous advice**.** We have been unable to do an extensive review of the LSAP programme's effectiveness yet. However, the programme appears to have reduced yields on NZGB and LGFA bonds, and this is likely to have flowed through to lower interest rates on other financial products and a lower exchange rate, relative to the counterfactual (T2020/2364 refers). The impact of the LSAP programme was

particularly pronounced during the period of heightened market volatility over March and April.

19. The LSAP programme has also complemented fiscal policy, by supporting low Crown financing costs as well as monetary policy objectives. Relative to the counterfactual, LSAPs have likely helped contain upward pressure on NZGB bond yields in the face of the very large increase in bond issuance required to fund COVID-19 fiscal support measures.

20. **We expect the effectiveness of further LSAPs may diminish, but will still be positive.** The potentially diminishing effectiveness of LSAPs largely reflects that market volatility has eased. Therefore, LSAPs are less vital for supporting market functioning now, compared to when the programme was initiated. However, it remains important for the Bank to have capacity to credibly intervene in the event of downside risks, where markets become dysfunctional again and/or economic conditions deteriorate. In that context, the effectiveness of LSAPs would increase.

21. Although uncertain, we expect further LSAPs would support growth and employment. LSAPs ease monetary conditions in two stages, both (i) upon announcement, through 'signalling' effects, and (ii) when assets are actually purchased, primarily though 'portfolio rebalancing' mechanisms. While the MPC could increase the pace of LSAPs under the current indemnity, an expanded indemnity would allow the MPC to further 'front-load' monetary easing by signalling a greater pipeline of LSAPs. In this way we expect that the announcement of a larger LSAP programme would help ease monetary conditions immediately, and the increased pace of purchases would continue to ease conditions thereafter, supporting the real economy. Conversely, there is a risk that bond yields could rise if the MPS signals a smaller programme than that expected by markets.

Fiscal and Market Functioning Impacts

22. Expanding the LSAP indemnity as requested would extend the existing fiscal and market functioning impacts of the programme in three specific ways, outlined below. In addition, LSAPs are likely to generally support the fiscal position if they contribute to a stronger economy.

23. **First, the Crown's exposure to short-term interest rate movements would increase.** Through purchasing long-dated fixed interest assets via issuing settlement cash, LSAPs expose the Crown's balance sheet to increases in interest rates. Owing to time constraints, the Bank has been unable to supply risk estimates of the effect of the marginal expansion of the programme arising from the expanded indemnity. However, they have provided us with the following interest rate risk scenarios for the total LSAP programme (the existing indemnity plus the requested expansion). In each of the below scenarios, losses (or gains) would affect OBEGAL and core Crown net debt. If the LSAP programme is not expanded, total losses (or gains) under any scenario would be smaller.

   a   As an indication of large but plausible downside losses, the Bank estimates that in a scenario where the OCR rises moderately quickly (to 1% by 2024 and then 2.5% by 2029), the Crown would lose between $0.8 billion and $1.8 billion from interest rate risk. This estimate uses broadly similar interest rate assumptions as the estimates of large but plausible losses we have provided in previous advice.[1]

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[1] We previously advised that large but plausible downside interest rate risk losses from the existing (May MPS) indemnity were $2.3 billion (T2020/1036 refers). The estimate of large but plausible downside interest rate risk losses presented in above is smaller than this despite the increase in the

T2020/2699 Indemnifying Alternative Monetary Policy – August 2020

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    b   This time in their analysis, the Bank has also provided a new, more extreme, downside scenario. Under this scenario the OCR increases rapidly (from 0.25% to 3.25% between 2022 and 2028), and the Crown would lose between $8 billion and $9 billion from interest rate risk. This scenario appears quite unlikely to eventuate so represents an outside risk.

    c   However, if the OCR remains low or falls further – which is closer to current market expectations – losses from the programme would be much smaller, or the Crown could make gains.

24.   **Second, we estimate that the 'repurchase price effect' from the requested expansion could add around another $0.4 billion to net debt**, if the MPC made full use of the expanded indemnity.[2] The 'repurchase price effect' is an increase in reported net core Crown debt that occurs when LSAPs are undertaken. It arises due to differences between the book value and the current market value of government bonds. The increase is expected to unwind as lower interest expenses are paid over the lifetime of the bonds (T2020/1322 refers).

25.   We estimate that expanding the indemnity would increase the total repurchase price effect from $9.3 billion to $9.7 billion.[3] As before, around half of this would unwind by June 2024, with the rest unwinding later. The actual size of the effect will likely differ from these estimates, depending on the exact mix of bonds purchased by the Bank and the prices paid for them.

26.   **Third, there is a risk that NZGB market functioning may be impaired.** We think this risk is manageable. As previously advised, if the Bank becomes the dominant participant in the NZGB market, there is a risk that other (non-Bank) investors may exit and lose their attachment to the NZ market. This may make it difficult to attract back investors at some point in the future when the Bank is no longer purchasing NZGBs so actively, increasing the cost and difficulty of obtaining government funding in the long run (T2020/2600 refers).

27.   Although uncertain, we consider that market functioning would remain adequate under the expanded indemnity. If the Bank were to fully use the indemnity, we forecast there would still be approximately $79 billion of bonds available for other investors in the NZGB market in August 2022 (equal to around 24% of GDP). This is still slightly more than the total government bond market in the financial year ending 2019 ($71 billion). Risks to NZGB market functioning are also mitigated by the indemnity requirement for the Treasury and Bank to co-ordinate, to avoid undermining either debt management or monetary policy objectives.

28.   However, we remain attuned to market functioning risks. We will continue to work with the Bank to monitor the impacts of their purchases on the market, including on investor relationships. Incrementally expanding LSAP indemnities also provides us scope to evaluate the uncertain (but potentially diminishing) monetary benefits of LSAPs, and the uncertain (but likely increasing) risks to market function. For now, we consider that the benefits of LSAPs continue to outweigh the associated fiscal and debt management risks.

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size of the LSAP indemnity. This is primarily because the Bank are now assuming the OCR will stay low for longer owing to the greater persistence of the economic shock.

[2] The increase in the size of the repurchase price effect arising from the expansion to the indemnity is relatively small this time. This is because the additional bonds purchased would be more recently issued, at yields closer to current market yields.

[3] We previously advised that the repurchase price effect of the May 2020 indemnity would be $9.0 billion. The $0.3 billion increase compared to our previous estimate is partly due to developments in bond yields since the time of our initial estimate.

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Developing New AMP Tools: Funding for Lending Programme

29. **The Bank has written to inform you that it is continuing to develop new monetary policy tools to enhance the MPC's ability to achieve its economic objectives.** As previously advised, the Bank is working with commercial banks to further financial system preparedness for a negative OCR (T2020/2206 refers). The Bank is also reviewing the potential benefits and costs of adding foreign asset purchases to the LSAP programme.

30. **Foremost, the Bank is developing an FLP tool.** The Bank intends to begin consultation with financial institutions on the technical and legal design of the FLP soon, to ensure the tool will be effective and can be implemented quickly by the MPC if needed. The Bank plans to discuss with you the tool and its associated fiscal risks, before implementing any FLP. Below, we outline how FLP would likely operate, the fiscal risks FLP poses, and its fiscal impacts, based on our preliminary understanding.

31. The Bank considered seeking an indemnity for an FLP prior to beginning public consultation on the tool. However, it proved difficult to draft a legal indemnity when many of the features of the scheme had yet to be determined. Instead, the Bank have indicated to us that they would like your endorsement of them developing an FLP prior to them publicly consulting. Once the scheme has been designed, we will be in a better position to advise you on the fiscal implications, and it is possible that the Bank may seek an indemnity in future.

32. **We recommend that you respond to the Bank, signalling your support for further work to design an FLP as an AMP tool**, and your support for their continued work to assess AMP tools generally. Should you agree, we have drafted a proposed reply to the Governor that signals your support for the Bank to consult on the design of an FLP. This letter would be published alongside the Bank's letter to you. This is similar to the approach taken in the UK, where the Bank of England and the Chancellor exchange letters in support of the FLP scheme there.

33. To inform your reply, we set out below the overarching structure and risks of FLP. We consider that signalling your openness to FLP as an AMP tool in this way strikes an appropriate balance. It supports the MPC's credibility to signal and consult on an FLP, without assenting to fiscal risks for an as-yet-unspecified programme.

What is Funding for Lending?

34. FLP involves the Bank providing eligible counterparties (e.g. domestic banks) with access to collateralised long-term funding. To administer an FLP the Bank would lend central bank reserves to FLP-eligible counterparties at a rate close to the OCR. Banks would then be expected to on-lend to their customers at lower rates. This would reinforce the benefits to the economy of a lower OCR by reducing banks' funding costs.

35. **FLP directly reduces banks' funding costs.** It does so by:

   a   Replacing more expensive market deposit and wholesale funding with cheaper central bank funding at below market rates,

   b   Providing certainty to banks about the availability of liquidity and insuring against future adverse conditions in the bank funding sector, and

   c   Ensuring the lower bound on deposit rates does not limit pass through of OCR cuts. In theory, at low levels of the OCR, bank profitability may limit pass through

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of cuts in the OCR to lending rates, where deposit rates cannot be practically cut in line with the OCR.

36. The reduction in bank funding costs should in turn reduce interest rates for borrowers and help to stimulate lending to the real economy. In practice, the effectiveness of FLP can be limited by a number of factors. For example, lack of competition in the banking sector could mean banks use reduced funding costs to boost profits instead of passing it through to retail rates. Additionally, uncertainty and lack of market confidence can suppress loan demand or make banks more restrictive on lending. This could limit the ability of FLP to stimulate new lending. The effectiveness of any FLP will depend on its specific design.

37. **Before implementing an FLP, the Bank would specify several design choices.** These choices will determine both the fiscal risk posed by the FLP, and the effectiveness of the FLP in advancing the MPC's objectives. For example, we would expect the Bank to specify: the overall programme size; eligibility and collateral requirements; terms and conditions for interest and principal repayment; and the legal structure and duration of the loans. The Bank could also choose to provide additional allocations with incentives to stimulate lending. For example, the FLP could target cheaper or larger quantities of funding to specific sectors such as SMEs.

38. The Bank has options to design the FLP in a way that helps ensure that: lenders' lower funding costs are passed on to their customers; new lending is allocated to productive parts of the economy; and financial stability risks are managed.

