TOTAL RETURNS ANALYSIS FOR THE AUCKLAND AND WELLINGTON APARTMENT MARKETS

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ABSTRACT

This research was carried out to ascertain the total returns being achieved by investors in the Auckland and Wellington apartment markets. Apartment sale data and apartment rental information were utilised to calculate gross returns. To calculate net returns a mail questionnaire was generated and sent directly to the apartment owners.

By applying the weighted repeated-sales (WRS) method, the author found that the apartment values tended to lag housing prices in an upward market and were more volatile than the same period housing market. Net rental yields continued on a downward trend over the last 3 years, with increases in apartment prices and decreases in apartment rents. Total returns from investing in apartments are lower than the returns made from investing in residential housing since the higher income return has been offset by lower capital appreciation.

Keywords: Apartment, returns index, yields, Auckland, Wellington

INTRODUCTION

Hargreaves and Shi (2004) carried out an analysis of the total returns from investing in residential housing except for flats and apartments. The author now believes it is worthwhile to continue the project and research total returns into apartment market.

The main objectives of this research were to use sales data, rental data and survey information to build a total returns profile for apartments in Auckland and Wellington.

The key questions to be answered were:

1. What were the apartment price movements over time in the above two cities?
2. What were apartment rental movements over time in the above two cities?
3. What was the relationship of net income to gross income for apartments in the above two cities?
4. What was the relationship of income to value (both gross and net yields) for apartments in the above two cities?
5. What were the total returns achieved for investors in the Auckland and Wellington apartment markets?

Apartment price movements were measured by using the Weighted Repeated-Sale (WRS) method and the results were then compared to the same period Quotable Value Housing Price Index (QHPI). Rental movements were calculated by analysing the median rental price movement over time for each city. The income questions were answered from the questionnaire survey and the last question was solved by combining both the net income and capital appreciation returns of apartments over time.

LITERATURE REVIEW

Total Returns

Total returns are often divided into two components – the return from capital appreciation and the return from rental income, which the appreciation or rental is either estimated by means of valuations or obtained by analysis of actual transaction level data (Gordon,1991). The returns

are then reported by property type and submarket at monthly, quarterly, half yearly or yearly interval.

In the UK, the Association of Residential Letting Agents (ARLA) index was launched in September 2002. The total returns are calculated from the combination of capital appreciation based on the average annual rate of house price inflation and rental information based on the survey results from ARLA members. Assumptions on average gross rental return, void period, average mortgage interest rates, rent inflation rates, acquisition cost are taken from the quarterly survey of ARLA members. Overall the total returns are calculated from opinion survey of ARLA members.

In Netherlands, the Investment Property Databank (IPD) property index measures returns to direct investment in property. The total returns are complied from valuation and management records for individual properties in complete portfolios, collected directly from investors by Investment Property Databank Ltd. All investors agree to a common approach to valuations regarding to capital growth and net income yield and all data submitted to the IPD is subject to audit by internal or external auditors. Overall the total returns calculated by the IPD can be considered as a hybrid type which has combined both the actual transaction level data and expert opinion survey data.

Through examining 1,966 transactional data, Rossini et al (2002) calculated total returns for the period between 1994 and 2001 in South Australia areas based on three separate data sets from the SA Rental Bond Data, the SA Valuation List and the SA Sale History File. The index utilises an explicit equated yield approach based on actual price and rental figures, while capital and annual expense and capital growth are based on constant quality prices indices published by Rossini (2001). The research indicates that the gross yield varies significantly across regions, dwelling types and sizes, but normally between 8% to 10% per annum.

A variety of literature exists on the possibility of valuation smoothing effect when using professional valuations for estimating price movements (Newell and MacFarlane, 1998). This means the valuation or survey based total returns tend to be less volatile than the transaction based returns and lag the market. By utilising the National Council of Real Estate Investment Fiduciaries (NCREIF) Property Index (NPI) in calculation all group property capitalisation

rates, Fisher (2000) find that appraisal values are often higher than transaction prices in a weak market and lower than transaction prices in a strong market.

