New Zealand Household Debt:
Is It Too High?

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Table of Abbreviations

ABS	Australia Bureau of Statistics
Debt Ratio	Household Debt to Disposable Income Ratio
Debt Service Ratio	Household Debt Service Payment to Disposable Income
Federal Reserve	The United States Federal Reserve Board
Gearing Ratio	Household debt to Asset Ratio
GDP	Gross Domestic Product
HPI	House Price Index
Index	Home Affordability Index
MUL	Metropolitan Urban Limit
NBFI	Non-Bank Financial Institution
NZ	New Zealand
OCR	Official Cash Rate
OECD	Organisation for Economic Co-operation and Development
ONS	Official National Statistics (United Kingdom)
Q	Quarter
QV	Quotable Value
RBA	Reserve Bank of Australia
RBNZ	Reserve Bank of New Zealand
REINZ	Real Estate Institute of New Zealand
Stats NZ	Statistics New Zealand
UK	United Kingdom
US	United States

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Abstract

Rising levels of household debt has been a concern in many industrial countries. This is because high level of household debt may hinder future consumption growth. Furthermore, households may become more susceptible to changes in economic variables such as increasing price levels and interest rates. Specifically in New Zealand, the total household debt to disposable income ratio has increased from 59% in 1991 to 162% in 2008. Moreover, 93% of household debt is housing debt (RBNZ, 2008b). This dissertation attempts to determine the indebtedness of New Zealand households relative to those in Australia, the United Kingdom and the United States.

The research first studies the relevant literature in an attempt to gain a better understanding of possible causes of rising household debt levels in New Zealand. The research then applies quantitative data analysis, including regressions, and qualitative content analysis to further investigate household debt. In particular, the trends of household debt to disposable income ratio and debt service to disposable income ratio in New Zealand are compared to Australia, the United Kingdom and the United States.

Focusing on New Zealand and Australia, a multivariate regression analysis is then used to further explore the possible causes of rising household debt levels. Specifically, the model seeks to test the relationship between the household debt to disposable income ratio and changes in house prices and interest rates, and how it differs between New Zealand and Australia. A content analysis is then conducted on the relevant newspaper articles to investigate the New Zealand media's opinions on the level of household debt.

This research finds that the 1980s financial deregulation and consequent drops in interest rates, and the increase in house prices seem to be the main causes of increased household indebtedness in New Zealand. However, the level of household debt in New Zealand has been moving at a similar pace to Australia and has converged with the United Kingdom and the United States. Moreover, even though the level of household debt in New Zealand is at a similar level to the three aforementioned countries, it seems to be highly dependable on changes in house prices and interest rates. This is an indication that households in New Zealand are relatively more vulnerable to economic downturns and therefore the level of household debt may not be sustainable.

Chapter 1: Introduction

The average household debt to disposable income ratio in New Zealand (NZ) has increased dramatically in the last two decades. According to The Reserve Bank of New Zealand (RBNZ), the household debt to disposable income ratio (debt ratio) has increased from 59% in 1991 to 162% in 2008. Specifically, the debt ratio expresses households' indebtedness by showing the total amount of debt held by households in terms of the relative total disposable income. Although rising household debt can be mostly attributed to large increases in housing loans (RBNZ, 2007a), there are many other important causes and reasons as to why average household debt has increased so significantly: drops in real and nominal interest rates in the late 1980s, lenders making it easier for households to borrow since the deregulation[1] of the financial market in the 1980s and 1990s, and average house prices growing at a faster rate than average household incomes. This research will assess the possible causes of rising household debt and the significance of the causes in terms of their impacts.

The remainder of this chapter will first present the focus of this research, followed by the motivation of this research, and lastly the structure of this research.

1.1 Focus of This Research

There is some past research on what contributed to rising household debt levels in NZ, and the impacts high levels of household debt have on the households and the economy (see Beer & Schurz, 2007; Claus & Scobie, 2001; Meltzer, 1974; Quigley & Raphael, 2004; Thorp, Ung, 2000). However, little has been said on what should be considered a safe level of household debt. Rising household debt has also been one of the main focuses for the NZ media and consequently brings about the central research questions here:

> How indebted are the NZ households in comparison to other OECD countries? Should it be a concern? And does the NZ media broadcast a fair view of the level of household debt in NZ?

[1] Prior to the deregulation, banks held conservative restrictions on how much households could borrow as a percentage of the property value and the mortgage repayment to income ratio. After the deregulation more flexible mortgage terms were introduced and households could borrow substantially more than before the regulation. As the inflation rate decreased substantially, the nominal interest rate also dropped.

In attempting to systematically answer these central questions, the research reported in this dissertation is organised around the following four sub-questions:

(i) What are the main causes of rising household debt in NZ?
(ii) Is the current household debt level in NZ comparable to some other OECD countries?
(iii) How sensitive are the NZ households to change in some of the causes of rising household debt? And how does the sensitivity differ to the Australian households? And lastly,
(iv) What is the NZ media's view on the level of household debt in NZ?

The causes of rising household debt must be considered to determine why the level of household debt has increased at such a sharp rate in the last two decades. Therefore findings of the first sub-question may explain what is behind the indebtedness of the NZ households. The purpose of the second sub-question is to evaluate the level of household debt in NZ, both by historical and international standards. This may in turn verify the level of indebtedness and the sustainability of household debt in NZ. Thirdly, the RBNZ has at times attempted to ease the rise in house price by increasing the official cash rate (OCR) (RBNZ, 1994; RBNZ 2007a). Moreover, housing debt occupies more than 90% of the total household debt (RBNZ, 2008d). Therefore the level of household debt may be highly sensitive to changes in house price and interest rate (OCR). In addition, the level of sensitivity may also explain the sustainability of household debt in NZ. Daily newspapers are a common primary source of information on current affairs and to some extent defines news (Alsem, Brakman, Hoogduin & Kuper, 2008). Furthermore, households can be swayed by their opinions of the state of the economy, and change their consumption patterns accordingly. Consequently, the findings of the fourth question may contribute to concluding the sustainability of household debt.

1.2 Motivation of This Research

According to Thorp & Ung (2000), housing was around 280% of personal disposable income in 1998, which was similar to other OECD countries such as the United Kingdom (UK) and Canada. What was of concern to the NZ government was that housing accounted for around 85% of household real assets, but household net financial

wealth to total net wealth was only about 22% (Thorp, 2002). This ratio was significantly lower than other OECD countries as it was over 55% for the UK and around 65% for the United States (US). Household net financial wealth is the difference between total household financial assets and liabilities, and household total net wealth is the total of household net financial wealth and the housing value. Therefore a low ratio indicates that the NZ households are relatively more financially dependent on housing value than other OECD countries, and drop in house prices will reduce household net wealth. In the case of a dramatic slump in the housing market, it may even result in negative financial wealth. Furthermore, this low ratio combined with the low savings ratio in NZ make households even more vulnerable and susceptible to interest rate 'hikes' and economic 'downturns'.

As stated, a possible explanation for rising household debt in NZ is the sharp increase in house prices, which mainly occurred from 2001 to 2006 (REINZ, 2008). The increase in house prices might have had wealth effects on home owners. Specifically, as house prices increased, the value of home owners' household assets increased. Home owners might feel relatively better off and subsequently increase their equity withdrawals and borrow more. Secondly, drops in inflation and interest rates after the deregulation in the 1980 to 1990s may have also contributed to rises in household debt levels. Low interest rates reduce the cost of borrowing, and therefore improve the borrowing power of households, especially for low income households.

The indebtedness of households may influence the soundness of financial institutions, and subsequently affects the state of the economy. Weinberg (2006) stated that credit 'boosts' consumption growth, as the more credit households have the more they are likely to spend. But while credit and consumption growth are positively correlated, debt may constrain consumption growth especially in the low to medium income households. Additionally, high debt ratio hurts the economy as households have relatively less to spend after paying debt off. However, Weinberg also argued that high level of household debt does not necessarily cause future weaknesses in consumption growth as debt is merely the consequence of credit. Furthermore, credit allows households to borrow against expected future earnings, and debt depicts the amount owed. Therefore it depends on what the households spend on, such as durable or non-durable goods. When households purchase durable goods it is similar to saving, as durable goods provide

benefits to their owner over an extended period of time. Houses also have residual value that can be passed on after the owner passes away.

Household debt is an interesting and important area to study because it is such a broad topic and has the potential to impact many individuals at some point in their lives. Furthermore, housing occupies a large portion of most households' wealth and hence increases the susceptibility of households to changes in house prices. Understanding the components of household debt allows the government to choose monetary and fiscal policies wisely. As it has only recently become a topic of great debate, (mainly since the 1990s as the debt ratio was considerably low prior 1990) there may be insufficient empirical evidence for an in-depth analysis. In addition, as has been pointed out by numerous researchers, lack of consistent and reliable data series on household debt has prevented any comprehensive studies in this area (Thorp, 2002; Hull, 2003: Coleman, 2007: Claus & Scobie, 2001). Specifically, data on household borrowings and household savings are only available from 1990s, and this can be deemed too short of a period to result in any robust findings.

At this stage, it is important to emphasize that each country and economy is unique and the possible impacts of high level of household debt is something that cannot be generalised. Use NZ as an example, even though at 158% the debt ratio is on par with other major OECD countries, NZ households have a low savings rate which increases their vulnerability to high household debt levels. Another concern is measuring errors from both the stock and flow approach. As Claus & Scobie (2001) indicated in their research, both approaches over- and under-estimates household assets and liabilities and should only be used as a proxy. Due to lack of a current and consistent series of data this research project will focus on how the level of household debt in NZ is compared to other countries, rather than investigate other possible ways to measure household debt. Moreover, this research will focus on data from 1991 onwards due to the availability of data.

In addition to increased level of household debt and average house price, homeownership rate seemed to have been affected, too. The home ownership rate in NZ has dropped from 74% in 1991 to 65% in 2004 (Housing NZ, 2006). However, as shown by Housing NZ (2006), home ownership rates in NZ in 2004 was on a par with other major OECD countries such as Australia, the US and the UK. Furthermore,

decreases in home ownership rate might be the result of changes in attitude. Some households might choose not to invest in housing and instead put their disposable incomes into other investments which may yield a higher return. The possible consequences of decreasing home ownership rate will be studied in detail in *Chapter 2*.

The media can to some extent influence consumer confidence by the way they represent the state of the economy and the level of household debt. Consumer confidence plays a vital role in determining the state of the economy. Low consumer confidence may reduce consumer spending, and consequently lead the economy into a recession. As an empirical example, some recent newspaper articles have focused on the sharp increases in the debt ratio and indicated strongly that the level of household debt in NZ is too high (Fallow, 2008; Hickey, 2008). While this ratio may have sent a frightening message to the public about how indebted NZ households are, these articles failed to recognise that Australia, the UK and the US have similar household debt levels as NZ (RBA, 2008; ONS, 2008; Federal Reserves, 2008). Therefore *Chapter 5* will investigate the NZ media's opinion on the level of household debt in NZ, and conclude on the fairness of the NZ media.

1.3 Structure of This Research

The following chapters will look at past research and use empirical data to answer the four sub-questions in an effort to answer the central research question: The indebtedness of NZ households in comparison to other OECD countries, and the sustainability of NZ household debt.

The remainder of this research project is organised in five chapters. *Chapter 2* reviews past research on household debt in an attempt to answer the first sub-question: What are the possible causes and consequences of increasing household debt. In particular the reforms of the financial market, the inflation and interest rates, and the housing market will be studied in detail. *Chapter 3* seeks to answer the second sub-question by using empirical data to analyse the trend of household debt levels, and to compare this to some other OECD countries. Specifically, two debt ratios will be used to examine the trends and to compare the level of household debt. *Chapter 4* uses the multivariate regression model to investigate two of the main causes of rising household debt, interest rates and house prices. The model is used to answer the third sub-question: The

relationship between household debt, changes in interest rates and house prices. Furthermore, how does the relationship differ between NZ and Australia? As daily newspapers are often the primary sources of information on current affairs, C*hapter 5* looks at conducting content analysis on what the NZ media propose to be the main causes of rising household debt. Consequently, C*hapter* 5 attempts to answer the last sub-question: What is the NZ media's view on the level of household debt in NZ? Lastly, C*hapter 6* concludes this research by summarising the findings of this research, the limitations of this research and the possible areas for future research. But most importantly, this chapter seeks to answer the central research questions: Is the level of household debt in NZ too high compared to some other OECD countries? Should it be a concern? And is the level of household debt in NZ sustainable?

