

CHAPTER FIVE

Valuing and Forecasting Student Loans

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5.0 Introduction

This chapter looks at the current valuation of the scheme including the movement in value over 2007/08. It also looks at valuations from earlier years and examines historical forecasts of lending and repayment. This chapter also identifies the costs of the scheme and looks at the modelling of the total loan balance into the future.

Student loan valuation terms

Nominal value

The nominal value of student loans is the balance of borrowings with Inland Revenue and the Ministry of Social Development. It is the total amount of all obligations that borrowers have at a point in time, including loan principal, interest and penalties. The change in the value from year to year reflects the net growth of the portfolio in terms of what is owed.

The nominal value is the basis for other calculations such as the carrying value and average and median balances.

The **nominal value** as at 30 June 2008 was **\$9,573 million**.

Carrying value

The carrying value is the value of the Student Loan Scheme asset shown in the scheme's accounts. Since 1 July 2005, this has been calculated in accordance with the New Zealand equivalents to the International Financial Reporting Standards (NZ IFRS).

Under IFRS the cost to the government of new lending is recognised at the time it is loaned, so that all things being equal, there is no further cost associated with that lending in the future. An annual, IFRS-compliant valuation is undertaken and any adverse difference between the carrying value and the result of this valuation is recorded as an expense.⁴⁴

The **carrying value** as at 30 June 2008 was **\$6,741 million**.

Fair value

The fair value is a calculation of the amount for which the Student Loan Scheme could be exchanged between knowledgeable, willing parties in an arm's-length transaction. In a sense, it is an appraisal of the value of the portfolio should it be offered for sale on an open market.

The fair value is determined by discounting the estimated cash flows at market interest rates with a risk margin added that is appropriate for the portfolio.

Reporting fair value in the accounts is part of the current accounting standard and has been a requirement of the generally accepted accounting practices in recent years. The fair value has been reported in the accounts since 2003.

The **fair value** as at 30 June 2008 was **\$5,521 million**.⁴⁵

5.1 Valuation

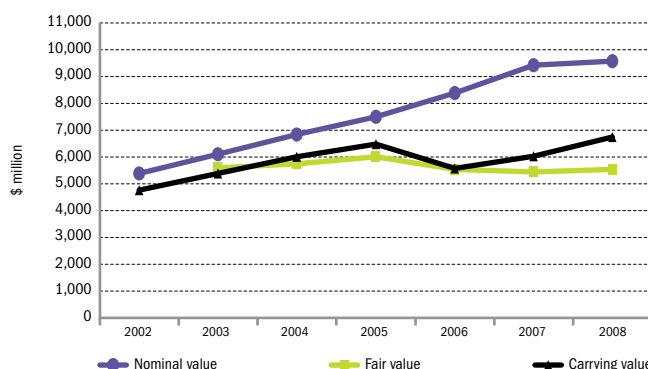
Each year a valuation is undertaken to determine the carrying value of the scheme, which is disclosed in the annual financial statements. The difference between the carrying value and the IFRS valuation is known as an *impairment*.⁴⁶ At 30 June 2008, the carrying value before revaluation was \$6,510 million but the valuation resulted in a figure of \$6,741 million. So a negative impairment (or a reversal of previous impairment) of \$231 million occurred, leading to a 3.5 percent revaluation.

The fair valuation puts the value of the scheme lower at \$5,521 million. The difference between this measure and the carrying value relates to how the discount rates are used in the two valuations. For the carrying value, the discount rates are locked in at the time of lending, while the fair valuation uses current (market) discount rates which include a risk margin appropriate for student loans.

For a more detailed explanation of the method used to determine the impairment, carrying value and fair value please refer to chapter 6.

Figure 35 and Table 14 show the nominal value of the scheme, the carrying value and the fair value over the last seven years.

Figure 35 The value of the Student Loan Scheme at 30 June



Source: Student Loan Scheme Financial Statements.

Notes:

1. The carrying value from 2006 onwards is prepared according to New Zealand equivalents to International Financial Reporting Standards (NZ IFRS).
2. The carrying value up until 30 June 2005 was prepared according to New Zealand Financial Reporting Standards.
3. The fair value was first determined in 2003.