39. The Bank intends to consult with commercial banks before finalising the terms of the FLP. We expect this consultation process will take several months, and will be important for informing the effectiveness of the FLP design. In the event that the Bank seeks an indemnity for an FLP, we will advise you on these choices and their implications for fiscal risk.

What are the Risks?

40. **For the Crown, the most material risk of FLP is interest rate risk.** FLP provides long-term fixed rate funding, which is matched on its balance sheet with settlement cash remunerated at the OCR. Any increases in the OCR before the FLP loans mature would reduce Net Interest Income (NII) for the Bank. A downside scenario where the OCR rises quickly would result in large interest rate losses. This is discussed further in the fiscal implications section below.

41. Other risks include:

   a   Credit risk – as with any loan, there is a credit risk that occurs when a loan counterparty defaults. This risk is very low given the loans would be collateralised with a haircut, of high credit quality, and the Bank is able to 'call margin' during the life of the loan.[4] Credit losses would only materialise if a bank defaulted and at this time the loan exceeded the value of the collateral. This is an extreme scenario where New Zealand would likely be experiencing a financial crisis with bank failures.

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[4] The ability to 'call margin' means that, if the collateral provided by FLP counterparties decreases in value, the Bank can request more collateral to restore the total value of the collateral to its initial level.

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b   Asset encumbrance – collateralising FLP loans would create a risk from high asset encumbrance[5]. The Bank is taking higher quality collateral that leaves other bank creditors with lower quality assets. Given the level of asset encumbrance is currently low in New Zealand, the Bank considers these risks are minor and manageable.

c   Overreliance on central bank funding – this can be minimised by ensuring the size of the scheme is not so large that it disintermediates the current wholesale funding market.

What are the Fiscal Implications?

42.   **The fiscal implications of FLP would depend on several as-yet-unknown factors.** These include the design of the programme, the external auditor's treatment of the costs, and the future path for market interest rates and the OCR. The implications set out below are based on our current assessment and are subject to change.

43.   **OBEGAL impacts: FLP would affect OBEGAL and net core Crown debt as or when interest rate and credit risk losses are recognised.** As noted above, interest rate losses are the most significant fiscal risk associated with FLP. The interest rate risk associated with FLP is likely to be skewed to the downside. The mechanisms for realising interest rate losses on an FLP are as follows:

- FLP provides long-term fixed rate concessionary lending to banks. This lending is matched on the Bank's balance sheet with settlement cash remunerated at the OCR (which is floating). If we assume the Bank lends at a fixed rate based on the OCR at the start of the loan contract, then over the maturity of the loan:

  o   If the OCR remains fixed, Net Interest Income (NII) for the Bank is zero.

  o   If the OCR rises, NII will be negative due to the funding cost being greater than the lending rate of return. The size of potential losses depends on the future path of the OCR and the drawdown of the programme. These could be in the range of several billions of dollars. This fiscal cost would be reported in OBEGAL and net debt.

  o   If the OCR falls, the Bank could benefit from positive NII. However, these benefits will not arise if the programme is designed with an option for early repayment that is utilised by banks. In that case, if the OCR falls and banks choose to repay early, they will repay the face value of the loans and no interest rate gain is realised. This scenario results in an asymmetric downside risk for the Crown.

44.   **Additionally, the concessionary nature of an FLP requires an upfront expense in OBEGAL, later offset by higher assumed earnings over the maturity of the loan.** This is because loan assets must be valued at 'fair value'[6] and in the case of a concessionary scheme, lending is below market rates. For example, for a programme

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[5]Asset encumbrance refers to restricted assets that are reserved for a specific liability. For example, if a loan is secured or collateralised and a borrower defaults, the lender (in this case the Bank) can liquidate the asset to recover their cash. This leaves other unsecured lenders less likely to recover their cash.

[6] The initial fair value write down expense (i.e. concession expense) is the difference between the fair value of the loan and the nominal amount lent. Fair value is generally determined by discounting all future expected cash receipts associated with the loan (such as principal and interest repayments) by a market interest rate.

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of $40 billion this concession expense would likely be in the range of a billion dollars.[7] The size of the concession expense depends on the design of the scheme, the concessionary loan rate and the market interest rates.

45. Over the maturity of the loan, the upfront concession expense unwinds completely. The release of this concession (i.e. the "interest unwind")[8] is recognised as revenue in OBEGAL. The interest unwind has a positive cumulative impact equal to the size of the initial write down. Note, this concession expense is an accounting concept which recognises the forgone interest from lending at concessionary rates is not recouped by the Crown. Hence, the Crown's net worth will end up lower than if the loan had been made on more commercial terms.

46. During the life of the loan, if the market interest rate changes this impacts the fair value of the loan and hence the size of the concession. However, this re-measurement will not have implications for OBEGAL and will be treated as a revaluation impact in 'gains and losses' below OBEGAL but included in the operating balance.

47. If an early repayment option is included in the programme this could have an impact on the fair value of the loan (separate to the fair value write down due to concessionary lending). This impact is uncertain and would depend on the design of the option in the programme, the probability of early repayment and the expected path of the OCR.

48. **Net debt impacts: An FLP would materially increase net core Crown debt, given current definitions.** This is because the current definition of net core Crown debt would recognise liabilities from FLP but not corresponding assets. While settlement cash is included in the calculation of net core Crown debt, advances (e.g. student loans) are excluded and not "netted off". This reflects that their illiquidity and public policy rationale mean they are not readily realisable to pay back debt or respond to negative shocks. In a similar way, FLP loans will be advances by the Bank for monetary policy purposes and will not be realisable for government financing given their long-term and institutionally ring-fenced nature. As such, net core Crown debt would increase by up to the proposed cap of an FLP.

49. Even if the net core Crown debt definition 'net off' the corresponding assets, there would still be an increase to net core Crown debt equivalent to the concessionary expense of the FLP. This is because the value of the assets are recorded at fair value, which is less than the size of the liability, reflecting the concessionary nature of FLP. For example, for a programme of $40 billion this impact on net debt would likely be in the range of a billion dollars.

50. **However, from a policy perspective, it would make sense to look through the up-front net core Crown debt impact.** While unrecognised, there would be corresponding and fully collateralised assets associated with the programme. In addition, the impact on net debt could otherwise encourage a contractionary fiscal policy response. This would counteract the stimulatory rationale for FLP and be undesirable from a macroeconomic policy perspective.

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[7] Prior to the finalisation of the Bank's indemnity request (and exclusion of FLP from that request), we understood the Bank was considering an FLP of up to about $38 billion. We based preliminary analysis on this assumption. However, the programme size would now be specified at a later time.

[8] The 'interest unwind' is the unwind of the initial write down, which is amortised back and recognised as earnings. This amortised earning has a positive cumulative impact equal to the size of the initial write down. This interest unwind income makes up for the time value of money as the loan comes closer to being repaid.

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51.   We consider it is worth exploring options to exclude the impacts of the FLP programme from the measure of net core Crown debt that is used as the Government's main fiscal strategy target, to ensure that it remains fit for purpose in guiding fiscal policy decisions. There are various ways this could be achieved. We intend to do further work to provide advice ahead of the next *Budget Policy Statement*.

52.   Note that all of the above fiscal impacts would occur irrespective of whether an FLP was indemnified.

Initial Treasury View

53.   **Although the Bank is not currently seeking an indemnity for FLP, we recommend that you reply to the Bank to signal your openness to FLP as an AMP tool.** This would give an indication that you are likely to favourably consider any future request for an indemnity once further design details are known, subject to you considering that to be in the public interest. In turn, this would support the MPC in signalling any intentions to establish an FLP, and the Bank in their consultation on the design of an FLP. Should the Bank seek your support for a specific FLP proposal, such as through an indemnity request, we will provide you with a full public interest test assessment at that time.

54.   The effectiveness of FLP will depend on its design and the economic context at the time of implementation. At present, we expect an FLP would likely make existing lending cheaper and, at the margin, may incentivise new lending. We expect the impacts on new lending (particularly to businesses) would be marginal in the current context. However, the scheme will assist borrowers by lowering the costs of servicing existing debt, which will support households and businesses in the economic recovery.

55.   FLP is unlikely to have a transformational effect on willingness to borrow or credit standards applied to borrowing. To the extent that FLP transmits by easing funding costs, it will be most effective in supporting real activity where funding costs are suppressing bank lending. Right now, these seem like marginal constraints as uncertainty seems to be a larger drag on businesses' and banks' willingness to borrow and lend. However, FLP is likely to be more effective later in the recovery, as uncertainty recedes and credit demand increases.

56.   Overall the impacts of FLP on new lending are uncertain, but we expect the scheme would lower the costs of servicing existing debt. On balance, we expect an FLP would pose relatively low financial stability risks, which we consider could be managed by the Bank, and acceptable fiscal risks. You may also wish to signal your support for the Bank considering additional incentives for SME and business lending. Such incentives would complement broader Government objectives to support firms, particularly SMEs, in the economic recovery over the medium term.

Next Steps

57.   If you agree that it is necessary or expedient in the public interest to give the requested LSAP indemnity, you will need to sign the attached letter of indemnity.

58.   Should you choose to grant the requested indemnity, section 65ZD of the PFA requires that you present a statement to the House that the indemnity has been given, because the contingent liability exceeds $10 million. We recommend that you present the statement shortly after the indemnity comes into effect on 12 August, following the
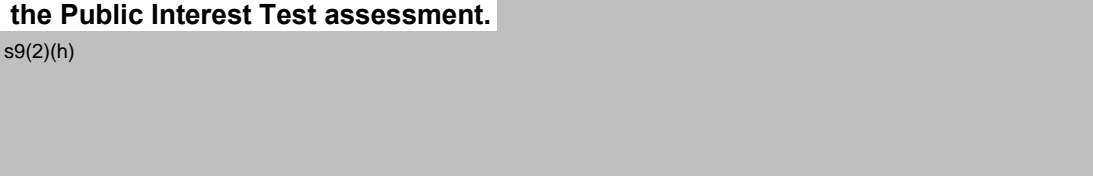
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MPC announcement on 12 August. This will avoid being perceived to signal MPC intentions. A draft statement is attached in Annex 3.

59. You have options about how to respond to the Bank's intention to progress consultation and analysis for FLP. Attached is a draft reply letter that signals your openness to FLP as an AMP tool, and support for the Bank's consultation process. Please sign or provide feedback on this letter, depending on how you would like to respond.