Chapter 2: Literature Review

As proposed in *Chapter 1*, the purpose of this research is to define the level of household debt in NZ in comparison to Australia, the US and the UK, and to examine the causes of rising household debt levels in NZ. Therefore this chapter will focus on what past literatures claim to be the possible causes of rising household debt levels in NZ. The level of household debt in NZ has increased considerably since the financial liberalisation in the 1980s and 1990s (RBNZ, 2007b; Coleman, 2007; Thorp, 2002; Claus & Scobie, 2001). In addition, the portion of housing debt has increased from around 89% in 1990 to just under 93% by 2008 (RBNZ, 2008b). This chapter will first investigate the elements of the financial reforms and how it has affected the level of household debt in NZ. Secondly, trends in inflation rates and interest rates will be studied as the inflation rates affect the households' borrowing ability and the interest rates denote the cost of borrowing, Moreover, other contributors of rising household debt levels such as housing and equity withdrawals will also be studied to gain a better understanding of household debt. Lastly, the possible consequences of rising household debt are considered.

2.1 Deregulation

As mentioned in *Chapter 1*, household borrowings increased dramatically after the deregulation in 1980s as debt was more accessible and easier to acquire (Claus & Scobie, 2001; Coleman, 2007; Hull, 2003; Thorp & Ung, 2000). This section will first review the NZ financial system during and after the reforms to appreciate the radical changes that contributed to 'easy credit'. Secondly, some elements of the reforms will be analysed to explain how the deregulation has caused the level of household debt to rise.

2.1.1 The New Zealand financial system: pre-deregulation and post-deregulation

It is important to define the financial system to fully understand the transformation of the NZ financial market after the reforms in 1984, and how it has affected the level of household debt in NZ. Prior to the reforms the financial system could be described in three broad categories: trading banks, saving banks and other non-financial institutions such as finance companies and credit unions (Grimes, 1998). The NZ government

imposed barriers on new entrants to the trading bank market and no new entry had happened since 1953 until after the reforms (ibid, p. 294). The RBNZ used the trading banks for monetary purposes by imposing regulations which reduced their competitiveness relative to saving banks and other non-financial institutions. Furthermore, the RBNZ had different ratio requirements for different category of institutions which favoured some institutions, particularly the finance companies and consequently became one of the fastest growing institutions. In addition, the financial institutions imposed stringent lending regulations on the households as they in turn were under strict regulations and ratio requirements. As a consequence the amount households could borrow was limited by strict regulations.

After the reforms, the government freed the barriers to entry to encourage the establishment of new banks. Furthermore, the government removed all conservative restrictions on the financial institutions but formed new prudent criteria which financial institutions must satisfy to be registered as a bank (ibid, p. 299). As a result, the financial system now comprised two categories: registered banks and non-bank financial institutions (NBFIs). In addition, the number of registered banks increased from 4 in 1983 to 18 in 2008 (ibid, p. 294; RBNZ, 2008f). As stated in RBNZ (1985)

> "The freeing-up of entry into banking is a further reflection of the Government's desire to encourage a more efficient financial sector by promoting an environment which is both competitively neutral among different institutional groups and which allows for more direct competition among participants."

As the number of registered banks increased, competition between the banks and the banks and NBFIs also increased. Following the removal of conservative restrictions on the financial institutions, some of the lending criteria for mortgage contracts were relaxed gradually. For example, the loan-to-value ratio required progressively increased from 75% to 95% in the 1990s (Coleman, 2007). Furthermore, the financial institutions introduced new types of mortgages with more flexible terms in the hope to increase their market share in the residential mortgage market (ibid, p. 2). Consequently, the debt ratio increased sharply following an almost stagnant debt ratio growth prior to the reforms (Thorp & Ung, 2000).

2.1.2 Elements of deregulation

Hull (2003) listed in his research that there were several reforms that resulted in easy credit: - two reforms that directly affected financial institutions and three particular macroeconomic reforms that opened NZ's financial markets to foreigners. The first two were the removal of interest rate controls, and the abolishment of compulsory reserve ratios and some 'credit guidelines on financial institutions (ibid, p. 6). The three particular macroeconomic reforms were: the loosening of controls of private overseas borrowings; abolishment of restrictions prohibiting overseas borrowing by financial institutions in NZ; and allowing foreign-owned companies unrestricted access to NZ's capital market (ibid, p. 6).

Reforms that affected financial institutions:

During the reforms, the government removed the regulations that limited the rate of interest financial institutions were allowed to offer to their customers. As a consequence, the terms and conditions of mortgages were also relaxed after the deregulation. Prior to the financial liberalisation, financial institutions were regulated with regard to all interest rates on institutional deposits, all forms of lending, and there were also strict restrictions on mortgage loans (Deane, 1985). After interest rate controls were abolished in July 1984 financial institutions were able to offer payment of interest on cheque accounts. The removal of all compulsory ratios meant that financial institutions were no longer forced to increase margins between deposit and lending interest rates, which decreased their competitiveness and encouraged funds to shift to less controlled areas (ibid, p. 371). Furthermore, the mortgage market relaxed the prior conservative restrictions on the loan–to-value ratio and the mortgage-repayment-to-income ratio, and new types of mortgages with more flexible terms were introduced (Coleman, 2007).

Macroeconomic reforms:

Prior to the deregulation, the rate of interest gained from private overseas borrowing could not be more than 2% more than the London or Singapore inter-bank rate (Hull, 2003). In addition, all private overseas borrowing was subjected to a fixed term of at least twelve months. After the financial liberalisation, NZ trading banks were able to

acquire overseas credit without being limited by restrictions and foreigners had more freedom to access NZ's financial markets (ibid, p. 6). This meant that trading banks were able to lower the cost of funds to borrowers and increase their competitiveness. As a consequence, financial institutions were able to introduce more flexible mortgage terms and were able to raise funds easily.

2.2 Changes in Inflation Rate and Interest Rate

Drops in interest rates and inflation rates after the share market crash in 1987 also played a vital role in rises in household debt. Prior to the 1987 crash mortgage rates had been steadily climbing and even reached 20.5% in 1987 (RBNZ, 2008a). But after the deregulation and stock market crash, mortgage rates dropped significantly and hence made it cheaper and easier for people to borrow. Drops in inflation after the deregulation also encouraged borrowing as low inflation permitted more low income households to qualify for housing finance (Claus & Scobie, 2001; Coleman, 2007; Thorp & Ung, 2000). This is because after the reforms the RBNZ use interest rates (OCR after 1990) to maintain the inflation rates. In a high inflation situation, the RBNZ would raise interest rates to prevent the inflation rate from increasing further. In addition, most financial institutions in NZ use repayments to income test[2] to evaluate intending borrowers. Therefore in a low inflation economy, nominal interest rates are low due to low inflation, and allow more low income households to acquire housing finance.

Since the main function of monetary policy is to keep the inflation rate within the target band by implementing OCR (RBNZ, 1994), the RBNZ raised the OCR a few times during 2004 to 2007 in an attempt to slow down the housing market to maintain inflation (RBNZ, 1994; RBNZ, 2007a). However, an increasing OCR seemed to have little effect on 'cooling down' the housing market during that period. Instead, it put more pressure on households with debt, especially households that acquired a relatively big mortgage[3]. Households that fixed their mortgage rate would not be affected until the end of the mortgage term. However, households that were on a floating rate or recently took on new debt and households that refinanced their mortgage all faced relatively high

[2] The test calculates the mortgage repayment required as a percentage to gross income. The required ratio varies depending on the circumstance of the borrower, such as the amount of deposit paid and if there is any dependent children.
[3] Hudson, A. (2008, March 30). $375k house - costs $900 a week. *NZ Herald*, p. C5.

debt servicing costs. This is further proved by the data published by the RBNZ (2008d), debt servicing cost as a percentage of disposable income has been on an upward trend since late 2003. High debt servicing costs signify that households are paying relatively more interest on debt than if interest rates were low, this therefore increases their indebtedness.

2.3 Housing Debt

According to the RBNZ (2008d), household debt had escalated five times between the period of 1990 to 2006, and over 90% of household debt is housing debt. Moreover, housing is an important part of the household's balance sheets because it is both an asset and a liability (Claus & Scobie, 2001). As a consequence, changes in house prices would inevitably influence the level of household debt and households' net wealth.

2.3.1 Housing market and the stock market crash

According to Claus and Scobie (2001), the ratio of real assets to disposable income in NZ is close to other OECD countries, but household financial net wealth as a proportion of disposable income had been steadily decreasing in NZ, while in other OECD countries it had been steadily increasing since the late 1980s. This is due to housing increasing as a proportion of household assets in NZ while housing is decreasing as a proportion of household assets in other OECD countries (Claus, 2001; Thorp & Ung, 2000). One explanation of why New Zealanders heavily invest in housing is that prior to the share market crash and the financial market reforms (specifically 1970 to 1987) the NZ economy faced high inflationary pressures. As a result households were more inclined to invest in real assets such as housing, rather than in bank deposits or other non-equity financial assets when it at times yielded negative return (Thorp & Ung, 2000). Another explanation is that after the stock market crash, some households were nervous to invest in equity market and chose to invest in property market instead (Claus & Scobie, 2001). Although the ratio of financial assets as a proportion of income has been increasing, it has yet to climb back to the peak reached in 1986 (ibid, p. 12).

2.3.2 Changes in house prices

The RBNZ raised the OCR a number of times in an attempt to cool down the housing market in recent years. Specifically, the OCR has been on an upward trend between early 2002 and 2008 (RBNZ, 2008a). More expensive credit should mean households have relatively less ability to borrow, resulting in a decline in demand for credit and subsequently a decline in demand for housing. But during the period of 2004-2006, the housing market remained strong even after a number of rises in the OCR over this period. According to Coleman (2007) NZ house prices increased by 166% between the period of 1993 to 2005. As house prices increase, households have to borrow relatively more to cover the extra cost. One explanation as to why house prices increased so significantly may be because of strong housing demand. Additionally, a relatively greater inflow of immigrants that moved to NZ between 2000 and 2005, and an increase in residential property investors also contributed to an increase in housing demand. According to the RBNZ (2008c) housing stock has been steadily increasing since 1990 and has since more than tripled in value. One other reason why housing demand was strong is that the number of households has increased while the number in each household has decreased (Stats NZ, 2007b).

As shown in the Home Affordability Report published by Massey University (Hargreaves, 2008), the home affordability index (index) had been on an upward trend since August 1999. The index is calculated using mortgage interest rates, average wages and median house prices. The lower the index is the more affordable housing is. There are several possible reasons to why a median house has become less affordable for a median income household. Part of it could be households accumulating debt earlier on in life than twenty years ago or it could also be because house prices has increased at a much higher rate than the income growth rate. The article by Van Den Bergh (2007) showed that the median house price is nearly ten times the median income and that it takes approximately 80% of a median weekly income to pay the mortgage on a median-priced house, which is more than twice the amount considered affordable[4]. The article also suggests that as interest rates and house prices increased, income would need to grow by nearly 24% for a median income household to afford a median-priced house in NZ.

[4] Affordable housing is considered at 30% or lower.

