

What do we know about equity withdrawal by households in New Zealand?

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Abstract

In recent years sizeable increases in household asset values have coincided with a rundown in saving by households. One of the mechanisms through which households could be dissaving is via equity withdrawal. Aside from housing equity withdrawal there are other forms of equity withdrawal available for some households, including farming equity withdrawal.

At the macroeconomic level the incidence of housing equity withdrawal in New Zealand is a relatively new phenomenon. The historical norm has been a net injection of funds. Equity withdrawal from farms has also increased in recent years. Our estimates suggest that since the March 2002 year approximately \$14.5b of equity has been withdrawn from houses and farms. In both cases rising equity withdrawal has been driven by an increase in borrowing rather than falling investment.

Rising farm and housing equity withdrawal appear to be related to sizeable increases in property prices. As yet the magnitude of this combined equity withdrawal is substantially lower than the notional increase in net worth experienced by households. It implies considerable scope for further equity withdrawal, although there are limits to this process.

Evidence quantifying the impact of equity withdrawal by households on consumer spending is tentative. This partly reflects the lack of data on other forms of equity withdrawal that can be used by households. It is probable that the proceeds of farm and housing equity withdrawal will eventually be consumed. However, a stable relationship between the level of combined equity withdrawal and consumption was not evident in the data. Our work suggests that the short term impact on consumption growth from changes in housing equity withdrawal could be relatively modest. This appears consistent with a rise in holdings of financial assets by New Zealand households in recent years.

The decline in official household saving has occurred when equity withdrawal from farms and housing has been increasing. However, increasing equity withdrawal from these sources is unlikely to fully account for the decline in official household saving that has been observed in recent years.

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1 Introduction

In recent years sizeable increases in household asset values, driven primarily by rising property prices, have coincided with a rundown in saving by households. One of the mechanisms through which households could be dissaving is via equity withdrawal.

Equity withdrawal by households is the difference between borrowing secured on household assets less investment by households in those assets. It generates a net positive cash payment to households, which is available for consumer spending and other uses. Aside from housing equity withdrawal there are other forms of equity withdrawal available for some households, including farming equity withdrawal.

This paper summarises my analysis of equity withdrawal by households in New Zealand. It is organised as follows:

- Section 2 outlines the construction of a measure of housing equity withdrawal for NZ.
- Section 3 highlights some influences, types and uses of housing equity withdrawal.
- Section 4 discusses other forms of equity withdrawal available to households.
- Section 5 summarises evidence on the equity withdrawal and consumption link.
- Section 6 discusses the link with household saving and future trends.
- Section 7 concludes.

2 Deriving a measure of housing equity withdrawal for New Zealand

What is housing equity withdrawal?

Housing equity withdrawal (HEW) is a measure of the net cash effects of transactions into and out of the housing market made by households. It occurs when the borrowing for housing exceeds new investment in housing:

$$\text{HEW} = \Delta \text{Mortgage Debt} - \text{Funds injected into housing stock} \quad (1)$$

Aggregate measures of housing equity withdrawal mask injections and withdrawals made by individual households. At any point in time some households are withdrawing equity, other households are injecting equity, whereas others will be doing neither.

Equity withdrawal by a particular household affects its household equity but not its net worth. In some instances equity withdrawal represents a transfer of equity from one household to another. However, it does not necessarily have an immediate impact on the net worth of a household injecting or withdrawing equity.

Housing equity withdrawal is only one means for households to consume in excess of current income. As discussed by Hodgetts et al (2006), there are likely to be other mechanisms, including non-housing equity withdrawal and capital transfers, which could sustain this process for some time. Hence, we would not necessarily expect to see a strong negative correlation between household saving and housing equity withdrawal.

2.1 Components of aggregate HEW in New Zealand

In putting together estimates of equity withdrawal a bottom-up approach is used. I use the following identity used by the Bank of England:¹

$$\text{HEW} = \text{NL} + \text{CG} - \text{HI} - \text{NT} - \text{TC} \quad (2)$$

Where:

NL = Net lending to individuals secured on dwellings

CG = Capital grants for housing paid to personal sector/housing associations

HI = Household sector investment in dwellings

NT = Net transfers of land to the household sector

TC = Household transfer costs and transfers of dwellings between sectors

Source: Bank of England

The following section briefly discusses how estimates of the various HEW components were derived. Further details are available upon request.

Net lending to households (NL)

Reserve Bank data on total housing lending secured on residential mortgages in New Zealand is used. This includes mortgage lending by banks and non-banks in New Zealand but excludes student loans and personal loans.

As this is a debt stock figure it will implicitly capture repayment of mortgage principal by households, which is likely to be the most common form of equity injection. It follows that more mortgage debt, unless offset by a more housing investment, will lead to additional housing equity withdrawal, whereas a reduction in debt implies lower equity withdrawal.

Capital Grants for housing (CG)

I have not made any adjustments for capital grants, but note that the impact of KiwiSaver, which will be introduced in April 2007, will need to be incorporated. KiwiSaver offers a deposit subsidy of up to \$3,000 to first home buyers from 2010, increasing to \$5,000 from 2012.²

Household sector investment in dwellings (HI)

This is based on two major sources. The first uses nominal private dwelling investment from the system of national accounts. It captures paid work and materials used in the maintenance and improvement in the housing stock. It also includes transaction costs (TC), consisting of legal and real estate agents fees associated with transfers of dwellings.

However, private residential investment includes building work on farms which should not be included in a measure of housing equity withdrawal as they are likely to be financed via agricultural sector (rather than residential) borrowing. Using interpolated Statistics New Zealand data on the number of farm dwellings and the value of building work put in place I subtract the estimated value of building work on farms to derive an ex-farm measure of dwelling investment. Dwelling investment on farms is estimated to be a relatively constant

¹ See http://www.bankofengland.co.uk/mfsd/iadb/notesiadb/mew_notes.htm. The UK measure is referred to as mortgage equity withdrawal (MEW), although conceptually this is the same as HEW.

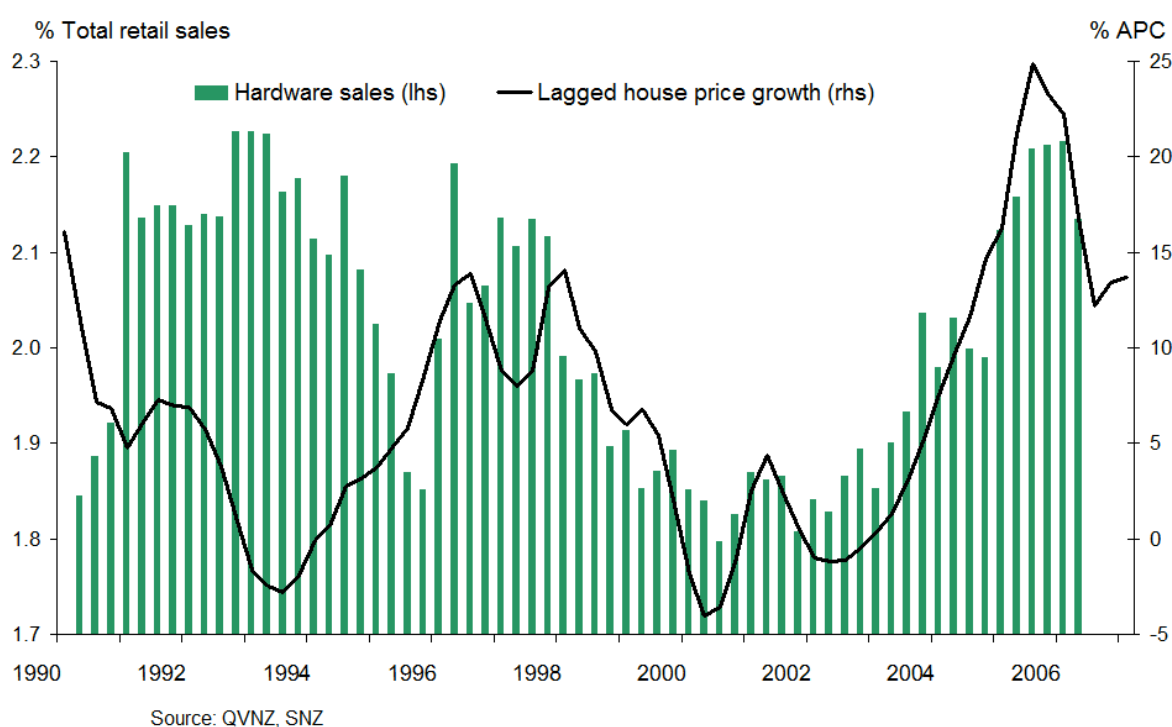
² See <http://www.ird.govt.nz/kiwisaver/summary/>
Ref#2834272

and minor share of total private dwelling investment – approximately 2½ per cent on average since 1986.

The second set of data on housing investment is from the retail trade survey. This recognises the likelihood that reported residential investment estimates undercount the actual work undertaken on improving the housing stock. The statistical treatment of renovations depends on who does the work and whether it is large enough to be captured by the statistical agency. Typically, non-consent work and materials purchased by households will not be captured. To proxy for this effect I assume half of the total sales from hardware stores in the retail trade survey are used to maintain or improve the quality of the housing stock. In the March 2006 year this was approximately \$650m, roughly 5 per cent of the total value of housing sector investment in dwellings.

Figure 1 shows that over the last decade or so the portion of total retail sales spent on hardware tends to follow the house price cycle with a lag of about 12 months.