60. Should you agree to our recommendations, alongside the MPC's announcement on 12 August, the Bank will publish: its request letter; the restated letter of indemnity for LSAPs; and your letter of reply regarding the development of an FLP.

61. You have signalled that you would like to inform your Cabinet colleagues of your decisions at Cabinet on 10 August. To support this, we have attached talking points for an oral item (Annex 2). These talking points have been drafted on the assumption you agree to our recommendations.

62. The Bank has made a number of requests for indemnities since the *Memorandum of Understanding* was signed in March 2020. s9(2)(f)(iv)

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Annex 1: Officials' Public Interest Assessment

1. The Letter of Indemnity is intended to be legally binding and, if you decide to execute it, will constitute a commitment by the Crown to indemnify the Bank as described in its terms. It is a matter for you to decide whether you are satisfied that it is necessary or expedient in the public interest to indemnify the Bank on the terms outlined in the Letter of Indemnity. You have previously concluded that the existing LSAP indemnity is necessary or expedient in the public interest. We consider that our previous analysis with respect to the existing indemnity still holds (T2020/1036). Below, we provide our views on whether the marginal expansion of the LSAP indemnity, as requested by the Bank, would further the public interest.

2. As set out above, the proposed expansion would (i) extend the duration of the indemnity to August 2022 (from September 2021), and (ii) increase the cap on nominal NZGBs to 60% of outstanding bonds (from 50%). Together, we forecast these amendments would increase the nominal limit on indemnified LSAPs from approximately $74 billion to $107 billion based on BEFU forecasts (see Table 1 of report).

3. **The following paragraphs set out factors that officials consider are relevant to the Public Interest Test assessment.**
    s9(2)(h)

4. The PFA does not define 'the public interest'.
    s9(2)(h)

5. **There remains a clearly identifiable public interest in the MPC achieving its economic objectives.** The Bank's economic objectives with respect to monetary policy include (a) achieving and maintaining stability in the general level of prices over the medium term; and (b) supporting maximum sustainable employment. Parliament has recognised (through section 1A(1)) of the Reserve Bank of New Zealand Act 1989 that formulating and implementing monetary policy directed to these objectives contributes to the overall purpose of that Act to "promote the prosperity and well-being of New Zealanders, and contribute to a sustainable and productive economy". Officials consider that there is a clearly identifiable public interest in ensuring that the Bank remains empowered to deliver on its economic objectives.

6. **We consider it likely that the MPC will need to deploy further monetary easing in order to achieve its objectives.** We agree with the Bank that the negative economic effects of the COVID-19 outbreak remain a significant headwind to the New Zealand economy, and are expected to continue for an extended period. We also acknowledge that conventional monetary policy space is limited. Conventional monetary policy is unlikely to be sufficient for the MPC to meet their objectives.

7. In this context, there is a clear public interest in the MPC being able to deploy further AMP tools to meet its economic objectives, when/if it considers that necessary. As noted above, the MPC retains minimal space to expand their announced LSAP programme within the existing indemnity (paragraph 12).

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8. As indicated above, we expect the effectiveness of further LSAPs to be positive, although the benefits may be diminishing (paragraph 19). The potentially diminishing effectiveness of LSAPs largely reflects that market volatility has eased. Therefore, LSAPs are less vital for supporting market function now, compared to when the programme was initiated.

9. However, it remains important for the Bank to have sufficient capacity to support the MPC to meet its economic objectives. It will also be important that the MPC can credibly intervene in the event of downside risks, or where markets become dysfunctional again. While the MPC could increase the pace of LSAPs under the current indemnity if needed, it has limited space to expand the overall programme further within the limits of the current indemnity.

10. Enabling an expanded programme would allow the MPC to 'front-load' monetary easing by signalling a pipeline of further LSAPs. In this way we expect that the announcement of a larger LSAP programme would help ease monetary conditions immediately, and the increased pace of purchases would continue to ease conditions thereafter, supporting the real economy. All of this would secure outcomes that are clearly in the public interest. We consider the MPC should have the option to provide further monetary easing, insofar as reasonably balances the associated fiscal risk. As noted above, we consider that the marginal expansion of LSAPs appropriately manages fiscal risks, and in particular risks to NZGB market functioning (paragraphs 25-27).

11. As with the current indemnity, to the extent expanding the current indemnity is necessary to enable the Bank to announce and conduct a larger LSAP programme that delivers the above outcomes, we would consider such an expanded indemnity to be in the public interest.

Necessary or expedient

12. **We consider that providing the requested indemnity is not necessary, but would be expedient in the public interest, under section 65ZD of the PFA.** The Bank is already empowered under its legislation to engage in AMP generally. As the Bank notes, LSAPs pose significant balance sheet risks, which the Bank is averse to taking on. We consider that, if need be, the Bank could manage these financial risks without an indemnity. These financial risks do not technically inhibit the Bank's ability to undertake LSAPs, but could curtail their use if the Bank is concerned about the risk to its balance sheet position. Therefore, we consider that an indemnity is an expedient tool to facilitate the MPC to undertake further LSAPs. This reflects the following considerations:

    a   **Bank aversion to balance sheet risk:** As per the *Memorandum*, the Bank has indicated that without an indemnity for its potential financial exposure, the Bank's view is that it would not have sufficient capital to use these AMP tools were they necessary to achieve the economic objectives. If the MPC feels constrained in its ability to use AMP tools, it may be constrained in pursuing its economic objectives. Providing an indemnity would absolve the Bank and MPC of potential conflicts of interest between their respective balance sheet and economic objectives.

    b   **Potential reputational risks:** Financial losses associated with LSAPs may undermine the Bank's reputation and credibility, with negative consequences for its policy effectiveness. Technically, there are no legal restrictions on the Bank going into negative equity to absorb losses. However, there is an argument that going into negative equity could negatively affect the Bank's reputation. It is not

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clear how negative equity would be interpreted in the New Zealand context. If the Bank's reputation were diminished this might have flow-on effects on the financial system or limit the Bank's ability to effectively fulfil its objectives.

c   **Equivalent core Crown fiscal impacts:** The Bank is consolidated into the core Crown, so its balance sheet movements immediately impact on fiscal aggregates. This means that the ultimate burden of the losses under the Programme would still fall on the Crown, whether or not the Programme is indemnified.

d   **Transparency of risks:** The process of agreeing indemnities is a transparent way of showing how the fiscal risks associated with the Programme are being managed.

13. There is a risk that not announcing further easing may result in a tightening of monetary conditions, depending on how much market participants have built expectations of further easing into current prices.

Risks and mitigations

14. The usual risks associated with indemnifying an organisation, particularly in uncertain times, are present. As with the agreed Programme, because there is no dollar cap on the indemnity, this means that there is greater risk that the Crown's liability under the indemnity is significantly greater than expected.

15. As noted above, the requested expansion of LSAPs would increase the Crown's financial risk exposure. The risk mitigation features for the proposed indemnity are substantively the same as those features agreed for the existing indemnities.

16. The terms of the Letter of Indemnity mitigate the risks for the Crown through several mechanisms that are already present in the existing indemnity:

- **Risk control framework (RCF):** The RCF seeks to identify, measure, and manage the risks associated with implementing alternative monetary policy tools. In the Letter of Indemnity the Bank commits to work with Treasury to revise the RCF within five business days of the effective date of the indemnity (12 August 2020) to account for differences of risk associated with an expansion of the LSAP programme.

- **Reporting requirements**: The Programme will be reviewed under existing requirements set out in the Act. Additionally, the Bank commits to providing monthly reports to the Treasury on the transactions undertaken as part of the Programme, and to inform you if conditions change such that the financial risk of the Programme increases.

- **Time-limited indemnity**: The indemnity covers losses arising out of NZGB and LGFA debt purchases made prior to 31 August 2022.

  The Minister of Finance will then have the opportunity to terminate the indemnity should it not continue to be in the public interest. At the termination of the indemnity period, the Bank will remain indemnified for losses on bonds purchased during the indemnity period but not for losses on any new purchases, except for new bond purchases that 'roll over' initial bonds when they reach maturity. This enables the Bank to maintain its portfolio of bonds acquired under the Programme, which protects against an unwarranted tightening of monetary policy. Having a time limit ensures that the indemnity does not bind the Crown for an indefinite period of purchases.

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Benefits

17. The principal benefit of providing the indemnity is that it will likely lead to the Bank undertaking further LSAPs of NZGBs and LGFA debt as the MPC deems appropriate. We consider there is a plausible case that it would be beneficial for the LSAP programme to be expanded, either now or in the coming months, to assist the MPC to meet its economic objectives, and achieving these objectives would have positive flow-on effects for the wider economy and the public interest. Given manageable fiscal risks, we consider that the MPC should not be constrained from using this policy option.

No viable alternatives to an indemnity

18. As noted above, the Bank has said within the context of the MOU that, without an indemnity, it would be unable to undertake LSAPs on the scale contemplated by the Programme. The Bank has operational independence and therefore the Crown cannot require the Bank to use any particular monetary policy tool. Other than the Crown, there is no other entity within New Zealand that would be able – or willing – to indemnify the Bank for the amounts required.

Assessment of risks and benefits against the public interest threshold

19. In light of the above, officials consider that:

   a   there is a public interest in giving an indemnity to the Bank on the terms set out in the Letter of Indemnity; and

   b   the benefits of the proposed indemnity appear to outweigh those risks when mitigations are taken into account.

20. Accordingly, on balance, officials are of the view that the indemnity appears to be expedient in the public interest.

Annex 2: Talking Points for Cabinet

Purpose

- **The Governor of the Reserve Bank has written to me requesting an amendment to the indemnity provided by the Crown** that covers the Bank for losses incurred in its large-scale asset purchases (LSAP) program.

- As Minister of Finance, I am empowered under the Public Finance Act 1989 to provide indemnities on behalf of the Crown if it appears necessary or expedient in the public interest to do so.

- **I believe the requested amendments meet the public interest test and I would like to inform Cabinet of my intention to sign the indemnity**, ahead of the next *Monetary Policy Statement* release on 12 August.

LSAP indemnity request

- The existing indemnity, provided in May, indemnifies the Bank for interest rate and credit risk losses arising from LSAPs made before 30 September 2021, of up to:

  - 50% of outstanding nominal NZGBs;

  - 30% of outstanding inflation-indexed NZGBs; and

  - 30% of outstanding LGFA bonds.