2.4 Other Possible Causes of Increasing Household Debt

Education is another possible cause of increasing household debt levels in NZ. As people further their qualifications, there may be a need to acquire debt to support studies. Statistics NZ (2007a) showed the average debt levels students[5] accumulate while studying increased by 67% from $8,830 for those leaving study in 1995 to $14,780 in 2004, and the average debt levels five years after leaving study increased by 73% from $5,970 in 1995 to $10,300 in 2000. But while the average debt levels increased at such a significant rate, the average income levels increased at a much lower rate. The average income level one year after study only increased by 19% from $21,590 for those that left study in 1995 to $33,520 for those that left study in 2004. The average income levels five years after study increased by only 12% from $29,850 in 2000 for those that left study in 1995 to $33,520 in 2005 for those that left study in 2000. Holding other things constant, these figures are a general indication that the average income in NZ is growing at a much slower rate than the student debt level and hence the need to borrow more, especially for students. However, Statistics NZ also showed that even though students that studied higher qualifications generally have higher debt, they also have higher incomes and therefore can pay off the debt faster than those that studied lower qualifications.

Another possible cause is that the tax regime in NZ favours property investment/equity investment relative to other forms of savings, therefore some investors may choose to invest in property over other options. One other reason is explicit equity withdrawals. This occurs when households make equity withdrawals for purposes other than housing, such as to fund businesses. Smith (2006) found empirical evidence that there is a positive link between farm and housing equity withdrawal and consumption. Claus & Scobie (2001) also mentioned that as the majority of businesses in NZ are small enterprises the likelihood of households making equity withdrawals to fund business is higher than in other OECD countries.

The media also highlighted rising oil prices and food prices in NZ to be the major contributors to increasing household debt levels (Ansley, 2008; Fallow, 2008). Fallow (2008) and Shepheard (2008) wrote in their newspaper columns that as business

[5] This is the average debt and income level of students from all levels of study ranging from level 1 certificate to doctorate.

confidence was strong and the housing market was 'booming', more households felt comfortable making equity withdrawals and borrowing more with the presumption that they would be able to pay it back later. Fallow and Shepheard also mentioned that major banks and finance companies made it easy for people to borrow as they too, felt comfortable to lend.

2.5 Possible Consequences of Increasing Household Debt

The level of household debt affects the economy in several ways. Firstly, households appear on both sides of most financial institutions' balance sheets. Therefore changes to households' indebtedness may affect the financial market and the economy. Secondly, households may accumulate too much debt to a level that may reduce household consumption. As household consumption represents about 60% of gross domestic product (GDP) in NZ, a decrease in household consumption may have a large negative impact on the economy (Hull, 2003). On a microeconomic level, when households accumulate too much debt they may be in a position that they have to borrow more to cover the debt servicing costs of the current debt. In such a situation, households may find it difficult to save and are therefore more vulnerable to economic downturns.

Specifically, 90% of household debt in NZ is currently housing debt. This signifies that households' financial wealth is largely influenced by the value of the property, making them vulnerable to changes in property market. When the property market is strong, homeowners may feel better off and increase their consumption spending. Although increase in consumption due to wealth effect may not have major negative impacts on the economy, it may become a concern if households start to borrow beyond their means. Also, the seriousness depends on how indebted households are and the composition of their balance sheets. As mentioned in *Chapter 1*, Weinberg (2006) stated in his research that consumption debt does not necessarily hinder future consumption. Moreover, debt is merely a tool that allows households to borrow against expected future earnings to meet the consumption goals overtime. Debt enables businesses to fund new investment, which in turn may generate greater returns. However, some homeowners may borrow more to invest in housing which increases their dependency on the property market. Moreover, a prolonged strong property market may lead to a decrease in housing affordability and hence a decrease in home ownership. As a result, some households may have difficulty to purchase a home, or

some may have to borrow beyond their ability to pay. In the case when the property market declines, or when the housing bubble 'bursts', some households' financial net wealth may decrease to the point that they may need to sell the property at below market value to pay debt. If households start to default on their debt payments, it may have serious effect on the financial institutions, especially institutions with a high leverage ratio. Subsequently, business confidence may decrease and worse, it may lead to an economic recession.

2.6 Decreases in Home Ownership as a Result of Increasing Household Debt

Although home ownership remains the dominant form of tenure, statistics from Housing NZ (2006) showed that home ownership is decreasing at the rate corresponding to the increase in the percentage of people renting. According to Morrison (2008), home ownership in NZ fell from 73.7% in 1986 to 66.9% in 2006[6]. The decline is more significant in bigger cities like Auckland, Wellington and Christchurch than in rural areas. Drops in home ownership may possibly be the combination of less affordable housing and changes in social patterns/attitudes. Another explanation as to why the proportion of people renting is increasing is that some people may prefer to live more luxuriously and have more disposable income to spare than to invest in a house and be in debt.

Falling home ownership rate may be a consequence of a number of factors: average house prices increased due to increase in property investors and immigration, changes in social perspectives, income level grows at a much slower rate than house prices, and more people acquire tertiary education hence accumulate debt earlier in life thereby potentially reducing their ability to borrow. The decline in home ownership in young families could also be as a result of changes in social patterns/attitudes. As New Zealanders become more exposed to other countries and cultures, they may become more aware of the importance of education. Education is a primary means of developing a wide range of skills and knowledge, especially if one wishes to advance both socially and financially. Statistics NZ (2005) have shown that participation in tertiary education in NZ by the 16-24 age group has increased by just over 50% between 1987 and 1996, and is still on an increasing trend since then. More New Zealanders are pursuing tertiary qualifications and as a result the student loan debt level has also increased, and therefore

[6] The last Census collected was in 2006.

may be one factor influencing the decline in home affordability and ownership in recent times. The disequilibrium of supply and demand could be another reason why house prices have increased so much. One cause of short supply in housing is the restrictions imposed on land, also known as Metropolitan Urban Limit (MUL). Urban limits decrease our land supply especially in the large cities where house prices are becoming unaffordable due to the short supplies of housing. The imbalance could possibly be because the population of the major cities outgrow housing supply and/or property investors pushing demand up.

Another major impact of the decline in housing affordability and the rise in housing debt is overcrowding. When households have difficulty owning their housing or renting on their own, they often have no choice but to share the costs with other households/families. A household is considered overcrowded if it is short by two or more bedrooms. This is becoming a major concern especially in South Auckland and in Pacific Island families (Housing NZ, 2005), who tend to have larger households due to relatively more children and/or extended family living under one roof. In addition to having relatively large families to feed their average household disposable income is also relatively lower than other ethnic groups, and hence reduces their ability to afford owning, or sometimes renting a house that is suitable for the household. The main concern of over-crowding is the impact on the health and mental well-being of the families involved. These individuals are more likely to be impacted by respiratory and infectious diseases, and children that grow up in crowded households tend to experience more mental health issues arising from psychological withdrawal, stress and loneliness[7]. They may feel ignored by their parents as they receive less attention from their parents compared to children living in non-crowded households. The negative psychological or pathological effects may also have a negative impact on educational attainment as the children are not aware of the importance of education/qualification. In some cases it may lead to behaviour problems and also an increase in crime.

[7] Edwards, J. N., & Booth, A. (1976). "Crowding and family relations" *American Sociological Review, 41*(April), 308-321.

2.7 Summary

In NZ, the level of household debt as a percentage to income increased sharply after the deregulation (Thorp & Ung, 2000). The deregulation has made borrowing easier for households due to the removal of the interest rate and ratio controls. Furthermore, the number of registered banks more than tripled after the deregulation which increased the level of competition among the financial sector. Competition has increased the efficiency of the banking sector, and has also reduced the mortgage rates as a consequence. The 1987 share market crash also had a major influence on increasing household debt. As interest and inflation rates dropped significantly after the crash, it was cheaper to acquire debt than if the rates were high. Furthermore, since the crash households favoured real asset investments such as housing, rather than financial investments. Consequently, households are now more vulnerable to property market downturns and may find their financial net wealth decrease sharply if house prices drop.

The following two chapters will use empirical data to verify some of the possible causes of rising household debt levels, and to determine the level of impact these causes have on the household debt. Specifically, *Chapter 3* will focus on the trends of the household debt levels in NZ in comparison to some other OECD countries such as Australia, the US and the UK. *Chapter 4* will use regression analysis to test the relationship between the level of household debt, house prices and interest rates. In addition, the regression model will also incorporate lagged effect to testify if both the independent variables, house prices and interest rates, have any time lagged effect on the dependent variable, household debt. Due to lack of reliable data for the period prior to 1990, the influence of the financial reforms will not be analysed.

Chapter 3: Data Analysis

As indicated in *Chapter 2*, much past literature suggested that the deregulation of the financial markets have played a major role in rising household debt levels. This is because household debt levels have grown at a substantially higher level after the deregulation. Furthermore, interest rates and inflation rates have also dropped significantly after the deregulation, which made borrowing relatively less expensive. Another cause is the significant increase in house prices relative to income which has made housing less affordable for many. This section will use empirical data to focus on the key issue: are current household debt levels in NZ comparable to some other OECD countries such as Australia, the US and the UK?

The outline of this chapter is as follows: first, the two aforementioned household debt ratios are used to compare household indebtedness in NZ to Australia, the UK and the US. Explanations as to why these ratios are chosen, sources of this information and comparability of these calculations will be discussed. The reasons why Australia, the UK and the US have been chosen as the comparison countries will also be explained. This is followed by an evaluation of the historical and causes of trends of the ratios in NZ, and whether these trends correlate with what has occurred in the three chosen comparable countries. This chapter will conclude with discussions on the limitations of the ratios used.

3.1 Comparable Countries

Australia, the US and the UK have been chosen as the comparable countries mainly due to the similarity in the financial reforms. In addition, all four countries have fairly deregulated financial markets and all went through financial liberalisation at a similar time. Furthermore, compared to other countries the mortgage terms are less regulated. This is especially shown by the loan-to-value ratio required by the lenders in these countries. The loan-to-value ratio shows the total amount borrowed by the household as a percentage of the value of the property. All four countries allow first home buyers to borrow more than 95%, while in other countries such as Italy and Germany, the loan-to value ratio cannot exceed 60% (Claus & Scobie, 2001).

3.2 Ratios

Apart from the debt ratio and the debt service ratio mentioned before there are other indicators central banks and researchers use to measure the household debt levels. The household debt to asset ratio (gearing ratio), the financial asset to debt ratio and the total debt to net worth ratio are also some of the popular indicators. Ratios are good tools for comparison especially when countries with different economic sizes and different currencies are being examined. Since each country has a different population size and different currency value it is not easy to conduct a cross-country comparison. Even if the values are unified to one currency in dollar terms the new values may lose accuracy. Furthermore, ratios allow researchers to analyse trends over time. This research will focus on the debt ratio and the debt service ratio because of their simplicity, and that the ratios measure debt in terms of households' financial ability to pay off debt. The debt ratio states the amount of total household debt at a point in time expressed as a proportion of the maximum amount households are able to pay. While the debt service ratio denotes the minimum interest amount required in terms of households' financial ability. Debt service ratio is a relatively short-term measure of household indebtedness, whereas debt ratio looks at the long-term household debt level. By examining both ratios it would give a more comprehensive analysis of household debt level.

3.3 Household Debt to Disposable Income Ratio (Debt Ratio)

The debt ratio is a simple and brief indication of how indebted households are in each country. It measures household debt level in terms of disposable income. It calculates the total household debt as a percentage of the total disposable income of a nation. The higher the ratio is the more indebted the nation is. This ratio is usually published by The Central Bank of each country[8], i.e. The Reserve Bank of New Zealand, The Reserve Bank of Australia, and The US Federal Reserve. Total household debt includes housing debt and consumer debt and excludes student loans. Housing debt is comprised mainly of households' home mortgages. Consumer debt includes credit card debt, hire purchase, personal loans and other household borrowings that are not associated with housing. Disposable income is the households' gross income minus tax on the various

[8] Note that not all Central Banks publish them. For example The Bank of England does not publish any data it is the UK Statistics Authority that publishes relevant data on household debt level and disposable income level.

sources of income. It is what households receive to spend on goods and services (Crawford & Johnston, 2004).