Figure 1 Hardware spending and housing wealth



Net transfer of land to household sector (NT)

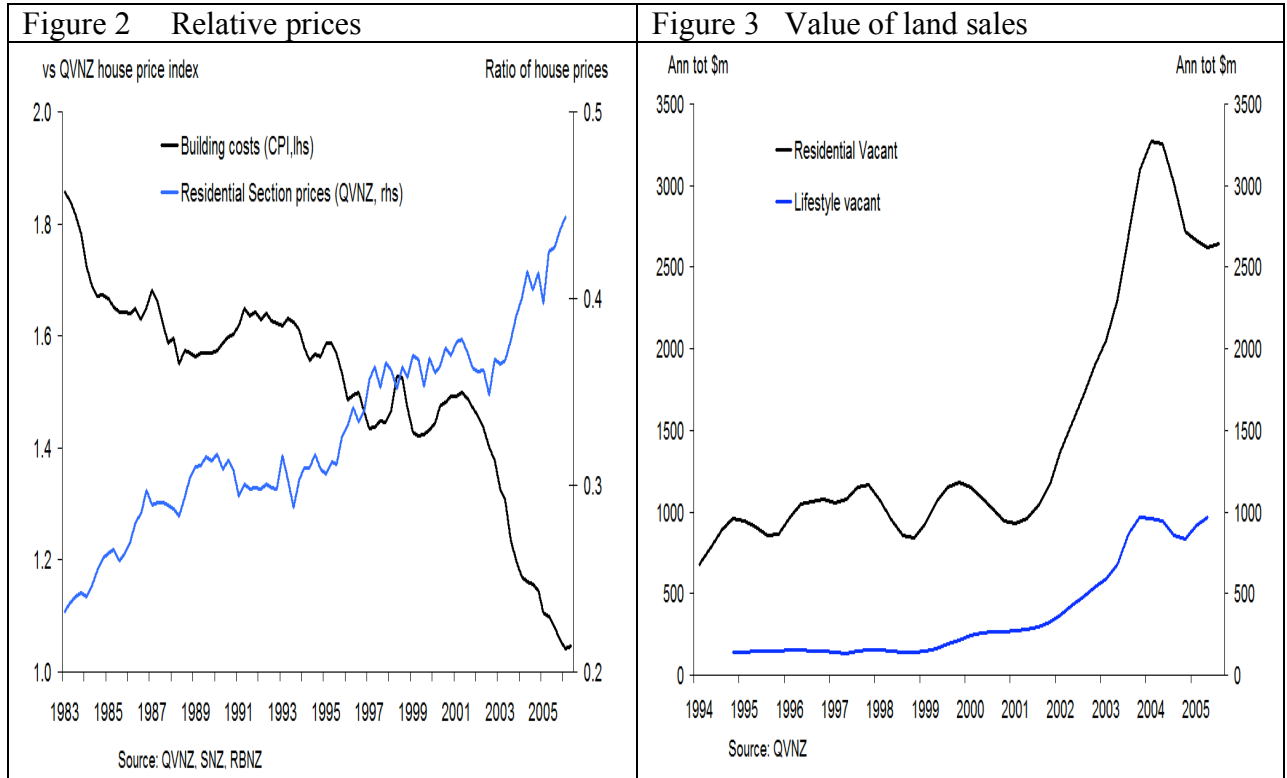
According to RBA research (2006) the land content of a new dwelling represents a significant portion of the purchase price (see also Motu (2006) for New Zealand evidence). If a dwelling is purchased by a household from another sector the transfer of land would add to the injection of equity made by households.

Purchases of land by New Zealand households are likely to be increasingly important for the following reasons:

Relative price movements – Large increases in land prices mean that the land content of a dwelling will represent a rising portion of the total purchase price of a new dwelling (see figure 2). In the early 1980s about one quarter of the cost of a new home was estimated to be

the residential section component. By 2005 this had risen to about 40 per cent. This has more than offset the trend towards larger sizes for residential dwellings.³

Purchases of land from other sectors – Strong population growth has underpinned demand for residential land, with a proliferation of greenfield sub-divisions on the periphery of urban areas. Demand of coastal property for residential dwellings has also been strong. Another recent trend has been rises in the purchases of lifestyle property blocks. As figure 3 shows, the value of lifestyle section sales has increased sharply since the start of the decade, both in absolute terms, and in relation to the total value of vacant urban land sold.⁴



To proxy for the value of land purchased by households from other sectors (including the farming sector) data on residential building consents produced by Statistics New Zealand and QVNZ data on the value of land sales are used (see box 1). In applying a similar set of assumptions those used by the RBA (2006) it is assumed that the number of residential sections transferred to the household sector is equal to half of the number of residential consents for new dwellings.⁵ As it is more likely that purchases of lifestyle sections by households would be from those outside the household sector (e.g. farmers or property developers) I assume that three quarters of all purchases of lifestyle sections by households are from other sectors.

To ascertain the robustness of these estimates an alternative method, which uses QVNZ data on section sales and information from the certificate of title in property sales, is used as a

³ SNZ estimates show the average size of new residential dwelling consent has increased from roughly 125sqm in 1980, to around 170sqm by 1995, approximately 175sqm by 2000, and just over 190sqm by 2005.

⁴ A lifestyle property is deemed to be one that generates insufficient income to service its own mortgage. QVNZ classify lifestyle property sales as either vacant or improved. The value of freehold lifestyle vacant section sales was just under half of residential section sales in 2005, compared to around one quarter in 2000, and 15 per cent in 1995.

⁵ Anecdotal evidence suggests that the proportion of residential sections could be a bit higher in New Zealand, given the prevalence of greenfield subdivisions. I assume that each new apartment has an intrinsic land content that is worth about one half of the value of the average residential section sales price.

cross-check. From tallying up the changes in ownership it is possible to ascertain a snapshot of the extent to which residential and lifestyle sections are transferred between households from other sectors. It suggests that of all residential section sales about half are purchases by households from other sectors. The certificate of title has very broad classifications – it is not possible to ascertain whether a property buyer is a foreign resident/New Zealand resident domiciled overseas, for example.

Both estimates suggest that the value of land purchases by households from other sectors has been significant – around \$20b since 1990, and in the region of \$8b since 2003.

Box 1 Estimating value of land purchased by households from other sectors

I use the formulae below to calculate the value of land transfer to households:

1) Method used - Residential consents method

$$LT = HC_t * 0.5 * (SPR * PRS) + AC_t * 0.5 * (SPR / 2 * PRS) + HC_t * 0.75 * (SPL * PLS) \quad (B1.1)$$

Where:

- LT = total value of sections transferred to households from other sectors.
- HC = number of new dwelling consents ex-apartments.
- SPR = average residential section price (QVNZ).
- PRS = proportion of total sales that are residential (0.77 in 2005, QVNZ).
- AC = number of apartment consents.
- SPL = average lifestyle vacant section price (QVNZ).
- PLS = proportion of total sales that are lifestyle (0.23, QVNZ).

2) Crosscheck – Section sales method

$$LT = (RV * HTR) * SPR + (LV * HTL) * SPL \quad (B1.2)$$

Where:

- LT = total value of sections transferred to households from other sectors.
- RV = number of sales of residential vacant properties (QVNZ).
- HTR = net proportion of residential sections transferred to households (0.48).
- SPR = average residential section price (QVNZ).
- LV = number of sales of lifestyle vacant properties (QVNZ).
- SPL = average price of lifestyle vacant property (QVNZ).
- HTL = net proportion of lifestyle sections transferred to households from other sectors (0.75).

Table B1.1 shows that the RBA approach produced marginally higher estimates of land purchases. Sales of land are more cyclical using the QVNZ measure.

Table B1.1 Estimated value of land transferred to households

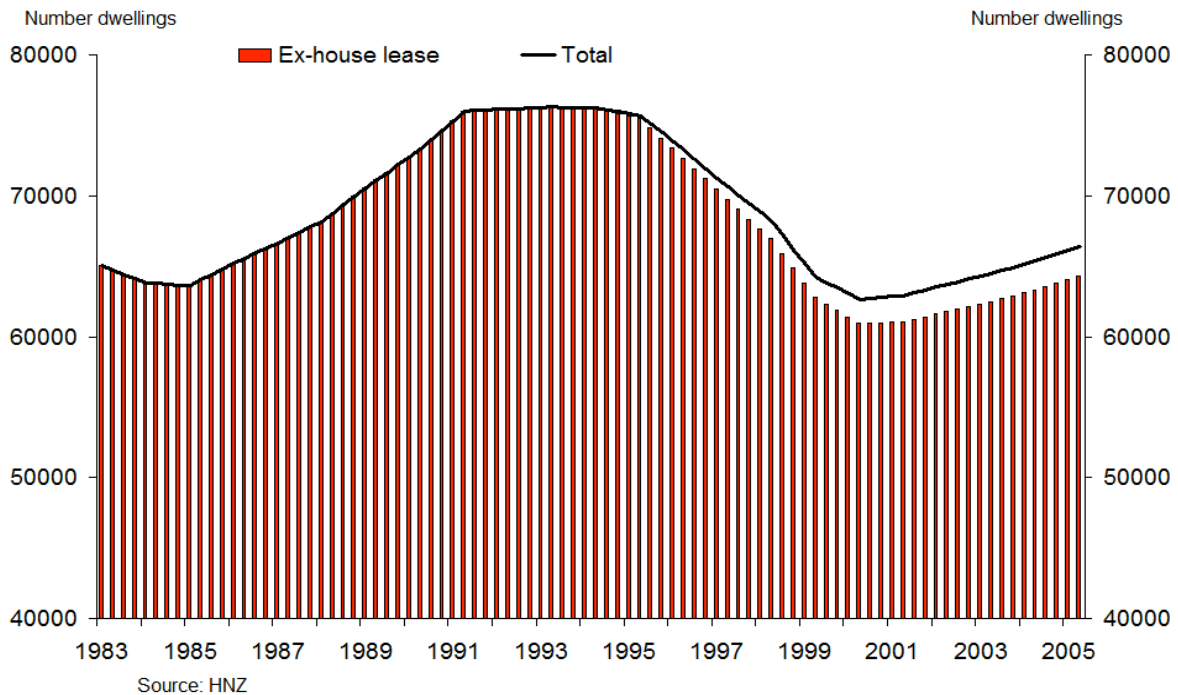
Period	Consents approach	Section sales approach	% difference
2005 year	\$2.6b	\$2.3b	13
2000-2005	\$11.2b	\$11.0b	2
1990-2005	\$19.8b	\$18.2b	9

Transfers of dwellings to/from the household sector (NT)

Household sales and purchases of residential dwellings from other sectors (for example, firms and government) affect housing equity withdrawal via their impacts on the value of the housing stock owned by the household sector and size of financial obligations by households. To proxy for this effect data on the tenure status of dwellings (from Statistics New Zealand), and data on the number of residential dwellings owned by Housing New Zealand and local authorities (obtained from annual reports) is used.

Central and local Government own or manage approximately 80,000 residential dwellings, with 65,000 owned by Housing NZ. The number of properties owned by HNZ peaked at just over 75,000 in the early to mid 1990s before falling over the remainder of the decade. Over the last few years HNZ have been acquiring additional residential properties, either via more building or purchasing existing dwellings from other sectors, including households and companies. Discussions with local government officials suggest that there are few, if any, transfers of ownership of dwellings between households and the local government sector.

Figure 4 Housing NZ Corporation stocks of residential dwellings



The value of residential property transferred between the household and government sector is relatively minor and has a small effect on the level and profile of housing equity withdrawal. At the margin the recent acquisition of properties by HNZ implies more equity withdrawal by households.

2.2 Putting it all together

Figure 5 shows estimates of the various housing investment components. By far the largest contributor is housing sector investment in dwellings (blue line). Land transfers account for a rising share of total housing investment approaching one quarter of the total. As the government has been a net purchaser of dwellings from households in recent years this has acted to reduce the net investment made by private households.