- **The Governor has requested the existing indemnity be amended and restated to**:

  i. **Extend the duration to purchases made before August 2022**. This extension would cover all three bond types purchased under the current LSAP programme.

  ii. **Increase the cap on LSAPs of NZGBs to cover purchases of up to 60% of the outstanding market** (up from 50%).

- Taken together, these amendments would allow approximately $32 billion of further asset purchases. This would bring the upper limit of the indemnified programme to approximately $107 billion of purchases of NZGBs, inflation-indexed bonds and LGFA bonds by August 2022, based on BEFU forecasts.

  The LSAP programme has supported the economy through reducing yields on NZGB and LGFA bonds, which has helped lower retail interest rates and prevent further financial market disruption. **It has also complemented fiscal policy by supporting low Crown financing costs** in the face of the large increase in bond issuance required to fund our COVID-19 response and recovery measures.

- Given the greater persistence of the shock than expected and ongoing risks to the economic outlook, **the Reserve Bank wants to provide the Monetary Policy Committee (MPC) with further space to increase the scale of LSAPs** if required. Based on the current rate of purchases, the Bank would complete its existing programme in April 2021.

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- LSAPs would increase the Crown's exposure to movements in interest rates, in proportion to the expansion of the LSAP programme. **In addition, the amended indemnity would increase net core Crown debt by approximately $400 million** due to the accounting treatment used when bonds are purchased by the Reserve Bank.

Funding for Lending

- **The Governor has also informed me the Reserve Bank is actively considering a Funding for Lending (FLP) programme** that would provide the MPC with an additional monetary policy tool to achieve its economic objectives.

- **FLP would involve the Reserve Bank providing domestic banks with access to collateralised long-term funding at a rate close to the OCR**. This would reduce banks' funding costs, lower interest rates for borrowers, and stimulate lending to the real economy. The tool could also include additional incentives for banks to provide access to cheaper or larger quantities of funding to specific sectors of the economy, such as SMEs.

- **At this stage, the Reserve Bank is still developing the tool and working on design choices**. They intend to begin consultations with financial institutions on the technical and legal design shortly.

- **I intend to write to the Governor to signal my support for further work on FLP**. I will also set out my expectation that the design of any scheme best promotes the wellbeing of New Zealanders and will contribute to a sustainable and productive economy.

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Annex 3: Text for Presentation to the House

As noted above, should you choose to grant the requested indemnity, section 65ZD of the PFA requires that you present a statement to the House that the indemnity has been given, because the contingent liability exceeds $10 million. We recommend that you present the statement shortly after the indemnity comes into effect on [X] August, following the MPC announcement on 12 August. This will avoid being perceived to signal MPC intentions.

Section 65ZD (4) of the PFA states the statement may contain any details about the guarantee or indemnity that the Minister considers appropriate. We suggest the text below. We will provide updated text, including links to further information to be published on the Reserve Bank website, shortly following the MPC decision on 12 August.

STATEMENT OF INDEMNITY GIVEN UNDER SECTION 65ZD OF THE PUBLIC FINANCE ACT 1989

On [X] August 2020 I, Grant Robertson, Minister of Finance, on behalf of the Crown, gave an indemnity to the Reserve Bank of New Zealand in relation to the large-scale asset purchases of New Zealand domestic government bonds and New Zealand Local Funding Agency bonds as per the Letter of Indemnity dated [X] August 2020.[9]

Dated at   this   day of   20

Grant Robertson
Minister of Finance

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[9] The [X] August 2020 Letter of Indemnity is published on the Reserve Bank of New Zealand website at the following link: [To be advised],

Details of the large-scale asset purchase programme are published on the Reserve Bank of New Zealand website at the following link: [To be advised].

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TE TAI ŌHANGA
THE TREASURY

Treasury Report: Experimental estimates of New Zealand's wealth distribution

Date:	28 August 2020	**Report No:**	T2020/2965
		File Number:	SH-13-5-9

Action sought

	Action sought	Deadline
Hon Grant Robertson **Minister of Finance**	Note new estimates of New Zealand's wealth distribution.	None
Hon David Parker **Associate Minister of Finance**	Note new estimates of New Zealand's wealth distribution. Forward this report to the Minister of Statistics.	None
Hon Stuart Nash **Minister of Revenue**	Note new estimates of New Zealand's wealth distribution.	None

Contact for telephone discussion (if required)

Name	Position	Telephone		1st Contact
Ben Ching	Analyst, Tax Strategy	s9(2)(k)	N/A (mob)	✓
Felicity Barker	Team Leader, Tax Strategy		s9(2)(g)(ii)	

Minister's Office actions (if required)

Return the signed report to Treasury.

Forward this report to the Minister of Statistics (Hon Shaw's office) if agreed.

Note any feedback on the quality of the report	

Enclosure: No

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Treasury Report: Experimental estimates of New Zealand's wealth distribution

Executive Summary

This report responds to Minister Parker's request for improved estimates of the distribution of wealth in New Zealand. It presents experimental estimates of New Zealand's net wealth distribution to address underestimation apparent in the Household Economic Survey (HES).

The only recent data on the distribution of household wealth is from HES, a triennial wealth survey. HES is a high quality nationally representative survey. However, HES is unlikely to be a reliable guide to the distribution of wealth at the top of the distribution. Collecting data on the very wealthy (e.g. the top wealth percentiles) is a challenge because of response rates, sample size and accurate self-reporting of sensitive information. This challenge is not unique to HES and it occurs in many countries.

This report applies two experimental methods to improve our estimates of the wealth distribution, focussing on the amount of wealth held in the top decile (10%) and percentile (1%):

- **Augmenting survey data with a media rich list:** We have pooled the 2015/2018 HES wealth distribution figures and augmented the top end of this distribution with figures reported in the National Business Review (NBR) Rich List from 2018. This Rich List is published annually and in 2018 reported wealth for 236 families and individuals, with a combined total worth of approximately $81 billion. This method considers family wealth as the variable of interest.
- **Capitalisation of taxable income:** We have used a method that allocates estimated total net wealth contained in the Reserve Bank's household balance sheet according to a distribution provided by Inland Revenue (IR) income data. The IR data does not cover all types of income (only taxable income) so we have filled known gaps, such as owner-occupied housing, by using HES estimates. This method considers individual taxpayer wealth as the variable of interest.

Progress has been made by exploring these experimental methods. New estimates are reported in this paper, although the work is subject to further review and refinement.

There are important caveats on the interpretation of this data. First, we are considering a concept of wealth that is defined by statistical reporting standards, and this definition may not always be suitable for the analytical purpose. Second, the data sources that are relied upon for these methods have not been designed for these purposes, and our techniques are novel in the New Zealand context. Due to biases in the Rich List data, it is not easy to assess the representativeness of the Rich List augmentation (i.e. if it represents a likely maximum value, or a central estimate). Further, the two methods consider different reporting units (families versus individuals), making comparison difficult. This means the estimates should be approached with caution and should be considered directional rather than precise.

Table 1 presents wealth shares using the range of methods discussed in the report. While the limitations of the two experimental methods have different origins, the results of both methods are broadly similar. Using both methods, the estimated share of wealth held by the top percentile is higher than reported by the HES.

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Table 1: Key Estimates of New Zealand's Wealth Distribution[1]			
	Top decile (10%) net wealth share estimate	**Top percentile (1%) net wealth share estimate**	**Comment on limitations**
HES 2018 net worth estimates Note: based on individuals	59%	20%	HES is not designed to sample enough high-wealth individuals to create robust estimates of this population. International evidence suggests low response rates by high-wealth individuals. Under-reporting of wealth may further bias estimates. Aggregate wealth is less than national accounts, indicating **underestimation**.
Pooled HES 2015/2018 net worth estimates Note: based on Economic Family Units ('EFUs')	60%	21%	Less sample variability than a single survey, due to more samples of high-wealth families. However, HES remains unlikely to capture the highest wealth families due to the low probability of selection into the survey. Top wealth distribution still likely to be **underestimated**.
Augmented HES 2015/2018 net worth with NBR Rich Listers Note: based on Economic Family Units ('EFUs')	63%	26%	Adds high-wealth families from Rich List, which raises the top percentile estimate. Does not attempt to account for underreporting in the survey (only the top 1%). NBR Rich List does not follow statistical standards and cannot be aligned easily with HES. Top wealth distribution may be **underestimated or overestimated**.
Capitalised IR administration data Note: based on taxpayers	70%	25%	Relies on tax administration data that is not designed for wealth estimation. Assumes taxable income distribution is representative of asset distribution and a constant rate of return within asset classes. HES is still required for non-taxable wealth assets. Top wealth distribution may be **underestimated or overestimated**.

The Treasury intends to further refine the Table 1 estimates. However, they are likely to remain experimental unless Stats New Zealand (Stats NZ) improves survey techniques used to estimate the top end of the wealth distribution. New Zealand is in the minority of OECD countries that do not actively oversample wealth populations. HES is currently being redesigned, but Stats NZ has advised they do not have the resource to oversample the wealthy. Furthermore, developing an oversampling technique may not completely remove known biases with household surveys. We recommend that you forward this report to the Minister for Statistics and ask for advice from Stats NZ on the feasibility, benefits and costs of oversampling the wealthy.

Officials will report back on next steps as part of development of the next tax policy work programme. As previously advised, we also plan to estimate the distribution of effective tax rates ('ETR'), once resources can be freed up from urgent COVID-19 response work (T2020/1847 refers).

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Recommended Action

We recommend that you:

a   **note** that this report contains experimental estimates of the distribution of wealth in New Zealand.

b   **note** that the new estimates suggest that the top one percent of individuals hold a greater share of net wealth than indicated by the Household Economic Survey.

c   **note** that as the work is experimental and subject to further refinement, the estimates should be considered indicative.

d   **note** that as a step toward improving household survey estimates of wealth, you could ask the Minister of Statistics to commission advice from Stats NZ on the feasibility, benefits and costs associated with changes to survey design and sample size.

e   **agree** to forward this report to the Minister of Statistics.

      Agree/disagree.

f   **note** that officials will report back on next steps as part of development of the next tax policy work programme

Felicity Barker
Team Leader, Tax Strategy

Hon Grant Robertson
Minister of Finance

Hon David Parker
Associate Minister of Finance

Hon Stuart Nash
Minister of Revenue

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[1]   Access to the data presented was managed by Stats NZ under strict micro-data access protocols and in accordance with the security and confidentiality provisions of the Statistic Act 1975. These findings are not Official Statistics.

