



**New Coin  
Requirements**

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**March 2006**



## New Coin Requirements

Report Prepared For:

### Reserve Bank of New Zealand

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### Table of Contents

|  |    |
|--|----|
| Executive Insights.....                                      | 1  |
| Needs Assessment .....                                       | 4  |
| Research Design .....  | 5  |
| Active – Day to Day Coins .....                              | 7  |
| Stored Coins.....  | 9  |
| Cycle Period for Emptying/Banking Stocks of Coins .....      | 11 |
| Channels back into Circulation .....                         | 1  |
| Appendix I – Methodology .....                               | 2  |
| Appendix II – Sample Profile.....                            | 3  |
| Appendix III – Coin Accumulation Rate Model .....            | 4  |
| Appendix III – Coin Accumulation Rate Model, continued ..... | 5  |
| Appendix IV – ACNielsen Quality Assurance.....               | 6  |
| Appendix V – Company Information.....                        | 7  |

***Opinion Statement***

***ACNielsen certifies that the information contained in this report has been compiled in accordance with sound market research methods and principles, as well as proprietary methodologies developed by, or for, ACNielsen. ACNielsen believes that this report represents a fair, accurate and comprehensive analysis of the information collected, with all sampled information subject to normal statistical variance.***

## Executive Insights

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### Background

The Bank is planning to replace silver coins with new, smaller, lighter coins. It is currently engaged in finalising estimates of the number of coins that will be returned and need to be disposed of, and the number of new coins that need to be minted and distributed.

The Bank has asked ACNielsen to undertake research to estimate the number of coins the general public needs for transaction purposes.

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### Executive Insights

Participants in this research were asked to count the number of silver coins of each denomination they and all other household members have:

- For day to day use
- Stored in jars, money boxes or elsewhere.

In addition, participants were asked to estimate how many coins on average they put into storage each week and on average how often they empty out these stores of coins.

### Coins Recovery

Based on this research we estimate that:

- The number of coins in circulation for day to day use is approximately 48 million.
- The number of coins in storage containers of one sort or another is approximately 249 million.

Hence, if the bank recovers all of the coins they can expect to recover approximately 297 million coins in total.

Recovery for individual denominations is estimated to be approximately:

- 35 million 50 cent coins
  - 63 million 20 cent coins
  - 73 million 10 cent coins
  - 126 million 5 cent coins.
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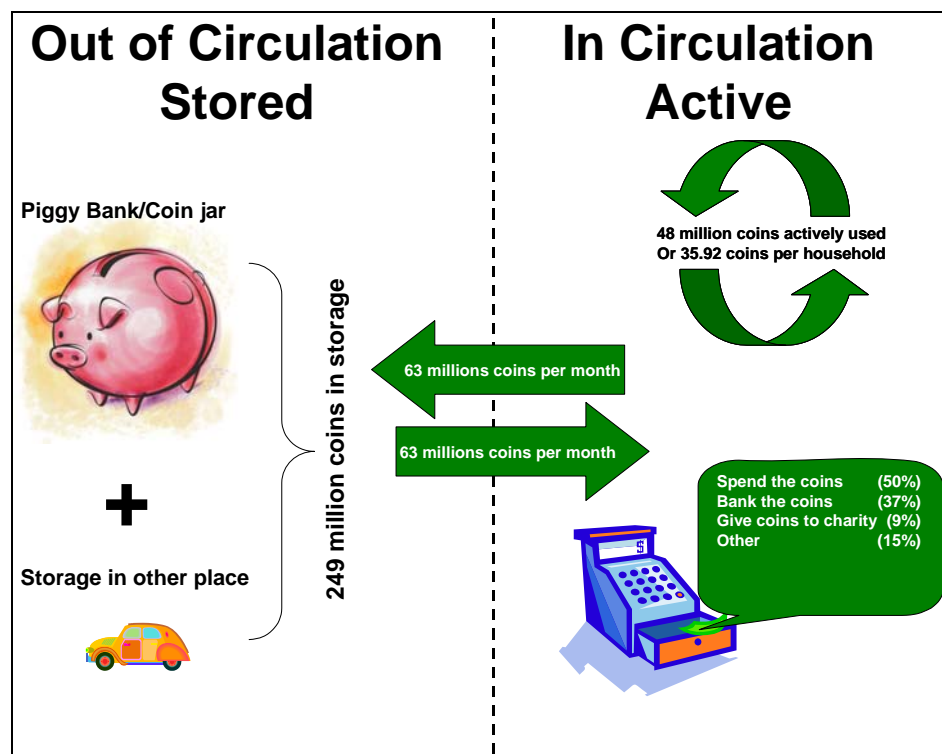
## Executive Insights, continued

The bank predicts they will receive back 75% of all the coins or 223 million coins in total.

