

22 September 2022

By email: [REDACTED]

Kia ora [REDACTED]

**FMA response to your OIA request - modelling relating to changes to GST treatment of investment management fees**

1. FMA responds to your request for: ***‘a copy of the modelling the FMA is reported as having undertaken on a changed GST treatment of investment management fees, referred to in the RIS for the Taxation (Annual Rates for 2022-23, Platform Economy, and Remedial Matters) Bill’.***
2. FMA understands you are referring to the comment in paragraph 49 of the RIS which states:  
*Option 2 – Make the fees subject to 15% GST (100% taxable)*
  48. *The Financial Markets Authority has advised that overall, fees for KiwiSaver schemes have fallen by 0.15% or 15 basis points over the past two years. Their view is the increased costs of GST will be passed onto members in the form of increased fees.*
  49. *Modelling by the Financial Markets Authority shows that this option will lead to KiwiSaver fund balances being reduced by \$103 billion by 2070 (KiwiSaver balances of \$2,196.9 billion), while fund balances for non-KiwiSaver managed funds would be lower by \$83 billion (fund balances of 1,757.05 billion).*
3. Please find attached, by way of release under the Official Information Act, the modelling undertaken, as well as a detailed description of the model and its assumptions. To explain the basis for the modelling we also release under the Official Information Act the model parameters. The modelling was done at a high-level with basic assumptions.
  - a. FMA started with the IRD’s 10% annual growth assumption, and determined the GST percentage impact (0.104%) to give effectively the same initial tax revenue as IRD’s estimate.
  - b. FMA then tapered the growth rate to make the projection more reflective of changing demographics and maturing of KiwiSaver, e.g. limits to new member growth.
    - i. The rationale for using 2070 as the date for calculating potential impact, was that this is the anticipated retirement date of those entering the workforce when the GST change was proposed to be made (2025/26).
    - ii. The assumptions FMA made were using a baseline for overall fund growth:
      - This growth rate was effectively an amalgamation of contributions, withdrawals, returns, fees, and taxes.
      - The average annual growth rate over the past 5 years for KiwiSaver was 15.7% and for non-KiwiSaver managed funds was 12.5%, indicating a 10% annual growth rate was realistic in the early years.
      - No adjustment for inflation – less relevant in the context of the analysis, as that would affect both the cost and the benefit of the proposed change.
      - 10% annual increase in balances before commencement (to align with growth assumptions used in the Inland Revenue case).

- 10% annual increase in balances for the next 5 years.
- 1% annual reduction in that growth rate for subsequent sets of 5 years (i.e., 9% for 5 years, then 8% for 5 years, etc.) This continues until year 25.
- 0.5% annual reduction in that growth rate for subsequent sets of 5 years (i.e., 5.5% for 5 years, then 5% for 5 years, etc.) This continues until year 45.

A limiting factor of the reduction in growth was the long-term real return assumption for balanced funds (a reasonable average for KiwiSaver fund strategy investments) is 3.5% - this is the return assumption required to be used in KiwiSaver projection models under the FMC Regulations (Schedule 7A).

The reductions in the 10% growth rate reflects that over the long-term, withdrawals will become an increasing part of the mix of KiwiSaver funds, as more members reach retirement age and withdraw funds. Contributions will become less of a driver of growth. It also reflects the high penetration rate of KiwiSaver for the working-age population, limiting growth from new members. If FMA assumed the 10% growth rate continued until 2070 the modelled impact would have been substantially higher.

The FMA assumed that the growth rate for KiwiSaver funds would be the same for non-KiwiSaver managed funds. This reflects the expectation that an aging and wealthier population will begin increasing investment in non-KiwiSaver managed funds.

- c. The assumption for the impact of GST is based on removal of ~10 basis points each year to pay GST on the investment management fees (the effect of which increases over time, because of compounding). This:
  - i. Removes that amount from a given year's balance
  - ii. Removes any future earnings on that amount
4. The modelling and feedback was provided to IRD to ensure that a view of both costs and benefits of the policy proposal were available to Cabinet.
5. Let us know if you would like to discuss any questions or comments. If so we suggest we make a time with Paul Gregory, Director of Investment Management.

Ngā mihi



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## **FMA's GST change projection model**

In providing its modelling results to the IRD, the FMA sought to ensure ministers received sufficient information on potential impacts of the proposed change to GST to enable them to make an informed decision.

The model was used to project the impact of a change in application of GST from its current state to a consistent application of 15% GST to all fees. It is a high-level model meant to demonstrate the impact of the change to investors.

The FMA began its model with the IRD assumptions. Like all models, it necessarily includes multiple assumptions and simplifications. The FMA had limited time to feedback to IRD as part of IRD's policy consultation.

The FMA provided its general assumptions and information about the modelling to IRD alongside the outcome of the modelling.

### **Initial conditions**

- Current blended rate of GST paid on fund fees: unknown
  - o recognising that some pay 15% on 10% of fees, while others pay 15% on all fees
  - o we did not have the IRD assumptions, so adjusted the starting balances (within reason) required to replicate the IRD then-current estimate of Year 1 tax revenue of \$275m (from KiwiSaver and non-KiwiSaver managed funds)
    - KiwiSaver balance: \$100b<sup>1</sup>
    - Non-KiwiSaver managed fund balance: \$80b
- Current weighted-average GST rate across all funds: unknown
  - o We calculated an average increased GST rate of 10.4bp (0.104%) would replicate the \$275m year 1 revenue
  - o As at 31 March 2022, the average KiwiSaver fee was 1.00% and the average non-KiwiSaver managed fund fee was 1.13%
  - o Given that some fund managers were believed to pay the full 15% GST currently, while others paid 1.5% (15% on 10% of fees), this seems to be a reasonable estimate

### **Assumptions**

- Projection period
  - o Assumption
    - The main figure we provided was for 2070, 45 years from commencement
    - We summarised the impact in five-year increments (and provided, on request from IRD, the 25-year projection as well as the 45-year projection)
  - o Rationale
    - 45 years was chosen as our primary input as it represented the approximate working life of a KiwiSaver member
- Inflation
  - o Assumption
    - Not considered
  - o Rationale

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<sup>1</sup> Note that our visibility into fund balances, especially that soon after a volatile quarter, is imperfect. The figures do not include other fund balances, e.g., property schemes, forestry schemes, and superannuation / workplace savings schemes that also would have been impacted by the change.