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Treasury Report: Experimental estimates of New Zealand's wealth distribution

Purpose of Report

1. This report responds to the request from Minister Parker for improved data on the distribution of household wealth in New Zealand. The report assesses two different approaches that have been implemented and their results are presented in this report.

2. The report is structured as follows:

Background on work programme

3. This report is part of a work programme on the distribution of wealth and effective tax rates by wealth decile.

4. The first phase of the work scoped out the available data sources and options for further work (T2019/3234 *Effective tax rates – distributional analysis*, December 2019). Significant obstacles to obtaining accurate estimates on effective tax rates were identified:

    -   Household Economic Survey data does not survey enough high-wealth households to adequately represent their wealth share and therefore it likely underestimates the aggregate wealth of New Zealanders.

    -   Administrative data sources do not hold information on the wealth, consumption or economic income of taxpayers, reflecting the structure of the tax system.

5. Following the scoping phase, in January 2020 we met with Minister Parker and confirmed his request for further analysis. The following were commissioned:

    a. The Treasury to report back on data sources that might be used to estimate the income for the top 1% of earners (**delivered**: T2020/297, February 2020).

    b. Inland Revenue (IR) to provide its annual report on high wealth individuals and estimates of effective tax rates (using a proxy for economic income) for a sample of high wealth individuals (HWIs) using administrative data (**delivered**: BN2020/087, February 2020). This report estimated that the effective tax rate for HWIs was highly variable and subject to data quality limitations. Based on the available data, the average tax rate for a sample of HWIs was 12% of economic

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income. Economic income is a broader concept than taxable income and includes, for example, capital gains. Additionally, 42% of the sample recorded a tax rate below 10% of economic income. This is lower than the statutory tax rate, which could be due to the source of income earned (eg capital gains), the use of imputation credits, or the use of loss carry forwards. As nearly 80% of the tax paid by these HWIs was corporate tax, the timing of imputation credits and loss carry forwards is likely to explain the large variability in effective rates.

   c.   The Treasury and IR to continue work on HES 2018 and the capitalisation of income for a report, which was to include:

      i.   Improved estimates of the top of the wealth distribution, trialling new statistical methods and augmenting survey data with rich list data.

      ii.   Updated effective tax rate estimates based on integrated wealth and expenditure data from HES 2018.

      iii.   Exploration of the applicability of the income capitalisation method to New Zealand, and results from this method. [2]

6.   This report contains our completed work as summarised under point (c)(i) and (iii) above. However, as discussed in aide memoire T2020/1847: *Progress update on wealth distributions and effective tax rates*, we are not currently able to deliver point (c)(ii) (updated effective tax rates using HES) because of resource reallocation into the COVID-19 response and the need to update the Treasury's tax and welfare model with recent economic data.

7.   The methods used to generate the estimates in this paper were subject to review by a quality assurance panel comprised of officials from the Treasury, Inland Revenue, Stats New Zealand s9(2)(a). Given the novelty of these methods they are subject to further refinement, and hence the estimates in this paper should be viewed as preliminary.

Problem definition

8.   The objective of this work is to improve estimates of the distribution of individual wealth in New Zealand, especially the share of wealth held by the top 1% of the wealth distribution.

9.   We use the concept of wealth used by official statistical bodies, which includes financial and non-financial assets and financial liabilities that can be owned and valued by households. The precise definition of household wealth is that used by Stats New Zealand. There is a wider literature on the wealth concept that we do not discuss in this report (e.g. treatment of human capital).

10.   The only existing recent statistical data on New Zealand's wealth distribution comes from household surveys. The most recent wealth surveys are Stats NZ's HES in 2015 and 2018. However, household wealth surveys have known biases to undercount the wealth at the top of the distribution. This derives from:

•   Non-response bias: international evidence suggests that higher wealth individuals tend to have a higher non-response rate in financial surveys.

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[2]   This is based on the work of: Saez, E. and Zucman, G. (2014) "Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data" *NBER Working PaperS SerieS*

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- Differential under-reporting: it is thought that the wealthy may under-report their net worth at a higher rate than the general population. However, there is no New Zealand evidence to prove such 'differential' wealth under-reporting.

11. At an aggregate level, however, comparison of HES data to the Reserve Bank (RBNZ) household balance sheet suggests HES undercounts wealth. For example, in 2018 the HES net worth estimates summed to $1.37 trillion, while the RBNZ household balance sheet estimates summed to $1.54 trillion. Further, the RBNZ household balance sheet excludes consumer durables and valuables, which when adjusted for suggests a shortfall in HES net worth estimates of approximately $340 billion. There will be many reasons for this mismatch, such as differences in the valuation of the housing stock and treatment of non-resident ownership, but differential under reporting bias is also likely to be a factor.

12. Assuming differential non-response and under-reporting biases are factors in New Zealand would suggest that estimates of wealth shares based on HES could under estimate the share of wealth at the top of the distribution.

Methods

13. Following the international literature, we have identified three options for improving the estimates of the top of the wealth distribution:

- Oversampling the wealthy in surveys;
- Pooling multiple surveys then augmenting them with the National Business Review (NBR) Rich List; and
- Capitalisation of taxable income.

14. Each of these methods has different strengths and weaknesses, assessed here, which should be considered in interpreting results.

15. We implement the second and third methods in this report. The first option has merit, but does not provide the full solution and requires significantly more time and cost to implement.

16. Internationally, there is an active academic literature on the measurement of wealth inequality. There is currently no clear consensus about the best methods. There has been minimal academic research on the measurement of New Zealand's wealth distribution.

Oversampling the wealthy in surveys

17. Oversampling the wealthiest individuals in surveys may address the issue of low sample sizes and response rates. This would require Stats NZ to change the survey design so that they can identify wealthy individuals and oversample them. Oversampling wealthy households has been used in 18 out of 23 OECD countries that have household wealth surveys, in order to correct for the biases discussed in this paper. One option used internationally for oversampling the wealthy is to link survey samples to tax data.

18. Stats NZ is currently focussed on re-designing HES so that it will split into two new surveys:

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   a. The Longitudinal Survey of Income and Housing Costs will collect data from individuals followed across time. This survey aims to improve our understanding of the persistence of poverty in New Zealand.
   b. The Household Expenditure and Wealth Survey (HEW) will maintain the quality of cross-sectional data that is currently provided by the HES wealth and expenditure surveys.

19. Stats NZ is also considering whether any emerging data needs could be met through the new surveys. Treasury officials expressed the view to Stats NZ that weight should be given to the skewed nature of the wealth distribution and that oversampling of wealthy households should be considered. However, implementation of this method is not possible within current HES resourcing. Moreover, there are long lead times with conducting household surveys. Given this, the Treasury considers that it should be considered further by Stats NZ, but it is not a short-term option.

20. Notably, the Tax Working Group recommended that the Government fund oversampling of the wealthy in existing surveys (Tax Working Group Final Report, recommendation 68 refers).

21. To take this further, you could raise this issue with the Minister for Statistics to seek advice from Stats NZ on the feasibility, costs and benefits of oversampling the top decile in the new HEW survey.

Pooling multiple surveys and augmenting with the NBR Rich List

22. One method used internationally for addressing the non-response bias in household surveys is to combine survey data with media lists of the wealthy.[3] In the next section we implement this method for New Zealand by augmenting the HES net worth data with the National Business Review's (NBR's) Rich List observations. This method can be implemented at low cost since it requires only existing data sources with the application of statistical modelling techniques.

23. The first step in our method is to pool observations from both the 2015 and 2018 HES net worth surveys, in order to achieve a larger sample size and more precise estimates. Wealth values from the 2015 survey were adjusted for inflation to be comparable with 2018 values.

24. The next step is to augment the pooled 2015/2018 HES net worth estimates by adding each member of the 2018 NBR Rich List as additional observations. This step changes the top end of the distribution. This ensures that the dataset includes high wealth individuals that are unlikely to be captured in the HES survey.

25. We also investigated fitting a Pareto distribution to the data (a statistical method used in international literature to estimate skewed distributions), but found that more work would be required to determine the most appropriate parameters to fit this distribution. We do not believe the top percentile (1%) estimates are likely to substantially change by fitting a Pareto distribution. However, this is a further extension that can be undertaken in the future. More detail on our method is in **Annex A.**

26. There are several known limitations with using rich list data to uplift survey wealth estimates. Limitations of using rich lists to amend wealth estimates include:

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[3]   See Balestra, C. a. (2018). "Inequalities in household wealth across OECD countries: Evidence from the OECD Wealth Distribution Database". *OECD*, at pages 23 – 24.

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- The rich list estimation methods are not fully known or publicly published with full detail. Valuation methods will not be consistent with the survey method. For example, the NBR Rich List may not be able to accurately estimate liabilities, which would lead to overestimates of net wealth.

- The rich list estimation methods do not distinguish tax residents from non-tax residents. Again, this is likely to lead to overestimation of the top of the wealth distribution by including non-residents.

- The rich list method may not be consistent over time, limiting the comparability of estimates over time.

- The rich list may include a mix of individuals and families, different to the household unit used in surveys.

- For surveys like HES, that do not already over-sample the top of the wealth distribution, it is likely that augmenting the survey with rich list data will lead to an overestimation bias of the top percentile as additional observations are only generally added in this percentile, whereas under-reporting may occur in the entire top decile.

27. It is unclear if these issues will result in rich list estimates providing an under or over estimate. The fact that the NBR Rich List often counts groups of individuals (family units) may bias estimates upwards. However, under reporting may bias estimates downwards. It is therefore difficult to assess how representative the estimates are.

Capitalisation of taxable income

28. This approach is known as the 'capitalisation method', since it essentially capitalises (sums up) taxable income streams to calculate wealth for each taxpayer. The capitalisation method is based on the idea that the size of each capital income flow can indicate the distribution of the underlying assets that generate capital income.

29. Our replication of the capitalisation method uses IR income tax data to provide an underlying distribution for four different asset classes. The taxable income streams (which for New Zealand relate to fixed income deposits, New Zealand companies, equity in unincorporated businesses and PIEs) are used to distribute total asset estimates found in the RBNZ household balance sheet. For asset categories that do not generate taxable income (e.g. owner-occupied housing) we adjusted the wealth distribution using HES data. Further detail on this method and our robustness testing can be found in **Annex B**.