Figure 5 Components of housing investment

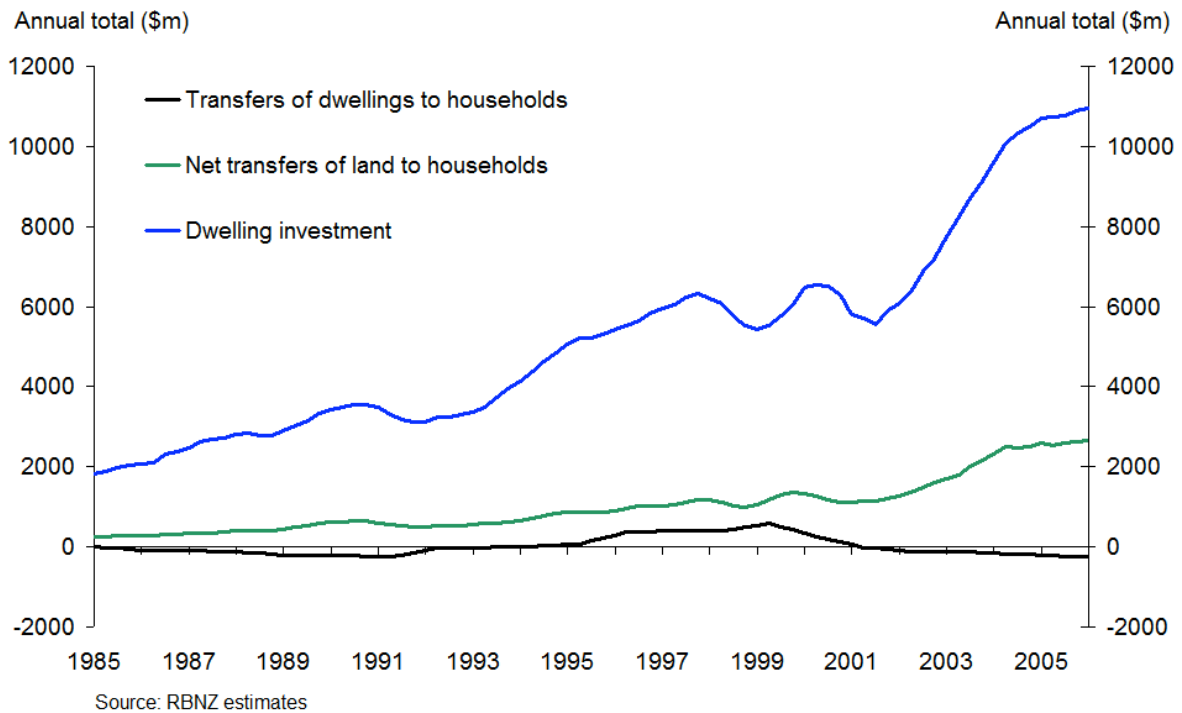


Figure 6 shows housing equity withdrawal. The historical norm has been a net injection of funds by households. The recent trend towards aggregate housing equity withdrawal has been driven by more mortgage borrowing. Housing investment remains at historically high levels.

Figure 6 Housing equity withdrawal decomposition for New Zealand

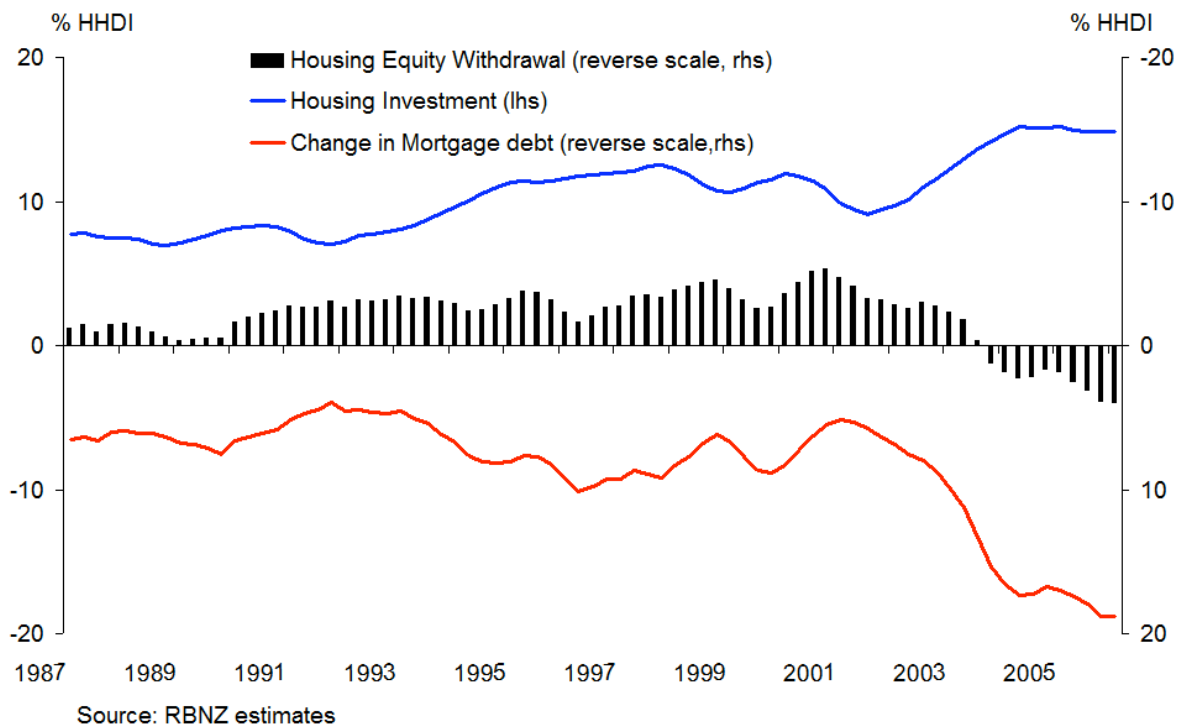


Table 1 summarises the major components of aggregate HEW. Since the start of 2003 nearly \$7b in equity has been withdrawn by households. Despite recent trends around \$20b more has been injected into housing than withdrawn since 1990.

Table 1 HEW Summary table

March years (\$b)	Increase in mortgage debt	Housing Investment			HEW (a)-(b)
		(a)	Dwelling investment & hardware rts	Other	
1990	3.1	3.4	0.4	3.8	-0.7
1995	4.3	5.1	0.9	6.0	-1.7
2000	5.7	6.5	1.7	8.2	-2.5
2003	7.5	7.7	1.6	9.3	-1.8
2004	13.2	9.6	2.2	11.8	1.5
2005	14.7	10.7	2.4	13.1	1.6
2006	16.9	10.9	2.4	13.3	3.6
Apr 1990-present	102.1	99.5	21.2	120.8	-18.6
Apr 1995-	88.4	80.4	18.3	98.7	-11.1
Apr 2000-	61.2	50.8	10.8	61.7	-0.5
Apr 2003-	44.8	31.2	6.9	38.1	6.7

*Up to (and including) March 2006 quarter.

2.3 Potential gaps with the aggregate measure of HEW

Estimates of aggregate housing equity withdrawal have been constructed using a bottom-up approach and use a number of data sources. However, there are still likely to be gaps:

- *Housing investment*

These estimates treat a portion of hardware retail sales as a proxy for housing investment not captured in the national accounts. It is unclear to what extent this proxy captures investment (which you would count as an equity injection) as opposed to durables consumption (which is not an injection of equity).

- *Capturing overseas investment*

Purchases on New Zealand residential property that are funded directly from overseas are not captured in this measure. If these purchases are large and the sale proceeds spent domestically these estimates could significantly understate the magnitude of equity withdrawal taking place. Unfortunately, we have no means of verifying how much of an issue this could be.

- *Boundary issues.*

Classification boundaries for work on dwellings may not be entirely consistent with how loans are secured on them. Although adjustments were made to remove investment on farm dwellings there are likely to be other inconsistencies that we cannot easily remedy. For example, work recorded as private residential investment may be undertaken for other sectors (for example, firms and government). A portion of mortgage funding is likely to be used for non-housing purposes, including small business finance. If this means of funding has been increasing it is likely that our estimates will overstate the extent of housing equity withdrawal underway. However, without the relevant information this is difficult to verify.

As we do not know to what extent these considerations will affect these estimates of housing equity withdrawal it is difficult to provide an exact indication of potential bias. However, it seems more likely these estimates slightly undercount the magnitude of aggregate housing equity withdrawal taking place.

3 Influences, types, and uses of housing equity withdrawal

3.1 Potential influences

What have been the key drivers behind the increase in aggregate housing equity withdrawal? Overseas literature and our own research points to the following:

- Rising property values

This has boosted the equity of homeowners. Equity gains can be realised via property sales, trading down to a less expensive property, or mortgage refinancing.

- Lower nominal interest rates

This enables households to service more debt for a given nominal income.

- Financial liberalisation

More flexible lending practices by financial institutions have enabled households to partly alleviate (previously binding) credit constraints. Compared to higher cost alternatives mortgage financing may have increasingly been used by households. The rolling out of new mortgage products (including revolving credit mortgages/reverse mortgages) has also made it easier for households to extract the rising equity of their home.

- Better economic climate

Increased job security may have contributed to reduced emphasis on precautionary savings and repayment of outstanding debt.

- Other factors

Demographic factors, and increasing use of mortgage debt to fund rental housing.