3.3.1 New Zealand

In NZ the debt ratio is published by RBNZ and is calculated by using total household claims over nominal disposable income. Total household claims is estimated based on a questionnaire completed by registered banks and non-bank financial institutions (NBFI) on loans to households for both housing and consumer purposes. Household housing claims include all residential mortgage loans to personal customers by both registered banks and NBFIs. Household consumer claims include any loans identified as used for personal purposes other than for housing purposes. One thing to note is that after the restructuring of household claims in December 2004 some loans are now not included in the publications. Loans from lenders with total assets as at December 2004 of less than $100m; solicitors' nominee residential mortgages (estimated at less than $150m at 2004) and mortgages directly held by various group investments, pensions and other like funds are all excluded (RBNZ, 2005a). Disposable income is calculated based from Statistics New Zealand's household income and outlay account. RBNZ then adds back fixed capital consumption and household interest payable to household income and outlay account. Household disposable income excludes unincorporated enterprises and is calculated using income after tax and before the deduction of interest payments. As stated in *Chapter 1*, the debt ratio in NZ is only available from 1991 onwards therefore this research will focus on what has happened to household debt post 1990.

3.3.2 Australia

In Australia the debt ratio is published by The Reserve Bank of Australia (RBA) every quarter year. Similar to NZ, The total household debt is estimated by including borrowings reported by banks, non-bank financial institutions such as other depository corporations and financial intermediaries n.e.c.. There are two versions of the debt ratio; one is published by the RBA, and the other is the Australia Bureau of Statistics (ABS). This research will use the debt ratio published by the RBA because this version does not include accounts payable, which is the same as the debt ratio for NZ.

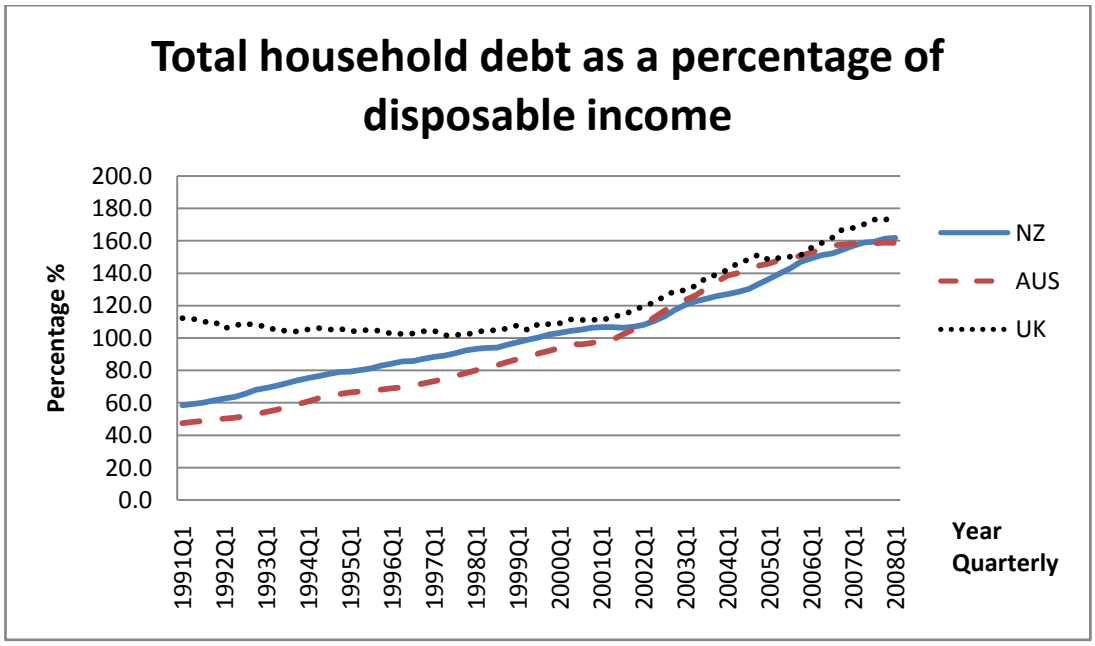
3.3.3 The United Kingdom and the United States

Data on the debt ratio for the UK is obtained from Official National Statistics (ONS). Due to the lack of an electronic source on the data, no detailed information can be given in this research. Moreover, due to lack of reliable data on total household debt in the US, the US will be omitted from the debt ratio analysis.

3.3.4 Debt Ratio Comparison

As can be seen in Figure 1 below, the NZ debt ratio has been growing at a similar pace to that of Australia, and both the Australia and NZ ratios have converged with the UK ratio in the last ten years or so. For the past two decades, the NZ debt ratio has been growing at an average of 1.51% per annum which is slightly less than Australia's rate at 1.8%. The UK debt ratio has been growing at an average of 0.67% which is a lot lower than Australia and NZ. In saying that the UK had a relatively much higher debt ratio compared to Australia and NZ in 1991.

Figure 1: Debt Ratio Comparison for NZ, Australia & the UK (1991:1-2008:1)

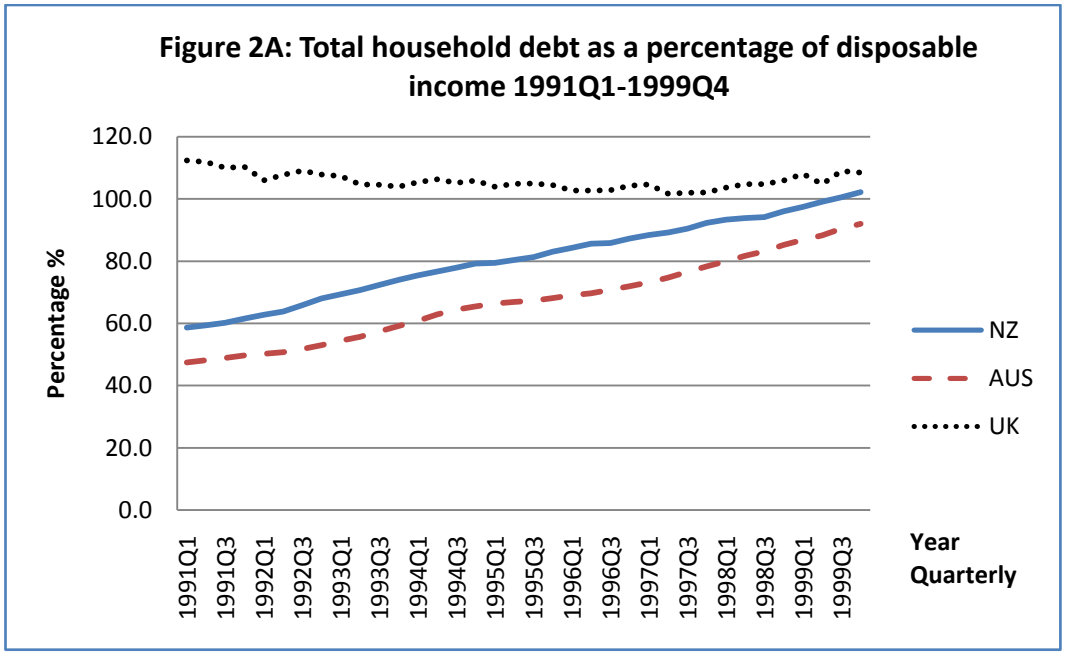


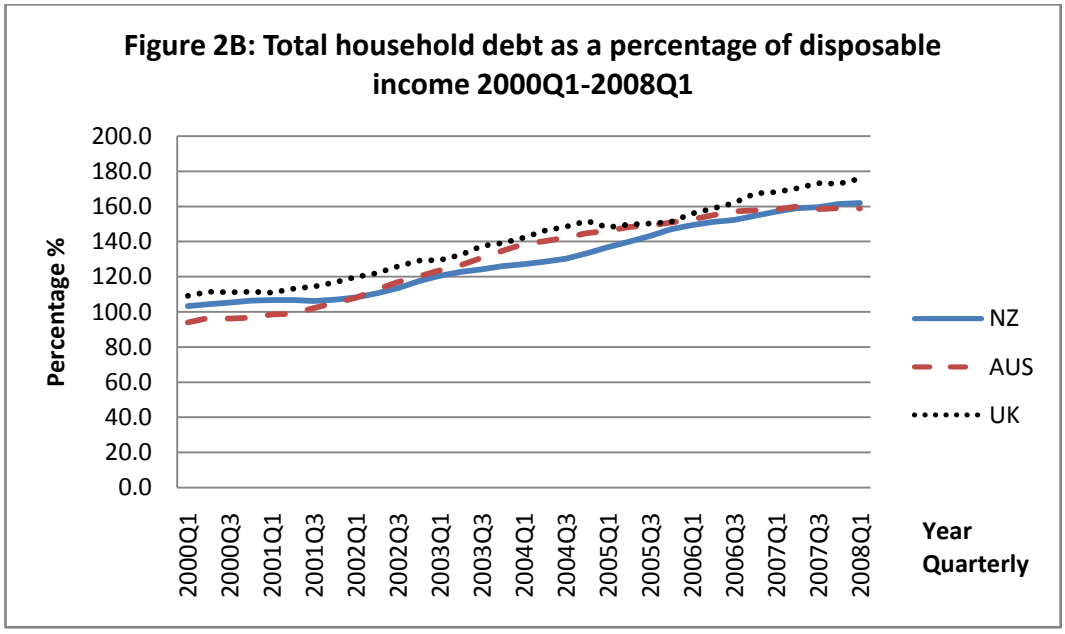
Source: RBNZ, RBA and ONS

It was sitting over 100% at 112.4% while it was only 58.6% in NZ and 47.4% in Australia in 1991. But the UK managed to keep the debt ratio fairly static between 1991and 2001. The ratio declined slightly from 1991 to 1997 and has been on an upward trend since. Furthermore, it has been growing at a much higher rate since 2001.

Australia had a relatively low debt ratio in the 1990s but it outgrew NZ between 2002 and 2007. Australia and NZ's debt ratios were growing at a similar rate between the periods of 1991 to 2001 before Australia's ratio grew at a higher rate than NZ. As illustrated in Figure 1 there is an obvious change in the UK's debt ratio growth between 1991 and 1999 and between 2000 and 2008. Therefore, in Figures 2A and 2B, the data is divided into two sub-periods to allow a more detailed analysis of the debt ratio trends.

Figure 2: Debt ratio comparison for NZ, Australia and the UK in two sub-periods





Source: RBNZ, RBA and ONS

Figure 2B shows that NZ's debt ratio has been growing at a similar pace as Australia and the UK since 2000. A correlation matrix also confirms that NZ's debt ratio has been increasing at a similar rate to Australia for the period 1991 to 2008.

Correlation matrices have been calculated and are reported in Table 1, and for the sub-periods in table 1A, they show that NZ and Australia's debt ratios move very closely together with correlation of 0.99. The correlation matrix for the second sub-period (2000Q1-2008Q1) denotes strong resemblance in the movements in the debt ratios of all three countries. As the purpose of this research is to discover whether the household debt levels in NZ has risen to an unsustainable level by international standards, holding other things constant, it can be concluded that household debt levels in NZ is at a similar level to other OECD countries such as Australia and the UK. However, without taking other factors into account, such as national savings rate, household balance sheet composition and household investment portfolios it would seem imprudent to conclude on the state of household debt levels in NZ.