30. The main advantage of the capitalisation approach is that it uses administrative data, therefore it captures the whole population including the wealthiest individuals. Unlike surveys, it does not rely on sampling or self-reported information. While this method has several limitations (discussed below), it may provide a useful cross-check on survey-based estimates.

31. As the administrative and household balance sheet data are readily available to officials, it can be implemented at relatively low cost. It does require the development of a New Zealand specific method and a significant amount of data analysis and statistical modelling. The New Zealand method is novel, and the detailed methods and assumptions will need further testing and refinement. We present an initial method and estimates below.

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32.   The capitalisation method faces several limitations, including that it:

- Assumes constant taxable capital returns within each asset class. If the wealthy can systematically achieve higher (lower) rates of return than the rest of the population within each asset class, the method will likely *overestimate (underestimate)* the wealth at the top of the distribution.

- Relies upon taxable income data to supply the underlying distribution information. New Zealand's notable absence of a capital gains tax means that we cannot observe all aspects of the underlying distribution. However, the method will be accurate if the distribution of a taxable income stream is the same as the underlying distribution of wealth in each asset class (e.g. the distribution of dividend income is the same as the distribution of company ownership). Saez and Zucman (2014) also encountered difficulty with capitalising data on capital gains and found that this did not materially affect their results. However, we are unsure how much incomplete information on economic income biases results in New Zealand.

- It is not always possible to differentiate capital and labour income using taxable income (e.g. company profits generated through self-employed labour effort). We have applied a sensitivity analysis to check the robustness of results to two different assumptions about the split between labour and capital income.

- A New Zealand specific limitation is that we only have 4 general asset categories that we could capitalise, while the American estimates used 8 asset categories. Having fewer categories to capitalise reduces the precision of our estimates, as we had to aggregate some quite different categories.[4]

- HES data must be relied upon to fill asset categories that do not generate taxable income, the biggest of which is owner-occupied housing. Wealth shares are based on individuals in HES, which may not align perfectly with the 'taxpayer' unit used in the capitalisation method. The individuals in the top HES wealth percentile may not match the individuals in the top capitalised wealth percentile. This means that we risk overestimating the top of the wealth distribution when overlaying the HES data for owner-occupied housing.

Method 1 results: pooling and augmenting survey data with the NBR Rich List

33.   Figure 1 shows how augmenting HES data with the NBR Rich List changes the wealth distribution for the top 10 percentiles. The columns in Figure 1 are arranged from percentile 91 through to 100 (the wealthiest 1% of the population). The results are:

- The wealth share of the top 1% has increased from 21% (using only pooled 2015/2018 HES) to 25.6% (using HES augmented with the NBR Rich List), a 4.6 percentage point increase.
- The wealth share of the top 10% has increased from 60% (using only pooled 2015/2018 HES) to 62.5% (using HES augmented with the NBR Rich List), a 2.5 percentage point increase.
- There is a slight decrease in the other percentiles in the top decile.

34.   The increase of the top percentile wealth share presented in Figure 1 appears consistent with international experience. Countries with no oversampling in their wealth surveys typically see rich lists raise their top percentile wealth share estimates by 1 to 12 percentage points. For example, Canada's estimate of the top percentile increased from 14% to 26%, and Italy's from 14% to 20-21%. By contrast, countries that use

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[4]   For example trust, partnership, self-employment income and rents are all capitalised together as 'equity in unincorporated businesses'.

individual tax information to identify and oversample the wealthy, see top percentile uplifts of only 1 to 3 percentage points when rich list data is added.[5]

Figure 1: Wealth share held by the top 10 net worth percentiles
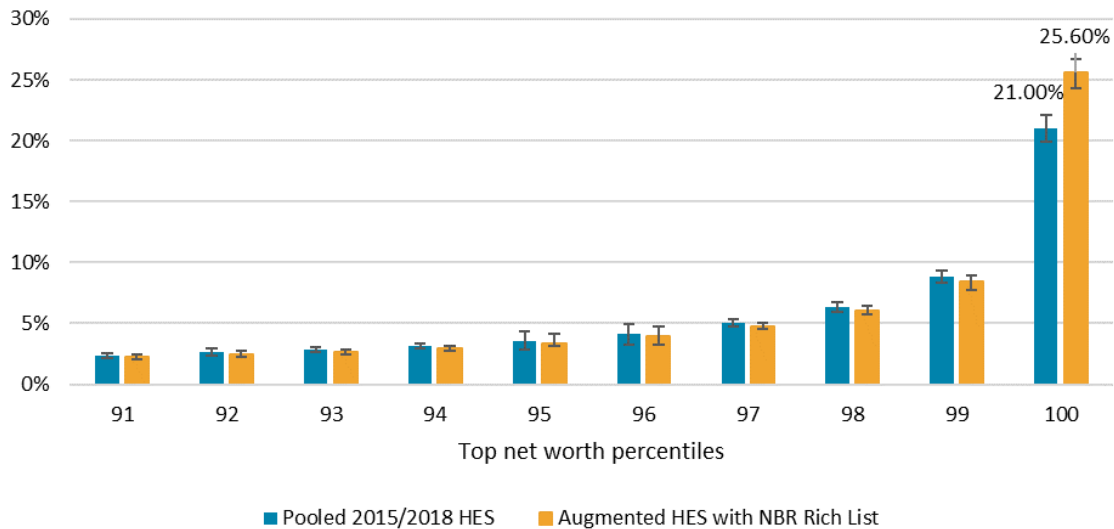
Note: this chart is ordered by net worth percentiles. HES data is based on Economic Family Units, which are based on net worth samples of single adults and their partners if they are partnered. Rich List data may be composed of a mixture of individuals, couples and family units, which may bias this method to exaggerate top percentile wealth, but other factors may bias the estimate downwards (eg reliance on HES for the owner-occupied housing distribution). Access to the data presented was managed by Statistics New Zealand under strict micro-data access protocols and in accordance with the security and confidentiality provisions of the Statistic Act 1975. These findings are not Official Statistics.

Method 2 results: improving net worth estimates by using income tax data

35.   Figure 2 displays the initial wealth estimates for the top 10 percentiles of New Zealand's wealth distribution using the capitalisation method. The columns in Figure 2 are arranged from percentile 91 through to 100 (the wealthiest 1% of the population). For comparison we have left the pooled 2015/2018 HES distribution in this chart, coloured blue. Notably the top percentile wealth share is 25.3% using the capitalisation method, compared with 21% using pooled 2015/2018 HES data (and 25.6% using the NBR rich list). Under this method there is a slight increase in the other percentiles in the top decile.

36.   The top 10% wealth share is 69.5%, compared with 60% using only the pooled 2015/2018 HES data and 62.5% using the NBR Rich List method. This difference might be explained in part as the Rich List only adds observations to the top 1%, which may leave the top decile wealth share underestimated. Further refinement of the Rich List augmentation method, including application of the Pareto distribution, would provide a check on estimates of the top decile (see **Annex A**). Given the limitations with the data, the results may be over-estimated or under-estimated.

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[5]   Vermeulen, P. (2016). "Estimating the top tail of the wealth distribution." *ECB Working Paper Series*, at 381.

**Figure 2: Wealth share held by the top 10 net worth percentiles**
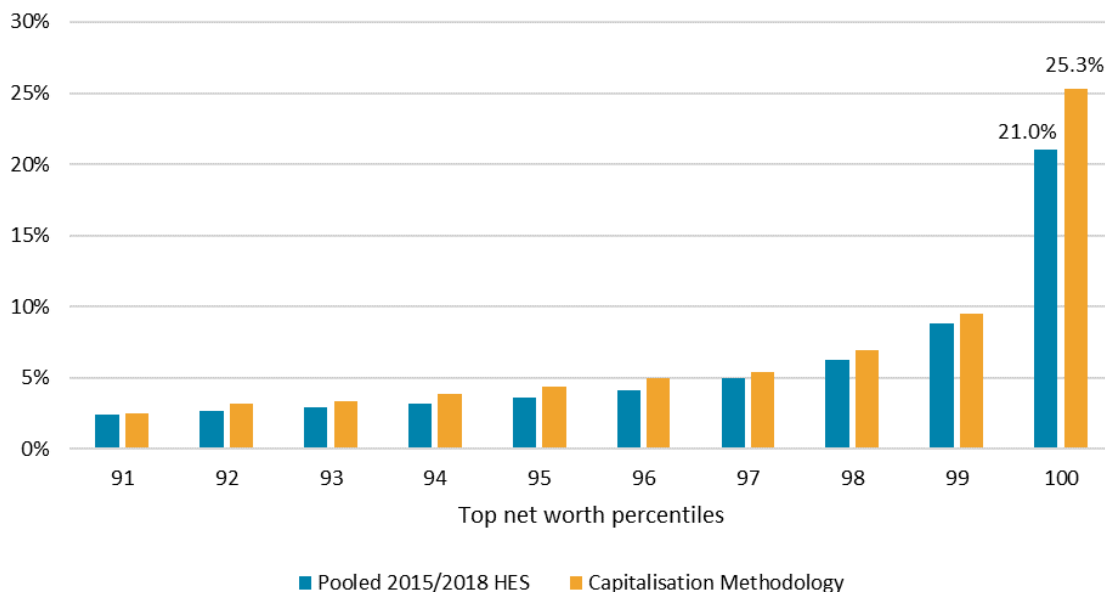
Note: the percentiles here are ordered by net worth. The unit of analysis is individual taxpayers for the capitalisation method and Economic Family Units for HES (individuals and couples). 1. The capitalisation results are based in part on tax data supplied by Inland Revenue to Statistics NZ under the Tax Administration Act 1994.

37. Figure 3 helps us understand the composition of wealth for the top percentile, as indicated by the capitalisation method. The estimates are influenced by the way that data is collected in the tax system, so caution is warranted. The first bar represents the number of people in the top percentile. The four capitalised wealth classes are split out to show the proportion held by the top 1% of the wealth distribution. The fifth asset group (owner-occupied housing) is taken from HES 2018 and added onto the total of the capitalised estimates to come to a net worth value. A key limitation here is whether the 1% population in HES is a reasonable approximation of the capitalised 1% population. Further time to model this is required to know if this would shift our estimates significantly.

38. Figure 3 shows that the top percentile own wealth far exceeding their population size. The top percentile owns approximately 70% of the wealth in listed New Zealand companies. The asset type that is least dominated by the top percentile is owner-occupied housing, but even there they hold 11% of the stock.