Given the inter-linkages between these key drivers it is difficult to pinpoint any particular underlying factor. Nevertheless, the trend towards increasing aggregate housing equity withdrawal in New Zealand has largely been driven by an increase in mortgage debt levels rather than a fall in housing investment. Work at the Reserve Bank and elsewhere has highlighted a number of influences on mortgage debt levels, including:

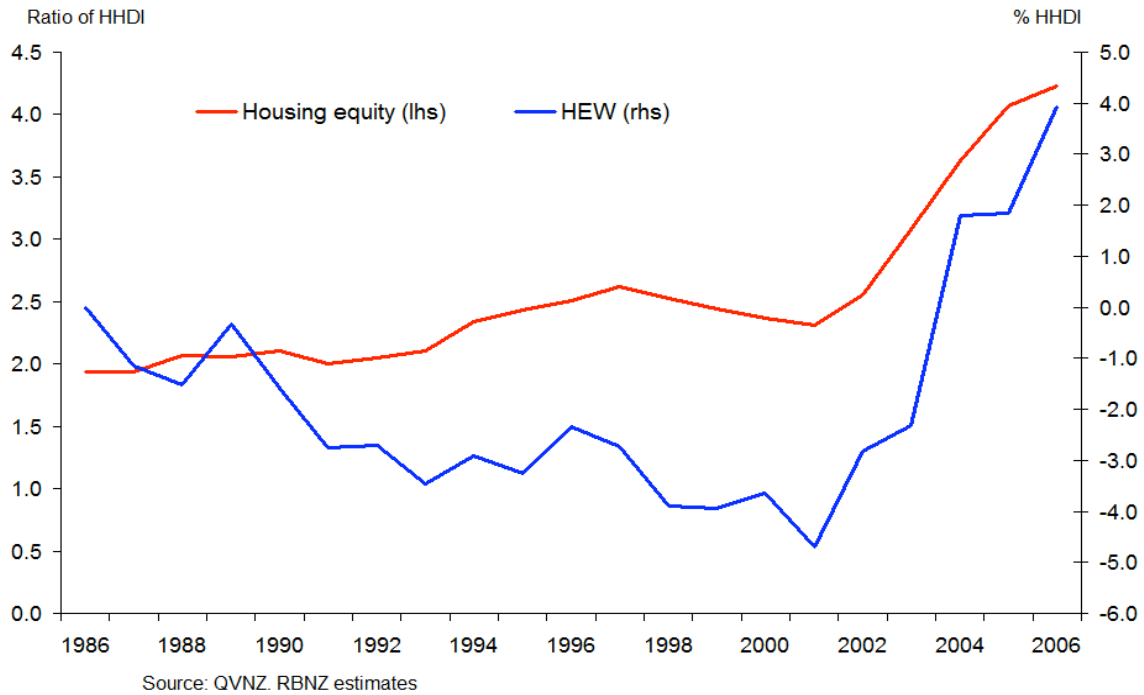
i) Increases in property prices

Since the mid 1980s increases in aggregate mortgage debt levels have run in line with increases in the value of the housing stock, which in turn have largely been driven by rising property prices. Since 2001 the value of the private residential housing stock has more than doubled whereas the level of mortgage debt has nearly doubled.

Following the analysis by Scobie et al (2006) the relationship between equity withdrawal and housing equity is quantified by way of a reduced form equation. Housing equity withdrawal to household disposable income is regressed on a constant and a measure of housing equity⁶ to household disposable income over the 1988Q1-2005Q4 period. Results for New Zealand suggest that a 10 percentage point increase in the housing equity to income ratio boost housing equity withdrawal by 0.7 per cent of income in the following quarter. However, this result appears to have been driven by what has occurred over recent history rather than capturing a stable long-run relationship (see figure 7).

⁶ The difference between the value of the residential housing stock and mortgage debt. There is some evidence of dual causality between HEW and housing equity which make interpreting results difficult.
Ref #2834272

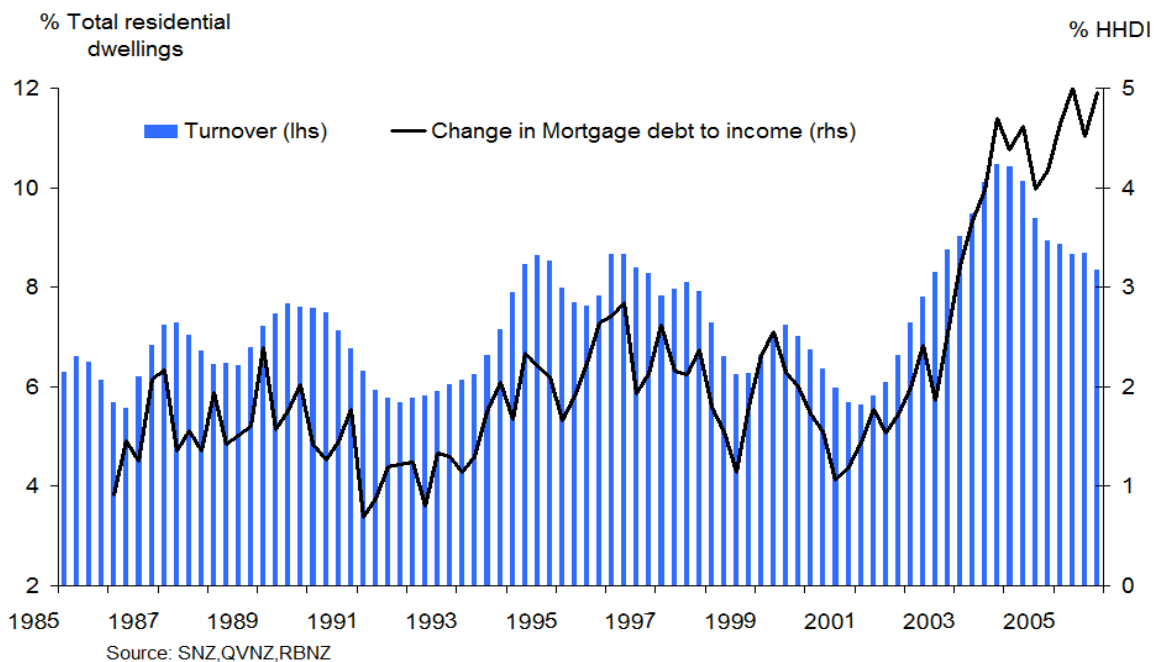
Figure 7 Increasing property prices have coincided with housing equity withdrawal



ii) Dwelling transactions

Increases in property prices are unlikely to have a significant impact on equity withdrawal unless they are realised. One of the mechanisms through which equity can be withdrawn is via the selling of property. When a property changes hands the impact on mortgage debt (and hence equity withdrawal) will depend on the debt and equity positions of both buyer and seller. If the deposit by the purchaser is lower than the proceeds received by the seller (after debt repayment) the transaction will result in an increase in mortgage debt (and hence equity withdrawal). Figure 8 shows that changes in mortgage debt in New Zealand tend to fluctuate with changes in property transactions.

Figure 8 Housing turnover and changes in mortgage debt



3.2 Types and uses of HEW

Although the incidence of aggregate housing equity withdrawal in New Zealand is a relatively new phenomenon, different types of equity withdrawal and injection have occurred in particular households, at various points in time.

Box 2 summarises the various forms of housing equity withdrawals and injections by individual households that can take place.

Box 2		Types of withdrawals and injections into the housing stock
<i>Withdrawals</i>		
Last-time sales		A seller does not buy a new property, so the proceeds of the sale are released from the housing market.
Trading down		A seller moves to a cheaper property but reduces their mortgage by less, leaving a cash sum.
Over-mortgaging		A moving owner-occupier increases their mortgage by more than the difference between the new and old house prices.
Remortgaging		A borrower remortgages without moving properties or improving the property to the same extent.
<i>Injections</i>		
First-time purchases		Deposit paid by first time buyer.
Mortgage repayments		Regular and irregular repayments of principal.
Home improvements		Home improvements paid for with non secured funds.
Under-mortgaging		Borrower changes their mortgage by less than the difference between the old and new house prices.
Under-remortgaging		Borrower remortgages and reduces their debt without moving properties or improving the property.

Source: Davey (2001)

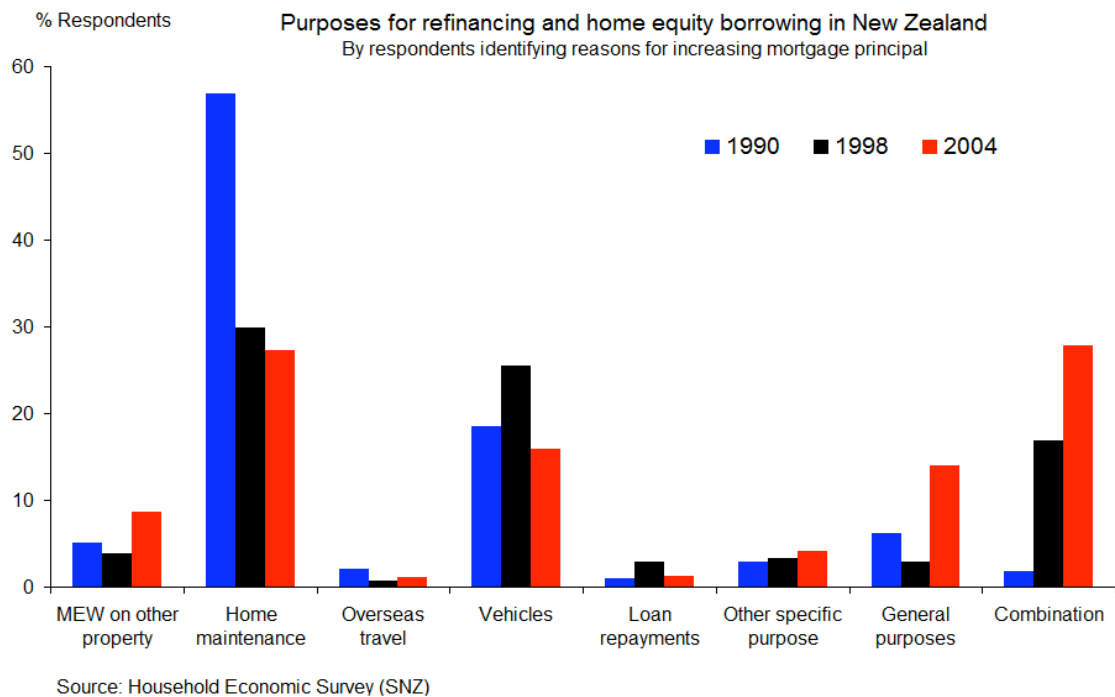
Rather than rely on macroeconomic data sources it would be useful to examine household level data to see if they yield any insights on equity withdrawal.

New Zealand survey evidence

An analysis of the Household Economic Survey (HES), a 3-yearly survey of roughly 3,000 households, provides some limited information on what the proceeds from mortgage refinancing are used for in New Zealand. Figure 9 suggests the proceeds are mostly used to finance home improvements and to purchase consumer durables.

However, as results from a number of specifically designed surveys on HEW overseas indicate, this is unlikely to be the whole story, with the uses of housing equity withdrawal depending on how the equity is injected or withdrawn.

Figure 9 Purposes for refinancing and home equity borrowing in New Zealand
(By respondents identifying reasons for increasing mortgage principal)



Overseas survey evidence and active and passive HEW

Of particular relevance to New Zealand was a survey on equity withdrawal in Australia (see RBA (2006)), which provided a snapshot of what was going on in 2004. According to the survey, 42 per cent of all households changed their housing equity over 2004; 12 per cent of households made a net withdrawal of equity whereas 30 per cent made a net injection.