Table 1: Debt Ratio Correlations across NZ, Australia & the UK (1991:1-2008:1)

	NZ	*AUS*	*UK*
NZ	1		
AUS	0.990069	1	
UK	0.910678	0.919727	1

Table 1A: Debt Ratio Correlations across NZ, Australia & UK (1991:1-1999:4 & 2000:1-2008:1)

	NZ	*AUS*	*UK*
NZ	1		
AUS	0.991685	1	
UK	-0.51225	-0.4189	1

	NZ	*AUS*	*UK*
NZ	1		
AUS	0.966928	1	
UK	0.985484	0.980946	1

Source: RBNZ, RBA and ONS

The debt ratio gives a good brief overview of household debt level of each nation but some analysts have been slightly critical as this ratio compares a stock to a flow (RBA, 2003). Household debt is measured at one specific time and may have been accumulated

in the past. Whereas disposable income is measured over an interval of time and hence is measured per unit of time (Wikipedia, 2008). The debt service ratio avoids this problem as it compares the flow of interest payments to the flow of disposable income. The drawback of the debt service ratio is that some mortgage payments may not include the principal payment hence it may not reflect an accurate level of interest payments required on the debt. In this research, both ratios would be looked at together as they complement each other and gives findings that are more robust.

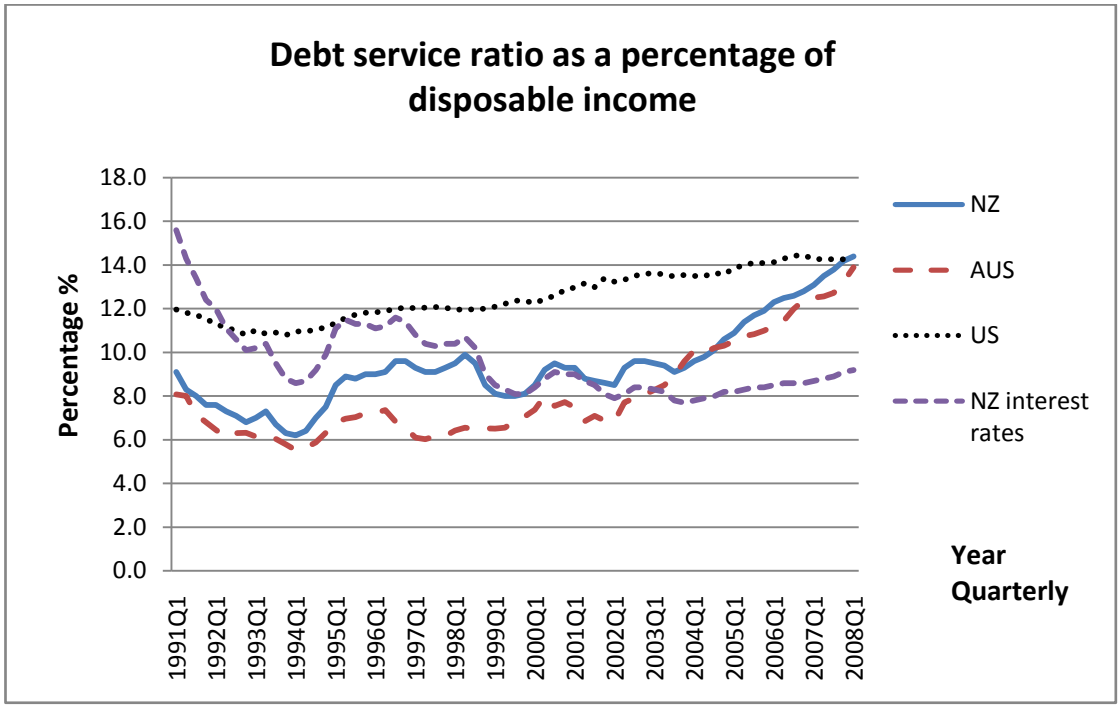
3.4 Total Debt Service to Disposable Income Ratio (debt service ratio)

The household debt service to disposable income ratio is another simple measuring tool of household indebtedness. It indicates that on average, how much disposable income each household spends on servicing debt. Debt service payment includes the estimated required payments of both the interest and the principal amount on the outstanding mortgage and consumer debt. The higher the ratio is, the higher the percentage of disposable income goes into paying debt.

Due to lack of reliable data for the UK debt service ratio this research will compare NZ's debt service ratio to Australia and the US.

As shown in Figure 3, the debt service ratio in NZ was on a downward trend between the period of 1991 to 1994. For the period between 1995 and 2004 the debt service ratio was reasonably stable and fluctuated within the 8 to 10% region. But it has been growing at a relatively high rate since 2003 and is now sitting at 14.4% which is higher than both Australia and the US' ratio at 13.9% and 14.1% respectively. Furthermore, the debt service ratios in NZ and Australia have been growing at a similar pace and pattern for the last twenty years. Both experienced downward trend between the period of 1991 to 1994, and both maintained a reasonably stable ratio between 1995 and 2002. Both countries experienced a sharp increase since 2003 and have both now caught up with the debt service ratio in the US. The debt service ratio in the US has been reasonably stable and fluctuated between 11% and 14% in the last two decades.

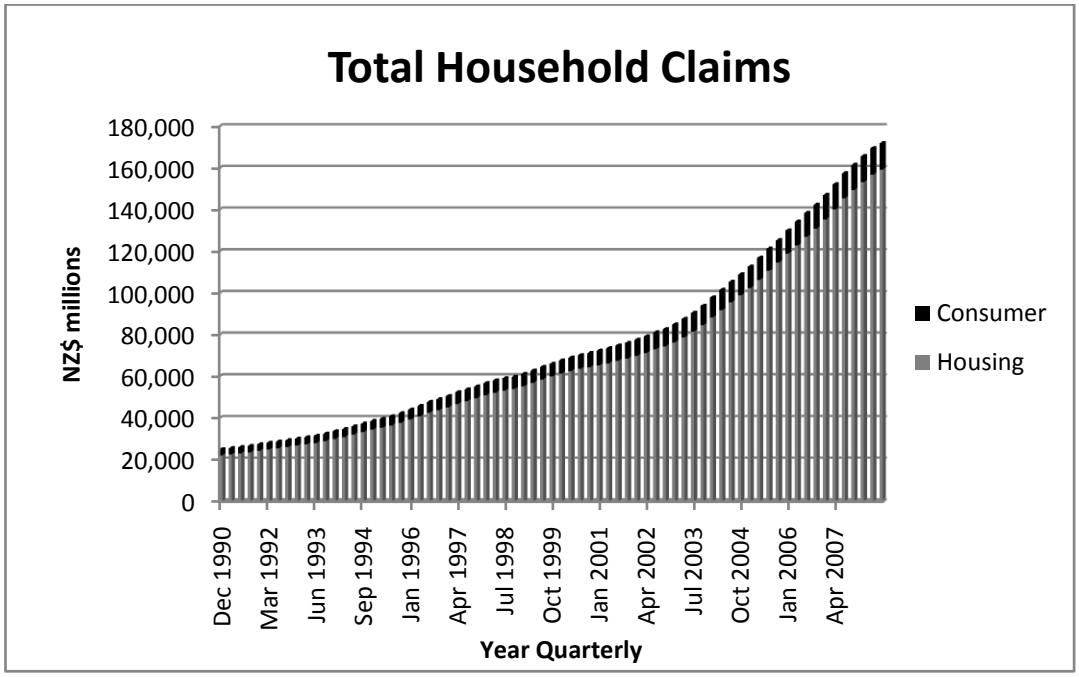
Figure 3: Debt Service Ratio Comparison for NZ, Australia & US



Source: RBNZ, RBA and US Federal Reserve. Note NZ interest rate used here is retrieved from RBNZ and is the weighted average rate

One thing to note is that although interest rates in NZ dropped significantly during the period of 1991 to 1994, the debt service ratio only decreased slightly. Furthermore, between 2000 and 2008, interest rates remained within the 7% to 10% range, but the debt service ratio continued to rise over the same period. This could be an indication that some households may have taken advantage of declines in interest rates and have taken on more debt than before. By comparing the debt ratio and the debt service ratio in NZ to Australia, the UK and the US, it can be loosely concluded that New Zealanders are more or less on par with these three countries.

Figure 4: Total Household Claims in NZ (1990-2008)



Source: RBNZ

The basic components of household debt (housing and consumer) is shown in Figure 4, it is clear that housing has been the major part of household debt since 1991 and this composition has not changed much since. The following chapter will use simple regression analysis to verify the extent of the effect that changes in house prices have on the household debt levels. Moreover, the lagged effect will also be built into the model to conclude a more comprehensive finding. As interest rates denote how expensive debt is it will also be included in the model. Due to similarities in the trends of NZ and Australia's household debt levels Australia will be the main comparison in the next part.

3.5 Limitations of the Ratios

Although the debt ratio has been one of the most commonly used ratio that analysts study to evaluate households wealth it has some limitations, too. As mentioned in section 3.3, the debt ratio measures the total household debt in terms of current total disposable income. This means that the ratio overlooks the fact that the total household debt comprises of debt with different maturity dates. For example, housing debt would generally mature between 20 to 30 years from the day the loan is drawn while consumer debt (credit cards, personal loans, overdraft and etc) would mature within a shorter time frame from as little as 1 month to a year or more. Moreover, it does not take into account that the amount of debt owed by households change over the lifetime of

households. Both ratios measure a nation's debt level at an aggregate level and omit an important fact that there is a variation in the distribution of debt across households (Debelle, 2004). In general, young households (currently the MTV Generation and Generation Y) tend to have relatively lower debt ratio compared to older households (the Baby Boomers and Generation X). However, young homeowners (less than 35 of age) are more likely to have a much higher debt ratio than older homeowners are. Understanding the distribution of debt may further the understanding of the susceptibility of households, possible causes of increase in debt or other macroeconomic factors.

In the main, the debt ratio is higher at the start of the loan term. As a segment of the principal amount is paid back over time, the amount of debt owed would decrease and so would the debt ratio. In addition, the amount of debt owed by households, the debt composition and the household income levels change as circumstances change. In general, young households have more housing debt than consumer debt. As housing debt is paid off, the percentage of consumer debt may increase because they are more comfortable to spend on consumption goods and have the ability to borrow more. In addition, the typical household income level normally increases with age. Therefore holding other factors constant, an older household has the ability to take on more debt.

Another limitation of the debt ratio is that it compares a stock (household debt) to a flow (disposable income). Therefore the debt service ratio is included in this research to complement the debt ratio. The debt service ratio compares a flow (household debt service payment) to a flow (disposable income). It measures the amount of principal and interest payment due annually to the amount of disposable income available associated to that period. As more than 90% of the total household debt is housing debt, a large portion of the debt service requirements are possibly mortgage payments. But as each loan matures overtime the composition of household debt generally change as well. Furthermore, as rate of interest fluctuates and affects the cost of debt the debt service ratio would be a better measurement than the debt ratio. However, the debt service ratio is highly influenced by interest rates charged on the loan. Holding other things constant, the debt service ratio would decline should the interest rates drop. On top of this without looking at households financial assets and liabilities and the composition of households balance sheets it would be imprudent to conclude on household indebtedness solely on the ratios.

Lastly, the ratios alone cannot explain the sustainability of the level of household debt. Further investigations must be done to allow a comprehensive and robust conclusion of the sustainability of household debt. The differences in the composition of the households' balance sheets between these countries, how the financial institutions and the central banks fund the domestic household debt, and the state of the economy, are all factors that largely influence the issue of household debt sustainability.

3.6 Summary

This chapter focused on the trends of the household debt level and in comparison to Australia, the US and the UK. It was found that the household debt levels in NZ have been growing at a similar pace to the household debt in Australia. Furthermore, both the debt ratio and the debt service ratio indicate that the level of household debt in NZ is currently at a similar level as Australia, the US and the UK. The debt ratio in the UK has always been historically higher than in NZ and Australia. But interestingly, the debt ratio in the UK was fairly stagnant between the period of 1991 to 1999, but since 2000 it has been growing at a similar rate as NZ and Australia. Similarly, the debt service ratio in the US has been historically higher than in NZ and Australia until 2008, NZ's debt service ratio is now higher than the US for the first time.

The following chapter will study the significance of changes in interest rate and house prices on the level of household debt in NZ and Australia. A multivariate regression model will be used to test the relationship and the importance of each independent variable, interest rates and house prices. Particularly, a distributed lag model will be used to investigate any lagged effect the independent variables may have on the level of household debt.