39. Figure 3 shows that the asset class with the lowest concentration in the top percentile was owner-occupied housing. Figure 4 shows the capitalised wealth distribution with and without owner-occupied housing. In Figure 4, deciles 1-6 are grouped into a single column because their wealth share is very small. The fact that the wealth share of decile 1-6 without owner-occupied housing (around 0%) is lower than the HES estimate (10% household share), suggests that the capitalisation method **undercounts wealth at the bottom of the distribution**, probably because low wealth individuals own few assets that generate taxable income data (ie they hold more of their wealth as cash or household durables).

Figure 3: Estimated wealth shares for main asset types using the capitalisation method
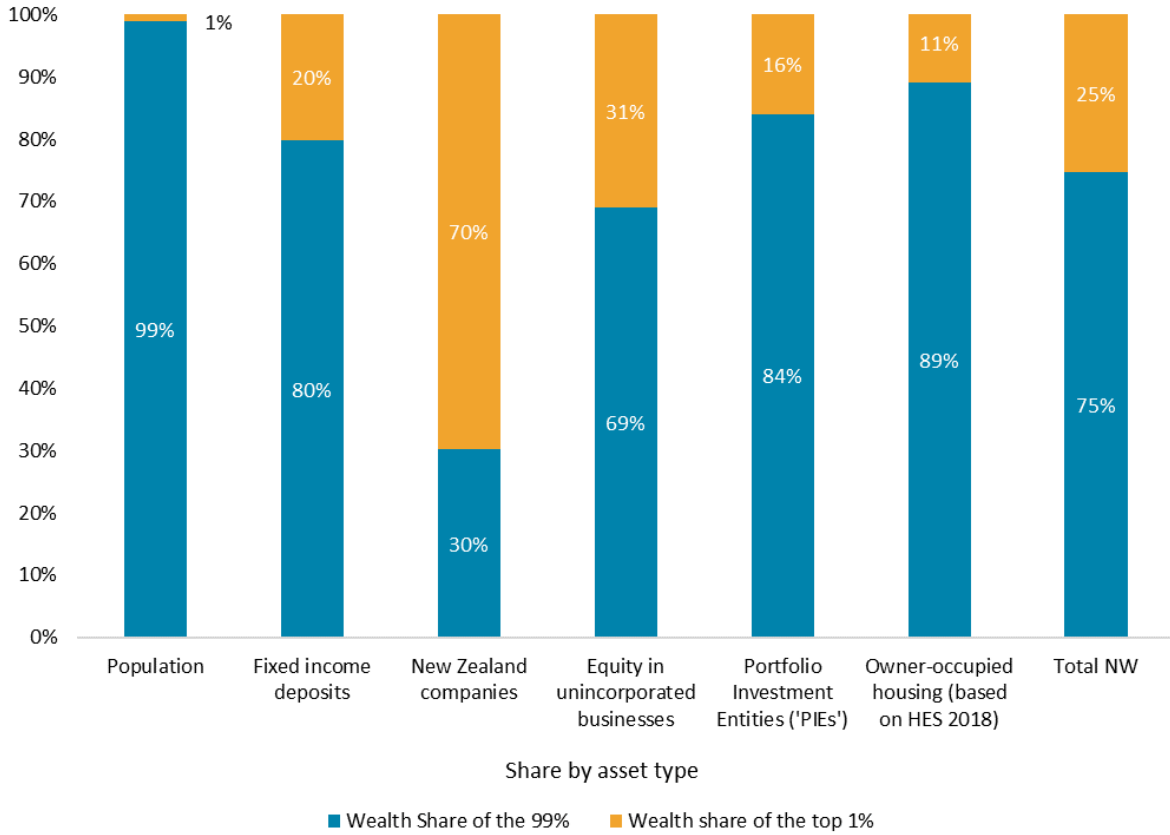
Note: Data for population based on taxpayer population in 2018. All other columns based on capitalisation method, except for owner-occupied housing which is a HES estimate based on self-declared principal dwellings held either in owner's name or family trust.

40.   Figure 4 shows that when owner occupied housing is removed from our statistics then the wealth share:

   a.   decreases for the bottom 90% of taxpayers (from 30% to 18%),
   b.   increases for the top decile of taxpayers (from 70% up to 82%), and
   c.   increases for the top percentile of taxpayers (from 25% up to 33%).

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Figure 4: Wealth share with and without owner-occupied housing using capitalisation method
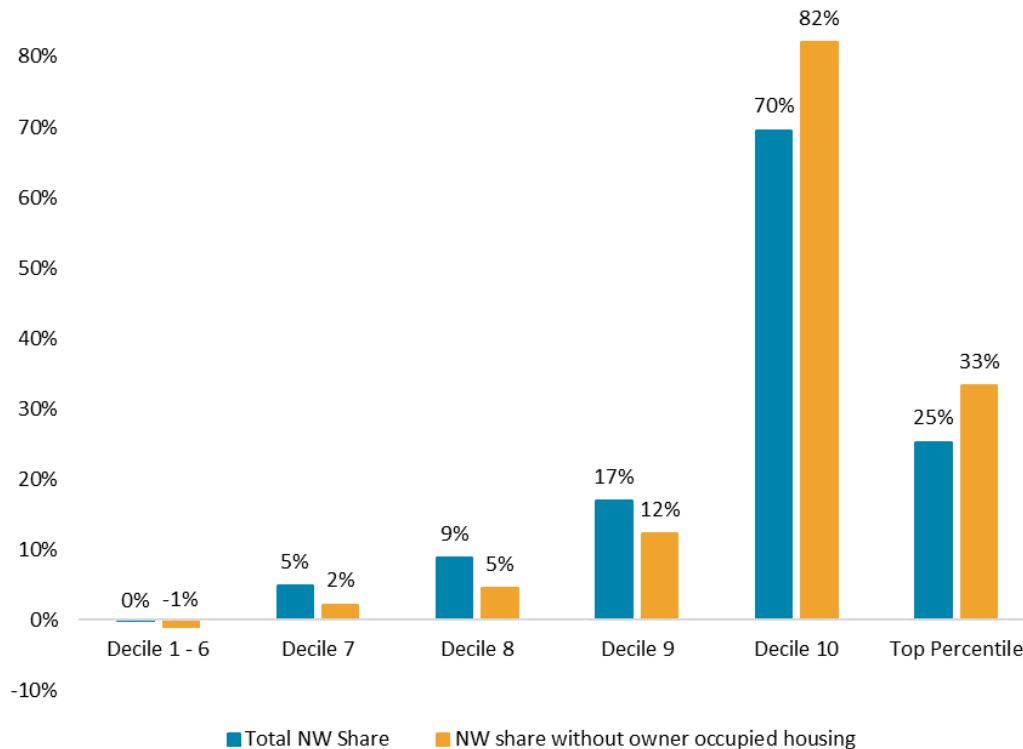
Note: Data is based on capitalisation method, except for owner-occupied housing which is a HES estimate based on self-declared principal dwellings held by owner or family trust.

Insights from the new estimates

41.	The new analysis has made progress in understanding the distribution of wealth. The two methods investigated have resulted in a 4-5 percentage point increase in the estimated wealth share of the top percentile, compared with the estimate from HES. While this result should not be considered as a highly precise or final estimate, this result is consistent with there being under-reporting of wealth in HES by high wealth individuals, relative to rest of the population. This may be biasing HES estimates of the top of the wealth distribution down. We have summarised these top percentile estimates in Table 2.

Table 2: Comparison of top percentile net worth estimates			
Methods:	HES 2018	Pooled 2015/2018 HES	Pooled HES augmented with NBR Rich List	2018 Capitalisation Method
Estimates:	20.0% (standard error 1.2)[6]	21.0% (standard error = 1.1)[6]	25.6% (standard error = 1.3)[6]	25.3% (standard error not applicable for non-survey methods)
Units of analysis:	Individuals	Economic Family Unit ('EFU')	EFU and NBR Rich List	Individuals and taxpayers

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42. Similarly, both of our new estimation methods have uplifted estimates of the top wealth decile. However, at the decile level our two methods diverge somewhat, as shown in Table 3. As previously discussed, international evidence suggests that top wealth estimates that rely on survey responses are prone to under-reporting bias, suggesting the augmentation method may continue to underestimate the top decile. Further review and refinement of these methods is required to understand the difference.

Table 3: Comparison of top decile net worth estimates				
Methods:	HES 2018	Pooled 2015/2018 HES	Pooled HES augmented with NBR Rich List	2018 Capitalisation Method
Estimates	59% (standard error =1.9)[6]	60% (standard error =1.3)[6]	63% (standard error = 1.3)[6]	70% (standard error not applicable for non-survey methods)
Units of analysis:	Individuals	Economic Family Unit ('EFU')	EFU and NBR Rich List	Individuals and taxpayers

43. Note that the units of analysis vary between the different estimation methods, which precludes direct comparison. It can still be seen that both experimental methods both uplift in the same direction and by similar magnitudes.

Further Work

44. Officials will report back on next steps as part of development of the next tax policy work programme. The Treasury also intends to undertake further work on estimating the distribution of effective tax rates once resourcing allows.

45. As discussed in **Annex A** there remains an opportunity to improve our NBR Rich List methodology through the application of a statistical technique that has been developed by an international expert in this field, s9(2)(a) has provided quality assurance of this work and has expressed interest in further collaboration.

46. It is unclear how the COVID-19 pandemic may have affected the wealth distribution. We cannot conduct new estimates until HES 2021 net worth data is collected and published.

47. While the Treasury intends to further refine the wealth distribution estimates, they are likely to remain experimental unless Stats NZ improves survey techniques used for the top end of the wealth distribution. We consider there would be merit in Stats NZ investigating the costs and benefits of improving the HES survey estimates by oversampling high-wealth households. We recommend that you forward this paper to the Minister of Statistics to seek further advice on this matter.

48. There are also other applications of these methods that could be explored in the future, including updating the estimates of wealth inequality over time, or investigating demographic or life-cycle characteristics of wealth. This work would help address known limitations of our experimental estimates.

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6   Standard errors are a measure of the sample error in our estimates. If the correction removed all non-sample bias in our estimate, there is a 95% probably that the true figure is within two standard errors of the estimate. However, a remaining non-sample error could remain unaccounted for.