- This would have added one more uncontrollable variable – it was simpler and virtually as meaningful just to provide the impact projection in conjunction with the balance projection, since both the cost and the benefit would be impacted by inflation
- Growth rate
  - Assumption
    - 10% annual increase in balances before commencement (to align with growth assumptions used in the Inland Revenue case)
    - 10% annual increase in balances for the next 5 years
    - 1% annual reduction in that growth rate for subsequent sets of 5 years (i.e., 9% for 5 years, then 8% for 5 years, etc.) This continues until year 25
    - 0.5% annual reduction in that growth rate for subsequent sets of 5 years (i.e., 5.5% for 5 years, then 5% for 5 years, etc.) This continues until year 45
    - KiwiSaver and non-KiwiSaver managed funds will grow at the same rate
  - Rationale
    - The IRD GST revenue estimate assumed (at the time) a Year 1 tax revenue of \$275m
    - They estimated that amount would grow annually by 10%
      - As we were projecting the “cost” side of the cost-benefit equation, we believed it desirable to use a similar growth rate aggregated approach
    - This growth rate was effectively an amalgamation of contributions, withdrawals, returns, fees, and taxes
      - Based on aggregated fund data from Disclose, and accepting it has limitations, both KiwiSaver and non-KiwiSaver managed funds have grown at a higher rate than that in every year but the year ended 31 March 2020, with 5-year annual average growth of
        - KiwiSaver: 15.7%
        - Non-KiwiSaver: 12.5%
      - This indicates the starting growth assumption of 10% is both reasonable and conservative for the near term
      - However, we felt that a constant growth rate would be too aggressive for long-term projections
        - Had we held the 10% growth rate constant for the entire period, the KiwiSaver balance impact would have been \$436b rather than \$103b
    - We began with a 10% aggregate growth assumption, but our model then tapered that growth rate to account for other significant factors
      - KiwiSaver is a maturing product – with well over 3 million members, growth from new members will slow in the coming years
      - The average KiwiSaver member is aging – as more members reach retirement age the proportion of members over 65 is likely to increase
        - This means that withdrawals will increase – eventually withdrawal rates will increase while contribution rates will

- decrease (due to the higher mix of retirees vs working age members)
    - This would necessarily reduce the growth rate over time, all else equal
  - We did not make any assumptions about fund returns, except that as part of the blended growth rate, they became a limiting factor on the reduction in growth we assumed
    - KiwiSaver projection models used by fund managers are required to use a consistent assumption of fund returns – for balanced funds, they are required to assume a real return of 3.5%
    - With that in mind, we limited our aggregated growth rate assumption to 4.5%
- We assume that both KiwiSaver and non-KiwiSaver managed funds will grow at the same rate. This is a simplifying assumption but seems reasonable.
  - While the 5-year annual growth rate for KiwiSaver is higher than that of non-KiwiSaver funds, they are reasonably similar (15.7% vs 12.5%)
  - We believe that as KiwiSaver balances increase and KiwiSaver members become more comfortable with (and educated in) investing, they will begin to invest more in non-KiwiSaver funds as well
  - This would be generally supported by an overall aging population which would tend to have more income in their working years compared to younger populations

## **FMA projection model**

The model consists of 4 sheets (briefly described here with more detailed description below)

### **- Summary:**

Three tables summarising the results of the projections for

- KiwiSaver funds
- non-KiwiSaver managed funds
- the combination of KiwiSaver and non-KiwiSaver managed funds.

### **- KiwiSaver calcs:**

High-level calculations meant to estimate the tax revenue and impact on aggregate KiwiSaver fund balances for each year from the commencement of the GST change. The model projects from ~current balance at a growth rate which tapers from 10% per year down to 4.5% in the out-years.

The growth rate (Col E) is a high-level combination of all factors (pre-GST change) that impact total KiwiSaver balances

- Contributions

- Withdrawals
- Returns
- Taxes
- Fees/Expenses

Net impact of the GST change is the annual difference between projected KiwiSaver balances with or without the GST change – the figure for each year, then, is the cumulative impact of that change. The \$103b figure is the difference for the year 2070 (cell L54). The cumulative impact for the year 2050 is \$23b (cell L34).

- **Non-KiwiSaver calcs:**

High-level calculations meant to estimate the tax revenue and impact on aggregate non-KiwiSaver managed fund balances for each year from the commencement of the GST change. The model projects from ~current balance at a growth rate which tapers from 10% per year down to 4.5% in the out-years. Net impact of the GST change is the annual difference between projected non-KiwiSaver managed fund balances with or without the GST change – the figure for each year, then, is the cumulative impact of that change. The \$83b figure is the difference for the year 2070.

- **All funds (KS and non-KS):**

This sheet is essentially the sum of the data in 'KiwiSaver calcs' and 'Non-KiwiSaver calcs'

**Detailed description of each sheet**

- **Summary:**

Each of the three tables presents the results of the projections in 5-year increments

- KiwiSaver summary – Rows 4 to 13
- Non-KiwiSaver managed funds summary – Rows 18 to 27
- KiwiSaver and non-KiwiSaver summary – Rows 32 to 41

**(Col D)** indicates the number of years from commencement of the GST change (in 2025 for the year ended 31 March 2026) to the year ended 31 March 2070, e.g., 'Year 5' is for data as at 31 March 2030.

**(Col E)** indicates the projected balance of the funds at the given year on the assumption there is no change to current GST settings, that is, the baseline projection, e.g., if there is no change to current GST settings, there would be \$909.6b total KiwiSaver balance in Year 25 (31 March 2050).

**(Col F)** shows the estimated cumulative new tax revenue from commencement of the proposed GST change to a given year. This is the sum of all tax revenue from the change with no adjustment for inflation, e.g., the cumulative tax revenue from KiwiSaver at the end of Year 15 (31 March 2040) would be \$4.5b. The purpose of that is for comparison to the impact on fund balances in Col H. The total tax revenue is always less than the

balance impact because there is a compounding effect for the balance (due to foregone returns) while the tax revenues are unadjusted.<sup>2</sup>

**(Col G)** is the estimated fund balance net of the effect of the impact of the proposed GST change, e.g., the KiwiSaver balance at the end of year 40 (31 March 2065) would be \$1,814.8b. This column reflects both the reduction in balance due to the tax payment and the fund returns foregone as a result (the reduction in the benefit of compounding).

