

Financial deregulation and household indebtedness

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August 2003

Low saving rates and high indebtedness are characteristics of the household sector in many developed countries. As in other countries, financial deregulation has contributed to increased household indebtedness in New Zealand. This paper discusses several aspects of the linkages between deregulation and household consumption decisions. It begins with an overview of the financial sector reforms and a discussion of how the reforms affected households' access to credit. Secondly, the effect of a change in house prices on consumption is measured. Given that New Zealanders hold about 80 per cent of their wealth in housing, changes in house prices have the potential to materially affect household consumption decisions. Next, the role of the household sector in the current account is discussed as banks have increasingly been borrowing overseas to fund household borrowing. The results indicate that the household sector's net overseas surplus declined by at least \$7 billion over the last decade. Finally, the ability of the household sector to weather an economic downturn is considered. Highly leveraged households are more vulnerable in times of stress, and their debt servicing capabilities might deteriorate when interest rates rise.

¹ The author thanks Nils Bjorksten, Iris Claus, Áron Gereben, and Ian Woolford for helpful comments and assistance. All errors and omissions are the responsibility of the author. The views expressed in the paper are those of the author and do not necessarily reflect those of the Reserve Bank of New Zealand.

1 Introduction

Low saving rates and high indebtedness are characteristics of the household sector in many developed countries. As in other countries, financial deregulation has contributed to increased household indebtedness in New Zealand. With open capital markets, the shortfall between investment plans and domestic savings can be bridged through overseas borrowing. In this respect, low saving rates need not impact the economy negatively. On the other hand, persistent savings shortfalls result in a large stock of external debt. At some point, foreign investors might question the sustainability of the pace of overseas borrowing, and access to capital markets could be eroded or, in the extreme, closed off completely, inhibiting investment plans from being undertaken at all.

Over the past several years, net external liabilities have accrued to the private sector in New Zealand even as the government has run budget surpluses. Since 1990, household liabilities as a share of disposable income have almost doubled, and household net worth as a share of disposable income has fallen. Increasing indebtedness, in conjunction with declining net worth, leaves households more vulnerable in economic downturns. A contraction in consumption demand could result if households are not able to tap into savings in an economic downturn. In fact, the shallowness of the recent United States recession was attributed to strong household demand. Moreover, high indebtedness leaves households vulnerable to changes in interest rates as when rates rise, debt servicing costs rise and households are forced to spend more of their disposable income servicing debt. Finally, in a severe downturn, if households are forced to default on their home mortgages and other bank debt, there may be an adverse impact on the banking sector.

This paper explores the link between financial deregulation and household indebtedness. Section 2 provides an overview of the household saving rate in New Zealand. Real household saving rates have been negative over the past several years as measured by the difference between household disposable income and expenditure, and are lower than in other developed countries. Section 3 provides an overview of New Zealand's financial reforms and discusses how deregulation might have had a positive impact on households' access

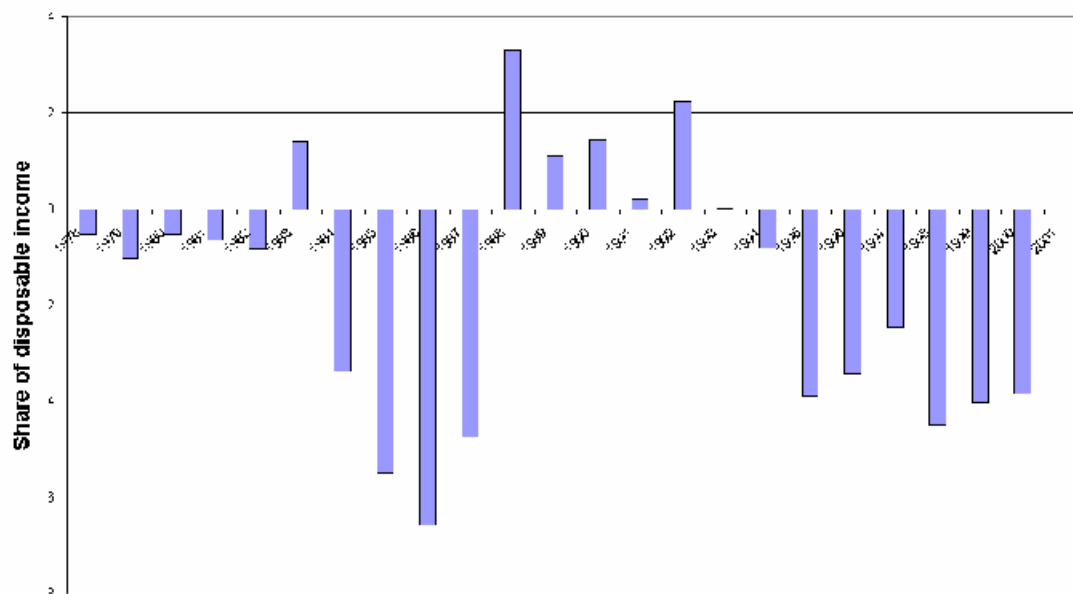
to credit. Section 4 provides an analysis of the role of housing prices on consumption decisions in New Zealand. Changes in house prices can change households' perceived wealth and thereby affect consumption. Also, households can borrow using their house as collateral, so increases in house prices increase household sector borrowing power. Given that New Zealanders hold about 80 per cent of their wealth in housing, changes in house prices have the potential to materially affect household consumption decisions. Moreover, evidence is provided that the effect of changes in housing wealth on consumption is stronger in the period after deregulation. Section 5 discusses the role of the household sector in the current account, as banks have increasingly been borrowing overseas to fund household borrowing. Increasing reliance on external funding has implications for financial stability through foreign currency exposures and access to foreign capital. Section 6 considers the ability of the household sector to weather an economic downturn. Highly leveraged households are more vulnerable in times of stress, and their debt servicing capabilities might deteriorate when interest rates rise. Section 7 concludes.

2 Overview of the household saving rate in New Zealand

In real terms, New Zealand households have been poor savers for over two decades. Figure 1 shows New Zealand households' inflation adjusted saving rate² since 1978, measured as the difference between disposable income and consumption. With the exception of 1983, the only years with positive real saving rates were in the late 1980s and early 1990s, which were years of high unemployment and structural change in New Zealand's economy.