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Annex A – The NBR Rich List augmentation method

In theory, the HES wealth surveys cover the entire New Zealand population, but in practice they only include individuals or families with wealth up to about $50 million. The National Business Review (NBR) has been publishing a list of rich individuals and families in NZ since the 1980s. These Rich Lists document several hundred individuals and families with wealth ranging from $30 million up to $10 billion (2019 Rich List).

Techniques that add rich list data to other sources of data have been used for measuring wealth inequality in several countries. For the United States, Saez and Zucman used the Forbes 400 list of wealthy individuals.[7] The Canadian Parliamentary Budget Office has combined survey data with Canadian Business magazine's Richest People List.[8] Vermeulen has published estimates that combine observations from Forbes World's billionaires with the national wealth survey estimates for 11 different countries.[9]

Our method combines the observations from the NBR Rich List with those from HES. HES surveys give each sample observation (each person) a 'weight'. This allows them to be scaled up to represent the population. A HES observation weight is approximately 300. This means that each individual observation is normally scaled up to represent 300 people.

In adding the NBR observations, we have treated the Rich List like an additional 'full coverage' stratum (category) in the survey. This means that we assume Rich Listers were not picked up by HES and that we have not double counted their wealth. This technique is often used in sampling very skewed populations. This application is different than usual because we did not have the stratum identified before we selected the HES survey. Nevertheless, the assumption is that we have a full survey of those in the very top of the wealth tail and each Rich-Lister is given a weight of 1 in the analysis.

In combining the two datasets together in this way we are further assuming that there was no chance they would have ever overlapped. In other words that the chance of any of the Rich-Lister participating in the HES wealth survey was close to zero.

With the NBR observations augmenting HES we were then able to calculate a new wealth distribution. Because all the Rich Listers had net worth values above the top HES observation, this augmentation technique only uplifted our estimate for the top percentile. This means the share of all other wealth percentiles appears smaller, since all percentages must sum to 100.

The Pareto distribution

Some academic literature on wealth distribution (eg Philip Vermeulen) fits the wealth distribution to a Pareto distribution. This is a skewed (uneven) distribution that assumes a high proportion of people have low wealth and a small number have high wealth. It is possible that assuming a Pareto distribution for the shape of the tail of the wealth distribution might be a useful further step in this analysis and help us further integrate the HES survey data and the NBR rich list data. Specialist expertise would be required to undertake this work.

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[7]   Saez, E. and Zucman, G. (2014) "Wealth Inequality in the United States since 1913: Evidence from Capitalized Income Tax Data" *NBER Working Paper Series*

[8]   Wodrich, N. and Worswick, A. (2016) "Estimating the top tail of the family wealth distribution in Canada", Office of the Parliamentary Budget Officer

[9]   Vermeulen, P. (2016). "Estimating the top tail of the wealth distribution." *ECB Working Paper Series*, 357 – 387.

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Annex B – The income tax capitalisation method

This method is premised on the idea that taxable income data can be used to calculate the value of the underlying assets that generate the income. In theory, using IR taxable income data circumvents the pitfalls of relying on survey data such as HES, which might be biased by low sampling and under-reporting of assets. We followed the following six steps to calculate the capitalised wealth distribution:

1) We mapped IR income tax streams to the RBNZ Household Balance Sheet (C22), which records household assets and liabilities.[10] The basic mapping is summarised in Table A. We use Table A to aggregate the taxable income for each wealth category.

Table A: Mapping IR income tax data to the RBNZ Household Balance Sheet

IR administration data as found in individual tax returns ('IR3')	RBNZ Household Balance Sheet (C22)
Interest income: Box 13B on the IR3. This should include any fixed interest e.g. from banks, IRD, building societies, etc.	**Deposits**: B Currency + C1 deposits with registered banks + C2 deposits with Non-Bank Deposit Takers + D1 central government debt securities, + D2 Local government debt securities + D2 Other debt securities + E Loans
New Zealand dividend income: Box 14B on the IR3. This should include dividends from NZ companies, unit trusts distributions, and dividends from NZ partnerships, estates or trusts, and any shares received instead of dividends.	**Equities:** F1.1 NZ listed shares + F1.2 NZ unlisted shares
Income from partnerships, shareholder-employee salary, self-employment income, trust income and housing: Sum of IR3 boxes: 23 is self-employment income, 21 is shareholder-employee salary with no tax deduction, 19E is look through company income, 18B is partnership income, 16B is trust income, 16C is non-complying trust income, box 22 is net rents.	**Unincorporated equity**: F1.3 Equity in unincorporated NZ businesses
Income from Portfolio Investment Entities ('PIEs'): This value is derived from the returns filed by PIEs each year to tell IR who they allocate income to.	**Investment Funds and Insurance:** F1.4 Overseas listed shares F2.1 Cash management trusts + F2.2 Investment fund shares + G1.1 Net equity in life insurance + G1.2 Net equity in superannuation funds + G2 Non-life insurance claims

2) Once the income totals are provided, we can calculate multipliers by mapping balance sheets items to corresponding taxable income totals:

$$\frac{RBNZ\ HC22\ Household\ Balancesheet}{Taxable\ income}$$

As an example, previous data provides the following numbers:

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[10] The RBNZ Household Balance Sheet (C22) is part of the national accounts. It provides aggregated wealth data for households based on multiple sources, including bank's balance sheets, non-bank lending institutions balance sheets, NZX records, Stats NZ surveys and others.

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Total taxable interest incomes for 2018 (from IR individual tax returns) were $4.252 billion and the total value of deposits (from the RBNZ balance sheet C22) was $179.417 billion NZD. Dividing the total deposit value by total taxable income gives a multiplier of 42. Therefore, we multiplied the total taxable interest income figures for every individual by 42. Therefore, to estimate the value of Deposit assets held by each individual, we can multiply the total taxable interest income figures for an individual by 42. When the assets of all individuals are added together, the total asset valuation using this method will always match the figure in the RBNZ household balance sheet (here, the $179.417 billion NZD). A multiplier of 42 gives an implied rate of return of $1/42 = 2.4\%$. By necessity the capitalisation method assumes that the rate of return on each asset class is consistent across the wealth distribution.

3) For each taxpayer their various taxable incomes are capitalised by multiplying each income type by the corresponding multiplier. For example, a person with declared interest income of $1,000 results in capitalised wealth of $42,000 held in interest bearing assets. This would be repeated for all assets listed in step 1.

4) Wealth for each individual can then be summed to give a wealth figure and individuals can be ranked into gross wealth order: deciles and percentiles.

5) Sensitivity analysis: one critique of the capitalisation method is that labour income might wrongly be attributed as returns to physical wealth, thereby exaggerating the top of the wealth distribution.[11] On this basis we ran the following sensitivity analysis:

Re-run steps 1-4 but with "partnership, self-employed, look-through company and shareholder-employee income" scaled by 45%. The Productivity Commission has estimated the labour income share in New Zealand to be approximately 55%, hence why we have assumed 45% of the income from these four structures to be returns to physical capital.[12] We do not adjust 'trust income' or 'rent income' for this sensitivity analysis, as both are assumed to be accruing returns on physical capital.[13] This analysis will shift the underlying income distribution and reduces the impact of returns to human capital, allowing us to comment on how sensitive our estimates are to changes in assumptions (see results below entitled: S*ensitivity Analysis*).

6) **Adjusting wealth estimates using HES data for categories with no corresponding taxable income:** to ensure that there is coverage of all assets and liabilities, we augment wealth estimates using data from HES for categories that do not generate taxable income (e.g. owner-occupied housing). The following adjustments are made to the estimates generated in steps 1-5:

a. Add owner-occupied housing. To allocate to the top wealth percentiles we can order this series by net worth based on individuals.
b. Add net owner-occupied housing assets held in family trusts. We know that the wealthiest individuals often hold their family homes in trusts, so ignoring trusts risks a wealth undercount.
c. Subtract owner-occupied housing loans. To allocate to the top wealth percentiles we can order this series by net worth based on individuals.

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[11] Matthew, S., Yagan, D., Zidar, O., & Zwick, E. (2019) "Capitalists in the Twenty-First Century," The Quarterly Journal of Economics, vol 134(4), pages 1675-1745.

[12] Fraser, H. (2018). The Labour Income Share in New Zealand: An Update. *New Zealand Productivity Commission*, https://www.productivity.govt.nz/assets/Research/ce93eb75b8/The-Labour-Income-Share-in-New-Zealand-March-2018_0.pdf

[13] For example, we know that Family Trusts tend to hold significant housing assets according to HES estimates. This explains why the share of owner-occupied housing wealth decreases between decile 9 and 10 in the HES wealth estimates.

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    d.   Subtract consumer loans. Allocate to the top percentile by dividing the top decile figure by 10 – this is likely to *over-allocate* this liability to the top percentile, but using the average across the decile avoids the high variability that this series has for the top of the distribution.

    e.   Subtract education loans. Allocate to the top percentile by dividing the top decile figure by 10 – this is likely to *over-allocate* this liability to the top percentile but, as with consumer loans, avoids the high variability that this series has for the top of the distribution.

Note that this last step is similar to the approach of Saez and Zucman (2014) where survey-based estimates are used to augment data from administrative sources. It is a pragmatic adjustment as it is not ideal to 'blend' data with different measurement units. With more time we could attempt to run this step through Treasury's Integrated Data Infrastructure ('IDI') which would link the samples with the tax data at the individual level.

Data privacy

The tax data must be used only for statistical purposes. Any person who has had access to the unit record data has certified that they have been shown, have read, and have understood section 81 of the Tax Administration Act 1994, which relates to secrecy. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes and is not related to the data's ability to support Inland Revenue's core operational requirements.

Sensitivity analysis

Some taxable income streams are derived from human effort rather than capital. We dealt with this problem by running a 'sensitivity analysis' (step 5 above) whereby we repeated our estimates but scaled down taxable income accruing to four business categories most likely to be labour intensive. Sensitivity analysis did not significantly impact our results (see **Figure B** below).

For comparison we have included the sensitivity results in **Figure A**, coloured orange. It is apparent that the down-scaling of 'partnership, self-employment, shareholder-employee and look-through-companies' income did little to alter the wealth distribution. A 0.3 percentage point decrease in the wealth estimate for the top percentile (labelled '100') is visible. The main method estimate (coloured blue) is that the top centile owns 25.3% of New Zealand's net wealth and the sensitivity analysis resulting in an estimate of a 25.0% wealth share.

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Figure A: Wealth share for the top 10 percentiles with sensitivity analysis