**(Col H)** is the cumulative impact on fund balances of the proposed change to GST, e.g., at the end of year 45, the KiwiSaver fund balances would be lower than they would have been if not for the change to GST by \$103.4b.

**(Col I)** is the proportionate impact of the GST change on fund balances in a given year, e.g., at the end of year 35 (31 March 2060) KiwiSaver balances would be 4.5% smaller than they would have been absent the GST change. The intent here is to note that the proportionate effect grows over time – coincidentally rounding to an increase by 50bp (0.5%) every five years, though those are rounded figures.

- **KiwiSaver calcs:**

**(Col D)** is a description of the growth assumptions used in Col E

**(Col E)** is the aggregate growth rate for KiwiSaver balances overall. As noted earlier, this is a combination of contributions, withdrawals, fund returns, fees/charges, and taxes. This growth rate is applied to the aggregate KiwiSaver balances in Col H:I and the new GST revenue in Col J

**(Col F)** is the number of years since commencement of the proposed GST change, as opposed to from the present. It is there for reference only but does drive the lookup formulas in Rows 61:83, for summarisation purposes (the inputs to the tables on sheet 'Summary').

**(Col G)** is a label indicating the 31 March year end for each Row. It does not affect any calculations (though it is part of the lookup range for Rows 61:83).

**(Col H)** is a projection of the KiwiSaver aggregate fund balance, starting with the initial balance (discussed above), at the growth rate in Col E. This column assumes no change to current GST treatment, and so is the baseline for comparison of the impact of the proposed GST change.

**(Col I)** is a projection of the KiwiSaver aggregate fund balance, starting with the initial balance (discussed above), at the growth rate in Col E and with the removal of the annual new GST revenue specified in Col J. This column assumes the proposed GST

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<sup>2</sup> Note we make no assumptions about the use of those revenues, as 1) money is fungible, 2) we do not have that information, and 3) that would be introducing exogenous variables. Had the intent been to use the GST revenues to offset other fund costs/taxes, e.g., ESCT, then it would be appropriate to include.

treatment, and so is the projected fund balance net of the GST change. While it is calculated directly, it is equivalent to Col H – Col L.

**(Col J)** is the estimated annual tax revenue from the proposed GST change. The Year 1 tax revenue is an allocation of the IRD's then-current projection of \$275m; that is, it is a pro-rata allocation of the \$275m weighted by the KiwiSaver fund balance vs the all funds (KiwiSaver + non-KiwiSaver) balance.

Subsequent rows apply the current year annual growth rate to the prior year net of GST fund balance (Col I) less prior year new GST revenue, then multiply that figure by the prior year effective new GST revenue rate (Col K).

**(Col K)** is the effective additional GST rate (over and above the existing GST payments). It is the ratio of new GST revenue (Col J) over the KiwiSaver balance (before subtracting that year's new GST amount).

As noted above, while this is a calculated figure resulting from our efforts to replicate the \$275m IRD estimate, it appears to be reasonable (noting that the actual current GST figure is not known to us). While it declines slightly each year, it is essentially constant.

**(Col L)** is the projected cumulative impact on fund balances to a given year. It is the difference between Col H and Col I, projected fund balances before and after the proposed GST change. the final figure in that column (cell L54) is the source of the \$103b estimated impact.

**(Cells G61:K69)** summarise the results of the projections in 5-year increments.

**(Cells G75:K83)** divide the results in Cells H61:K69 by \$1b for display purposes. The figures were then fed into the table on Sheet 'Summary'.

- **Non-KiwiSaver calcs:**

Column layout, calculation methodology, and general assumptions here are identical to those in the sheet 'KiwiSaver calcs' and so are not discussed further here, except to note

- Starting balance of \$80b as discussed above in the assumptions section.
- Year 1 new GST revenue in Cell J10, is the pro-rata allocation of the IRD's then-current \$275m revenue estimate to the starting balance of KiwiSaver and Non-KiwiSaver funds.

- **All funds (KS and non-KS)**

This sheet is essentially the sum of data from sheets 'KiwiSaver calcs' and 'Non-KiwiSaver calcs'. That said the figures are calculated directly from the starting balance of \$180b (the sum of KiwiSaver and non-KiwiSaver fund balances).

The only relevant difference is that the then-current IRD Year 1 revenue estimate of \$275m is entered directly into Cell J10.



<i>Year</i>	<b>KiwiSaver balance at year 'x' if no GST change</b>	<b>New GST revenue (cumulative)</b>	<b>KiwiSaver balance at year 'x' if GST change</b>	<b>KiwiSaver balance impact at year 'x' if GST change (assume same as KiwiSaver growth rate)</b>
5	\$ 214.4	\$ 0.9	\$ 213.2	\$ 1.1
10	\$ 329.8	\$ 2.4	\$ 326.4	\$ 3.4
15	\$ 484.6	\$ 4.5	\$ 477.1	\$ 7.5
20	\$ 679.7	\$ 7.5	\$ 665.8	\$ 13.9
25	\$ 909.6	\$ 11.6	\$ 886.4	\$ 23.2
30	\$ 1,188.8	\$ 16.9	\$ 1,152.6	\$ 36.2
35	\$ 1,517.2	\$ 23.6	\$ 1,463.6	\$ 53.6
40	\$ 1,890.7	\$ 32.0	\$ 1,814.8	\$ 75.9
45	\$ 2,300.4	\$ 42.2	\$ 2,196.9	\$ 103.4