² Inflation can distort saving decisions as inflation erodes the value of money over time. The inflation-adjusted household saving rate is calculated by subtracting an inflation adjustment term from the official measured saving series. Multiplying the inflation rate by net financial assets yields the inflation adjustment term.

Figure 1: Household saving rate



Source: RBNZ calculations

There are issues regarding the measurement of household saving.³ For example, household saving is measured as the difference between two large numbers - current income and expenditure – so household saving rates are subject to potentially wide margins of error. Moreover, certain household expenditures are recorded as consumption items that could be regarded more in the nature of investment spending than true current consumption. Examples include expenditure on consumer durables and education. This measurement issue might bias downward measured saving to some extent.

These issues highlight the imprecision of measured saving. However, considering these issues are present to some degree over time and across countries, they do not fully explain the downward trend in measured saving shown in figure 1 nor do they fully explain New Zealand’s relatively lower saving record compared with other countries. An alternative measure of saving is the change in the stock of net financial wealth and international figures are provided in table 1.

³ See, for example, Claus and Scobie, 2002.

Table 1: Household net financial wealth to income ratios⁴

Per cent	1990	1995	2000	1990-2000 Δ	1995-2000 Δ
United States	260	300	370	110	70
Japan	260	280	340	80	60
Germany	130	140	170	40	30
France	130	180	290	160	110
United Kingdom	210	280	340	130	60
Italy	200	220	290	90	70
New Zealand	100	100	70	-30	-30

Source: OECD, RBNZ

Two things are apparent from this table. Firstly, New Zealand's net financial wealth to income ratio is significantly lower than the other countries listed. Secondly, the wealth to income ratio has been increasing over the 1990s for all countries except New Zealand. New Zealand's net financial wealth to disposable income ratio has declined every year since 1993 consistent with the negative saving rates seen in figure 1. New Zealand households hold a significant portion of wealth in the form of housing. Net wealth to disposable income – which includes the value of housing – peaked at 418 per cent in 1997 and was 352 per cent as at the end of 2001, so total wealth to disposable income - not only financial wealth - has been declining.

3 Deregulation and household credit

The previous section illustrated that New Zealand households have a poor savings record, and accumulated liabilities at a fairly rapid pace. This section looks at what role deregulation might have played in changes in household saving behaviour.

Many developed countries underwent financial deregulation in the 1980s and household saving rates declined subsequently. As a result, much research has been undertaken on the determinants of household saving decisions. One noteworthy study (Parker 1999) provides an analysis of both macroeconomic data and household

⁴ Data are rounded to the nearest ten per cent.

level data to try to understand what caused the decline in household saving in the United States since 1980. The author draws seven conclusions:

- the decline in saving is matched by an increase in consumption;
- the decline in saving is not due to increased consumer spending on durables;
- decreased government purchases do not fully “crowd-in” private consumption;
- at most, 20 per cent of the increase in consumption can be explained by increased household wealth;
- demographics do not explain the consumption boom;
- technological advances providing easier credit access can explain about one third of the consumption boom; and
- intergenerational fiscal transfers cannot explain the consumption boom.

The author concludes that one cannot attribute the declining saving rate to any one factor and concludes there are other, untestable, factors that might contribute, such as a shift in preferences.

Jappelli and Pagano (1994) showed that liquidity constraints on households raise household saving rates and strengthen the effect of growth on saving. In an empirical study using data on OECD countries, they measured the effects of reducing maximum loan to value ratios on the ratio of net national saving to net national product. Coefficients were negative and significant, enabling them to conclude that financial deregulation in the 1980s reduced national saving in these countries. There were several reforms in New Zealand in the mid-1980s that affected the households’ access to credit. The reforms generally fall into two categories: reforms directly affecting financial institutions, and macroeconomic reforms.

There were two reforms that directly affected financial institutions.⁵ Firstly, there was a removal of interest rate controls. Prior to the reforms, financial institutions were limited with regard to what interest rates they could give to depositors. Secondly, compulsory reserve ratios on financial institutions were abolished and a range of

⁵ For a detailed discussion of the reforms see Reserve Bank of New Zealand, 1986.

‘credit guidelines’ was removed. These included reserve asset ratios and lending ratios, and served as a means to constrain credit growth, diverting funds from the private sector to the government. From an efficiency standpoint, the ratio requirements forced financial institutions to invest in government securities that had below-market yields and this acted as a tax on these institutions. The “tax” was passed on to the customer in the form of lower interest rates on deposits or higher rates on lending. Credit guidelines that had been in place roughly eighteen months prior to deregulation were removed. The credit guidelines limited M3 institutions to a 1 per cent per month growth in credit issued.

Three macroeconomic reforms in particular gave New Zealand banks better access to overseas credit and opened New Zealand’s financial markets to foreigners. Firstly, overseas borrowing controls were relaxed. Prior to the reforms, private overseas borrowing had to be of a fixed term of at least twelve months and with an interest rate of not more than 2 per cent more than the London or Singapore inter-bank rate. Secondly, restrictions prohibiting New Zealand financial institutions from borrowing overseas were removed, although specific currency exposure limits remained. Finally, foreigners’ access to New Zealand’s financial markets improved when overseas-owned companies in New Zealand were allowed unrestricted access to New Zealand’s capital market.

Together, these reforms enhanced New Zealand households’ ability to access credit. The interest rate controls along with the reserve requirements hindered banks’ and other financial institutions’ abilities to raise funds. Credit growth guidelines further limited the amount of funds that could be disbursed. Once these controls were removed, funding and lending increased, and much of the change was a diversion of business from the non-institutional market to the institutional one. Other reforms that promoted competition in the banking industry lowered the cost of funds to borrowers and resulted in new financial products.

Changes in the mortgage sector have improved consumers’ abilities to purchase houses and access home equity. Institutional changes lowered the down payment required by homebuyers. For any given home purchase, the amount of savings that needed to take place was

considerably less. Thus, on average, the amount of debt incurred on any given home that sold increased. Increasing housing prices exacerbated this trend.

A second innovation in the mortgage sector was line-of-credit home equity mortgages. Many banks offer a mortgage that also serves as a checking account. Customers are given an EFTPOS card tied to the mortgage and the account can be used to pay day-to-day expenses. This sort of account is theoretically appealing as it is a floating rate account, so a customer's paycheque can be deposited into the account thereby lowering the average monthly balance on which interest charges are incurred and provides homeowners with costless access to home equity. This financial product is a small but growing part of the market, and largely came into effect post 1995. A final issue is the short term setting of interest rates for fixed rate mortgages. Fixed rate contracts, having to be rewritten as frequently as six months (ranging up to five years), offers homeowners the opportunity to access home equity on a more frequent basis.