Recovery for individual denominations is estimated to be approximately:

- 26 million 50 cent coins
- 47 million 20 cent coins
- 55 million 10 cent coins
- 95 million 5 cent coins.

The diagram below illustrates the current state of equilibrium



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## Executive Insights, continued

### Replacement Coins

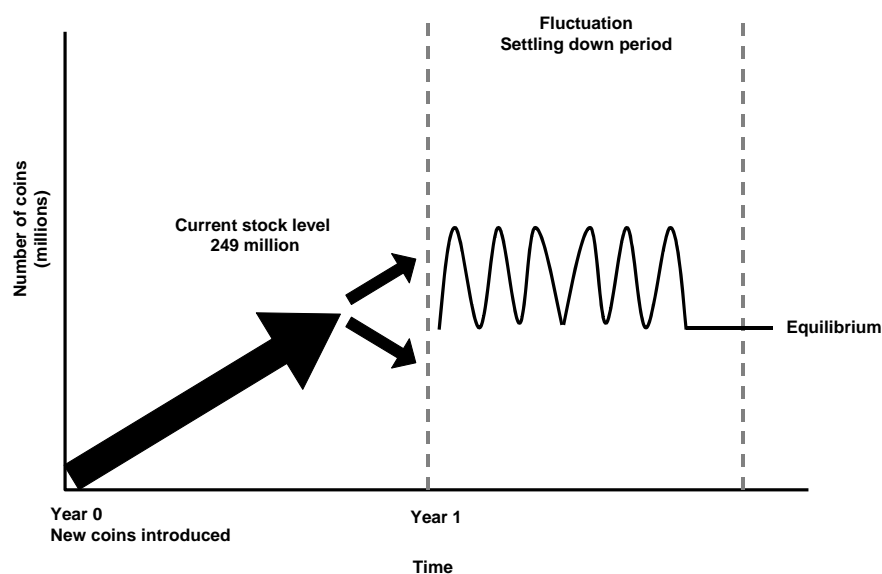
To estimate the number of new coins required, we have assumed that 50 and 20 cent coins will be replaced one for one. In estimating the number of 10 cent coins we have used the Bank's scenario of one additional 10 cent coin for every two 5 cent coins currently in circulation.

Hence, we estimate the bank will require approximately 234 million new coins in total.

Individual denominations of new coins are estimated to be approximately:

- 35 million 50 cent coins
- 63 million 20 cent coins
- 136 million 10 cent coins.

Our modelling suggests that the current level of stock will be reached within 12 months of the new coins being issued. Uncertainty of data relating to storage emptying behaviour prevents us making an accurate projection of when equilibrium will be reached. However, our analysis suggests it is unlikely that current stock levels will be exceeded by a substantial amount. We expect a period of fluctuating stock levels to begin towards the end of the first year. The diagram on the following page illustrates this.



## Needs Assessment

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### Background

The Reserve Bank has announced its intention to replace existing silver coins with new smaller, lighter coins.

A “building block” approach has been adopted to estimating national requirements for new coins. Using this approach the “normal” coin requirements of different groups are estimated using methods most appropriate for that group. These estimates are then aggregated to determine the number of new coins to be struck.

The Bank has asked ACNielsen to undertake research to estimate the amount of coins the general public needs for transaction purposes.

In September a pilot study was carried out amongst employees of The Reserve Bank to test and refine the design of this research.

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### Research Objectives

The purpose of this research is to quantify the number of coins required to replace existing coins in circulation, and the number of coins that are likely to be recovered by the Bank.