Growth rate is combination of returns contributions - withdrawals IRD assumed growth	KiwiSaver growth rate	Years after GST implementation	Fiscal Year end	KiwiSaver balance with no GST change	KiwiSaver balance after GST change	New GST Revenue (based on estimated IRD starting point)	New GST effective rate (based on estimated IRD starting point)	Net impact on KiwiSaver balance over time due to GST change
	10.0%		31/03/2022	\$ 100 000 000 000	\$ 100 000 000 000			
	10.0%		31/03/2023	\$ 110 000 000 000	\$ 110 000 000 000			
	10.0%		31/03/2024	\$ 121 000 000 000	\$ 121 000 000 000			
	10.0%		31/03/2025	\$ 133 100 000 000	\$ 133 100 000 000			
	10.0%	1	31/03/2026	\$ 146 410 000 000	\$ 146 257 222 222	\$ 152 777 778	0.104%	\$ 152 777 778
	10.0%	2	31/03/2027	\$ 161 051 000 000	\$ 160 715 223 676	\$ 167 720 768	0.104%	\$ 335 776 324
	10.0%	3	31/03/2028	\$ 177 156 100 000	\$ 176 602 620 382	\$ 184 125 662	0.104%	\$ 553 479 618
	10.0%	4	31/03/2029	\$ 194 871 710 000	\$ 194 060 746 908	\$ 202 135 513	0.104%	\$ 810 963 902
Reduce after this as population ages, there are fewer contributors vs retirees	10.0%	5	31/03/2030	\$ 214 358 881 000	\$ 213 244 914 222	\$ 221 907 377	0.104%	\$ 1 113 966 778
1% reduction in annual rate each 5 years	9.0%	6	31/03/2031	\$ 233 651 180 290	\$ 232 195 559 586	\$ 241 396 916	0.104%	\$ 1 455 620 704
	9.0%	7	31/03/2032	\$ 254 679 786 516	\$ 252 830 561 278	\$ 262 598 671	0.104%	\$ 1 849 225 238
	9.0%	8	31/03/2033	\$ 277 600 967 303	\$ 275 399 648 686	\$ 285 663 107	0.104%	\$ 2 301 318 617
	9.0%	9	31/03/2034	\$ 302 585 054 360	\$ 299 765 863 149	\$ 310 753 918	0.104%	\$ 2 819 191 210
	9.0%	10	31/03/2035	\$ 329 817 709 252	\$ 326 406 741 647	\$ 338 049 185	0.103%	\$ 3 410 967 605
1% reduction in annual rate each 5 years	8.0%	11	31/03/2036	\$ 356 203 125 992	\$ 352 154 915 328	\$ 364 365 651	0.103%	\$ 4 048 210 664
	8.0%	12	31/03/2037	\$ 384 699 376 072	\$ 379 934 577 000	\$ 392 731 554	0.103%	\$ 4 764 799 072
	8.0%	13	31/03/2038	\$ 415 475 326 157	\$ 409 906 0 6 605	\$ 423 306 555	0.103%	\$ 5 569 289 552
	8.0%	14	31/03/2039	\$ 448 713 352 250	\$ 442 242 256 778	\$ 456 262 755	0.103%	\$ 6 471 095 472
1% reduction in annual rate each 5 years	8.0%	15	31/03/2040	\$ 484 610 420 430	\$ 477 129 851 650	\$ 491 785 671	0.103%	\$ 7 480 568 780
	7.0%	16	31/03/2041	\$ 518 533 149 860	\$ 510 003 778 783	\$ 525 162 483	0.103%	\$ 8 529 371 078
	7.0%	17	31/03/2042	\$ 554 830 470 350	\$ 545 143 237 687	\$ 560 805 610	0.103%	\$ 9 687 232 663
	7.0%	18	31/03/2043	\$ 593 668 603 275	\$ 582 704 395 315	\$ 598 869 010	0.103%	\$ 10 964 207 960
	7.0%	19	31/03/2044	\$ 635 125 405 504	\$ 622 854 185 886	\$ 639 517 101	0.103%	\$ 12 371 219 618
1% reduction in annual rate each 5 years	7.0%	20	31/03/2045	\$ 679 691 183 889	\$ 665 771 053 421	\$ 682 925 477	0.102%	\$ 13 920 130 469
	6.0%	21	31/03/2046	\$ 720 472 654 923	\$ 704 994 857 217	\$ 722 459 409	0.102%	\$ 15 477 797 706
	6.0%	22	31/03/2047	\$ 763 701 014 218	\$ 746 530 265 250	\$ 764 283 400	0.102%	\$ 17 170 748 969
	6.0%	23	31/03/2048	\$ 809 523 075 071	\$ 790 513 550 977	\$ 808 530 188	0.102%	\$ 19 009 524 095
	6.0%	24	31/03/2049	\$ 858 094 459 576	\$ 837 089 023 828	\$ 855 340 207	0.102%	\$ 21 005 435 748
Slow reduction rate to 0.5% after this - approaching assumed 3.5% balanced fund return	6.0%	25	31/03/2050	\$ 909 580 127 150	\$ 886 409 503 218	\$ 904 862 040	0.102%	\$ 23 170 623 932
0.5% reduction in annual rate each 5 years	5.5%	26	31/03/2051	\$ 959 607 034 143	\$ 934 209 292 708	\$ 952 733 187	0.102%	\$ 25 397 741 436
	5.5%	27	31/03/2052	\$ 1 012 385 421 021	\$ 984 587 664 949	\$ 1 003 138 858	0.102%	\$ 27 797 756 073
	5.5%	28	31/03/2053	\$ 1 068 066 619 177	\$ 1 037 683 773 179	\$ 1 056 213 342	0.102%	\$ 30 382 845 998
	5.5%	29	31/03/2054	\$ 1 126 810 283 232	\$ 1 093 644 282 658	\$ 1 112 098 045	0.102%	\$ 33 166 000 574
	5.5%	30	31/03/2055	\$ 1 188 784 848 810	\$ 1 152 623 776 330	\$ 1 170 941 875	0.101%	\$ 36 161 072 480
0.5% reduction in annual rate each 5 years	5.0%	31	31/03/2056	\$ 1 248 224 091 250	\$ 1 209 027 912 283	\$ 1 227 052 864	0.101%	\$ 39 196 178 967
	5.0%	32	31/03/2057	\$ 1 310 635 295 813	\$ 1 268 193 452 762	\$ 1 285 855 135	0.101%	\$ 42 441 843 051
	5.0%	33	31/03/2058	\$ 1 376 167 060 604	\$ 1 330 255 647 516	\$ 1 347 477 885	0.101%	\$ 45 911 413 088
	5.0%	34	31/03/2059	\$ 1 444 975 413 634	\$ 1 395 356 373 373	\$ 1 412 056 518	0.101%	\$ 49 619 040 261
	5.0%	35	31/03/2060	\$ 1 517 224 184 315	\$ 1 463 644 459 097	\$ 1 479 732 945	0.101%	\$ 53 579 725 218
0.5% reduction in annual rate each 5 years	4.5%	36	31/03/2061	\$ 1 585 499 272 610	\$ 1 527 965 195 056	\$ 1 543 264 701	0.101%	\$ 57 534 077 554
	4.5%	37	31/03/2062	\$ 1 656 846 739 877	\$ 1 595 114 101 582	\$ 1 609 527 251	0.101%	\$ 61 732 638 295
	4.5%	38	31/03/2063	\$ 1 731 404 843 172	\$ 1 665 215 598 052	\$ 1 678 638 101	0.101%	\$ 66 189 245 119
	4.5%	39	31/03/2064	\$ 1 809 318 061 114	\$ 1 738 399 580 150	\$ 1 750 719 815	0.101%	\$ 70 918 480 965
	4.5%	40	31/03/2065	\$ 1 890 737 373 864	\$ 1 814 801 661 017	\$ 1 825 900 239	0.101%	\$ 75 935 712 847
0.5% reduction in annual rate each 5 years	4.0%	41	31/03/2066	\$ 1 966 566 868 819	\$ 1 885 498 535 059	\$ 1 895 192 399	0.100%	\$ 80 868 333 760
	4.0%	42	31/03/2067	\$ 2 045 021 543 572	\$ 1 958 951 358 534	\$ 1 967 117 928	0.100%	\$ 86 070 185 038
	4.0%	43	31/03/2068	\$ 2 126 822 405 315	\$ 2 035 267 635 838	\$ 2 041 777 037	0.100%	\$ 91 554 769 477
	4.0%	44	31/03/2069	\$ 2 211 895 301 527	\$ 2 114 559 067 512	\$ 2 119 273 760	0.100%	\$ 97 336 234 015
	4.0%	45	31/03/2070	\$ 2 300 371 113 588	\$ 2 196 941 714 122	\$ 2 199 716 090	0.100%	\$ 103 429 399 467