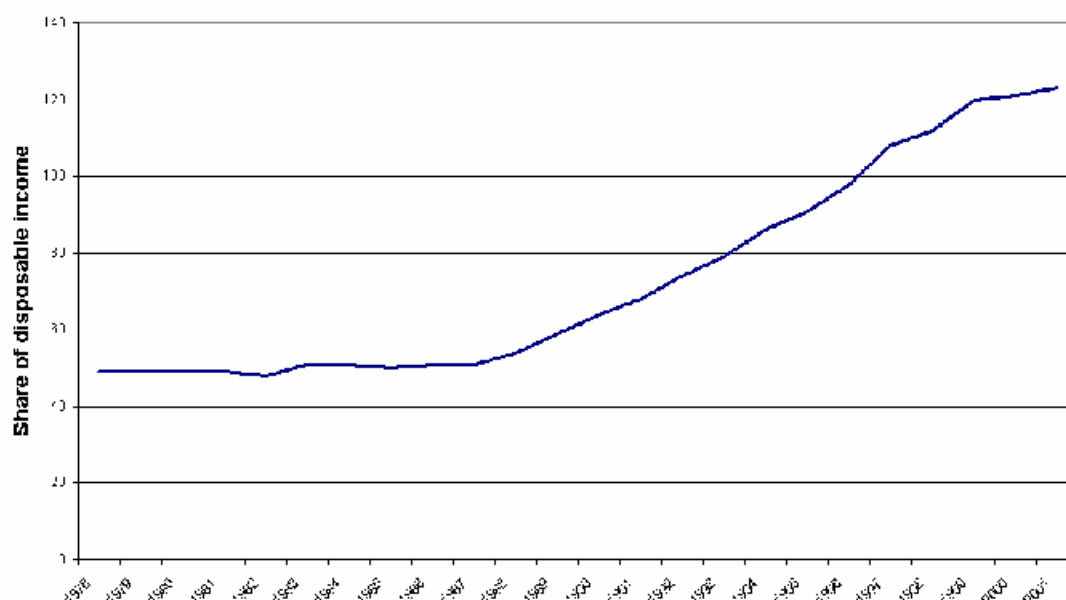
Credit cards came into more frequent use over the last decade and usage continues to increase. Awards programs and the ability to "float" a certain amount of money each month increased credit card usage. Credit card advances outstanding increased an average of 10 per cent per year over the last ten years (far outpacing increases in disposable income) and now exceed \$3.3 billion. In addition, RBNZ data shows that almost 75 per cent of credit card balances are interest bearing, implying that most charges are not just for convenience use.

It should be noted, however, that at the same time as the financial reforms were taking place, New Zealand's public sector was going through reforms, and concerted efforts to bring down the government budget deficit commenced. Lower fiscal spending has been shown to "crowd in" private consumption. Moreover, lower fiscal deficits reduce the magnitude of future tax increases, reducing households' incentives to save. The fiscal reforms resulted in high unemployment. From the fourth quarter of 1986 to the third quarter of 1991, the unemployment rate increased from 4 per cent to almost 11 per cent. This period coincides with the period of higher saving seen in figure 1. Therefore, in addition to the effects of financial

deregulation, fiscal reforms and other structural changes in the economy affected household consumption decisions.

Figure 2 shows that after 1988, household liabilities to disposable income began a steady increase. The upward increase in household liabilities to disposable income commencing in 1988 is not matched by a steady increase in household assets, so net worth to disposable income declined over that period (see table 1). There are various reasons why the increase in liabilities might have occurred, including reasons listed previously from Parker (1994). Figure 2 is also consistent with increased household access to credit, as the upward trend coincides with financial deregulation.

Figure 2: Household liabilities



Source: RBNZ

The relevant question is whether households were credit constrained prior to deregulation. If they were, and deregulation relaxed the constraint, then the coinciding decline in saving rates are consistent with the findings of Jappelli and Pagano (1994). A Chow breakpoint test indicates a structural break in the series in 1988. This result is consistent with the conclusions of Jappelli and Pagano regarding the link between liquidity constraints and saving rates. Because of data

limitations, it is not possible to undertake an empirical investigation of the causal effects of deregulation on household saving.

4 House prices and consumption

Relative to many other countries, New Zealand households hold significantly more of their wealth in non-financial assets, and primarily in the form of housing. Changes in wealth, whether it is financial or non-financial, can result in changes in consumption and saving patterns through either the credit channel effect or the wealth effect. In the former, increasing asset prices improve the value of the assets used as collateral. In the latter, a life-cycle model of consumption would predict that unexpected increases in wealth result in an increase in permanent income and hence consumption. An increase in consumption that results from an increase in house prices will lower the flow measure of saving (disposable income less consumption expenditure) but, *ceteris paribus*, will raise saving as measured by the change in net wealth.