The specific objectives of this research are to quantify:

- The number of coins people need to meet day to day requirements (normal stocks of coins)
  - The number of coins needed to replace individuals’ stockpiles of coins over time (net issues of coins).
  - The average cycle period for emptying/banking stocks of coins.
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## Research Design

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**Methodology** A multi-stage research process was used comprising the following steps:

Preliminary pilot research was carried out online amongst RBNZ staff between 1 September and 14 September. A total of 100 household responses were gathered in this way. This pilot study was used to test and refine the research design before it was launched amongst the general public.

Research amongst the general public used the following process:

- An email invitation explaining the background and importance of the research was sent to a random selection of ACNielsen's Online Panel members.
- Quota were set to ensure all regions and household types were represented in the sample in proportion to the national New Zealand population.
- Panel members were classified by number of people in the household, and were grouped into one of four regions (Auckland, North, Central and South Island) to ensure the sample was representative on these factors.

Included with the email invitation was a set of instructions, a questionnaire and a link to complete the online survey.

In total, 1002 households completed the survey between 25 October and 7 November, with a response rate of 43%.

The data collected was then processed by ACNielsen's in-house measurement science unit (our advanced statistical analytics team) and results for this sample of New Zealanders were then projected up to population to make the assessments of total numbers of coins documented in this report (projections are based on Statistics New Zealand data indicating there are 1,344,261 households).

In order to ensure the sample taken accurately reflected households in the New Zealand population in terms of coins, we recalculated the number of coins per household for varying sample sizes (i.e. we emulated the effect of repeat samples) and with some extreme values removed.

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## Research Design, continued

The simulation randomly removed households from the list of 1002 households collected and recalculated appropriate coin counts based on the new reduced sample size. In almost all simulations, the sample size was rarely reduced by more than 30 households. This same approach was used in the Pilot study, and although more variability appeared in the pilot simulations where there were only 100 households, in the final study these simulations were slightly more stable indicating that our sample, and any associated coin counts, are relatively robust.

**Response rate** A final response rate of 43% was achieved from our general public survey using ACNielsen's Your Voice panel. This was made up as follows:

|  | <b>n</b>    | <b>%</b>    |
|--|-------------|-------------|
| <b>Survey invites sent out</b>                                     | <b>2558</b> | <b>100%</b> |
| Ineligible to participate (Bounced invite)                         | 120         | 5%          |
| Ineligible to participate (Quota fail)                             | 101         | 4%          |
| Number of eligible contacts  | 2337        | 91%         |
| <b>Number of eligible contacts</b>                                 | <b>2337</b> | <b>100%</b> |
| Completed interviews   | 1002        | 43%         |
| Incomplete interviews  | 180         | 8%          |
| Eligible but did not begin survey                                  | 1155        | 49%         |
| <b>Response rate (completed interviews over eligible contacts)</b> |             | <b>43%</b>  |

## Active – Day to Day Coins

### Active – Day to Day Coins

To gain an understanding of the number of coins people need to meet day to day requirements all respondents were asked, “*Firstly, how many coins (of each silver denomination) do you have with you today that are for your exclusive use for day to day needs? This includes coins in your pockets, in your purse, handbag or any other bags, and coins which you may have placed in a convenient location for you to pick them up when you go out*” Respondents were also asked to count how many coins all other members of their household had for day to day use and how many coins there were in any shared supplies for day to day use.

As shown in the table below the average number of silver coins in a household for day-to-day use (or “active” coins before the new coins are introduced) is 36 coins or just over 48 million coins when projected up to New Zealand population.

|                         | Average number of coins per household |                            | Projected up for New Zealand Population |                            | Percentage of all “active coins” before new coins introduced |
|-------------------------|---------------------------------------|----------------------------|---|----------------------------|--|
|                         | Before new coins introduced           | After new coins introduced | Before new coins introduced             | After new coins introduced |  |
| <b>50 cent</b>          | 6.36                                  | 6.36                       | 8,549,500                               | 8,549,500                  | 17.72  |
| <b>20 cent</b>          | 10.07                                 | 10.07                      | 13,536,708                              | 13,536,708                 | 28.05  |
| <b>10 cent</b>          | 8.20                                  | -                          | 11,022,940                              | -                          | 22.84  |
| <b>Revised 10 cent*</b> | -                                     | 13.84                      | -                                       | 18,604,572                 | -  |
| <b>5 cent</b>           | 11.28                                 | -                          | 15,163,264                              | -                          | 31.39  |
| <b>Total</b>            | 35.92                                 | 30.27                      | 48,272,412                              | 40,690,780                 | 100  |

\*The revised number of 10 cent coins is the total average number of 10 cent coins per household plus half the average number of 5 cent coins.