5	\$	214 358 881 000.00	\$	928 667 097	\$	213 244 914 222	\$	1 113 966 778
10	\$	329 817 709 252.16	\$	2 367 128 894	\$	326 406 741 647	\$	3 410 967 605
15	\$	484 6 420 430.06	\$	4 495 581 081	\$	477 129 851 650	\$	7 480 568 780
20	\$	679 691 183 889.43	\$	7 502 860 762	\$	665 771 053 421	\$	13 920 130 469
25	\$	909 580 127 150.06	\$	11 558 3 6 007	\$	886 409 503 218	\$	23 170 623 932
30	\$	1 188 784 848 809.88	\$	16 853 461 313	\$	1 152 623 776 330	\$	36 161 072 480
35	\$	1 517 224 184 315.40	\$	23 605 6 6 659	\$	1 463 644 459 097	\$	53 579 725 218
40	\$	1 890 737 373 864.35	\$	32 013 686 766	\$	1 814 801 661 017	\$	75 935 712 847
45	\$	2 300 371 113 588.22	\$	42 236 763 980	\$	2 196 941 714 122	\$	103 429 399 467

5	\$	214	\$	1	\$	213	\$	1
10	\$	330	\$	2	\$	326	\$	3
15	\$	485	\$	4	\$	477	\$	7
20	\$	680	\$	8	\$	666	\$	14
25	\$	910	\$	12	\$	886	\$	23
30	\$	1 189	\$	17	\$	1 153	\$	36
35	\$	1 517	\$	24	\$	1 464	\$	54
40	\$	1 891	\$	32	\$	1 815	\$	76
45	\$	2 300	\$	42	\$	2 197	\$	103