Chapter 4: Regression Model

Apart from the financial reforms, falling interest rates and rising house prices are the other two main suggested causes in past literature. This chapter seeks to use a multivariate regression model to test the relationship between these two possible factors that influence household debt levels. Furthermore, the model will also analyse how significant changes in interest rates and house prices are in terms of their impact on the level of household debt in NZ. Specifically, a distributed lag model is used to determine the extent and significance of the impact of interest rate and house price changes on the debt ratio in NZ over the last two decades. For comparison purposes, similar regression analysis is then also carried out for Australia. The chapter will first explain the data used in the model, and the framework of the multivariate regression model. The results for NZ will be discussed followed by the results for Australia. The similarities and differences in the outcomes of both countries will then be compared in an effort to explain household debt. This section will end with discussions on the limitations of data used and possibilities for future research.

4.1 Rationale of the Use of Regression Model

As indicated in the *Chapter 3*, housing debt plays a significant role in rising household debt levels in NZ. More than 90% of household debt is housing debt (RBNZ, 2008d). Moreover, according to statistics published by Real Estate Institute of New Zealand Inc (REINZ, 2008) the median house price in NZ has increased almost 218% between the periods of 1992 to 2008. But just how dependent is the debt ratio on house prices? Furthermore, as interest rates rise and fall households with floating rate mortgages have to adjust their interest payments accordingly. As the aim of this research is to analyse and evaluate the level of household debt in NZ, it is important to make use of regression analysis that can attempt to explain most variations in the debt ratio, and then do a comparable analysis for other countries, such as Australia. The purpose of this analysis is to confirm and assess the extent of dependency household debt levels have on house price and interest rate changes. Additionally, it is important to ascertain if changes in house prices and interest rates have any lagged effect on NZ household debt level.

4.2 Data

The debt ratio introduced in section 3.3 will be used to represent the household debt levels. The house price index (HPI) will be used to denote house prices. Lastly, mortgage rates are used instead of Banks' interest rates to appropriately represent the cost of borrowing. The HPI is a good indication of how willing individuals are about taking on debt as it includes the impacts of new homebuyers and families moving to new houses. The interest rate is a good indicator of how affordable borrowing is as it shows the cost of capital required by the lender. The data for NZ is from 1991 quarter 1 to 2008 quarter 1, and the data for Australia is from 1986 quarter 2 to 2005 quarter 2. The difference in time period is explained in the next paragraph.

The HPI for NZ is retrieved from the RBNZ and is calculated by Quotable Value (QV). The HPI NZ is based to 1000 at December 2003 (2003 Q4). The interest rates used here for NZ are also published by the RBNZ and is the weighted average of interest paid on housing and consumption debt. The HPI used for Australia is sourced from the ABS and is the weighted average of the eight state capital cities in Australia: Sydney, Melbourne, Brisbane, Adelaide, Perth, Hobart, Darwin and Canberra. Note there are two available HPIs for Australia published by the ABS due to changed methodology employed in December 2005. The old HPI is available for the time period 1986Q2 to 2005Q2 and is based to 100 at 1989-1990. The new HPI data is available from 2002Q1 to 2008Q2 and is based to 100 at December 2003 (Q4). As the new HPI has only 26 observations and may not be sufficient for the lag regression analysis, this research will only focus on the old HPI. Additionally, the old HPI data series provides a more relevant series in comparison to NZ. Interest rate for Australia used in this research is the bank's standard mortgage rate published by the RBA.

4.3 Multivariate Regression Model

In this multivariate regression model house price index (X_t) and interest rates (mortgage rates - r_t) are the explanatory variables used to explain the household debt to disposable income ratio (debt ratio - Y_t) in NZ.

The simple regression equation:

$$Y_t = \alpha + \beta X_t + \delta r_t + e_t$$

Where Y = the dependent variable, household debt to disposable income ratio

β = the contemporaneous effect house prices have on household debt to disposable income ratio

X = the independent variable, house price index

δ = the contemporaneous effect interest rates have on household debt to disposable income ratio

r = the independent variable, interest rates

e = any residual variable not explained by $X\ and\ r$

To investigate whether changes in house prices and previous interest rates have any lagged effects on the debt ratio; this simple regression is expanded to a distributed-lag model with four lags to incorporate possible lagged effect from one year ago.

The distributed-lag model is:

$$Y_t = \alpha + \beta_1 X_t + \beta_2 X_{t-1} + \beta_3 X_{t-2} + \beta_4 X_{t-3} + \beta_5 X_{t-4} + \delta_1 r_t + \delta_2 r_{t-1} + \delta_3 r_{t-2} + \delta_4 r_{t-3} + \delta_5 r_{t-4} + e_t$$

Where Y_t = household debt to disposable income ratio in the current time period

β_k where k = 1, 2,...5 is the effect of house prices on debt ratio. β_1 is the contemporaneous effect house prices have on household debt to disposable income ratio. β_2 is the effect lagged one period, β_3 is the effect lagged two periods and so on

X_t = house price index. X_{t-1} is house price index lagged on period and so on

δ_k where k = 1, 2,...5 is the effect interest rates have on debt ratio. δ_1 is the short-run effect interest rates have on the debt ratio. δ_2 is the effect lagged one period and so forth

r_t = interest rates. r_{t-1} is interest rate lagged one period and so forth

t = time period where each period is quarter of a year

4.4 New Zealand

Given the quarterly nature of the data, the full distributed lag model (with 4 lags) was run for NZ using data on the HPI, interest rates and the debt ratio sourced from the RBNZ as described in section 4.2. Results from this regression analysis found that the last lag of HPI was statistically insignificant and consequently X_{t-4} was removed and the regression re-run. In a similar fashion X_{t-3} and X_{t-2} were consecutively removed in the following regressions. The resulting appropriate model for NZ's debt ratio was found to be:

$$Y_t = \alpha + \beta_1 X_t + \beta_2 X_{t-1} + \delta_1 r_t + \delta_2 r_{t-1} + \delta_3 r_{t-2} + \delta_4 r_{t-3} + \delta_5 r_{t-4} + e_t$$

Table 2 illustrates the estimated results from this regression:

Table 2: Debt Ratio Regression for NZ from 1991:1-2008:1

	Coefficients	*Standard Error*	*P-value*
Intercept	98.8406	5.756984851	3.41354E-24
X_t	-0.0071	0.033127885	0.830408006
X_{t-1}	0.0829	0.033671987	0.01686072
r_t	-5.3653	1.725089749	0.002918388
r_{t-1}	2.8461	3.192787014	0.376446777
r_{t-2}	-1.0665	3.455356274	0.758710966
r_{t-3}	1.2211	3.111853449	0.696230332
r_{t-4}	-3.2535	1.538615713	0.038852231
R Square	0.983263297		
Observations	65		

Source: RBNZ

Therefore the estimated equation is:

$$Y_t = 98.8406 - 0.0071X_t + 0.0829X_{t-1} - 5.3653r_t + 2.8461r_{t-1} - 1.0665r_{t-2} + 1.2211r_{t-3} - 3.2535r_{t-4}$$

As evident from Table 2, the significant estimated coefficients are those for X_{t-1} , r_t and r_{t-4}. This indicates that with 95% confidence, house prices a quarter year ago and interest rates one year ago have a statistically significant impact on the level of the debt

ratio in NZ. Also highly significant (at the 1% level) is the impact of current interest rates in NZ.

This model tells us that holding other things equal, every one unit increase in X_t results in a 0.007% decrease in the debt ratio; every one unit increase in X_{t-1} will increase the debt ratio by 0.083%; a 1% increase in the current interest rate (r_t) will decrease the debt ratio by 5.365%; a 1% increase in r_{t-4} increases the debt ratio by 2.846% and so on. This model suggests that only changes in house price from a quarter year ago have a significant influence on the debt ratio in NZ. As mentioned in section 4.2 the HPI is an indicator of the impact of individual's willingness to take on debt. The reasoning behind the negative impact of current HPI could mean that as house prices increase, people are less likely to take on housing debt as it would cost relatively more than before. The positive impact of previous HPI could be due to wealth effect. As house prices increase homeowners feel relatively wealthier and hence increase consumption of durables, and therefore debt. It is important to note that the positive impact of previous HPI is statistically significant, whereas the negative impact of current HPI is not.

As the model suggests, interest rates at each quarter period up to one year ago have statistically significant impacts on the debt level. From what has been discussed in the last section and earlier this section, interest rate is an indication of cost of capital. The higher the rate is the more expensive it is to acquire capital. This implies that as interest rate increases, debt level should possibly decrease. By focussing on the coefficients with significant P-values - r_t and r_{t-4}, both have negative impacts on the debt ratio in NZ. One speculative explanation could be that some households have mortgages that are fixed for one year. As the fixed mortgage terms end these households are again affected by the current interest rate level just like new entrants and the estimated negative relationship could indicate that as interest rates increase, households are more reluctant to take on debt hence household debt level decreases.

Also with R square of 0.983 this shows a strong relationship between the household debt ratio, HPI and interest rates. The number denotes that approximately 98% of variation in the household debt ratio can be explained by variation in HPI and interest rates. This model confirms that house prices and interest rates strongly affect the household debt to disposable income ratio. In addition, house prices have a relatively short-run influence on the debt ratio as only current HPI and HPI one period ago were

found significant. However interest rates seem to have a relatively long-term effect on the debt ratio as interest one year ago was found significant. This finding is consistent with Figure 4. As has been stressed throughout this research that housing occupies more than 90% of total household debt therefore changes in house prices would largely affect the debt ratio.

4.5 Australia

To compare whether the debt ratio in Australia is also impacted by house price and interest rate changes in a manner similar to that found for NZ, the regression analysis in section 4.3 was repeated using the Australian data.

Again, a distributed lag model (with 4 lags) was initially estimated, using data on the HPI published by the RBA, interest rate data from the RBA (specifically the Bank's standard rate for housing loans) and the debt ratio sourced from the RBA and illustrated in Figure 1 earlier in this section. Results from this regression analysis found that the last lag of interest rates (r_{t-4}) was statistically insignificant. It was consequently removed and the regression re-run. r_{t-3} was also found to be statistically insignificant and subsequently dropped from the regression model. The resulting appropriate model for the Australian debt ratio was found to be:

$$Y_t = \alpha + \beta_1 X_t + \beta_2 X_{t-1} + \beta_3 X_{t-2} + \beta_4 X_{t-3} + \beta_5 X_{t-4} + \delta_1 r_t + \delta_2 r_{t-1} + \delta_3 r_{t-2} + e_t$$

Table 3 illustrates the estimated results from this regression

Table 3: Debt Ratio Regression for Australia from 1986:2-2005:2

	Coefficients	*Standard Error*	*P-value*
Intercept	86.4685	18.00392	7.82E-06
$\mathbf{X_t}$	-0.0050	0.157111	0.974732
$\mathbf{X_{t-1}}$	-0.0016	0.216722	0.994309
$\mathbf{X_{t-2}}$	-0.0184	0.216697	0.932708
$\mathbf{X_{t-3}}$	-0.0055	0.216979	0.980015
$\mathbf{X_{t-4}}$	0.3923	0.155433	0.013725
$\mathbf{r_t}$	6.9109	6.522611	0.292759
$\mathbf{r_{t-1}}$	-0.0829	11.42869	0.99423
$\mathbf{r_{t-2}}$	-11.3093	6.599215	0.090707
R Square	0.681079		
Observations	84		

Source: RBA and ABS

Therefore the estimated equation is:

$$Y_t = 86.4685 - 0.005X_t - 0.0016X_{t-1} - 0.0184X_{t-2} - 0.0055X_{t-3} + 0.3923X_{t-4} + 6.9109r_t - 0.0829r_{t-1} - 11.3093r_{t-2}$$

As evident from Table 3, the significant estimated coefficients are those for X_{t-4} and r_{t-2}. This indicates that with 95% confidence, house prices one year ago have a statistically significant impact on the level of the debt ratio in Australia. Furthermore, with 90% confidence interest rates half a year ago also have a statistically significant impact on the debt ratio in Australia.