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## Active – Day to Day Coins, continued

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When the new coins are introduced and the 5 cent coin withdrawn from circulation we estimate the average number of coins a household will have for day to day or active use is 30.27 coins (just less than 41 million coins in total). This is based on the assumption that the quantity of 50 cent and 20 cent coins will remain constant and the quantity of 10 cent coins will increase by half the number of 5 cent coins.

As a percentage, households are more likely to have 5 cent coins in their purses or bags or in shared day-to-day stores etc (or around 31% of all “active” coins), followed by 20 cent coins (28%). Households are least likely to carry 50 cent coins for day to day use (18% of all “active” coins).

Later in this report we show that “Active” coins in circulation account for around 18% of all coins New Zealanders have in their households.

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## Stored Coins

### Stored coins

To gauge the number of coins needed to replace individuals' stockpiles of coins, all respondents were then asked "How many coins (of each silver denomination) do you have stored in jars, money boxes, in your car, or any other, which are for your exclusive use, but are not used on a day to day basis?". Respondents were also asked how many coins all other household members had stored for their individual exclusive use and how many coins were stored for shared use.

As can be seen in the table below, currently, on average households have around 185 coins in storage or just under 249 million when projected up to the New Zealand population of households.

|                         | Average number of coins per household |                            | Projected up for New Zealand Population |                            | Percentage of all "stored coins" before new coins introduced |
|-------------------------|---------------------------------------|----------------------------|---|----------------------------|--|
|                         | Before new coins introduced           | After new coins introduced | Before new coins introduced             | After new coins introduced |  |
| <b>50 cent</b>          | 19.61                                 | 19.61                      | 26,360,958                              | 26,360,958                 | 10.59  |
| <b>20 cent</b>          | 36.83                                 | 36.83                      | 49,509,132                              | 49,509,132                 | 19.89  |
| <b>10 cent</b>          | 46.15                                 | -                          | 62,037,644                              | -                          | 24.92  |
| <b>Revised 10 cent*</b> | -                                     | 87.44                      | -                                       | 117,542,180                | -  |
| <b>5 cent</b>           | 82.58                                 | -                          | 111,009,072                             | -                          | 44.59  |
| <b>Total</b>            | 185.18                                | 143.88                     | 248,916,806                             | 193,412,270                | 100  |

\*The revised number of 10 cent coins is the total average number of 10 cent coins per household plus half the average number of 5 cent coins.

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## Stored Coins, continued

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When the new coins are introduced and 5 cent coins are withdrawn we estimate the average household will have 144 coins stored or just over 193 million coins when projected up to the New Zealand population of households. This is based on the assumption that the quantity of 50 cent and 20 cent coins will remain constant and that the quantity of 10 cent coins will increase by half the number of 5 cent coins.

The most commonly stored coins are 5 cent pieces representing 45% of all stored coins, followed by 10 cent coins (25%).

Overall around 84% of all coins held by the general public are put into some sort of storage.

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## Cycle Period for Emptying/Banking Stocks of Coins

**Cycle Period** To establish the average cycle period for emptying stores of coins all respondents with a coin jar and/or money box were asked, “*Just thinking about these stored silver coins, how often, on average do you empty them out?*”

As shown in the table below, a third (33%) of respondents empty their coin jar or money box once a month or more.

| Average frequency of emptying store | Percentage of respondents | Average number of coins in storage |
|-------------------------------------|---------------------------|------------------------------------|
| Once a week or more frequently      | 11                        | 1.33                               |
| Once a fortnight                    | 9                         | 1.80                               |
| Once a month                        | 14                        | 7.57                               |
| Once every 3 months                 | 14                        | 20.70                              |
| Once every 6 months                 | 14                        | 40.61                              |
| Once every year                     | 14                        | 86.92                              |
| Less often                          | 11                        |                                    |
| Never                               | 10                        |                                    |
| Don't know                          | 5                         |                                    |

On average respondents were found to empty out their stores 11.28 times a year. This translates to approximately 0.9 times a month.