	Non-KiwiSaver growth rate	Years after GST implementation	Fiscal Year end	Non-KiwiSaver balance with no GST change	Non-KiwiSaver balance after GST change	New GST Revenue (based on estimated IRD starting point)	New GST effective rate (based on estimated IRD starting point)	Net impact on Non-KiwiSaver balance over time due to GST change
Growth rate is combination of returns contributions - withdrawals IRD assumed growth								
10.0%			31/03/2022	\$ 88 000 000 000	\$ 88 000 000 000			
10.0%			31/03/2023	\$ 88 000 000 000	\$ 88 000 000 000			
10.0%			31/03/2024	\$ 96 800 000 000	\$ 96 800 000 000			
10.0%			31/03/2025	\$ 106 480 000 000	\$ 106 480 000 000			
10.0%	1		31/03/2026	\$ 117 128 000 000	\$ 117 005 777 778	\$ 122 222 222	0.104%	\$ 122 222 222
10.0%	2		31/03/2027	\$ 128 840 800 000	\$ 128 572 178 941	\$ 134 176 615	0.104%	\$ 268 621 059
10.0%	3		31/03/2028	\$ 141 724 880 000	\$ 141 282 096 06	\$ 147 300 529	0.104%	\$ 442 783 694
10.0%	4		31/03/2029	\$ 155 897 368 000	\$ 155 248 597 526	\$ 61 708 410	0.104%	\$ 648 770 474
10.0%	5		31/03/2030	\$ 171 487 104 800	\$ 170 595 931 377	\$ 177 525 901	0.104%	\$ 891 173 423
Reduce after this as population ages, there are fewer contributors vs retirees								
1% reduction in annual rate each 5 years								
9.0%	6		31/03/2031	\$ 186 920 944 232	\$ 185 756 447 669	\$ 193 117 533	0.104%	\$ 1 164 496 563
9.0%	7		31/03/2032	\$ 203 743 829 213	\$ 202 264 449 022	\$ 210 078 936	0.104%	\$ 1 479 280 191
9.0%	8		31/03/2033	\$ 222 080 773 842	\$ 220 239 718 949	\$ 228 530 486	0.104%	\$ 1 841 054 893
9.0%	9		31/03/2034	\$ 242 068 043 488	\$ 239 812 690 520	\$ 248 603 134	0.104%	\$ 2 255 352 968
9.0%	10		31/03/2035	\$ 263 854 167 402	\$ 261 125 393 318	\$ 270 439 348	0.103%	\$ 2 728 774 084
1% reduction in annual rate each 5 years								
8.0%	11		31/03/2036	\$ 284 962 500 794	\$ 281 723 932 262	\$ 291 492 521	0.103%	\$ 3 238 568 531
8.0%	12		31/03/2037	\$ 307 759 500 857	\$ 303 947 661 600	\$ 314 185 243	0.103%	\$ 3 811 839 257
8.0%	13		31/03/2038	\$ 332 380 260 926	\$ 327 924 829 284	\$ 338 645 244	0.103%	\$ 4 455 431 642
8.0%	14		31/03/2039	\$ 358 970 681 800	\$ 353 793 805 423	\$ 65 010 204	0.103%	\$ 5 176 876 377
8.0%	15		31/03/2040	\$ 387 688 336 344	\$ 381 703 881 320	\$ 393 428 537	0.103%	\$ 5 984 455 024
1% reduction in annual rate each 5 years								
7.0%	16		31/03/2041	\$ 414 826 519 888	\$ 408 003 023 026	\$ 420 129 986	0.103%	\$ 6 823 496 862
7.0%	17		31/03/2042	\$ 443 864 376 280	\$ 436 114 590 150	\$ 448 644 488	0.103%	\$ 7 749 786 131
7.0%	18		31/03/2043	\$ 474 934 882 620	\$ 466 163 516 252	\$ 479 095 208	0.103%	\$ 8 771 366 368
7.0%	19		31/03/2044	\$ 508 180 424 403	\$ 498 283 348 709	\$ 511 613 681	0.103%	\$ 9 896 975 695
7.0%	20		31/03/2045	\$ 543 752 947 112	\$ 532 616 842 737	\$ 546 340 382	0.102%	\$ 11 136 104 375
1% reduction in annual rate each 5 years								
6.0%	21		31/03/2046	\$ 576 378 123 938	\$ 563 995 885 774	\$ 577 967 527	0.102%	\$ 12 382 238 165
6.0%	22		31/03/2047	\$ 610 960 811 375	\$ 597 224 212 200	\$ 611 426 720	0.102%	\$ 13 736 599 175
6.0%	23		31/03/2048	\$ 647 6 8 460 057	\$ 632 410 840 781	\$ 646 824 150	0.102%	\$ 15 207 619 276
6.0%	24		31/03/2049	\$ 686 475 567 660	\$ 669 671 219 062	\$ 684 272 166	0.102%	\$ 16 804 348 598
6.0%	25		31/03/2050	\$ 727 664 101 720	\$ 709 127 602 574	\$ 723 889 632	0.102%	\$ 18 536 499 146
Slow reduction rate to 0.5% after this - approaching assumed 3.5% balanced fund return								
0.5% reduction in annual rate each 5 years								
5.5%	26		31/03/2051	\$ 767 685 627 315	\$ 747 367 434 66	\$ 762 186 549	0.102%	\$ 20 318 193 148
5.5%	27		31/03/2052	\$ 809 908 336 817	\$ 787 670 131 959	\$ 802 511 087	0.102%	\$ 22 238 204 858
5.5%	28		31/03/2053	\$ 854 453 295 342	\$ 830 147 018 543	\$ 844 970 673	0.102%	\$ 24 306 276 799
5.5%	29		31/03/2054	\$ 901 448 226 586	\$ 874 915 426 127	\$ 889 678 436	0.102%	\$ 26 532 860 459
5.5%	30		31/03/2055	\$ 951 027 879 048	\$ 922 099 021 064	\$ 936 753 500	0.101%	\$ 28 928 857 984
0.5% reduction in annual rate each 5 years								
5.0%	31		31/03/2056	\$ 998 579 273 000	\$ 967 222 329 826	\$ 981 642 291	0.101%	\$ 31 356 943 174
5.0%	32		31/03/2057	\$ 1 048 508 236 650	\$ 1 014 554 762 210	\$ 1 028 684 108	0.101%	\$ 33 953 474 420
5.0%	33		31/03/2058	\$ 1 100 933 648 483	\$ 1 064 204 518 012	\$ 1 077 982 308	0.101%	\$ 36 729 130 470
5.0%	34		31/03/2059	\$ 1 155 980 330 907	\$ 1 116 285 098 698	\$ 1 129 645 215	0.101%	\$ 39 695 232 208
5.0%	35		31/03/2060	\$ 1 213 779 347 452	\$ 1 170 915 567 278	\$ 1 183 786 356	0.101%	\$ 42 863 780 175
0.5% reduction in annual rate each 5 years								
4.5%	36		31/03/2061	\$ 1 268 399 418 088	\$ 1 222 372 156 045	\$ 1 234 611 760	0.101%	\$ 46 027 262 043
4.5%	37		31/03/2062	\$ 1 325 477 391 902	\$ 1 276 091 281 266	\$ 1 287 621 801	0.101%	\$ 49 386 110 636
4.5%	38		31/03/2063	\$ 1 385 123 874 537	\$ 1 332 172 478 442	\$ 1 342 910 481	0.101%	\$ 52 951 396 095
4.5%	39		31/03/2064	\$ 1 447 454 448 891	\$ 1 390 719 664 120	\$ 1 400 575 852	0.101%	\$ 56 734 784 772
4.5%	40		31/03/2065	\$ 1 512 589 899 091	\$ 1 451 841 328 814	\$ 1 460 720 191	0.101%	\$ 60 748 570 278
4.0%	41		31/03/2066	\$ 1 573 093 405 055	\$ 1 508 398 828 047	\$ 1 516 153 919	0.100%	\$ 64 994 667 008
0.5% reduction in annual rate each 5 years								
4.0%	42		31/03/2067	\$ 1 636 017 234 857	\$ 1 567 161 086 827	\$ 1 573 694 342	0.100%	\$ 68 856 148 030
4.0%	43		31/03/2068	\$ 1 701 457 924 252	\$ 1 628 214 108 670	\$ 1 633 421 630	0.100%	\$ 73 243 815 581
4.0%	44		31/03/2069	\$ 1 769 5 6 241 222	\$ 1 691 647 254 009	\$ 1 695 419 008	0.100%	\$ 77 868 987 212
4.0%	45		31/03/2070	\$ 1 840 296 890 871	\$ 1 757 553 371 297	\$ 1 759 772 872	0.100%	\$ 82 743 519 573