The estimated results denote that HPI has a relatively long-term affect on the debt ratio than interest rates in Australia. Moreover, every one unit increase in X_{t-4} yields a 0.392% increase in the debt ratio. And every one unit increase in r_{t-4} results in an 11.309% decrease in the debt ratio. As stated, HPI is an indication of how willing households are towards taking on debt. The positive relationship between X_{t-4} and the debt ratio could be due to wealth effect. As house prices increase homeowners feel wealthier and hence are more willing to take on more debt (equity withdrawal). The negative relationship between r_{t-2} and the debt ratio suggests that Australians are sensitive to interest rate changes, as interest rate increases they are less likely to take on debt as debt is now relatively more expensive. R square for the Australia model

suggests that only 68% of variations in the debt ratio can be explained by house prices and interest rates.

4.6 New Zealand – Australia Comparison

The estimated models for NZ and Australia are as follows:

$$\text{NZ} - Y_t = 98.841 - 0.007X_t + 0.083X_{t-1} - 5.365r_t + 2.846r_{t-1} - 1.067r_{t-2} + 1.221r_{t-3} - 3.254r_{t-4}$$

$$\text{AUS} - Y_t = 86.468 - 0.005X_t - 0.002X_{t-1} - 0.018X_{t-2} - 0.005X_{t-3} + 0.392X_{t-4} + 6.911r_t - 0.083r_{t-1} - 11.309r_{t-2}$$

By looking at the two models above, it appears that in NZ interest rates seem to have more of a long-term effect than HPI on the debt ratio. While in Australia, HPI seem to have more of a long-term effect on the debt ratio than interest rates. Furthermore, interest rates seem to have more of a long-term effect on the level of household debt in NZ compared to Australia. A speculative explanation could be that New Zealanders are more likely to take out fixed mortgage than Australians. As households with fixed mortgage are unaffected by change in interest rates until the mortgage term is up for renewal, interest rates would have a more long-term impact on the household debt level.

The coefficients of variables with significant P-values are consistent for both NZ and Australia. The relevant coefficients for both countries indicate that increase in house prices have positive impact on household debt levels while rises in interest rates have negative impacts on the household debt levels. The positive relationship between house price and the household debt levels could be due to the wealth effect. Furthermore, as there is no alternative to housing, when house price increases the cost of purchasing a new home and rent would also increase and so would debt. The negative relationship between interest rate and the household debt levels is because interest rate is an indicator of the cost to acquire debt. The more expensive it is, the less likely households would take on more debt. Vice versa, as interest rate decreases it is relatively cheaper to take on debt and hence household debt level increases as more households acquire debt.

An interesting point to note is that this model explains about 98% of variation in the household debt levels in NZ, but only explains 68% of variation in the debt level in Australia. This states that there are other important factors that influence the household debt levels in Australia that has not been covered by the model. A tentative justification is that housing accounts for most of household assets in NZ and it may be slightly less in Australia. However without a reliable data source to investigate this hypothesis for Australia, this is only a speculative explanation. One thing to note is that the findings here are only tentative as the model used may be incomplete and may have omitted variable bias. The focus of this model is to investigate the relationship between HPI, interest rates and the debt ratio, and consequently may not be the 'full' model. Nevertheless this model has clearly shown via the high R squares found, that changes in house price and interest rate are the two key factors that strongly influence the debt ratio.

4.7 Possible Future Research

Possible directions for future research involving the construction of a more ideal model may be to add indicator(s) of relative price as there are other prices that would also influence the debt ratio. As house prices increase households feel wealthier and spend more, one would also expect consumer confidence to increase. It may add to the explanatory power of the model to add consumer confidence to the model. To expand the housing variable, dummy variables may also be of use. Elasticity of housing demand could also be an interesting area to pursue further. As pointed out earlier in this section the debt level of individual household varies substantially. It would be ideal to separate and categorise households into different groups depending on the debt level and evaluate each group individually.

In addition, income level may be another important factor of the household debt level. Households with relatively smaller income may have higher debt ratio as they may not earn enough to meet their expenses. But as banks have lending restrictions there may be a cap as to how much lower income households can borrow especially with housing debt. As income level increases, households have more disposable income to spend on necessities and their borrowing ability also increases. Although this does not necessary mean that the debt ratio for higher income households is smaller. As some higher income households may still borrow a large amount of debt in nominal value because

they are not as constrained by debt restrictions. However these households generate enough income to sustain the high debt level without being susceptible to changes of economy. By grouping households some useful patterns and characteristics of each group might emerge. In addition, as the composition and the level of debt changes throughout different stages in life, incorporating life cycle model in the analysis may also result in valuable findings. Furthermore, it would allow a more in-depth research on the sustainability of rising debt level.

It may also be of use to study the composition of household debt and the influence of different tax regimes if a more comprehensive data on debt were made available. By examining the composition we would be able to get a better understanding of what accounts for most of household debt, and therefore what are the factors that would mostly influence the household debt level. Moreover it would allow further analysis of the sustainability of household debt permit the Government to choose its policies more constructively.

4.8 Summary

The regression analysis showed that in NZ, 98% of variation in household debt can be explained by changes in interest rate and house price, while only 68% of variation in household debt in Australia can be explained by changes in interest rate and house price. This indicates that there are other factors that largely influence the level of household debt in Australia that have not been incorporated in this regression analysis. However, it is found that changes in the interest rate appears to have a more significant long term impact on the level of household debt in NZ than in Australia. On the other hand, changes in house prices appears to have a more significant long term impact on the level of household debt in Australia than in NZ. The following chapter will study newspaper articles to analyse what the media denotes the cause of rising household debt levels. Moreover, the motivation of the following chapter is to conclude whether the NZ media broadcasts a fair view of the level of household debt in NZ by comparing the proposed causes by the media to the causes observed in the relevant literature (as detailed in *Chapter 2*). Newspaper is a common source of where people learn about current issues. Therefore biased newspaper articles may influence people's opinions, and may also influence their behaviour to an extent.

Chapter 5: Content Analysis

So far this research has focused on the deregulation that happened in the 1980s, rises in house prices and drops in interest rates between 1980 and 1990, and increases in interest rates during 2000s as the main contributors of rising household debt in NZ. The multivariate regression analysis also indicated that changes in house price and interest rate explain about 98% of variation in household debt in NZ between 1991 and 2008. This section will look at what the media in NZ propose to be the main causes of increasing household debt levels in NZ, and compare the proposed causes to those found in this research. The purpose of this chapter is to examine whether NZ media broadcasts a fair view of the current household debt levels in NZ. Newspapers and magazines to some extent, affects the readers/public's opinion on these matters due to it being a common source of current affairs. If the main causes of rising household debt levels named by the NZ media are similar to the causes discussed in this research then it may be concluded that the media gives a genuine opinion of the level of household debt in NZ.

The outline of this chapter is as follows: Firstly, research methodology will be described in detail, followed by explanations of the data collection process. The results of this analysis will then be discussed and compared to the main causes stated in *Chapter 2*. This chapter will end with the possible limitations of the approach chosen and an overall summary.

5.1 Research Methodology for Content Analysis

As stated in the beginning of the chapter, the purpose of this research is to understand the main contributors of increasing household debt, and compare these causes and the household debt levels in NZ to some other OECD countries. Newspaper articles are a common source of information on current affairs and to some extent defines news (Alsem, Brakman, Hoogduin & Kuper, 2008). This section seeks to identify the NZ media's overall opinions of the causes of rising household debt and the household debt levels in NZ, and if it coincides with the findings of this research so far. Qualitative inductive content analysis is the chosen approach for the data collection process. Qualitative data analysis allows the data to 'speak for themselves' (Gray, 2004), inductive approach allows themes to emerge without being pre-defined, and content

analysis can simplify large documents and identify intentions, attitudes and emotions (Grbich, 2007). As stated by Hsieh and Shannon (2005, p. 1278):

> "Qualitative content analysis goes beyond merely counting words to examining language intensely for the purpose of classifying large amounts of text into an efficient number of categories.....The goal of content analysis is "to provide knowledge and understanding of the phenomenon under study" (Downe-Wamboldt, 1992, p.314)"

5.2 Data Collection and Research Criteria

As the aim of this research is to evaluate the proposed causes of rising household debt levels by the NZ media, the analysis will focus on newspaper articles regarding household debt. Articles are sourced using Newztext search engine. Newztext searches daily newspapers such as STOP-PRESS, STUFF, Fairfax03-, Fairfax95-02, NZ Herald 1998-, Radio NZ 2004-, Radio NZ 1999-2003 and Scoop. The time frame of the search is from 1991 to 2008 as *Chapter 3* and *4*were conducted using data for this time period. Firstly, 'household debt' is entered in the primary search box and 'causes' is entered in the second search term box of the site to gather all articles containing both 'household debt' and 'causes'. The Newztext search engine returned with 151 articles that matched the search criteria. Secondly, these articles are assessed to see if there is any mention of the causes of rising household debt levels in NZ. The selected articles are then evaluated to identify the causes of rising household debt referred to in the article. Lastly, these causes are analysed quantitatively to show the most prevalent causes mentioned by the NZ media.

5.3 Analysis and Results

It is found that out of the 151 articles examined only 91 articles clearly propose what contributes to rising household debt in NZ. 24 of the 151 articles found are duplicates and 36 of the articles were invalid mostly due to no mention of causes and irrelevant to household debt in NZ. The main causes found from the articles are listed in Table 4. Note that the total article number is different to the number of valid article. This is because some articles have mentioned more than one cause in the text.

The first cause 'housing bubble/investment' is found in 38% of the articles studied. It includes changes in house prices, increases in property investments and speculations and wealth effect due to rising house prices. The main arguments behind housing are:

when house prices increase new homeowners have to borrow more to cover the increase in price and therefore increase their debt level. In addition, as house prices increase existing homeowners feel better off and therefore borrow or spend more than they would otherwise. 'Interest rates' at 14% includes mentions of changes in OCR and changes in mortgage rates as the main causes of rising household debt level. In addition, some articles stated that drops in interest rates in the early 1990s contributed to rising household debt while some accused rising interest rates in the last six years being the main cause. 9% of the articles stated 'over spending; as the main cause. The reason being more people are bringing their consumption earlier in life, such as spending and borrowing against expected future incomes. This may be the result of wealth effect due to high house prices. When the economy is booming and house price is high (house bubble) households feel more relaxed financially. Some may spend beyond their means with the expectation of higher future earnings and the households that have spent more than they can afford are often caught in debt during economic downturns. Note 'over spending' is separated from the cause 'too much debt' due to the reporters' ambiguity regarding what households have over spent on. Another 9% of the articles stated 'easy money' as the core of rising household debt level in NZ. 'Easy money' mainly denotes that lenders such as banks and finance companies have loosened the lending criteria for all lending such as credit cards, mortgages and personal loans. 4% of the articles blamed too much borrowing as the main cause. As the bigger the debt is, the more interest payments are needed to service the debt. Therefore the article s suggested that some households are borrowing more just to cover debt service payments on previous debt. 4% of the articles suggested that increase in housing debt as the main cause and 17% suggested consumption debt as the main cause.

Table 4: Causes of Rising Household Debt

Causes	Article (no)	percentage
Housing bubble/investment	43	38%
interest rates	16	14%
over spending	10	9%
easy money	10	9%
too much debt-servicing debt	5	4%
too much debt-housing	5	4%
too much debt-consumption	19	17%
Deregulation	4	4%
Tax	1	1%
Total	113	100%

Total	151
Duplicates	24
Invalid	36
Total valid articles	**91**

The causes and arguments suggested in the newspaper articles studied are similar to the findings of this research. Changes in house price at 38% seems to be the main reason the NZ media propose is behind the rising household debt, followed by interest rates and consumption spending. As mentioned in *Chapter 1*, housing accounts for most of household real assets, and therefore any changes in house price would heavily influence household balance sheet and household debt level. Interest rates denote the cost of borrowing hence changes in interest rates would also affect the household debt level. It's interesting to note that only 4% of the articles suggested deregulation as the main cause. Furthermore, articles found for the period of 2004 to 2008 focused more on the housing bubble whereas articles pre-2004 focused on overspending as the main cause. This may be an indication that daily newspapers tend to focus more on current issues and therefore the causes mentioned in the articles are more present-focused.