An alternative approach was taken to estimating the cycle period, and respondents were asked how many coins they put into their coin jars or money boxes each week. On average households indicated they put in 10.88 coins per week. This equates to 47.15 coins a month per household. When pro-rated up to represent the New Zealand population of households we estimate 63 million coins a month are being placed into storage.

Conversely, assuming storage remains at equilibrium, we estimate that each month 63 million coins come out of storage and back into circulation.

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## Cycle Period for Emptying/Banking Stocks of Coins, continued

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Our coin accumulation rate model was based on all households and taking into account the frequency of storage and the frequency of emptying. The latter was weighted by the store frequency for each household, so that if a household stored a lot of coins, and emptied them frequently, both factors were taken into account. The model of total coins stored over time was the net of coins going into storage and coins going out as the stores were emptied. It was based on a fixed start time, at which no households had any stored coins. This assumption represents the time that the new coins are released when it is assumed that all existing storage devices will be emptied. While this is not strictly realistic as coins will be introduced/withdrawn over a finite period, it is a satisfactory basis for estimating total flows over a 12 month period.

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## Channels back into Circulation

**Channels back into circulation** To establish some of the channels coins return back into circulation through respondents were asked “*How do you normally empty your stores?*”

As shown in the table below half (50%) of respondents spend their stored coins in shops or stores, and nearly four in ten (37%) bank them. Other methods include giving change to children/grandchildren for treats and pocket money, and using them in vending machines.

| Channel of returning coins into circulation | Percentage of respondents |
|---|---------------------------|
| Spend the coins in a store etc              | 50%                       |
| Bank the coins                              | 37%                       |
| Give coins to charity                       | 9%                        |
| Other                                       | 15%                       |
| Don't know                                  | 2%                        |

## Appendix I – Methodology

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### Methodology

This survey was conducted online using ACNielsen's Online Panel facility. ACNielsen emailed an invitation to participate in the survey to a random selection of panel members. A total of 2558 invitations were sent out. The sample was structured to ensure all geographic regions and household sizes would be represented in proportion to the total New Zealand population.

The invitation explained the background and importance of the research, it included a text based set of instructions and a questionnaire, which respondents could print out and use as a guide to the pre-work required before completing the online questionnaire. Respondents then entered their results online, using the active link with which they were provided.

In total, 1002 households completed the survey between 25 October and 7 November, yielding a response rate of 43%.

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### Survey Accuracy

All sample surveys are subject to sampling error. Based on a total sample size of 1002 households, the results shown in this survey are subject to a maximum error of  $\pm 3.2\%$  at the 95% confidence level. That is, there is a 95% chance that the true population value of a recorded figure of 50% actually lies between 53.2% and 46.8%. As the sample figure moves further away from 50%, so the error margin will decrease.

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## Appendix II – Sample Profile

**Sample profile** The profile of the sample is shown below.

|                            |               | No        | %  |
|----------------------------|---------------|-----------|----|
| <b>Gender</b>              | Male          | 407       | 41 |
|                            | Female        | 595       | 59 |
| <b>Number in household</b> | 1             | 218       | 22 |
|                            | 2             | 345       | 34 |
|                            | 3             | 157       | 16 |
|                            | 4             | 158       | 9  |
|                            | 5+            | 124       | 12 |
|                            | <b>Region</b> | Northland | 38 |
| Auckland                   |               | 283       | 28 |
| Waikato                    |               | 100       | 10 |
| Bay of Plenty              |               | 62        | 6  |
| Gisborne                   |               | 13        | 1  |
| Hawkes Bay                 |               | 42        | 4  |
| Taranaki                   |               | 28        | 3  |
| Manawatu-Wanganui          |               | 59        | 6  |
| Wellington                 |               | 117       | 12 |
| West Coast                 |               | 7         | 1  |
| Canterbury                 |               | 144       | 14 |
| Otago                      |               | 52        | 5  |
| Southland                  |               | 26        | 3  |
| Tasman                     |               | 8         | 1  |
| Nelson                     |               | 13        | 1  |
| Marlborough                | 10            | 1         |    |