5	\$	171 487	0 800 000	\$	742 933 678	\$	170 595 931 377	\$	891 173 423
10	\$	263 854	6 401.73	\$	1 893 703 115	\$	261 125 393 318	\$	2 728 774 084
15	\$	387 688	336 344.05	\$	3 596 464 865	\$	381 703 881 320	\$	5 984 455 024
20	\$	543 752	947 111.54	\$	6 002 288 609	\$	532 616 842 737	\$	11 136 104 375
25	\$	727 664	01 720.05	\$	9 246 668 805	\$	709 127 602 574	\$	18 536 499 146
30	\$	951 027	879 047.91	\$	13 482 769 051	\$	922 099 021 064	\$	28 928 857 984
35	\$	1 213 779	347 452.32	\$	18 884 509 328	\$	1 170 915 567 278	\$	42 863 780 175
40	\$	1 512 589	899 091.48	\$	25 610 949 413	\$	1 451 841 328 814	\$	60 748 570 278
45	\$	1 840 296	890 870.58	\$	33 789 411 84	\$	1 757 553 371 297	\$	82 743 519 573

5	\$	171	\$	1	\$	171	\$	1
10	\$	264	\$	2	\$	261	\$	3
15	\$	388	\$	4	\$	382	\$	6
20	\$	544	\$	6	\$	533	\$	11
25	\$	728	\$	9	\$	709	\$	19
30	\$	951	\$	13	\$	922	\$	29
35	\$	1 214	\$	19	\$	1 171	\$	43
40	\$	1 513	\$	26	\$	1 452	\$	61
45	\$	1 840	\$	34	\$	1 758	\$	83