44 For a fuller description see the Statement of accounting policies on page 52 of this report.

45 See also Student loan fair value on page 54.

46 Each year the value of the student loan portfolio is assessed according to IFRS. Should the IFRS-compliant value be less than the current carrying value, an impairment is recognised; that is, the carrying value of the loans is reduced to the IFRS value. Should the IFRS value be greater than the carrying value, the carrying value can be increased through a reversal of a previous impairment.

Table 14 The loan scheme's nominal value, carrying value and fair value at 30 June

		2002 \$ million	2003 \$ million	2004 \$ million	2005 \$ million	2006 \$ million	2007 \$ million	2008 \$ million
Values	Nominal value	5,386	6,094	6,821	7,499	8,370	9,413	9,573
	Carrying value	4,750	5,370	5,995	6,465	5,569	6,011	6,741
	Fair value		5,592	5,734	5,994	5,537	5,443	5,521
Cents per dollar of nominal value								
Ratios	Carrying value to nominal value	88.2	88.1	87.9	86.2	66.5	63.9	70.4
	Fair value to nominal value		91.8	84.1	79.9	66.2	57.8	57.7

Source: Student Loan Scheme Financial Statements.

Notes:

1. The carrying value from 2006 onwards is prepared according to New Zealand equivalents to International Financial Reporting Standards (NZ IFRS).
2. The carrying value up until 30 June 2005 was prepared according to New Zealand Financial Reporting Standards.
3. The fair value was first determined in 2003.

The trends in the different valuations show a divergence occurring between the nominal value and carrying value since 2005. This reflects the introduction of the interest-free policy in 2006 and the different discount rates that were applied after the interest-free policy took effect.

The trends in the different valuations over the recent year are discussed below.

Nominal value change over the year

The nominal value has increased steadily from \$5,386 million in 2002 to \$9,573 million in 2008. Between 2007 and 2008, however, the growth was slight compared with previous years – there is a distinct flattening in the track of the nominal loan balance.⁴⁷ This does not indicate any major change in the dynamics of the loan scheme. Instead, it represents a change made to improve the statement of the nominal value to better reflect the amount owed at the balance date. In the absence of that change, the total would have been \$493 million lower. Chapter 4.4 discusses this in more detail.

Table 15 Movement in the nominal value 1 July 2007-30 June 2008

	\$ million
Opening	9,413
Adjustment for interest	-493
Adjusted opening	8,920
New lending	1,201
Repayments	-629
Subtotal	9,492
Interest less write-offs	82
Closing	9,573

Source: Student Loan Scheme Financial Statements.

Fair value change over the year

As a result of last year's fair valuation, each dollar loaned contributed on average 57.8 cents to the fair value. This year, the valuation is virtually unchanged at 57.7 cents. Offsetting changes have served to give this result. The discount rates used in this year's valuation are on average higher, and this is offset by more favourable projections of repayments.

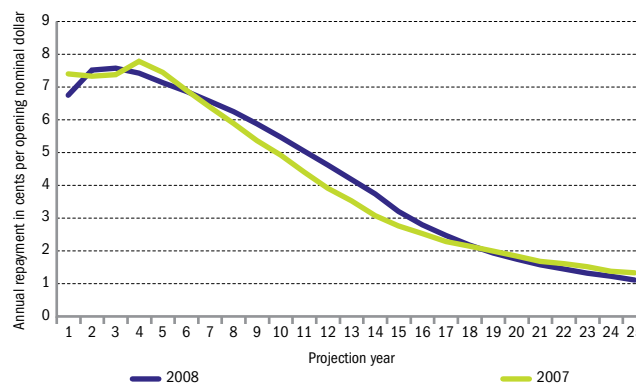
Had this year's valuation used last year's discount rates, the value would be 1.6 percent higher at 58.6 cents. The risk-free margin has increased this year, which has more than offset a decrease in the risk-free rates. The change in the risk-free rates alone would put the valuation at 60.4 cents. The effect of the new higher risk margin (which has increased from 2.00 percent in 2007 to 2.73 percent in 2008) means that the valuation falls to 57.7 cents per dollar on loan.