With respect to the effects of serial cross correlation on property values with the reporting interval, Brown (2001) reported that behavioural effects were likely to be more pervasive at an intensive reporting interval, and therefore monthly valued properties will intend to exhibit high serial cross correlation when compared to quarterly or yearly valued properties.

Methods on building House Price Indices

Hedonic Method

The hedonic method specifies the common independent characteristics of all houses and includes these attributes in the regression analysis (Pendelton, 1965; Case et al, 1991 & Palmquist, 1979). The house price index is obtained either from the coefficients of time dummy variables in a single regression or by computing the value of a standard house from the coefficients of the hedonic variables for each period.

The hedonic regression model appears to give rise to more reliable estimates of price indices as unusual observations have less effect on estimated price indices especially when data is sparse (Meese & Wallace, 1997). The main drawbacks of the hedonic approach include the usual concerns with the complicated functional form of the relation utilised and the omitted attributes and their effect on the estimated price index.

Repeated Sales Method

By contrast the repeat sales method uses prices of houses sold at least twice to estimate the indices. It is based on the fact that when the same asset sells twice, the change in its price is a quality-adjusted price change, thereby putatively avoiding the variable selection and functional form selection issues that afflict the competing hedonic model.

The repeat sales method was first developed by Bailey, Muth and Nourse (1963), and then refined by Case and Schiller (1987). The first method is named BMN method and the second method is named weighted repeat sales (WRS) method.

Substantial literature exists on the possibility of bias when using repeated sales, since the frequently sold housing in the sample is different from those of all transacting assets. This might be the case for “starter” houses (Haurin and Hendershott, 1991) and opportune buyer

(Goetzman and Spiegel, 1995; Case, Pollakowski and Wachter, 1997). They tend to be smaller and less homogeneous than seldom transacting properties (Case, Pollakowski and Wachter, 1997; Englund, Quigley and Redfearn, 1999).

Steele and Goy (1997) note that the first sale in a repeat-sales pair occurs at a statistically significant discount below the mean of the price range for houses of the same observed characteristics and the second sale occurs at slightly above the mean. Further they conclude that the bias is greater for fast repeats than for other repeats and very short holds should be eliminated from the data set (Gatzlaff and Ling, 1994).

Using data from four US counties, Case, Pollakowski and Wachter (1997) find that estimated house price appreciation is systematically higher among properties that transact more frequently.

Another key arguable area for the repeated-sales method is its constant quality problem. Goetzman and Spegel (1995) argue that some changes (normal maintenance) between repeated-sales are possibly not observed, like painting and other cosmetic improvements, thus the change in price of a repeated-sales house arises because of a change in the characteristics of the house. Even if the measured characteristics of houses sold at two points in time are the same, the dwellings are still not identical. The mere passage of time means that the house may have depreciated (Englund, Quigley and Redfearn, 1999).

Finally the repeated-sales method fails to use the full information available in the data (Case and Quigley, 1991; Hill, Knight and Sirmans, 1997). Further in a short sample period, repeated-sales method only utilises a very small fraction of the available market information on housing sales (Englund, Quigley and Redfearn, 1999).

Hybrid Method

In 1991 Case and Quigley developed a hybrid method. The hybrid method takes advantage of the information that is present in repeat sales, without ignoring information on single sales. The hybrid method is data intensive, but where the data are available, it represents an obvious improvement over the repeat sales method (Englund, Quigley and Redfearn, 1999).

New Zealand Property Indices

The Property Council's Investment Performance Index

The Index measures both the income, capital and total returns of institutionally owned commercial property in New Zealand. The Index is appraisal based, which information is collected from a group of New Zealand's leading property owners and managers. It is designed to represent total portfolio returns for major property investors and fund managers.

The main limitation concerning the Index is the use of appraisal-based returns, potentially resulting in valuation smoothing. Research by Newell (1998) shows that valuation smoothing and serial correlation are evident in the New Zealand office series as the majority of properties in the portfolio are only being appraised annually.