	KiwiSaver and non-KS growth rate	Years after GST implementation	Financial Year end	KiwiSaver and non-KS balance with no GST change	KiwiSaver and non-KS balance after GST change	New GST Revenue (based on estimated IRD starting point)	New GST effective rate (based on estimated IRD starting point)	Net impact on KiwiSaver and non-KS balance over time due to GST change
	Growth rate is combination of returns contributions - withdrawals IRD assumed growth		10.0%	31/03/2022 \$ 180 000 000 000	\$ 180 000 000 000			
			10.0%	31/03/2023 \$ 198 000 000 000	\$ 198 000 000 000			
			10.0%	31/03/2024 \$ 217 800 000 000	\$ 217 800 000 000			
			10.0%	31/03/2025 \$ 239 580 000 000	\$ 239 580 000 000			
			10.0%	31/03/2026 \$ 263 538 000 000	\$ 263 263 000 000	\$ 275 000 000	0.104%	\$ 275 000 000
			10.0%	31/03/2027 \$ 289 891 800 000	\$ 289 287 402 617	\$ 301 897 383	0.104%	\$ 604 397 383
			10.0%	31/03/2028 \$ 318 880 980 000	\$ 317 684 716 688	\$ 331 426 191	0.104%	\$ 996 263 312
			10.0%	31/03/2029 \$ 350 769 078 000	\$ 349 309 344 434	\$ 363 843 923	0.104%	\$ 1 459 733 566
			10.0%	31/03/2030 \$ 385 845 985 800	\$ 383 840 845 599	\$ 399 433 278	0.104%	\$ 2 005 140 201
		Reduce after this as population ages, there are fewer contributors vs retirees	9.0%	31/03/2031 \$ 420 572 124 522	\$ 417 952 007 254	\$ 434 514 449	0.104%	\$ 2 620 117 268
		1% reduction in annual rate each 5 years	9.0%	31/03/2032 \$ 458 423 615 729	\$ 455 095 010 300	\$ 472 677 607	0.104%	\$ 3 228 605 429
			9.0%	31/03/2033 \$ 499 661 741 145	\$ 495 539 367 634	\$ 514 193 593	0.104%	\$ 4 142 373 510
			9.0%	31/03/2034 \$ 544 653 097 848	\$ 539 578 553 669	\$ 559 357 052	0.104%	\$ 5 074 544 179
			9.0%	31/03/2035 \$ 593 671 876 654	\$ 587 532 134 965	\$ 608 488 534	0.103%	\$ 6 139 741 688
		1% reduction in annual rate each 5 years	8.0%	31/03/2036 \$ 641 165 626 786	\$ 633 878 847 590	\$ 655 858 172	0.103%	\$ 7 286 779 196
			8.0%	31/03/2037 \$ 692 458 876 929	\$ 683 882 238 600	\$ 706 916 798	0.103%	\$ 8 576 638 329
			8.0%	31/03/2038 \$ 747 855 387 083	\$ 737 830 865 889	\$ 751 951 799	0.103%	\$ 10 024 721 194
			8.0%	31/03/2039 \$ 807 684 034 050	\$ 796 036 062 201	\$ 821 272 959	0.103%	\$ 11 647 971 849
		1% reduction in annual rate each 5 years	8.0%	31/03/2040 \$ 872 298 756 774	\$ 858 833 732 969	\$ 885 214 208	0.103%	\$ 13 465 023 805
			7.0%	31/03/2041 \$ 933 359 669 748	\$ 9 8 006 801 809	\$ 945 292 469	0.103%	\$ 15 352 867 940
			7.0%	31/03/2042 \$ 998 694 846 631	\$ 981 257 827 836	\$ 1 009 450 099	0.103%	\$ 17 437 018 794
			7.0%	31/03/2043 \$ 1 068 603 485 895	\$ 1 048 867 911 567	\$ 1 077 964 218	0.103%	\$ 19 735 574 328
			7.0%	31/03/2044 \$ 1 143 405 729 907	\$ 1 121 337 534 594	\$ 1 151 130 782	0.103%	\$ 22 268 195 313
			7.0%	31/03/2045 \$ 1 223 444 131 001	\$ 1 198 387 896 158	\$ 1 229 265 858	0.102%	\$ 25 056 234 843
		1% reduction in annual rate each 5 years	6.0%	31/03/2046 \$ 1 296 850 778 861	\$ 1 268 990 742 991	\$ 1 300 426 936	0.102%	\$ 27 860 035 870
			6.0%	31/03/2047 \$ 1 374 661 825 593	\$ 1 343 754 477 449	\$ 1 375 710 121	0.102%	\$ 30 907 348 143
			6.0%	31/03/2048 \$ 1 457 141 535 128	\$ 1 422 924 391 758	\$ 1 455 354 338	0.102%	\$ 34 217 143 370
			6.0%	31/03/2049 \$ 1 544 570 027 236	\$ 1 506 760 242 890	\$ 1 539 612 373	0.102%	\$ 37 809 784 346
		Slow reduction rate to 0.5% after this - approaching assumed 3.5% balanced fund return	6.0%	31/03/2050 \$ 1 637 244 228 870	\$ 1 595 537 105 792	\$ 1 628 751 672	0.102%	\$ 41 707 123 078
		0.5% reduction in annual rate each 5 years	5.5%	31/03/2051 \$ 1 727 292 661 458	\$ 1 681 576 726 874	\$ 1 714 919 736	0.102%	\$ 45 715 934 584
			5.5%	31/03/2052 \$ 1 822 293 757 838	\$ 1 772 257 796 907	\$ 1 805 649 945	0.102%	\$ 50 035 960 931
			5.5%	31/03/2053 \$ 1 922 519 914 519	\$ 1 867 830 791 722	\$ 1 901 84 015	0.102%	\$ 54 689 122 797
			5.5%	31/03/2054 \$ 2 028 258 509 818	\$ 1 968 559 708 785	\$ 2 001 776 482	0.102%	\$ 59 698 801 033
			5.5%	31/03/2055 \$ 2 139 812 727 858	\$ 2 074 722 787 384	\$ 2 107 695 374	0.101%	\$ 65 089 930 464
		0.5% reduction in annual rate each 5 years	5.0%	31/03/2056 \$ 2 246 803 64 251	\$ 2 176 250 242 109	\$ 2 208 695 154	0.101%	\$ 70 553 122 141
			5.0%	31/03/2057 \$ 2 359 143 532 463	\$ 2 282 748 214 972	\$ 2 314 539 242	0.101%	\$ 76 395 317 491
			5.0%	31/03/2058 \$ 2 477 100 709 086	\$ 2 394 460 165 528	\$ 2 425 460 193	0.101%	\$ 82 640 543 558
			5.0%	31/03/2059 \$ 2 600 955 744 541	\$ 2 511 641 472 072	\$ 2 541 701 733	0.101%	\$ 89 314 272 469
			5.0%	31/03/2060 \$ 2 731 003 531 768	\$ 2 624 560 026 375	\$ 2 663 519 300	0.101%	\$ 96 443 505 393
		0.5% reduction in annual rate each 5 years	4.5%	31/03/2061 \$ 2 853 898 609 697	\$ 2 750 337 351 101	\$ 2 777 876 461	0.101%	\$ 103 561 339 597
			4.5%	31/03/2062 \$ 2 982 324 131 779	\$ 2 871 205 382 848	\$ 2 897 149 052	0.101%	\$ 111 118 748 931
			4.5%	31/03/2063 \$ 3 116 528 717 709	\$ 2 997 388 076 494	\$ 3 021 548 582	0.101%	\$ 119 140 614 214
			4.5%	31/03/2064 \$ 3 256 772 510 006	\$ 3 129 119 244 269	\$ 3 151 295 667	0.101%	\$ 127 653 265 736
			4.5%	31/03/2065 \$ 3 403 327 272 956	\$ 3 266 642 989 831	\$ 3 286 620 430	0.101%	\$ 136 684 283 125
		0.5% reduction in annual rate each 5 years	4.0%	31/03/2066 \$ 3 539 460 63 874	\$ 3 393 897 363 106	\$ 3 411 346 318	0.100%	\$ 145 653 000 768
			4.0%	31/03/2067 \$ 3 681 038 778 429	\$ 3 526 112 445 361	\$ 3 540 812 270	0.100%	\$ 154 926 333 068
			4.0%	31/03/2068 \$ 3 828 280 329 566	\$ 3 663 481 744 508	\$ 3 675 198 667	0.100%	\$ 164 798 585 058
			4.0%	31/03/2069 \$ 3 981 411 542 749	\$ 3 806 206 321 521	\$ 3 814 692 767	0.100%	\$ 175 205 221 228
			4.0%	31/03/2070 \$ 4 140 668 004 459	\$ 3 954 495 085 419	\$ 3 959 488 963	0.100%	\$ 186 172 919 040

5	\$	385 845 985 800.00	\$	1 671 600 775	\$	383 840 845 599	\$	2 005 140 201
10	\$	593 671 876 653.89	\$	4 260 832 010	\$	587 532 134 965	\$	6 139 741 688
15	\$	872 298 756 774.10	\$	8 092 045 945	\$	858 833 732 969	\$	13 465 023 805
20	\$	1 223 444 131 000.97	\$	13 505 149 371	\$	1 198 387 896 158	\$	25 056 234 843
25	\$	1 637 244 228 870.11	\$	20 805 004 812	\$	1 595 537 05 792	\$	41 707 123 078
30	\$	2 139 812 727 857.79	\$	3 036 230 364	\$	2 074 722 797 384	\$	65 089 930 464
35	\$	2 731 003 531 767.73	\$	42 490 145 987	\$	2 634 560 026 375	\$	96 443 505 393
40	\$	3 403 327 272 955.83	\$	57 624 636 179	\$	3 266 642 989 831	\$	136 684 283 125
45	\$	4 140 668 004 458.79	\$	76 026 175 165	\$	3 954 495 085 419	\$	186 172 919 040

5	\$	386	\$	2	\$	384	\$	2
10	\$	594	\$	4	\$	588	\$	6
15	\$	872	\$	8	\$	859	\$	13
20	\$	1 223	\$	14	\$	1 198	\$	25
25	\$	1 637	\$	21	\$	1 596	\$	42
30	\$	2 140	\$	30	\$	2 075	\$	65
35	\$	2 731	\$	42	\$	2 635	\$	96
40	\$	3 403	\$	58	\$	3 267	\$	137
45	\$	4 141	\$	76	\$	3 954	\$	186