An important distinction made by the RBA was that the uses of equity withdrawal depended on how it took place. The RBA study identifies two major forms of equity withdrawal:

i) Equity withdrawal via refinancing on existing property - I term this Active HEW

This was the most common form of equity withdrawal in 2004, with around 7 per cent of households in the RBA survey making a net withdrawal of equity by increasing the debt on their existing property. The median amount withdrawn by households was \$20,000, accounting for around one quarter all housing equity withdrawal. More than half of the value of equity withdrawal from this channel was used to finance consumer spending, including home decorations, holidays, and purchases of motor vehicles and other consumer durables.

ii) Equity withdrawal via property transactions - I term this Passive HEW

Roughly 5 per cent of households in the RBA survey withdrew equity in 2004 via property transactions (via selling property or trading down). The median amount of equity withdrawn by households via this channel was much larger (\$83,000), with property transactions accounting for almost three quarters of total housing equity withdrawal. Around 60 per cent of the value of equity withdrawal from this channel was used to fund asset accumulation, with less than 20 per cent of the equity withdrawn used for consumer spending. The largest category of asset accumulation was bank deposits, although in some of

these cases the household indicated these funds would be later be used for other purposes (including house purchases and consumer spending).

The RBA study identified differences in demographic characteristics between those households that increased debt on existing property (active HEW) and those that withdrew equity through transactions in the property market (passive HEW). Older households (with little outstanding mortgage debt) selling to younger households are likely to have contributed to the strong pick-up in passive aggregate housing equity withdrawal.

Although the format of surveys in other countries differs slightly from the RBA survey, a similar picture emerges.⁷ Much of the increase in mortgage debt (and hence HEW) occurs through housing transactions rather than mortgage refinancing, with households using the equity extracted to acquire financial assets or repay other debts. Usually less than 20 per cent of total housing equity withdrawal by value was used to finance consumption.

Box 3 Examples of active and passive housing equity withdrawal

Active HEW

A homeowner increases the outstanding principal on their current mortgage by \$20,000. They use \$8,000 to fund an overseas trip and the remaining \$12,000 on home improvements.

- In this instance a net equity withdrawal of \$8,000 occurs.

Passive HEW

A residential dwelling is sold for \$400,000. The seller is debt free and uses the sale proceeds to purchase a new apartment for \$150,000, and puts the remaining \$250,000 on a NZ interest bearing term deposit. The buyer funds 15 per cent of the purchase from their own funds and takes out a \$340,000 mortgage.

- A net withdrawal of equity of \$190,000 takes place.

4 Other forms of equity withdrawal by households

Hodgetts et al (2006) suggest there are other forms of equity withdrawal that can be used to fund spending by households. The 2001 Household Savings Survey indicated household holdings of unincorporated business and farm assets were in the region of \$80b or 1.2 times total household disposable income in 2001. Increases in the value of property and other assets since then would have added to the net worth of households who have an ownership stake in these enterprises. It is possible that some households may also have been withdrawing equity from assets invested overseas.

Data limitations make it difficult to estimate the total value of non-housing equity withdrawal that has taken place. One area where it is possible to construct estimates of equity withdrawal is for the farming sector. Given the importance of farming of the New Zealand economy this is potentially a more important form on equity withdrawal for New Zealand than for other countries.

⁷Klyuew and Mills (2006) have a useful summary.
Ref #2834272

4.1 Farm Equity Withdrawal (FEW)

Sizeable increases in rural property values in recent years have considerably boosted the balance sheets of land owners in the rural sector. Higher rural property values have coincided with higher rural borrowing suggesting that some of the proceeds of farm sales are being withdrawn. The rural sector has also received considerable funds from the sale of land to other sectors (including residential households).

Aggregate farm equity withdrawal is estimated using the following identity:

$$\text{FEW} = \text{RC} - \text{FI} - \text{LT} \quad (3)$$

Where:

FEW = farm equity withdrawal

RC = annual increase in agricultural sector credit (RBNZ)

FI = rural gross fixed capital investment (SNZ)

LT = net purchases of land by the rural sector (RBNZ estimates)

I assume two-thirds of the value of lifestyle land sold to households from other sectors is received by farmers (with the remaining third assumed to go to other sectors (e.g. property developers)). I also assume one-third of the value of residential land sales to households from other sectors accrue to the rural sector. Proceeds of land sales are assumed to be banked by the rural sector when the residential/lifestyle property sale takes place.

Estimates of farming equity withdrawal are indicative. It is assumed that all farms are owned by households. Clearly this is a simplification as some farms are owned by companies. It is also possible that the investment undertaken by the rural sector could be understated. Moreover, data limitations make it difficult to precisely estimate the value of land purchased (or sold) by farmers from other sectors. More work is needed to firm up these estimates.

Table 2 summarises components of farming equity withdrawal (see also figure 10). In the 1990s, increases in agricultural credit were offset by farming investment, with no significant FEW appearing to take place at the macroeconomic level. The pick-up in aggregate FEW in recent years largely reflects higher levels of agricultural credit growth rather than a decline in farming investment. Land sales to households have also added to this withdrawal. Strong increases in farm values and high rural turnover suggests that a sizeable portion of recent farm equity withdrawal is transaction related (i.e. passive FEW).

Table 2 FEW summary table

March year \$b	Agricultural M3 credit		Farm Investment		Total FEW	Combined
	Level	Change (a)	Fixed Investment (b)	Net land purchases (c)	(a)-(b)-(c)	HEW + FEW
1992	5.3	0.2	0.8	-0.2	-0.4	-1.7
1995	7.9	1.3	0.9	-0.4	0.7	-1.0
2000	12.1	0.6	1.0	-0.6	0.2	-2.3
2003	18.2	2.9	1.7	-0.7	2.0	0.2
2004	21.1	2.9	1.7	-1.0	2.2	3.7
2005	23.8	2.7	1.7	-1.1	2.1	3.7
2006	28.0	4.2	1.8	-1.2	3.6	7.1
April 1991-		22.8	17.9	-8.8	13.8	-3.6
April 2002-		12.7	6.8	-4.0	9.8	14.5

*Up to (and including) March 2006 quarter

Figure 10 Farm equity withdrawal decomposition

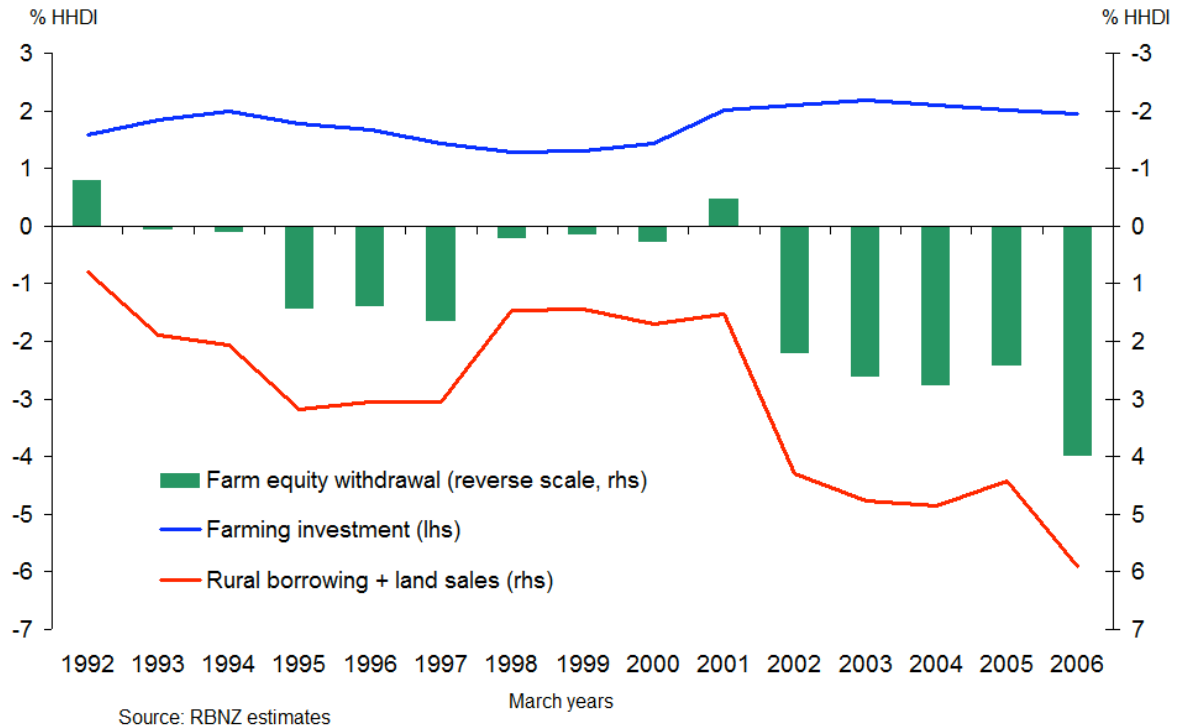
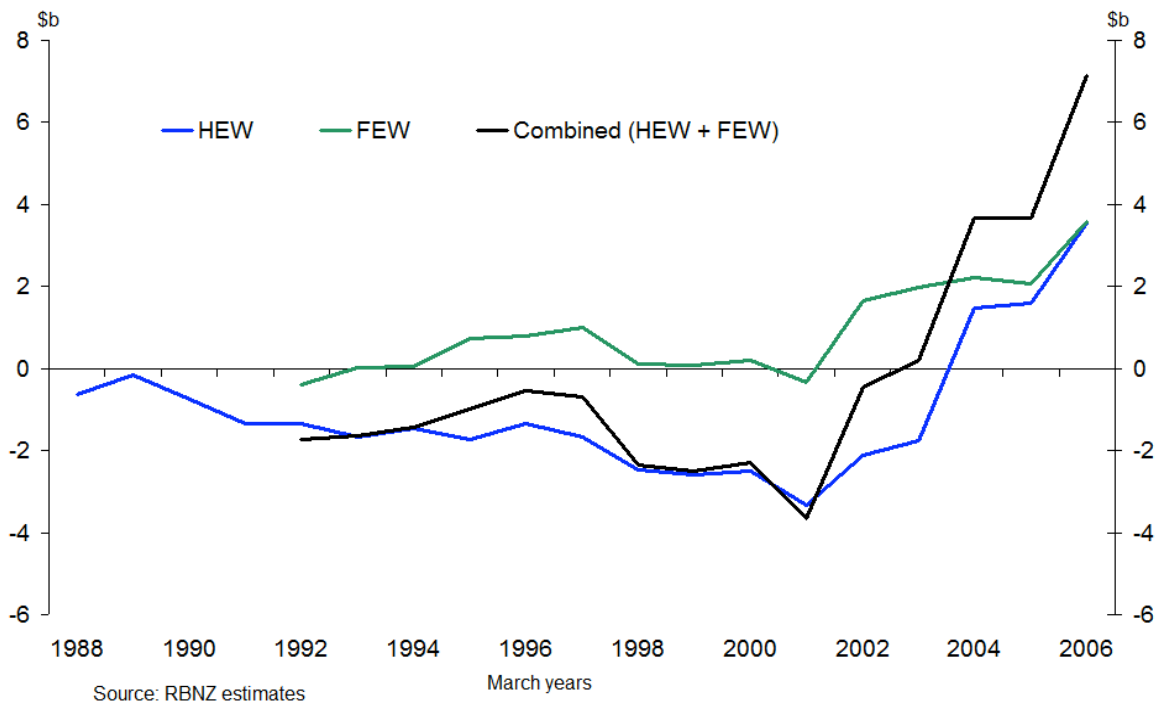


Figure 11 compares my estimates of farm and housing equity withdrawal for New Zealand. Equity withdrawal from housing and farms has been in the region of \$14.5b since the March 2002 year, with roughly half of this occurring in the March 2006 year alone.