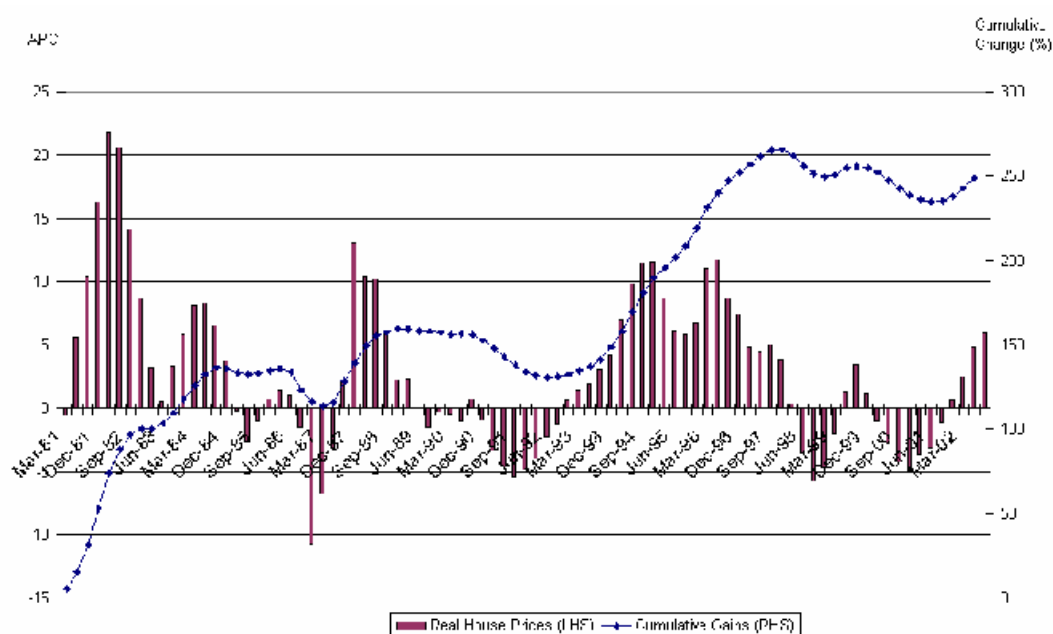
The literature on the role of wealth on consumption decisions dates back to the life cycle hypothesis of Modigliani and Brumberg (1954) and the permanent income model of Friedman (1957). In these models, a household's permanent income (the present discounted value of labour and capital income, which includes income from housing wealth), will determine a household's consumption level. Households prefer to maintain a relatively smooth consumption path over their lifetimes, based on their expected permanent income. An unexpected increase in wealth will cause consumers to increase consumption but by less than the wealth increase as they spread the additional consumption caused by the increase in wealth over the rest of their lifetime. There are problems with the life-cycle models however as they do not account for uncertainty in future income streams nor for bequest motives. In addition, increases in wealth may not be fully accessible because of liquidity constraints.

Housing assets represent 80 per cent of New Zealand households' stock of wealth. This figure is high by international standards, as the average for the G6 countries was 57 per cent in 2000.⁶ Figure 3

⁶ This figure was calculated using OECD data and data for Japan is for 1999.

shows that New Zealand house prices have largely outpaced inflation over the last twenty years, adding to New Zealanders' stock of wealth.

Figure 3: New Zealand's real house prices



Source: QVNZ and RBNZ calculations

Housing assets are nevertheless fundamentally different from financial assets, as houses provide housing services as well as a store of wealth. Some households may not feel wealthier when housing prices rise, as implicit rental costs rise. Moreover, housing is not traded internationally, so homeowners in aggregate cannot realise capital gains.

On the other hand, increases in housing values can affect consumption through the wealth effect and the collateral value effect. There can also be a contemporaneous link between housing prices and consumption due to common effects from interest rate changes. Higher interest rates, all else equal, imply lower housing prices and lower consumption. There is also a link between house prices and consumption through housing demand. Increased housing demand results in higher house prices and increased consumption of durable goods required to set up a household.

Life-cycle models posit a long run relationship between wealth and consumption and there have been several recent empirical investigations of the lifecycle model of consumption.⁷ Previous studies have separated wealth into two components: financial wealth and other wealth, which is primarily housing wealth. The difficulty in using financial wealth for this study is, while other authors have used share market price indices as a proxy, share ownership in New Zealand is low and non-residents own a large part of the market. Moreover, the largest components of financial wealth are deposits, and life insurance, superannuation, and managed funds representing 82 per cent of financial wealth. Deposits generally do not earn large, unexpected returns that would have a material impact on consumption decisions, and there is limited use of life insurance, superannuation, and managed funds for current consumption purposes as they primarily represent retirement savings. On the other hand, housing wealth has remained about 80 per cent of New Zealanders' total wealth and is accessible for consumption purposes. Thus, an index of house prices is used to proxy for wealth.

A long-run consumption function that is a function of current income and wealth can be derived from life-cycle models of consumption⁸ and has the form:

$$c_t = \alpha_0 + \alpha_1 y_t + \alpha_2 w_t + \varepsilon_t \quad (1)$$

where c is the log of per capita consumption, y is the log of per capita disposable income, w is the log of the stock of wealth, ε is the error term, and all are represented at time t .

The data used in this study are annual from 1972 through 2000. Because expenditure on durable goods consumption, which is recorded as current consumption in the national accounts, represents de facto consumption over time, authors sometimes use private non-durable goods and services consumption as the dependent variable. However, because consumption of durable goods is often affected by housing prices through the use of home equity to finance these purchases, several different models are estimated. The dependent

⁷ See for example, Ludwig and Slok(2002) and Girouard and Blondal (2001).

⁸ See Mehra (2001).

variables (all in real terms) are per capita household consumption (HH), household consumption to disposable income (HH/Yd), per capita private durables consumption, and per capita private nondurables and services consumption. Explanatory variables include current and lagged values of the Quotable New Zealand house price index adjusted for inflation (HPI), and real per capita household disposable income (YD). All variables are in natural logs.

As a first step, unit root tests were performed on each of the variables. Both Augmented Dickey-Fuller (ADF) tests and Phillips-Perron tests were conducted. Results are given in table 2.

Table 2: Unit root tests

	HH/Yd	HH	YD	HPI
ADF Test				
Levels	-3.19	-3.00	-3.41 ⁹	-1.78
First Difference	-7.32	4.15	-4.97	-4.16
Phillips Perron Test				
Levels	-3.15	-2.53	-2.26	-1.78
First Difference	-7.40	-4.07	-4.96	-4.16

The hypothesis of a unit root could not be rejected for all variables (except per capita disposable income⁹) in levels and could be rejected at the 1 per cent level for each variable in first-difference form. The regression results of each specification are provided in table 3. The row labelled “resid” provides the level of confidence at which the null hypothesis of unit root in the residuals was rejected.¹⁰

⁹ The ADF test for per capita disposable income in levels cannot reject a unit root at the ten per cent level. The corresponding Phillips Perron test cannot reject a unit root at the one per cent level.

¹⁰ Small sample critical values for the ADF tests on the residuals were obtained from Engle and Woo (1987).

Table 3: Empirical results – full sample

	Per capita HH	HH/Yd	Durables	Nondurables & Services
	(1)	(2)	(3)	(4)
HPI	0.180 (5.25)	0.091 (2.02)		
HPI(-1)		0.106 (2.35)	0.480 (7.21)	0.272 (4.49)
YD	0.779 (8.68)		0.259 (2.18)	0.553 (7.12)
YD(-1)	0.243 (2.31)			
C	-0.875 (-6.00)	-0.952 (-8.94)	-1.163 (-3.74)	-0.878 (3.10)
Resid	5%	1%	10%	5%
R ²	0.98	0.75	0.77	0.81
D.W.	1.52*	1.91	0.73*	0.52*

t-statistics are in parenthesis.