## Appendix III – Coin Accumulation Rate Model

| Empty freq       | Mean              | N           | Sum             | Mean per household | Allowing for accumulations |
|------------------|-------------------|-------------|-----------------|--------------------|----------------------------|
| Weekly           | 10.2978295        | 129         | 1328.42         | 1.32842            | 1.32842                    |
| Fortnightly      | 8.48037736        | 106         | 898.92          | 0.89892            | 1.79784                    |
| Monthly          | 8.56022624        | 221         | 1891.81         | 1.89181            | 8.197843333                |
| 3 monthly        | 10.0134591        | 159         | 1592.14         | 1.59214            | 20.69782                   |
| 6 monthly        | 9.7619375         | 160         | 1561.91         | 1.56191            | 40.60966                   |
| yearly           | 10.447375         | 160         | 1671.58         | 1.67158            | 86.92216                   |
| Less than yearly | 9.6880315         | 127         | 1230.38         |                    |                            |
| Never            | 6.23557522        | 113         | 704.62          |                    |                            |
| <b>Total</b>     | <b>9.25938723</b> | <b>1175</b> | <b>10879.78</b> |                    |                            |

|         | Average coins going in | Average coins coming out |             |          |           |           |        | Total Withdrawals | Net at end of week | Accumulating average coins per household |
|---------|------------------------|--------------------------|-------------|----------|-----------|-----------|--------|-------------------|--------------------|--|
|         |                        | weekly                   | fortnightly | 4 weekly | quarterly | 6 monthly | yearly |                   |                    |  |
| week 1  | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 9.55158                                  |
| week 2  | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0      | 3.12626           | 7.75374            | 17.30532                                 |
| week 3  | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 26.8569                                  |
| week 4  | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0      | 10.6935           | 0.1865             | 27.0434                                  |
| week 5  | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 36.59498                                 |
| week 6  | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0      | 3.12626           | 7.75374            | 44.34872                                 |
| week 7  | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 53.9003                                  |
| week 8  | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0      | 10.6935           | 0.1865             | 54.0868                                  |
| week 9  | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 63.63838                                 |
| week 10 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0      | 3.12626           | 7.75374            | 71.39212                                 |
| week 11 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 80.9437                                  |
| week 12 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0      | 10.6935           | 0.1865             | 81.1302                                  |
| week 13 | 10.88                  | 1.32842                  | 0           | 0        | 20.69782  | 0         | 0      | 22.02624          | -11.14624          | 69.98396                                 |
| week 14 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0      | 3.12626           | 7.75374            | 77.7377                                  |
| week 15 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 87.28928                                 |
| week 16 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0      | 10.6935           | 0.1865             | 87.47578                                 |
| week 17 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 97.02736                                 |
| week 18 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0      | 3.12626           | 7.75374            | 104.7811                                 |
| week 19 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 114.33268                                |
| week 20 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0      | 10.6935           | 0.1865             | 114.51918                                |
| week 21 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 124.07076                                |
| week 22 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0      | 3.12626           | 7.75374            | 131.8245                                 |
| week 23 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 141.37608                                |
| week 24 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0      | 10.6935           | 0.1865             | 141.56258                                |
| week 25 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0      | 1.32842           | 9.55158            | 151.11416                                |
| week 26 | 10.88                  | 1.32842                  | 1.79784     | 0        | 20.69782  | 40.60966  | 0      | 64.43374          | -53.55374          | 97.56042                                 |

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## Appendix III – Coin Accumulation Rate Model, continued