Carrying value change over the year

The more positive forecast of repayment is behind the increase in the IFRS carrying value. Last year, each dollar on loan was worth on average 63.9 cents. Restating this for the change in the definition of the nominal value gives 67.4 cents. Through amortisation this value rose to 68.0 cents, and then, through the IFRS revaluation (the 3.5 percent increase), the carrying value rose to 70.4 cents per nominal dollar on loan.

As the IFRS valuation is not subject to movements in discount rates or risk margins, the improved outlook flows through to a higher carrying valuation. This is suggested in Figure 36 below, which shows how projected repayments have changed between the valuations. This figure shows repayments generated by the current loans, expressed as cents per year per opening nominal dollar. Compared with last year, higher repayments are expected from the sixth year until around the 18th year of projection.

Figure 36 Comparison of projected repayments



Source: Student Loan Scheme Financial Statements.

Note: Shown is annual repayments in cents per nominal dollar of loan, as used in the valuations. The tracks show the average repayment expected from each dollar on loan at valuation time for the following 25 years.

47 This movement in nominal value is discussed in chapter 6, under Note 1 on page 53.

5.2 Historical forecasts of lending and repayment

Every year, forecasts of new lending and repayments are made for the *Budget Economic and Fiscal Update* (BEFU). The forecasts are finalised in April, so that the first forecast number is for the current financial year, of which around nine months have already passed.

Table 16 presents the last five years' forecasts of new lending and compares these with what actually happened. Forecasts tend to be more accurate at shorter time horizons and become less accurate at longer horizons.

Table 16 Historical forecasts of new lending against actual lending for the year ending 30 June

New Lending	2003 \$ million	2004 \$ million	2005 \$ million	2006 \$ million	2007 \$ million	2008 \$ million	2009 \$ million	2010 \$ million	2011 \$ million	2012 \$ million
Actual										
	952	999	969	1,046	1,176	1,201				
Forecasts										
BEFU04		1,021	1,100	1,147	1,204	1,261				
BEFU05			979	1,040	1,087	1,137	1,189			
BEFU06				1,042	1,157	1,237	1,304	1,368		
BEFU07					1,206	1,278	1,334	1,389	1,444	
BEFU08						1,210	1,305	1,399	1,483	1,568
Difference (Actual - Forecast)										
BEFU04		-22	-131	-101	-28	-60				
BEFU05			-10	6	89	63				
BEFU06				4	19	-36				
BEFU07					-30	-77				
BEFU08						-9				
Percent Difference (Actual - Forecast)/Forecast										
BEFU04		-2%	-12%	-9%	-2%	-5%				
BEFU05			-1%	1%	8%	6%				
BEFU06				0%	2%	-3%				
BEFU07					-2%	-6%				
BEFU08						-1%				

Source: The five BEFU forecasts are from the *Budget Economic and Fiscal Updates* 2004 to 2008.

Notes:

1. In the comparison of forecast to actual lending, a positive number indicates an under-forecast.
2. The forecast for the first year in every BEFU round covers only the last three months of the year.

Table 16 shows us that the 2004 forecast (BEFU04) overestimated new lending. The first full-year forecast at that time was for \$1,100 million for 2004/05. The slight fall in lending between 2003/04 and 2004/05 from \$999 million to \$969 million was not predicted – instead an increase of \$79 million was forecast. As a result, the forecast for 2004/05 was 12 percent higher than expected.

The 2005 forecast was within 1 percent of the actual result for the 2004/05 and 2005/06 years. However, that forecast was made before the decision to move to the interest-free student loans policy. Consequently, for the years after the policy change took effect, the projections of lending made in 2005 were less accurate – understating actual lending by 8 percent and 6 percent in 2006/07 and 2007/08 respectively.

The 2006 new lending forecast appears to be accurate at this stage, but the 2007 forecast overestimated the 2007/08 lending by \$77 million or 6 percent.