Quotable Value House Price Index (QHPI)

Quotable Value has constructed a series of house price indices to allow useful comparisons to be drawn between areas and identify changes in the level of house prices over time. The effect of a differing proportion of high to low quality properties sold between periods is minimised. This is achieved by recognising the sales price of each property sold compared to its rateable value.

The relative weakness of this index construction is the fact that the rateable values are often reassessed every 3 years in New Zealand except a small number of local authorities value them annually. A 3-year revaluation period is considered too long when utilising rateable values as the benchmark building the index, especially when the market prices move rapidly or market taste has changed significantly during this time period. However Bourassa et al (2004) confirms that when comparing with hedonic and repeated-sale methods, the sale price appraisal ratio (SPAR) method used in the QVNZ indexing system is cost effective and highly correlated with price changes based on hedonic model.

On the other hand Sau Kim Lum (2004) has some reservations about this type of approach. Lum carries out a substantial survey on a representative set of indices that were found in selected Commonwealth countries including the Quotable Value House Price Index in New Zealand. The survey suggests that there are serious defects in the way property indices are computed in many Commonwealth countries in terms of handling the quality change problem and choosing the index formula.

Real Estate Institute of New Zealand (REINZ) Median House Prices

Every month REINZ publishes a median house sale price across the country for different regions/main cities.

Since the median house price does not consider the characteristics of houses sold, it is thus unable to distinguish between movements in prices and changes in the composition of homes sold from one period to the next. Also there is a constant quality problem associated with median price approach. However the series of median house price movement is inexpensive to compute and is ready available to obtain. In some extents it can be a good indicator of the regional/national trend in housing price movements (Meese & Wallace, 1997).

METHODOLOGY

Apartment price movements over time

The methodology of Case and Shiller (1987) utilising a weighted repeat-sales (WRS) method for constructing house price indices was exactly followed. A three-step weighted least square regression was used to weight down the influence from sales with longer time intervals.

Step 1: Classical BMN method

It is based on the fact that when the "same asset" sells twice, the change in its price is a quality-adjusted price change, as presented in equation (1).

$$\frac{P_{it}}{P_{is}} = \frac{I_{it}}{I_{is}} \qquad (1)$$

Where

P = represents sale price

i = refers to an object sold twice

t = is the time period in which the second sale was undertaken

s = the time period in which the first sale was undertaken

I = refers to individual object index

The above equation can be re-written in the form of log price changes as described by equation (2).

$$\text{Log}(P_{it}) - \text{Log}(P_{is}) = \text{Log}(I_{it}) - \text{Log}(I_{is}) \quad (2)$$

When it is placed in a city wide situation and many repeated sales are available, the equation (2) can be re-written as follows:

$$\text{Log}(P_{it}) - \text{Log}(P_{is}) = \chi_2 T_{i2} + \chi_3 T_{i3} + ... + \chi_n T_{in} + \varepsilon_{it}$$
$$i \in Y; \quad t, s \in \{2, ..., n\}, \quad T_{in} \in \{-1, 0, 1\} \quad (3)$$

Where:

χ = log price city wide index

T = time period, which is set to -1 when the property was first sold, 1 for the second sale and 0 for no sale.

ε = is an error term

Y = all repeated sales

n = number of time periods

The ε consists of the drift in individual housing value through time and the noise in price due to imperfections in the market for housing on such things as the random arrival of interested purchasers, the behaviour of the real estate agent and other random factors (Case and Shiller, 1987). Most probably, the error terms are likely to be larger for housing where the time interval between sales is larger. Therefore a second step on estimating how much the error terms grow over time was recommended by Case et al 1987.

Step 2: The error terms (ε) grow over time

In step 2, the squared residuals are regressed onto a constant term and the time interval between sales, as shown in equation (4).

$$\delta_i^2 = \alpha + \beta\sigma_i + \omega_{i,} \qquad w_i = \sqrt{\hat{\delta}_i^2}, \qquad i \in Y \quad (4)$$

Where:

δ = residual

α = constant, which is the variance of price error (ε) from true value.

β = slope coefficient, which is the variance of price drift through time interval between sales.