|         | Average coins going In | Average coins coming out |             |          |           |           |          | Total Withdrawals | Net at end of week | Accumulating average coins per |
|---------|------------------------|--------------------------|-------------|----------|-----------|-----------|----------|-------------------|--------------------|--------------------------------|
|         |                        | weekly                   | fortnightly | 4 weekly | quarterly | 6 monthly | yearly   |                   |                    |                                |
| week 27 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 107.112                        |
| week 28 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0        | 10.6935           | 0.1865             | 107.2985                       |
| week 29 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 116.85008                      |
| week 30 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0        | 3.12626           | 7.75374            | 124.60382                      |
| week 31 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 134.1554                       |
| week 32 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0        | 10.6935           | 0.1865             | 134.3419                       |
| week 33 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 143.89348                      |
| week 34 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0        | 3.12626           | 7.75374            | 151.64722                      |
| week 35 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 161.1988                       |
| week 36 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0        | 10.6935           | 0.1865             | 161.3853                       |
| week 37 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 170.93688                      |
| week 38 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0        | 3.12626           | 7.75374            | 178.69062                      |
| week 39 | 10.88                  | 1.32842                  | 0           | 0        | 20.69782  | 0         | 0        | 22.02624          | -11.14624          | 167.54438                      |
| week 40 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0        | 10.6935           | 0.1865             | 167.73088                      |
| week 41 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 177.28246                      |
| week 42 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0        | 3.12626           | 7.75374            | 185.0362                       |
| week 43 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 194.58778                      |
| week 44 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0        | 10.6935           | 0.1865             | 194.77428                      |
| week 45 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 204.32586                      |
| week 46 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0        | 3.12626           | 7.75374            | 212.0796                       |
| week 47 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 221.63118                      |
| week 48 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 0         | 0         | 0        | 10.6935           | 0.1865             | 221.81768                      |
| week 49 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 231.36926                      |
| week 50 | 10.88                  | 1.32842                  | 1.79784     | 0        | 0         | 0         | 0        | 3.12626           | 7.75374            | 239.123                        |
| week 51 | 10.88                  | 1.32842                  | 0           | 0        | 0         | 0         | 0        | 1.32842           | 9.55158            | 248.67458                      |
| week 52 | 10.88                  | 1.32842                  | 1.79784     | 7.56724  | 20.69782  | 40.60966  | 86.92216 | 158.92314         | -148.0431          | 100.63144                      |

## Appendix IV – ACNielsen Quality Assurance

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**Quality Assurance**

ACNielsen is committed to the principles of Total Quality Management, and in 1995 achieved certification under the International Standards Organisation ISO 9001 code.

The company maintains rigorous standards of quality control in all areas of operation. We believe no other commercial research organisation in New Zealand can provide clients with the level of confidence in survey data that we are able to. Furthermore, ACNielsen is routinely and regularly subjected to **independent external auditing** of all aspects of its survey operations.

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**ISO 9001**

In terms of this project, all processes involved are covered by our ISO 9001 procedures. As part of these procedures, all stages of this research project (including all inputs/ outputs) are to be approved by the Project Leader.

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**Code of Ethics**

All research conducted by ACNielsen conforms with the Code of Professional Behaviour of the Market Research Society of New Zealand

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## Appendix V – Company Information

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### Company Profile

ACNielsen Corporation is the world's leading provider of market research, information and analysis to the consumer products and service industries. More than 9,000 clients in over 90 countries rely on ACNielsen's dedicated professionals to measure competitive marketplace dynamics, to understand consumer attitudes and behaviour, and to develop advanced analytical insights that generate increased sales and profits.

The company provides four principal market research services:

#### **Retail measurement**

Includes continuous tracking of consumer purchases at the point of sale through scanning technology and in-store audits. ACNielsen delivers detailed information on actual purchases, market shares, distribution, pricing and merchandising and promotional activities.

#### **Consumer panel research**

Includes detailed information on purchases made by household members, as well as their retail shopping patterns and demographic profiles.

#### **Customised research**

Includes quantitative and qualitative studies that generate information and insights into consumers' attitudes and purchasing behaviour, customer satisfaction, brand awareness and advertising effectiveness.

#### **Media measurement**

Includes information on international television and radio audience ratings, advertising expenditure measurement and print readership measurement that serves as the essential currency for negotiating advertising placement and rates.

In addition, ACNielsen markets a broad range of advanced software and modeling & analytical services. These products help clients integrate large volumes of information, evaluate it, make judgements about their growth opportunities and plan future marketing and sales campaigns.

As the industry leader, we constantly work to set the highest standards in the quality and value of our services, and the passion and integrity of our people bring to helping clients succeed.

Our professionals worldwide are committed to giving each of our clients the exact blend of information and service they need to create competitive advantage: The right information, covering the right markets, with the most valuable information management tools, all supported by the expertise and professionalism of the best market research teams in the industry.

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