Figure 11 Combined equity withdrawal



The shift from a position of equity injection on this combined measure to one of equity withdrawal appears to have been largely driven by increasing housing equity withdrawal. Since 2001 roughly two-thirds of the increase in combined equity withdrawal reflects increasing housing equity withdrawal. Compared to HEW the climb in FEW from historical norms in recent years has not been as sizeable.

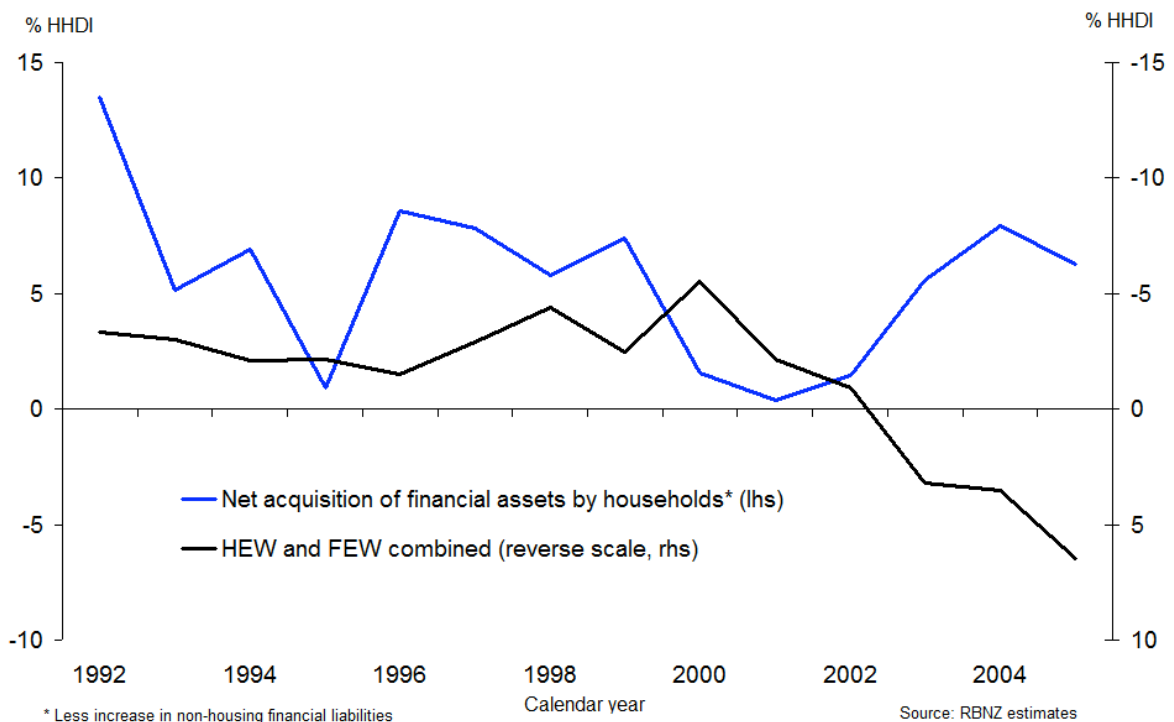
4.2 Equity withdrawal by households and financial assets

If passive equity withdrawal by households has taken place in New Zealand, we would expect some evidence of this, including for example, a lift in household purchases of financial assets as the proceeds of dwelling sales are banked. Although data on household asset flows in New Zealand are not available it is possible to back out estimates of the net value of financial asset purchases made by households each year from RBNZ data on household financial asset holdings. Hodgetts et al (2006) shows how this is done, with table 4 of that paper providing summary information.

Figure 12 shows that in recent years increasing aggregate combined equity withdrawal in New Zealand (black line) has coincided with some pick-up in financial asset purchases by households (blue line). This offsetting relation is not perfectly in synch over the full period and is likely to reflect other factors (capital transfers, other forms of equity withdrawal). Measurement issues are also likely to be a factor.

Overall it seems that some, if not all, of the proceeds from equity withdrawal by households appear to have been used to acquire financial assets. This is generally consistent with survey findings overseas which show that not all of housing equity withdrawal is spent, at least in the short-term. This may not be the full story, however; more of the proceeds may be spent at a later date.

Figure 12 Financial asset purchases by households and equity withdrawal



5 Links between equity withdrawal and consumer spending

Equity withdrawal can be used by households to finance consumer spending. By providing households with greater flexibility to arrange their balance sheets, it may contribute to a higher and less volatile propensity to consume from income.

5.1 Overseas evidence using macroeconomic data

Overseas studies have concentrated on quantifying the link between housing equity withdrawal and consumer spending. Aside from findings from surveys reported in section 3, evidence using macroeconomic data sources report mixed results.

Cross country evidence from Andre et al (2004) at the OECD find a positive relationship between the marginal consumption propensity of housing wealth and housing equity withdrawal. They find HEW dominates housing wealth as a driver of consumption, with about 90 per cent of HEW consumed in the UK, and 60 per cent in Australia. They suggest the size of the long-run impact on consumption appears to be positively correlated to the size and flexibility of the mortgage market, suggesting this is pivotal in translating house price shocks into spending responses via equity withdrawal.

In a recently published IMF study Klyuew and Mills (2006)) explore the degree to which HEW affects household consumption and savings. In a panel regression of 4 countries (US, UK, Australia and Canada) the authors find that HEW has a small short-run effect, of around 20 cents in the dollar, but no long-run effect. The authors report variations by country, with the largest short-run effect being 50 pence in the pound sterling for the UK. They also find that increases in household net worth have a positive and enduring effect on consumer spending, obtaining a long-run marginal propensity to consume from household net worth of 3 per cent.

5.2 New Zealand evidence

In New Zealand, growth in private consumption tends to move in synch with movements in house prices. This suggests that both are responding to a common underlying driver (such as net migration, expectations of future income) or that some form of wealth effect might be taking place. This linkage has been quantified empirically, with Reserve Bank estimates (including Hull (2003)) suggesting that the long-run marginal propensity to consume from various measures of housing wealth is in the region of 5 to 7 per cent. There is also evidence of a positive short-run link.

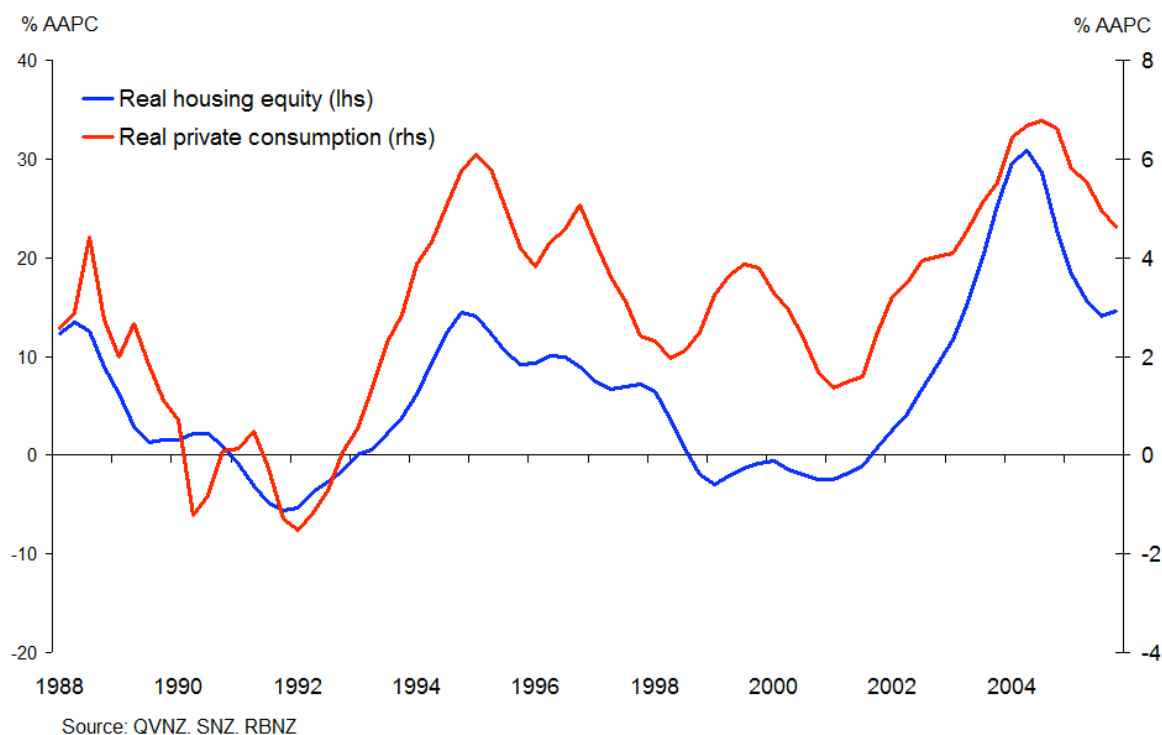
Figures from QVNZ suggest that residential property prices in New Zealand have increased by roughly 90 per cent since the start of the decade, with about two thirds of this increase occurring in the last 3 years. Sizeable increases in rural property values have also occurred in recent years. This has significantly boosted the equity of households who have owned property over this period. For most households this increase in equity is notional as it has not been realised. Hence the consumption response of households may provide some information on their expectation of the future path of house prices.

In the absence of a savings buffer one means for households to fund additional consumption spending is via equity withdrawal.⁸ If active equity withdrawal has been a key driver we

⁸ The official household savings rate from the household income and outlay account has been negative in New Zealand since the early 1990s. Hodgetts et al (2006) suggest the decline in official household saving is likely to be overstated, although it is still likely that negative savings rates have occurred in recent years.

would expect more of the proceeds to be spent on consumption, with the likelihood that a discernible linkage would be evident in the data if the proceeds are spent in a systematic manner.