*Estimated using White's heteroscedasticity-consistent covariance matrix.

The first specification (results in column 1) indicates that a 1 per cent increase in income in the current period results in 0.78 per cent increase in household consumption and that a 1 per cent increase in house prices results in a 0.18 per cent increase in household consumption. This figure is comparable (albeit on the high side) to the results found by Girouard and Blondal (2001) who found the relevant elasticity to range between -0.03 (Italy) and 0.17 (Japan) in a study of five developed countries. Ludwig and Slok (2002) found an elasticity of 0.03 for a cross section of developed countries. The relatively high elasticity is consistent with the relatively high share of housing wealth in New Zealand households' total wealth. One period lagged income is significant as well with a positive effect on consumption. The implied marginal propensity to consume out of housing wealth can be calculated by multiplying the elasticity by the ratio of consumption to housing wealth. Using data from Thorp (2002) on housing wealth, the implied long-run marginal propensity

to consume out of an extra dollar of housing wealth would be 6.2 cents.¹¹

Column 2 of table 3 gives the results of an alternate specification that is used from time to time in the literature: household consumption to disposable income. In this case, current and lagged values of the house price index are the explanatory variables. Current period and one year lagged house prices are significant. The marginal propensity to consume out of an extra dollar of housing wealth in the current period is three cents, and 3.7 cents out of an extra dollar of housing wealth gained in the previous year.

Consumption of durable goods is often linked with house prices for two reasons. Firstly, people buying houses often need to purchase durable goods for use in the house. Secondly, durable goods tend to be expensive and often consumers will use home equity to finance the purchase of these goods. Column 3 provides the results where private, per capita consumption of durable goods is the dependent variable. The results show that a one per cent increase in disposable income results in a 0.26 per cent increase in durable goods consumption. House prices have a lagged effect; a one per cent increase in house prices one year ago results in a 0.48 per cent increase in durable goods consumption. The marginal propensity to consume durable goods out of a one-dollar increase in (lagged) housing wealth is four cents.

Finally, consumption of nondurables and services was modelled and the results are given in the last column of table 3. As was the case in the model of durables consumption, house prices are only significant with a one-year lag. The effect of changes in house prices is not as strong on consumption of nondurables and services however. Because of the larger share of nondurables and services consumption in housing wealth, the marginal propensity to consume out of an extra dollar of housing wealth is higher (7 cents).

Overall, stability tests¹² do not indicate significant instability of the initial specification, however a recursive residuals test shows

¹¹ The results in Girouard and Blondal (2001) yield marginal propensities to consume ranging from minus 2 cents (Italy) to 18 cents (Japan).

¹² Recursive residuals, recursive coefficients and CUSUM tests were employed.

residuals just outside the standard error bands in 1987 which coincides with the period of financial deregulation. In order to explore this further, the sample was split into two time periods; 1973 – 1987 and 1988 - 2001 and the per capita model was re-estimated over each time period separately. Table 4 provides the results.

Table 4: Empirical results - split sample

	1973-1987	1988-2001
HPI	0.124 (2.32)	0.235 (6.19)
YD	0.832 (4.05)	0.754 (8.72)
YD(-1)	0.318 (2.05)	0.315 (5.39)
C	-0.638 (-2.56)	-1.164 (-7.22)
Resid	10%	1%
R ²	0.80	0.96
D.W.	1.07*	2.45*

t-statistics are in parenthesis.

*Estimated using White's heteroscedasticity-consistent covariance matrix.

The house price elasticity almost doubled between the two time periods and the overall fit of the model is better in the second time period as described by the R-squared. Moreover, the cointegrating relationship could not be rejected at the 1 per cent confidence level for the second time period while it could not be rejected with only 10 per cent confidence in the earlier time period.¹³ Together, these results provide evidence that deregulation, and the resulting improved access to borrowing, had a positive effect on household consumption decisions.

¹³ The evidence of a cointegrating relationship in the split sample results should be taken with caution due to a low sample size.

5 The role of the household sector in the balance of payments

New Zealand has run a sizeable current account deficit over a long period of time, and little attention has been given to the role of the household sector in the balance of payments.¹⁴ When household funding to the banking sector falls short of household borrowing the difference must be met through positive net funding in other sectors of the domestic economy or through overseas borrowing, the latter contributing to the current account deficit and external debt. This section describes what role the household sector plays in the balance of payments.

The current account balance is usually divided into three components; balance on goods, balance on services, and balance on income. New Zealand often runs a small surplus on the goods and services component and a sizeable deficit on the income component. The income account deficit reflects the degree of net foreign borrowing that is undertaken in New Zealand. Both the public and the private sectors can borrow overseas. Before New Zealand's reforms, the government had significant net overseas liabilities. Recently, the composition of overseas borrowing has changed with foreign borrowing by banks increasing markedly over the past two years. In this section, banking and household sector balance sheets are analysed to uncover the extent to which the low household saving rate is contributing to the current account deficit.

Overseas borrowing by banks has implications for macro-financial stability. While virtually all of the overseas borrowing by New Zealand banks is hedged, continued overseas borrowing requires investors who are willing to hold New Zealand dollar risk.¹⁵ Should a shift in preferences reduce investor appetite for New Zealand dollar risk, the banks would most likely shift to rely more on local funding. In such a case, we would expect a credit crunch, as New Zealand's low saving rate makes it difficult to raise local funding at prevailing interest rates.