5.4 Possible Limitations of the Approach Chosen

The major criticism of qualitative research is that data can be fabricated, discounted or misinterpreted and results may be biased by the opinions of the researcher (Bryman & Bell, 2007; Gray, 2004; Grbich, 2007). Due to the nature of content analysis there is a risk that some articles may be misinterpreted. What's more, this research found that most of the articles containing material regarding household debt are written by only selected number of journalists. There are about 4 journalists from NZ Herald that concentrate their writings on household debt. This may dampen the validity of this analysis because the majority of the articles sourced from NZ Herald are written by the same 4 journalists. Furthermore, there is a possibility that the journalists may spin the facts to appeal to readers (Alsem, Brakman, Hoogduin & Kuper, 2008). Journalist aim to write memorable articles that would attract readers attention thus they may to some extent exaggerate facts to increase readers' interests. In addition, some articles have referred to opinions of economists at major banks to emphasise arguments. However, this analysis found that most reporters refer to the same economists. Furthermore, these particular economists have been referred to for at least the last decade. This indicates the likelihood of daily newspaper readers being influenced by these particular economists and may be slightly biased.

5.5 Summary

This chapter focused on newspaper articles with regard to the causes of rising household debt in NZ. Moreover, these proposed causes by the media were compared to past literature and research to determine the fairness of the newspaper articles. It found that although the causes indicated by the NZ media were similar to the causes suggested by the scholars, the NZ media were slightly biased towards portraying the level of household debt in NZ being too high. Most articles found in the analysis strongly suggested that the level of household debt in NZ is too high and therefore might cause or might have caused the economy to go into a recession. Interestingly, only a few articles compared the household debt levels in NZ to other countries to establish the household debt levels. Furthermore, the articles that did compare to other countries seemed to only compare the debt service ratio to the US to further emphasise the indebtedness of NZ households (the debt service ratio in NZ excelled the debt service ratio in the US for the first time in 2008). Therefore it was tentatively concluded that NZ media does slightly exaggerate facts to attract readers' attention.

Potential exists for future research to incorporate the qualitative variables identified by content analysis in quantitative models along the lines of that applied in Chapter 4.

The aim of this research is to understand the drivers of rising household debt, study the trends of the level of household debt, and to conclude on the sustainability of the level of household debt by comparing NZ to other countries. The following chapter will conclude this research and propose the possible areas of future research.

Chapter 6: Conclusion

As stated throughout this research, the purpose of this research is to conclude on the sustainability of the level of household debt in NZ, and the fairness of the NZ media with regard to household debt by analysing the causes of rising household debt. Firstly, this research has focused on past literatures with regard to causes of household debt in an effort to gain better understanding of why the level of household debt in NZ has risen sharply after 1990. In addition, it also included a special focus on house market. As it has been repeatedly stated throughout this research, housing debt occupies over 90% of household debt, hence changes in house price strongly influence households net wealth and to some extent the economy. Secondly, following the study of past literature, this research examined the trends of household debt levels in NZ of the last two decades in comparison to Australia, the US and the UK. It found that housing debt occupies more than 90% of total household debt. Therefore it was with this notion that *Chapter 4* the regression analysis centred the evaluation on changes in house price and interest rate. Furthermore, the regression analysis was also conducted for Australia for comparison purpose. Australia was chosen because in *Chapter 2* the data analysis, the graphs showed that the level of household debt in NZ and Australia moved closely. It was further proved by the correlation analysis, at 0.99 they have indeed increased at a very similar rate. Lastly, *Chapter 5* has concentrated on the causes of increasing household debt proposed by the NZ media, and compared them to the causes found in previous chapters to conclude on the fairness of the NZ media. Finally, this concluding chapter will begin with summary of findings, followed by the limitations of research and possible areas of future research.

6.1 Findings of This Research

This research has found that although the level of household debt in NZ is high by historical standards, it is not extreme by international standards. This is shown in *Chapter 3* in the graph analysis. The current level of household debt is similar to countries such as Australia and the UK, and the current debt service ratio is similar to countries such as Australia and the US. However, at 90% of total household debt, the proportion of housing debt in NZ is one of the highest among the OECD countries (OECD, 2006). In addition, housing occupies a large percentage of household assets. This could be why NZ households are more susceptible to changes in house price and

interest rate. As discovered in section 4.3, approximately 98% of variation in the level of household debt in NZ can be explained by changes in house price and interest rate, while only about 68% of variation in the level of household debt in Australia can be explained by changes in house price and interest rate.

A large amount of past literature has suggested financial reforms are the main contributor of increasing household debt. This is due to the sharp increase in the household debt levels after the reforms, compared to the almost stagnant household debt levels prior to the reforms. Although the reforms might have played a vital role in rising household debt, it has also allowed a more rapid economic growth to take place. As liquid constraints relaxed significantly after the reforms, both households and businesses have found it easier to fund new investments and spending. In addition, as financial institutions loosened lending regulations further, some small sized businesses have borrowed against their property to fund their businesses. Due to this being more of a recent trend, particularly in the last decade, there is yet to be a reliable source of data that quantifies the purposes of mortgages taken up by the households of NZ.

The NZ media has focused on the rapid growth of the level of household debt in NZ, but the media fails to recognise that the household debt in NZ is currently at a similar level to other OECD countries such as Australia, the US and the UK. Nevertheless, the causes suggested in the newspapers are similar to the causes found in the previous chapters. However, it seems that newspapers tend to focus on the short-term impacts rather than historical trends and causes such as financial liberalisation. This is shown by the different focus the majority of newspaper articles concentrated on in different time periods. The most mentioned causes from 2004 to 2008 are house prices (the housing bubble) and interest rate changes, while most articles pre-2004 regarded the increase in spending as the main cause. A tentative explanation is that for newspapers to capture the readers' attention, they have to focus on current affairs and at times, exaggerate the facts. Despite that, this research concludes that the NZ media has portrayed a relatively fair view of the causes of rising household debt, and therefore a relatively fair view of current issues. The following sections will look at the limitations of this research and possible future research before the overall conclusion is remarked.

6.2 Possible Limitations of This Research

This study centred the research on the domestic causes of rising household debt and has not covered possible factors that may be outside the control of NZ Government. NZ has a small open economy, which means it is affected by changes to the global economy and changes to the economy of major trading partners. An unexpected downturn in the global economy or the economy of a major trading partner may have an adverse affect on the NZ economy. Moreover, this research used ratio comparisons to conduct the analysis, thus the findings of this research may be hindered by the limitations of the ratios used. In addition, studying historical events may not be sufficient to conclude and predict the possible future of the household debt and the state of the economy. The level of household debt is influenced by many factors, and some factors may be interrelated, consequently it may not be possible to conclude on the sustainability of household debt. The housing market crash in the US is a good empirical example. As shown in *Chapter 2* the debt service ratio in NZ has for the first time risen above the level in the US. However, the 'melt-down' of the US economy has not happened to the NZ economy. This is due to the US economy recycling the 'sub-primed' mortgages, and repackaging them with attractive investment rates to draw investors.

6.3 Possible Future Research

An important aspect that has not been covered in depth in this research is the trend and level of overseas debt borrowed by the RBNZ and the registered banks in NZ. The level of overseas debt is a good indication of how sensitive the NZ economy is to changes in the global economy. Furthermore, the sustainability of household debt is affected by it because most household debt is sourced from the registered banks. As an empirical example, the NZ economy has been affected by the global recession because NZ banks heavily rely on overseas funding. Moreover, most of the existing overseas debt is short-term debt and therefore is largely affected by global lending rates. Therefore an analysis of overseas debt in NZ may add to the study of the sustainability of household debt, and hence how susceptible the NZ economy is to both global and domestic shocks. The number of debt payment defaults may also be useful in explaining the sustainability issue. In addition, the saving rate in NZ may offer some insight to changes in overseas debt.

Limited reliable data may have restricted some scopes of this research. For instance, a lack of reliable data of household debt in NZ for the period prior to 1990 has prohibited analysis on the extent of the impact the financial deregulation had on the level of household debt. Lack of reliable data on the composition of consumption debt may have also limited the extent of this research. As mentioned in section 6.1, part of household debt is used to fund business investments outside of the property market. Business investment may yield a higher return and 'boost' the economy, and may decrease the unemployment rate by creating more jobs. Furthermore, investments in research and development may have numerous future benefits for the economy.

As shown by the OECD (2006), the portion of housing debt as part of total household debt in NZ is extremely high in comparison to the other 15 OECD countries studied. However, the report also showed that in 2003-2004, approximately 35% of households held housing debt but more than 70% of households held other debt[9]. Due to this, it may be worthwhile to study housing debt and other debt (consumption debt) separately to gain a better understanding of changes in household debt. In addition, the separate the types of housing debt (fixed and floating mortgage) may also add to the extent of this research. The trend of house price as a percentage to disposable income, and in comparison to other countries may also be an interesting area to conduct further analysis. This ratio may determine the affordability of houses in NZ, and therefore the reasons behind why housing debt occupies such a large portion of total household debt.

Coleman (2007) stated in his research that the composition of household debt may vary depending on the age of the household. In addition, the composition of household debt also varies depending on the level of household income. Consequently, it may be beneficial to study the distribution of wealth, and compare the percentage of households holding debt in each income group and age group. By analysing the sustainability of household debt in each group may also yield valuable findings. Lastly, by comparing the percentage of households that may hold unsustainable level of household debt to the percentage of households that hold sustainable debt, it may determine if the sustainability issue is a threat to the economy.

[9] That is household debt other than housing debt such as; credit cards, personal loans and hire purchase.

6.4 Final Conclusion

Lastly, this section aims to conclude on the indebtedness of NZ households and the sustainability of household debt in NZ by revisiting the four sub-questions stated in *Chapter 1*:

(i) What are the main causes of rising household debt in NZ?
(ii) Is current household debt level in NZ comparable to Australia, the US and the UK?
(iii) How significant are changes in interest rates and house prices in terms of their impact on the level of household debt in NZ? And how does it differ to the impacts on the level of household debt in Australia? And lastly,
(iv) What is the NZ media's view on the level of household debt in NZ?

The deregulation, share market crash, changes in house prices, and changes in the interest and inflation rates were found to be the main contributors to rising household debt. Furthermore, the current level of household debt in NZ is similar to Australia, the US and the UK. However, the level of household debt in NZ and Australia has grown at a similar rate; this rate is much higher than in the US and the UK. Using empirical data, this research found that changes in interest rate and house price largely influence the level of household debt in NZ. But the level of household debt in Australia is not as sensitive to the changes as NZ. Lastly, it was found that although the NZ media does exaggerate the level of household debt slightly, it does portray a fair view of household debt in NZ.

It could be concluded that although the level of household debt in NZ has risen sharply in the last two decades, it is currently at a similar level as the 3 aforementioned countries. Therefore, the NZ households are no more indebted than households in the other three countries. As for the issue of sustainability of household debt, it might seem imprudent to conclude on what level should be considered the sustainable level of household debt at this stage. As listed throughout the research, there are other factors that might not have been taken into consideration, such as the level of overseas debt, and the percentage of households in NZ that currently hold debt. But the regression analysis in *Chapter 4* confirmed that NZ households are very sensitive to changes in house price and interest rate. As a result, it can be concluded that although the level of

household debt in NZ may be sustainable, NZ households are hugely impacted by changes in the economy and hence household net wealth is likely to deteriorate rapidly during economic downturns.

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