Figure 13 Real house prices and consumption in New Zealand



The counter to this is the evidence from surveys, which suggest that over the short term, a considerable portion of the proceeds from equity withdrawal are passive and are not directed towards consumer spending. The impact on consumer spending of those households who have injected funds into houses and farms also needs to be taken into account – this includes first home buyers and those trading up. These groups may be lowering their spending.

Quantifying the linkages

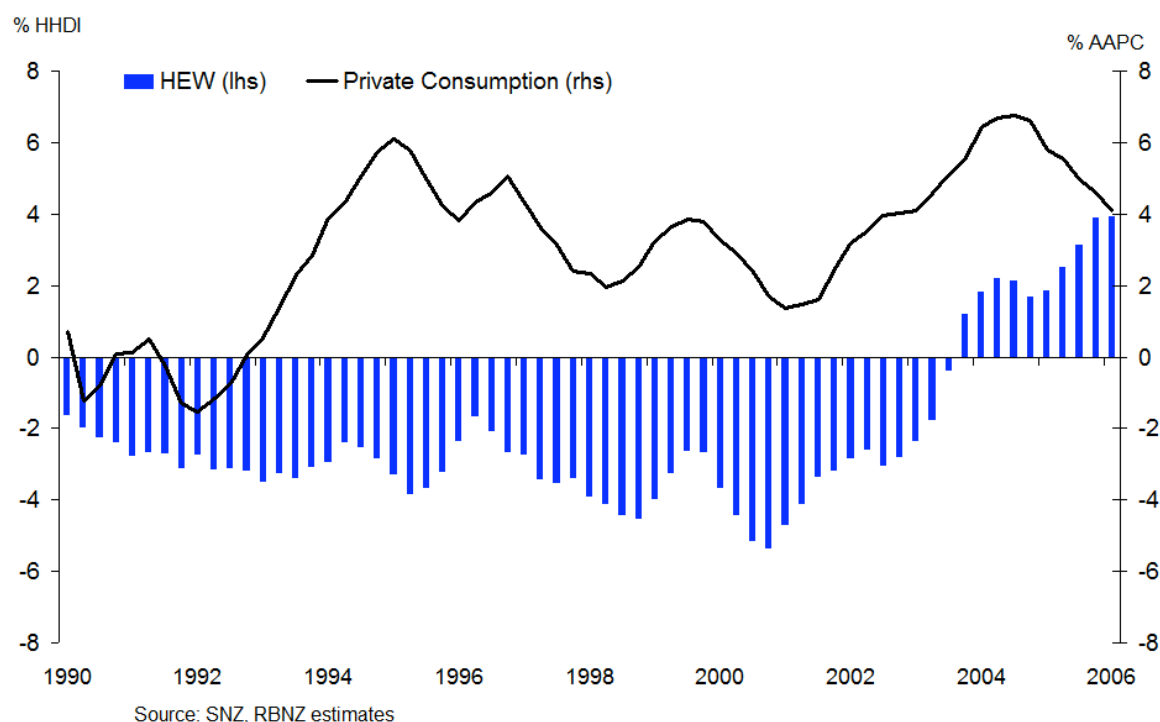
As consumption spending is driven by a range of influences other than equity withdrawal, its contribution would need to be assessed in a framework that includes all potential drivers. This entails using an econometric approach. Due to complications with multicollinearity house price terms were not included in the equation specification. If house price terms are also included in an equation the statistical significance of the equity withdrawal term diminishes considerably. This points to caution in interpreting the equation findings below.

So far most of our empirical work has centred on quantifying the linkages between housing equity withdrawal and consumer spending. This largely reflects data constraints, since estimates of farm equity withdrawal are not available on a quarterly basis.

i) Housing equity withdrawal and consumption

Econometric estimates failed to find a stable relationship between the *level* of housing equity withdrawal and *level* of consumption. Figure 14 suggests that the ratio of housing equity withdrawal to income tends to be related to movements in private consumption growth although a closer look at the data failed to confirm a stable econometric relationship.

Figure 14 Private Consumption and aggregate housing equity withdrawal



However, further work indicated that changes in the real equity withdrawal to income ratio have a steadier linkage to real quarterly consumption growth.

As such, the final specification for the aggregate consumption growth equation is as follows:

$$\Delta\text{NCP}_t = 0.014 + 0.2*(\Delta\text{HHDI}_t) + 0.004*(\Delta\text{HEW}_{t-1}) - 0.008*\text{EMR}_{t-2} + 0.03*\text{GST89} \quad (4)$$

(4.3) (2.0) (2.5) (-2.7) (5.0)

Where:

ΔNCP = 1st difference of real private consumption

ΔHHDI_t = 1st difference of real household disposable income (RBNZ estimates)

ΔHEW_t = change in real housing equity withdrawal to income ratio (ex hardware retail sales)

EMR = effective mortgage interest rate

GST = 1989 GST dummy

T-statistics in brackets 1988-2005(71 obs), adj $R^2 = 0.45$, DW(1) = 2.2, $\sigma=0.008$

A 1 percentage point increase in the HEW to disposable income ratio increases quarterly private consumption growth by 0.4 percentage points in the following quarter.⁹ This equates to a short-run marginal propensity to consume from changes in HEW of approximately 40 per cent. Coefficient estimates on the HEW term appeared stable over the full sample according to Wald tests and recursive estimates and the equation passes standard diagnostic tests. However, the coefficient on disposable income seems rather low.

Estimates for consumption subgroups indicate durables consumption is considerably more responsive to equity withdrawal than the other consumption components, which is consistent with survey findings.

⁹ As hardware retail sales are part of private consumption I remove these from the measure of HEW used in the regression. In practice this makes little difference to the equation results.

Table 3 Impact in consumption growth from 1 per cent increase in HEW to Disposable income ratio in previous quarter

Total private consumption	0.4
Durables	0.8
Non-durables	0.4*
Services	0.1**

* HEW coefficient not significant at the 5% level but at the 10% level.

** Not significant at the 10% level.

Since the start of 2001 increasing housing equity withdrawal is estimated to have contributed roughly \$2.5b towards private consumption.

The last five years or so have seen a marked change in aggregate housing equity withdrawal, moving from a position of a net injection of funds to one of increasing equity withdrawal. If the equation estimates are valid, housing equity withdrawal would need to keep increasing to provide ongoing support in consumer spending.

These estimated short-term impacts on consumption appear fairly modest. Why is this? It is likely that much of the equity withdrawal that has taken place is passive. Overseas evidence suggests there is likely to be a lower short-run consumption propensity from people withdrawing equity this way. Furthermore, this form of equity withdrawal is unlikely to be spent promptly or in a systematic manner making quantifying the link difficult. In some cases it could take some years for the gains in property values to have a material impact on consumer spending.

ii) Combined equity withdrawal and consumption

To investigate the extent to which adding farm equity withdrawal affects the estimated relationship between equity withdrawal and consumption I also attempt to quantify the link between combined housing and farming equity withdrawal and consumption. At present, estimates on FEW are only available in annual frequency and since the March 1992 year, meaning we only have only 15 annual observations to work with.

To quantify the effect of combined equity withdrawal the following equation is estimated:

$$NCP_t = \frac{0.98}{(188.7)}(HHDI_t) + \frac{0.69}{(5.7)}(FEWHEW_t) \quad (5)$$

Where:

NCP = nominal private consumption (March year, \$m)

HHDI = nominal household disposable income (March year, \$m)

FEWHEW = housing and farming equity withdrawal (March year, \$m)

T-statistics in brackets 1992-2006(15 obs), adj R² = 0.99, DW(1) = 1.4, σ=1339

The coefficient on the combined equity withdrawal term is 0.69 which indicates that approximately 70 per cent of combined equity withdrawal is consumed in the year in which it occurs. If these estimates are valid it implies that equity withdrawal has a significant (and immediate) impact on consumption. For example, since the March 2002 year approximately \$11.4b of combined equity withdrawal has been consumed accounting for more than half of the increase in household consumption since then.

However, there are clearly grounds for caution. There are a low number of observations with the presence of serial correlation suggesting this equation is missing important influences. These would tend to bias up the value of the combined equity withdrawal coefficient in the current equation. As figure 11 shows, combined aggregate equity withdrawal has picked up sharply in recent years, with equation results sensitive to the sample period used.¹⁰

In addition to econometric issues there are reasons to believe why this estimate may overstate the consumption impact. The climb in combined equity withdrawal partly reflects higher farm equity withdrawal. As the recipients of FEW are a small portion of all households this implies an extremely large jump in consumer spending by this group to boost total consumption.

iii) Summary of empirical findings

Evidence quantifying the impact of equity withdrawal by households on consumer spending is tentative. This partly reflects the lack of data on other forms of equity withdrawal that can be used by households. Empirical results point to a positive linkage between farm and housing equity withdrawal and consumption. However, verifying even an approximate magnitude has proved to be difficult, partly because the sample period is quite short and we lack accurate quarterly data on farming equity withdrawal.

Evidence of a stable long-run relationship between various forms of equity withdrawal and consumer spending could not be found. Our estimates suggest that the short-run marginal propensity to consume from equity withdrawal ranges from 40 to 70 per cent. These estimates are indicative, with the width of this range illustrating the uncertainties underpinning these econometric estimates.