Table 17 presents forecasts and results for repayments. As with lending forecasts, repayment forecasts are close for the current year but the accuracy decreases with longer forecast horizons.

Table 17 Historical forecasts of repayments against actual repayments for the year ending 30 June

Repayments	2003 \$ million	2004 \$ million	2005 \$ million	2006 \$ million	2007 \$ million	2008 \$ million	2009 \$ million	2010 \$ million	2011 \$ million	2012 \$ million
Actual										
	438	510	572	550	555	629				
Forecasts										
BEFU04		492	538	590	640	695				
BEFU05			566	655	735	819				
BEFU06				574	634	717	824	948		
BEFU07					559	621	705	763	839	
BEFU08						611	675	758	838	924
Difference (Actual - Forecast)										
BEFU04		18	34	-40	-85	-66				
BEFU05			6	-105	-180	-190				
BEFU06				-24	-79	-88				
BEFU07					-4	8				
BEFU08						18				
Percent Difference (Actual - Forecast)/Forecast										
BEFU04		4%	6%	-7%	-13%	-9%				
BEFU05			1%	-16%	-24%	-23%				
BEFU06				-4%	-12%	-12%				
BEFU07					-1%	1%				
BEFU08						3%				

Source: The five BEFU forecasts are from the *Budget Economic and Fiscal Updates* 2004 to 2008.

Notes:

1. In the comparison of forecast to actual repayments, a positive number indicates an under-forecast.
2. The forecast for the first year in every BEFU round covers only the last three months of the year.

The impact of the interest-free policy on repayments is reflected in the table. The 2004 and 2005 forecasts did not incorporate the implications of this policy change. These forecasts were accurate up until mid-2005 with receipts being slightly under-forecast up to this point. After this point, actual receipts fell well below the forecast. Using the 2005 forecast as a baseline, the receipts in 2005/06 were lower by \$105 million, those in 2006/07 were lower by \$180 million, and those in 2007/08 were lower by \$190 million.

The BEFU 2006 forecast took into account decreased expectations but only around half of that estimate was needed. The 2007 forecast was more accurate predicting receipts of \$621 million for the year of this report (2007/08), while the outturn was \$629 million.

5.3 Cost of the scheme

The cost of the scheme is measured as a financial cost in the annual accounts set out in chapter 6. An alternative view of the cost can be gained by looking at an annual net cash requirement.

Table 18 shows these two views of scheme costs over the last three years.

Table 18 Scheme costs for the year ending 30 June

		2006 \$ million	2007 \$ million	2008 \$ million
Cash view	New lending	1,046	1,176	1,201
	Repayments	-550	-555	-629
	Net cash	496	621	572
Accounting view	Fair value write-down on new borrowing	328	488	487
	Impairment and other write-down	1,428	151	-231
	Interest unwind income	-358	-360	-407
	Net cost	1,398	279	-151

Source: Student Loan Scheme Financial Statements.

Note: The upfront costs of new lending include the write-down on the administration fee.

This table indicates that in the year of this report (2007/08), \$1,201 million was lent out and the expense associated with this lending was \$487 million. Repayments amounted to \$629 million, meaning that the net cash lent out was \$572 million. As mentioned in this chapter, 2007/08 was unusual in that the IFRS revaluation led to a negative impairment of the asset and \$231 million was added to its value. Under this 'cost view' of the scheme, 2007/08 had negative costs of \$151 million.⁴⁸

The impairment expense seen in 2005/06 is associated with the introduction of the interest-free policy in April 2006.

Table 19 Forecast of scheme costs for the year ending 30 June

		2009 \$ million	2010 \$ million	2011 \$ million	2012 \$ million
Cash view	New lending	1,305	1,399	1,483	1,568
	Repayments	-675	-758	-838	-924
	Net cash	630	641	645	644
Accounting view	Fair value write-down on new borrowing	511	548	581	614
	Interest unwind income	-445	-475	-506	-536
	Net cost	66	73	75	78

Source: Budget and Economic Fiscal Update 2008 and Ministry of Education.