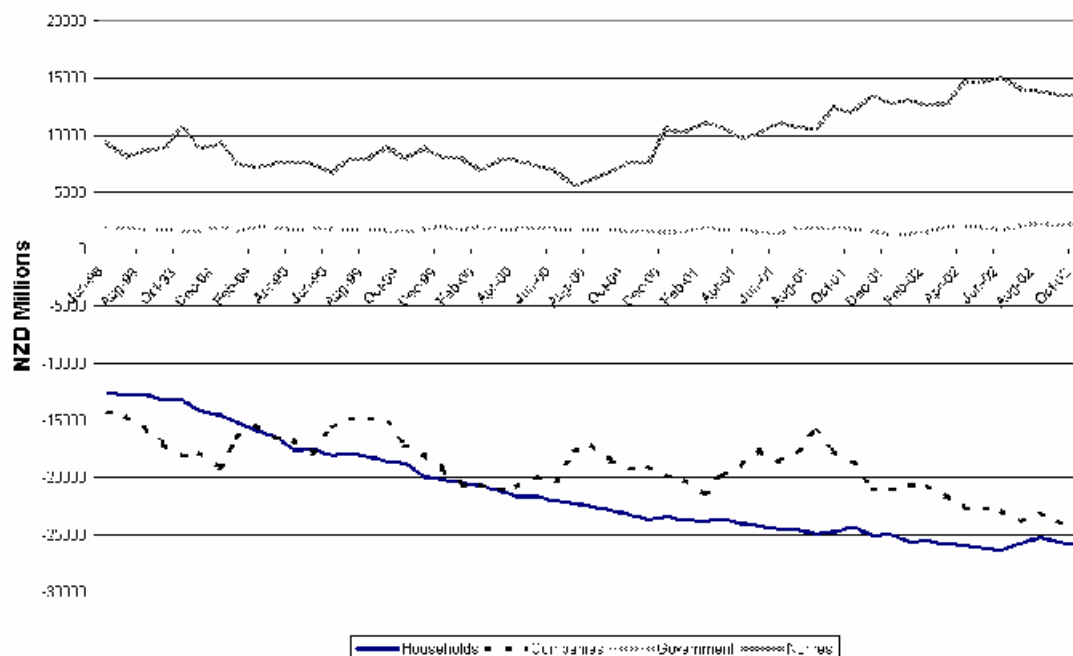
¹⁴ See Hull (2002) for a discussion of the role of the corporate sector in the current account.

¹⁵ See Woolford, Reddell, and Comber (2001) for details.

Households play a role in all three components of the current account. They provide labour and capital to domestic firms that produce export goods and services, and households import goods and services directly for consumption purposes. Households invest abroad, and receive income on those investments. Household overseas investments consist of directly held overseas equities and other portfolio assets invested on behalf of households by life insurance and managed fund companies and super-scheme managers. Households also borrow from abroad, primarily through banks, and make interest payments to their creditors, which contributes to the income account deficit. The majority of household liabilities are owed to large financial institutions, mainly banks. Because domestic funding is less than domestic borrowing, banks borrow overseas on behalf of New Zealand households and businesses.

In order to look at the contribution of the household sector to New Zealand's external indebtedness over time, the household sector's foreign assets and liabilities are estimated for 1990 and 2001. On the liabilities side of the household sector's balance sheet, ninety per cent of household borrowing is arranged through large financial institutions. Overseas funding for M3 institutions primarily enters the international investment position data through the "other" category as loans and deposits. As at March 2000, loans and deposits together are 95 per cent of the "other" category and 29 per cent of the stock of investment in New Zealand. While it is impossible to come up with a figure representing banks' overseas borrowing for households in particular, figure 4 gives some perspective.

Figure 4: M3 net funding by sector



Source: RBNZ tables C8 and C9

The data in figure 4 represents net M3 institution New Zealand dollar funding (funding less claims) by sector. Households and companies have significantly more claims than funding and the trend is worsening. Net providers of funding are the public sector and non-residents. Foreign currency funding makes up the difference and is predominately provided by non-residents. Loans and deposits by non-residents represented almost 30 per cent of the stock of foreign investment in New Zealand in 2001.

Figure 4 provides a picture of household liabilities, and assets held in the form of bank deposits. Households also own foreign financial assets - both directly, and through ownership of life insurance, managed funds and superannuation. As at the end of 2001, an estimate of households' direct overseas equity holdings was roughly \$5 billion.¹⁶ An estimate of the overseas holdings on behalf of households by the life insurers, fund managers and superannuation schemes was \$19 billion.¹⁷ Thus, New Zealand households'

¹⁶ As noted in the data tables from Thorp (2002) this is an estimate. Statistics New Zealand publishes the official figure and data for 2001 has not yet been released.

¹⁷ This figure comes from RBNZ Table C15 and a small portion of these assets is held on behalf entities other than households such as charities.

investment abroad was approximately \$24 billion representing about 30 per cent of the total stock of overseas investment. In 1990, directly held overseas equities were estimated to be about \$2 billion. Data on the share of overseas assets in life insurance, managed funds and superannuation in 1990 is not available. In 2001, approximately 39 per cent of the assets of life insurance, managed funds and superannuation were held overseas. In 1995, this figure was about 24 per cent so it appears this figure is increasing over time.

Table 5 provides a picture of the household sector's contribution to New Zealand's external indebtedness between 1990 and 2001. Column one provides an estimate of the household sector's net overseas surplus in 2001. Two estimates of the net overseas surplus in 1990 are provided in columns 2 and 4. The data in column 2 were calculated under the assumption that life insurance, managed funds and superannuation held no overseas assets in 1990. Under this assumption, the resulting household sector's net overseas surplus would be \$7 billion and therefore the *change* in the net surplus over time would be a decline of \$7 billion (column 3). The estimate in column 4 assumes that the share of assets held overseas was the same in 1990 as it is in 2001, so that \$10 billion would be indirectly held in overseas assets and the change in the net overseas surplus would be a decline of \$17 billion. The true figure lies somewhere between these two estimates. In either case, overseas borrowing by banks, on behalf of households, has outpaced the increase in overseas assets owned by households so that the net overseas surplus has deteriorated.