6 Links with household saving and future trends

6.1 Equity withdrawal and household saving in New Zealand

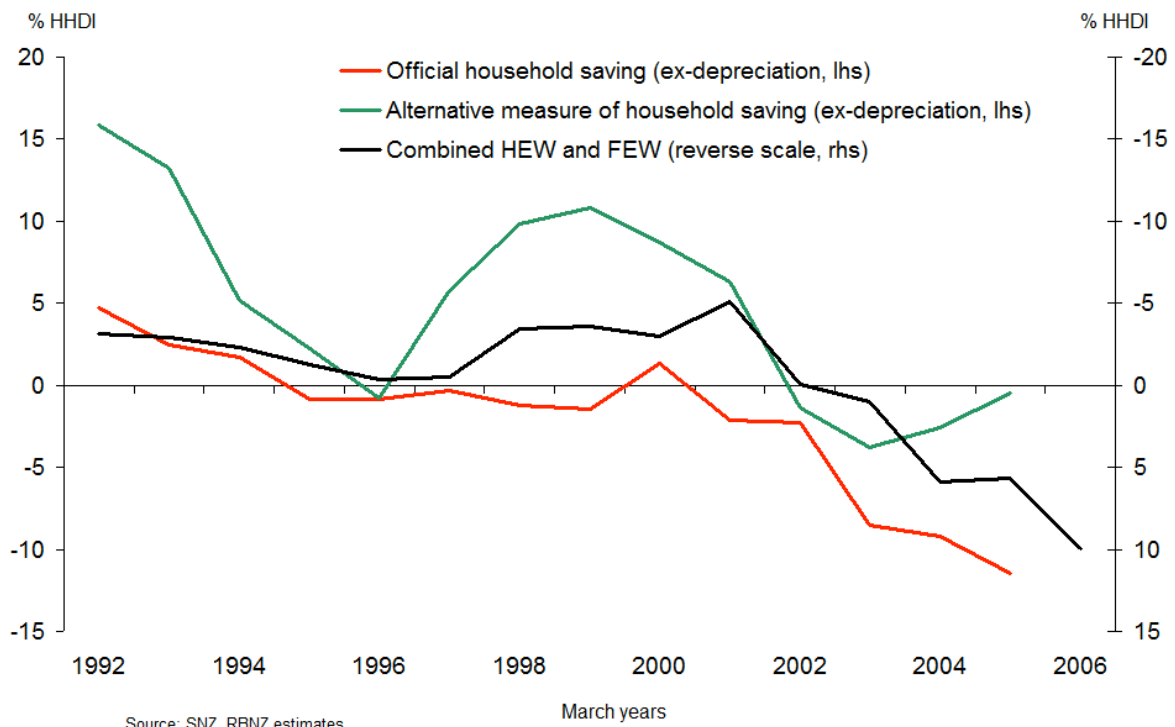
Reserve Bank's analyses suggest that rising house prices have a positive and enduring impact on consumer spending in New Zealand (see again, Hull (2003)). This is likely to have been related to the decline in household saving in recent years. Although evidence suggests that equity withdrawal boosts consumer spending the magnitude and duration of this is difficult to verify.

Recently published IMF research by Klyuew and Mills (2006) find that housing equity withdrawal has contributed to the decline in household saving, but the decline is temporary and is dwarfed by the estimated contribution of household net worth. They find that increasing household net worth explains about 30 per cent of the 6 percentage point decline in US household saving rate from 1993-2005. Increasing HEW explains about 10 per cent of the decline in the US household savings rate between 2000 and 2005, when the household net worth ratio remained broadly unchanged.

¹⁰Recursive estimates show the coefficient on the combined equity withdrawal term is stable over the last few years, being lower previously. The statistical significance of this term rises above the 15 per cent level if the sample endpoint is truncated at 2003. As a further check I included the housing and farm equity terms separately and re-estimate equation (4). This yields substantially different coefficient values on the equity withdrawal terms (FEW = 0.4, HEW=-1.0).

Figure 15 compares combined equity withdrawal from housing and farms (black line) in New Zealand with two measures of household saving.¹¹

Figure 15 Equity withdrawal and household saving in New Zealand



Increasing combined equity withdrawal has coincided with the decline in official household saving (red line), obtained from Statistics New Zealand's Household Income and Outlay Account. Measurement difficulties suggest that we would not necessarily expect an exact relation between equity withdrawal and saving. However, the amount of combined equity withdrawal, even if consumed immediately, falls well short of the amount of dissaving. This suggests that households have been financing consumption through other means, including other forms of equity withdrawal. Another possibility is that this measure of household saving may be too low.

An alternative measure of household saving derived by Hodgetts et al (2006, green line), displays a slightly closer relation to combined equity withdrawal, although the alternative measure is more cyclical. Given the difficulties in measuring household saving and data limitations these estimates of saving are likely to be indicative. Measurement difficulties aside the magnitude of combined equity withdrawal has generally exceeded the amount of dissaving on this measure. It suggests that not all of the proceeds of combined equity withdrawal have been immediately consumed.

6.2 How long will aggregate equity withdrawal continue for?

Aggregate housing and aggregate farming equity withdrawal has been considerable in recent years, although this remains minor in relation to potential capital gains from rural and residential property. The value of the private residential housing stock alone has risen by

¹¹ To keep the measure of combined equity withdrawal consistent with national accounts definitions I remove the hardware retail sales component. To facilitate better comparison I also remove non-cash items (i.e. depreciation) from both saving measures – this lifts saving rates by roughly 3 percentage points, on average.
Ref #2834272

approximately \$220b since early 2003, largely reflecting gains to property prices. This increase in equity is largely notional and is yet to be realised in most cases.

Will the process of aggregate equity withdrawal continue or is it coming to an end? It seems that mortgage debt levels (and hence housing equity withdrawal) can take some time to adjust following increases in property prices. Dwelling turnover will also affect the pace at which mortgage debt levels adjust to the higher level of property prices. Even if house prices level off and turnover rates are relatively 'normal', mortgage debt levels will continue increasing for some time as housing transactions alter the mix of debt and equity. A similar occurrence could also happen for farms.

Recent experience in Australia and the UK bears this out. For example, between the end of 2003 and June 2006 house prices in Australia (ABS measure) increased by roughly 7 per cent, whereas RBA estimates of Australian household debt have climbed from 134 to 157 per cent of disposable income.

6.3 Gaps & areas for future work

Despite learning something about housing equity withdrawal in New Zealand there is still much that we don't know. These uncertainties fall into the following areas:

- Other forms of equity withdrawal

Many of the questions that need to be answered cannot be done so for lack of adequate data. While we have a rough idea of the magnitudes of HEW and FEW there are likely to be other forms of equity withdrawal that could fund household spending. Unfortunately, we are unsure how large this additional equity withdrawal potentially is, which households have access to it, and the extent to which they have been using it to fund consumer spending.

Our understanding of HEW in New Zealand has been limited by the lack of a specifically designed survey to provide us with insights on the drivers and uses of housing equity withdrawal, and we have had to depend on insights gathered overseas.

- Household trends

So far, much of our analysis of equity withdrawal has been at the aggregate level. But equity withdrawal is a household phenomenon, with cohorts likely to respond differently. The rise in property values implies a transfer of funds from households that begin to purchase property to households who own property. Despite having a rough idea of what is likely to happen to the age composition of the population it is difficult to know how things will play out.

- Reconciling impact of housing wealth vs. equity withdrawal on consumer spending

Evidence quantifying the link between measures of housing wealth and consumption is more definitive than evidence investigating the impact of equity withdrawal. Difficulty in detecting the consumption impact of equity withdrawal in part reflects data constraints. Our suspicion is that although the proceeds of equity withdrawal are eventually spent, the speed at which this occurs will depend on the circumstances/preferences of the individual households involved and the form of equity withdrawal that takes place.

Future work will look into addressing these uncertainties. This will include finding out more about non-housing equity withdrawal and its potential economic impact on household spending. Initially we will concentrate on firming up our estimates of farming equity withdrawal before investigating whether other estimates of non-housing equity withdrawal

can be developed. A further step will be to assess the extent to which these measures affect household spending and saving behaviour.

Another avenue would be to make greater use of household survey evidence. Initial results from the New Zealand Household Economic Survey suggest there is not a lot of difference in the consumption propensities of different household types.¹² It would still be useful to look into the unit record data of the HES to ascertain whether the distribution of housing equity has any impact on consumption patterns within groups.

7 Summary and conclusions

There are likely to be a range of different forms of equity withdrawal. So far our work has obtained estimates of housing equity withdrawal and farming equity withdrawal.

Estimates of aggregate housing equity withdrawal in New Zealand are constructed on a component by component basis and follow the Bank of England identity. It uses RBNZ data on the value of residential mortgage borrowing, and estimates of components of housing investment obtained from Statistics New Zealand, QVNZ, and Housing New Zealand.

Estimates of farm equity withdrawal use RBNZ data on agricultural sector borrowing and information from Statistics New Zealand on farm investment. These are supplemented with estimates of the value of land sold by farmers. Data on farming equity withdrawal is incomplete, with future work needed to refine these estimates. As there are also some measurement issues to contend with on housing equity withdrawal, these estimates are indicative.

At the macroeconomic level the incidence of housing equity withdrawal is a relatively new phenomenon. While the historical norm has been a net injection of funds, approximately \$7b of housing equity withdrawal has occurred since 2003. This largely reflects higher mortgage borrowing. Higher agricultural sector borrowing has also driven the rise in farm equity withdrawal with approximately \$14.5b of combined housing and farm equity withdrawal taking place since the March 2002 year.

The shift from a position of equity injection on this combined measure to one of equity withdrawal has largely been driven by increasing housing equity withdrawal. Roughly two-thirds of the increase in combined equity withdrawal in recent years reflects increasing housing equity withdrawal.

A key driver behind rising housing and farming equity withdrawal in New Zealand has been the sizeable climb in property prices. This is likely to have encouraged some households to access the notional rise in their net worth via increasing their mortgage borrowing. However, overseas evidence points towards much of the climb in mortgage debt being related to dwelling transactions. Elevated levels of property market activity imply that significant passive equity withdrawal has been underway in New Zealand. It seems likely there is a lower short-term flow-through to consumer spending from this form of equity withdrawal. This is not the full story, however, with more of the proceeds likely to be spent at a later date.

¹² A similar exercise was carried out by Attanasio et al (2005) in their analysis of the UK Family Expenditure Survey over the 1978 to 2002 period. Over the sample they find no significant differences in the consumption propensities of home owners and renters.
Ref #2834272

Efforts at quantifying the link between housing (and farming) equity withdrawal and consumer spending in New Zealand yielded tentative results. A stable long-term relation between housing equity withdrawal and consumption was not evident. However, there was some evidence supporting a positive linkage between increases in housing equity withdrawal and private consumption growth. There was also some evidence pointing to a positive link between combined equity withdrawal and consumption, although these findings are even more tentative.

Our estimates suggest that the short-run marginal propensity to consume from equity withdrawal ranges between 40 to 70 per cent. The width of this range illustrates the uncertainties underpinning these econometric estimates. As our estimates are based on a relatively short period of time it would be useful to revisit this issue in future.

As yet the magnitude of aggregate equity withdrawal is considerably less than the increase in notional net worth experienced by household sector. This implies considerable scope for further equity withdrawal. Even if property prices level off it seems likely that equity withdrawal from houses and farms will continue for some time as property transactions alter the debt and equity mix. However, there are limits to this process.

There are likely to have been other forms of equity withdrawal that have been used by households, including equity withdrawal from non-farm businesses and from overseas assets. At present data limitations have made these difficult to quantify. Future work will look into developing estimates of these alternative forms of equity withdrawal and assessing their links with household spending and saving behaviour.

The decline in official household saving has occurred when equity withdrawal from farms and houses has been increasing. On its own, however, increasing housing and farm equity withdrawal does not fully account for the dissaving that has been observed in recent years.

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