σ = time interval between sales

ω = noise term, which is a classic mean-zero and constant variance.

$\hat{\delta}^2$ = fitted squared residual

w = weight

Step 3: Weighted BMN method

In step 3, the procedure from step 1 is repeated, but the log price changes should be divided by the square root of the weight obtained from the step 2. The equation can be described as follows:

$$(Log(P_{it}) - Log(P_{is}))/w_i = \chi_2(\mathrm{T}_{i2}/w_i) + \chi_3(T_{i3}/w_i) + ... + \chi_{\mathrm{n}}(\mathrm{T}_{\mathrm{in}}/w_i) + \varepsilon_{\mathrm{it}}/w_i \quad (5)$$

$$i \in \mathrm{Y}; \quad t, s \in \{2,...,n\}, \quad T_{in} \in \{-1, 0, 1\}$$

From equation (5) a second and improved set of coefficient estimates χ_n are then taken as the WRS log price index.

Apartment rental movements over time

Monthly median rental prices for apartments by the number of bedrooms are used for estimating overall rental movements over time. The quarterly adjusted median rental price for each city was constructed in equation (6) as follows :

$$\text{Quarterly adjusted rental price} = \frac{\text{Sum of Current Quarter Rental Bonds Value}}{\text{Sum of Current Quarter Number of Bonds}} \quad (6)$$

Where:

Rental Bonds Value = Monthly median rental price* Monthly number of bonds

Income/Value Relationship

There is no public information on the returns (gross/net yields) for investing in apartment market in New Zealand. Therefore a mail questionnaire was sent to the apartment owners by a third party on a random basis. As more than 80 percent of private sector rental property in New Zealand is self managed, the direct questionnaire method to the apartment landlords is considered to be the most reliable survey method. A copy of the survey questionnaire is attached in **Appendix 1**.

$$\text{Annual gross yield} = \frac{\text{Median weekly rent * 52 weeks}}{\text{Median current market value}} \quad (7)$$

$$\text{Annual net yield} = \frac{\text{Annual gross income – vacancies – annual expenses}}{\text{Median current market value}} \quad (8)$$

NB: Annual expenses included rates, insurance, repairs & maintenance, body corporate fees, property management fees and others. If the property was under self management, an opportunity cost of 7.5% plus GST on effective net annual income (annual gross income less vacancy) applied.

$$\text{Net yield to gross yield relationship} = \frac{\text{Annual net yield}}{\text{Annual gross yield}} \quad (9)$$

Total Returns

The total quarterly returns (before tax and debt servicing) from property investments comprise the returns from income (rent less vacancies) less the operating expenses (rates, insurance, repairs & maintenance, body corporate and management etc), plus changes in the value of property less capital expenditure.

Thus this is presented in equation (10):

$$TR\% = \left(\left(\frac{GI - V - EXP}{CMV}\right)\times 100\right) + \left(\left(\frac{(CMV - PMV) - CE}{CMV}\right)\times 100\right) \quad (10)$$

Where

TR% =Total return for the period as a percent of the current market value of the property

GI = Gross income

V = Vacancies

EXP = Annual expenses including rates, insurance, body corporate fees, repairs and maintenance, property manager fees and other expenses such as accounting fees

CMV = Current market value of the property

PMV = Previous market value in the last period

CE = Capital expenditure in current period

Owners Occupied Apartments vs Rented Apartments

When calculating total returns a decision has to be made about which set of price data typifies private sector rental properties. This is important because price has a direct influence on the yields (Hargreaves & Shi, 2005). In their research into rental housing in 2004, they found that median prices of rental housing were below the QVNZ median prices by about 10% for the main cities in New Zealand, particularly for the larger cities with more robust data sets such as in Auckland and Wellington.

Apartment buildings tend to be centrally located with all the units built by the same developer. Thus the basic interior layout and unit sizes are standardised and heterogeneity among units is minimised. According to the Statistics New Zealand that 71 percent of inner city multi-unit dwellers live in a rented apartment. This implies that most of the inner city apartments (more than the two third) are held for investment purposes.