Table 5: Household overseas assets and liabilities

NZD billions	2001	1990 (a)	Change (a)	1990 (b)	Change (b)
Overseas assets	24	2	21	12	11
Directly held	5	2	2	2	2
Indirectly held	19	0	19	10	9
Net M3 funding	-24	5	-29	5	-29
Net overseas surplus	0	7	-7	17	-17

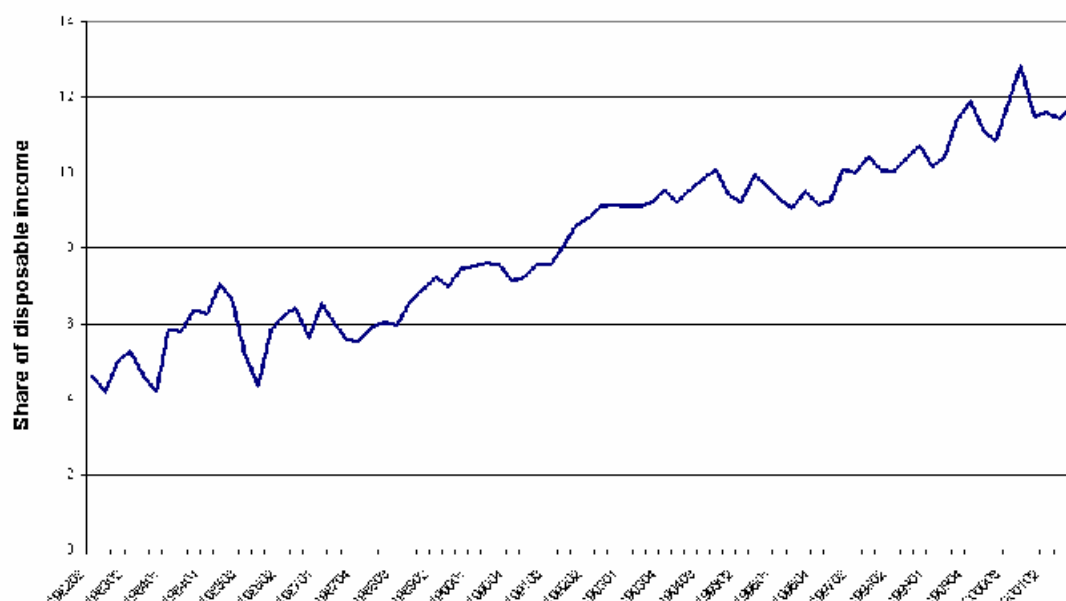
Source: RBNZ

(a) Assumes life insurance, managed funds and superannuation had no overseas assets in 1990.

(b) Assumes life insurance, managed funds and superannuation held 40 per cent of assets overseas in 1990.

Overseas borrowing has real repercussions through the trade balance, as foreign currency inflows must be matched by foreign currency outflows. The consumption goods category serves as a proxy for the household's role in the trade balance. The upward trend in imports of consumption goods is consistent with the upward trend in overseas borrowing (see figure 5). Increasing liabilities to disposable income, partially funded by overseas borrowing by banks, is occurring as imports of consumption goods are making up a larger share of household disposable income.

Figure 5: Imports of consumption goods



Source: RBNZ calculations

Overall, household saving decisions do affect the current account. The household sector is only one component of the current account and a large part of deficit comes from business activity and foreign direct investment. However, households play a growing role in the current account through increasing ownership of overseas assets, increasing foreign borrowing by banks on behalf of households, and increasing imported consumption goods.

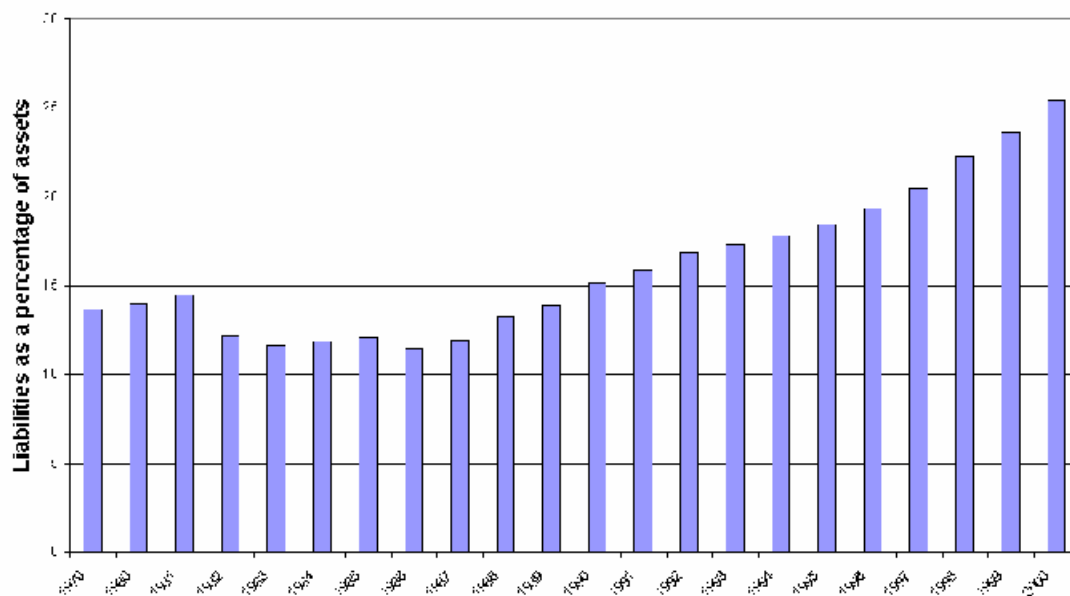
6 Leverage and vulnerability

This paper has thus far focused on the contribution of household indebtedness to New Zealand's external debt, which, as discussed earlier, when large enough can lead to problems accessing foreign capital should investors begin to wonder about sustainability. There are two additional linkages between the household sector and the economy. Firstly, there is the direct role households play in the economy through consumption and saving decisions. Secondly, there is the impact on financial institutions as households enter into both sides of banks' balance sheets. Thus, the behaviour of the household sector can have an impact on both the financial sector and the economy as a whole.¹⁸

Household consumption represents approximately 60 per cent of gross domestic product in New Zealand. Households also affect the investment component of GDP through saving and also more directly through residential investment, which represents about 5 per cent of GDP. Therefore, if households have a significant deterioration in their balance sheets, we could see a contraction of both consumption and investment and a potentially large impact on GDP growth. In the face of an adverse shock, such as wide-spread unemployment, households can access savings or borrow funds to help maintain consumption close to previous levels, and thus mitigate a decline in consumption. If savings are low and focussed into long-term assets such as superannuation, the ability to borrow in an economic downturn is important. In gauging the future borrowing abilities of households, it is useful to look at the capital gearing ratio.

¹⁸ The household sector has not been the catalyst in any financial crises in modern times. However households play a role on subsequent recoveries. Moreover, household debt in many developed countries is at unprecedented highs, and could serve as a destabilising factor in certain situations.