Over 2008/09, the upfront cost of new lending will be 39.15 cents for every dollar lent. The table above assumes this remains the same over the following three years, and that no impairment occurs in any of these years.

Over the next four years, the average annual increase in total borrowing is forecast to be 6.6 percent per annum. Over the same period, the average annual increase in total repayments is forecast to be 10.9 percent per annum.

⁴⁸ Part of this cost view equation is the interest unwind. This is part of the operation of the amortisation in the book where interest is recognised in proportion to the value of the book using the effective interest rate method. The interest unwind is the return on the investment that the lender is recognising in their schedule of revenue and expenditure. See also Statement of accounting policies and Schedule of revenue and expenditure in chapter 6.

5.4 Modelling and the structure of debt into the future

Looking at the 38,000 borrowers who left study at the end of 1999 can give a view of the pattern of future repayment of student loans.

In total:

- that cohort left with \$508 million of outstanding student loans
- 39 percent had repaid their loan in the first seven years following study.

By the end of 2008:

- half of the cohort will have repaid in full
- the amount still owed by that cohort will have reduced from the original \$508 million to \$340 million
- about \$370 million will have been made in repayments
- as this cohort did not have the benefit of the interest-free policy for the first six years after they left, approximately \$200 million will have been charged in interest
- of those who hadn't completely repaid at that time, it is estimated that around 30 percent would be overseas.

Those who stay in New Zealand throughout the remainder of their time with a loan will make faster progress in repaying their loans.

- By 2010, three-quarters will have repaid in full.
- By 2013, 90 percent will have repaid in full.

Those overseas for an extended period make much slower progress to repayment. In fact:

- over the years 2009 to 2013, the repayments made by borrowers who were overseas during that period are forecast to be only around half of the interest they are expected to incur over that time - in part because some of those overseas during that time will be taking advantage of the three-year repayment holiday
- as borrowers who don't leave New Zealand repay and those away for only a short period repay, overseas borrowers will become a larger proportion of those with loans - overseas borrowers will reach 40 percent of those in the 1999 leavers who still have not repaid by 2012.

The interest accrued by those overseas and their relatively low repayments mean that the aggregate balance owed by the 1999 cohort as a whole will reduce at a decreasing rate, and:

- by 2017, the aggregate balance will have fallen to \$241 million
- with the proportion of overseas borrowers continuing to grow and with the interest and any penalties accrued by them outweighing total repayments, the aggregate balance will start to increase again from that point.

The tables below set out expected repayment times for two groups:

- those who last studied in 1999 and did not study again at least until they had repaid their loan. Repayments for this group have been prepared using seven years of actual experience combined with modelling of their future.

- those who last studied in 2005, a group chosen to represent recent leavers. This group has one year of actual data and the rest modelled.

Table 20 Percentiles of the post-study repayment time for those who last studied in 1999

Percentile	Projected repayment time in years
25th	4.1
50th	9.0
75th	16.9

Source: Ministry of Education Student Loans Integrated Model.

Table 21 Percentiles of the post-study repayment time for those who last studied in 2005

Percentile	Projected repayment time in years
25th	3.5
50th	7.1
75th	15.2

Source: Ministry of Education Student Loans Integrated Model.

Note: This table shows percentiles of projected repayment times married with actual repayment data for one year.

Tables 20 and 21 illustrate the effects of the interest-free policy on repayment times. The overall median repayment time - nine years for the 1999 cohort - falls to a little over seven years for the 2005 leavers. Borrowers in the 2005 cohort who remain in New Zealand benefit from the interest-free policy throughout their repayment time. Their median time till full repayment is forecast to be significantly lower than for those who left in 1999 and hence accrued interest over several years.

Borrowers who spend some time overseas after 31 March 2006 will incur interest and some will suspend their repayments for up to three years as part of the repayment holiday provision. The time till full repayment for that group is expected to be much higher and is forecast to increase in the future. The reason is that, over time, the group is forecast to be increasingly dominated by people who are spending an extended time overseas or who have emigrated permanently. Those people are expected to have poorer repayment records.