Figure 6: New Zealand households' capital gearing

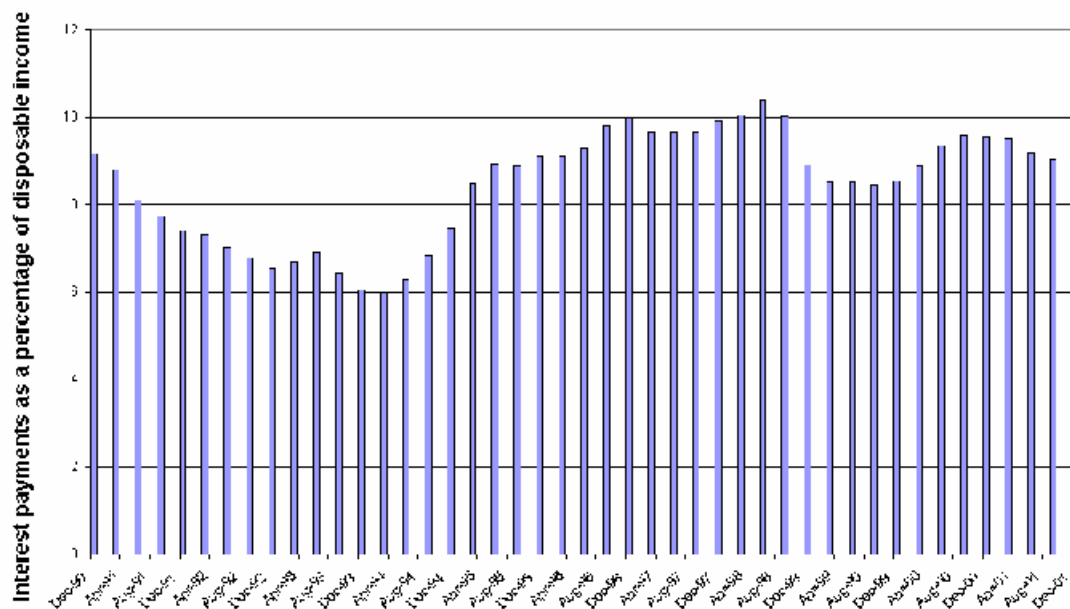


Source: RBNZ calculations

Capital gearing is defined as the ratio of total liabilities to total financial assets and housing wealth. The increase in capital gearing seen in figure 6 is mainly driven by increases in debt (as opposed to a contraction in assets), and begins its upward trend after financial deregulation. The increase in capital gearing makes households more vulnerable to declines in asset values than they would have been ten years ago. If a severe recession were to hit causing a decline in asset prices, households' ability to access credit would be more difficult because of high debt levels and falling asset prices. An offsetting force to the liquidity crunch would be a decline in debt servicing costs when stimulatory monetary policy takes place.

A second vulnerability comes through servicing debt. Households have taken on more debt in an environment where interest rates were falling on average. Thus, they currently have a large stock of debt, and if interest rates rise, their monthly outlays on debt servicing will rise as well. To give some perspective, figure 7 gives the income gearing figures for New Zealand households.

Figure 7: New Zealand households' income gearing



Source: RBNZ calculations

Income gearing is the ratio of interest payments on debt to disposable income. Households have had a steady increase in debt over the 1990s and the income gearing figure does not show a steady rise, thus lower interest rates have generally kept this ratio under 10 per cent.

The income gearing ratio and interest rates move together quite closely. If interest rates rise at a rate faster than income rises, for a given amount of debt, the income gearing ratio will rise. This issue has been discussed in the context of the United States. United States households went into the recent recession with unprecedented levels of debt. The decline in interest rates stimulated more borrowing. When interest rates start to rise the recovery could be thwarted as rising debt servicing costs cause consumers to cut back on consumption spending. Fixed-rate mortgages will help offset this in the short-run but even these must be rolled-over at prevailing interest rates over time.¹⁹

¹⁹ The longest fixed rate mortgage available in New Zealand is five years. In the United States, homeowners can obtain fixed rate mortgages for up to 30 years and so do not have to roll over the loan as often.

In addition to the macroeconomic impact households have, they could also impact the banking sector. Deposits make up a significant share (about 40 per cent) of households' financial assets. If households need to draw down assets, there will be an adverse impact on bank funding. However, households' presence on the liability side of banks' balance sheets has been declining over time so that this vulnerability is not as large as when households represented a larger share of bank funding. Nonetheless, if household instability is playing a large role in the overall macroeconomy, then banks may face larger overseas borrowing costs as overseas investors' confidence in New Zealand's economy wanes.

On the claims side of the balance sheet, households currently represent 44 per cent of total banking sector claims. Thus, household illiquidity or insolvency could have a significant impact on banks' impaired assets. This could lead to increases in the cost of capital to banks as well as a decline in credit growth. When a bank's pool of investment "projects" becomes more risky, banks tend to cut back on lending. Because households represent a large share of bank claims, financial stress in the household sector can lead to instability in the financial sector.

7 Conclusion

New Zealand's household indebtedness has increased over the last ten to fifteen years, as has been the case in many other developed countries. New Zealand's household liabilities have more than doubled since 1990 with most of the borrowing from banks. At the same time, households' share in bank funding has been declining. Overseas borrowing, adding to the current account deficit, has helped to fund the difference. Strong GDP growth and low interest rates help countries sustain debt over long periods of time. However, a high reliance on foreign capital can lead to vulnerabilities should access to foreign capital be reduced or closed off completely. Moreover, the ability to hedge foreign currency liabilities requires investors who are willing to hold New Zealand dollar risk.

This paper presents evidence that financial deregulation gave households better access to credit, and that household indebtedness

has steadily increased since deregulation. Data availability problems prohibit an empirical investigation of liquidity constraints of New Zealand households. However, the coincidence of higher indebtedness and declining saving is consistent with the finding that liquidity constraints increase saving rates. Moreover, housing prices are found to play a role in consumption decisions with a stronger effect after deregulation.

Increased household indebtedness makes households more susceptible to liquidity problems should they face an adverse income shock. Currently, interest rates are low, keeping debt servicing costs fairly stable. Should interest rates rise significantly, households could feel cash flow pressures. In either case, the result could be a contraction in consumption, which would affect GDP. From a financial system standpoint, households' role in banks' balance sheets is sufficiently large that should the household sector face a severe decline in incomes, credit growth and banks' cost of capital could be adversely affected.

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