Therefore the author assumed that there was little difference in sale prices between owners occupied apartments and rented apartments, and utilised the open market apartment sales as the data set for total returns analysis.

Constant quality

On the other hand, the constant quality issue is a problem for estimating apartment price movements over time. Firstly the property characteristics must not have changed between sales. Secondly the marginal contribution of these characteristics to overall house price must be stable across periods. Violating either of these assumptions imparts bias to an index constructed from a repeated-sales regression (Dombrow, Knight and Sirmans, 1997).

The most common way to reduce the constant quality problem is by careful screening of the data. Firstly ensuring that all samples used are apartment sales by excluding any inner city rental flats or town houses. Secondly removing data altered between sales. This is the most difficult part as interior redecorations are often hard to know if no building consents required. However since the WRS method does not take account of the age effect (depreciation) when building the prices appreciation index, it is believed that some effects of the general interior redecorations might have been offset by property depreciation in some extents. Finally

distinguishing whether a transaction is the bona fide sale or non-market sale by identifying vendor/purchaser names. Often the first sale which is transacted directly with the developer, is not genuine market sale due to delayed settlements, rental guarantees and other financial inducements involved such as purchased back agreements etc.

DATA

Apartment Sales

Inner city apartment sales data between May 1994 and March 2005 was supplied from Headway System in Christchurch, New Zealand.

For Auckland, the research only included sales within the Central, Parnell and Viaduct/St Mary Bay areas. There were total 6,938 sales for Auckland during the stated time period, and they were further reduced to 2,690 repeated-sales which were sold twice and more by comparing the street address, street number, street suffix, legal description and Certificate of Title reference number of each sale.

Headway System does not have a separate category for recording apartment sales and puts them under a broad category of RF (rental flat). Physical identification all repeated-sales was necessary to ensure all sales used in this study were apartments and the data was not contaminated by some low-rise attached townhouses or rental flats.

A field trip to Auckland was carried out by the author between 27th and 28th August 2005. A repeated-sales sample after the field trip was further reduced to 2,610 sales. Also non-market sales, which are transacted between family members or directly with the developer were deleted from the above data set. Finally some outlying sales with a significant sale price difference between the first and second sales were identified and deleted from the above data set. After the above data screening process, there were only 1,009 repeated transaction pairs left for the WRS index construction.

For Wellington, the research only analysed sales within the areas of Central, Thorndon, Courtenay Place and Te Aro. There were total 3,494 sales for Wellington during the above time period and among them 714 sales were identified as repeated-sales.

A field trip to Wellington was carried out by the author on 23rd July 2005 and data samples were further reduced to 588 sales after the trip. After deleting first sales, non-market sales and some outlying sales, there were only 288 observations (transaction pairs) left for the WRS index construction in this study.

Apartment Rentals

Monthly summary sheets of all residential rents across the country over the past 10 years were obtained from the Tenancy Services Division of DBH. This database is comprehensive and the chances of simple bias are small since under the Residential Tenancies Act all tenancy bonds must be lodged with the DBH.

The main drawback to this database for apartments is that the rental information is only available from August 2002. Previously all apartment rental information is filed under the rental flat category which includes flat and apartment. Also the DBH has limited control on what people shall classify their properties as apartments. Therefore people may lodge their low-rise attached townhouses/rental flats with the DBH as apartments.

Mail Questionnaire

A total of 2,000 questionnaires were sent out for Auckland, Wellington, North Shore and Manukau in June 2005 with about 50 that were returned with incorrect addresses. The samples were randomly generated from the DBH (Tenancy Services Division) database.

The mail survey included a covering letter from the DBH, a letter from the author and designed questionnaires. For confidentiality a third party sent out the mail survey directly and the author only received information upon completion of the questionnaires.

By the survey closure date of 1 August 2005, the total number of valid mails returned was 363, which represented 575 separate apartments or on average 1.58 apartments per landlord. Thus the overall valid response rate was calculated at 18.62%**.** This was considered slightly lower than the normal expectations. However a reminder letter was not used due to the complex mailing procedure and additional cost considerations.

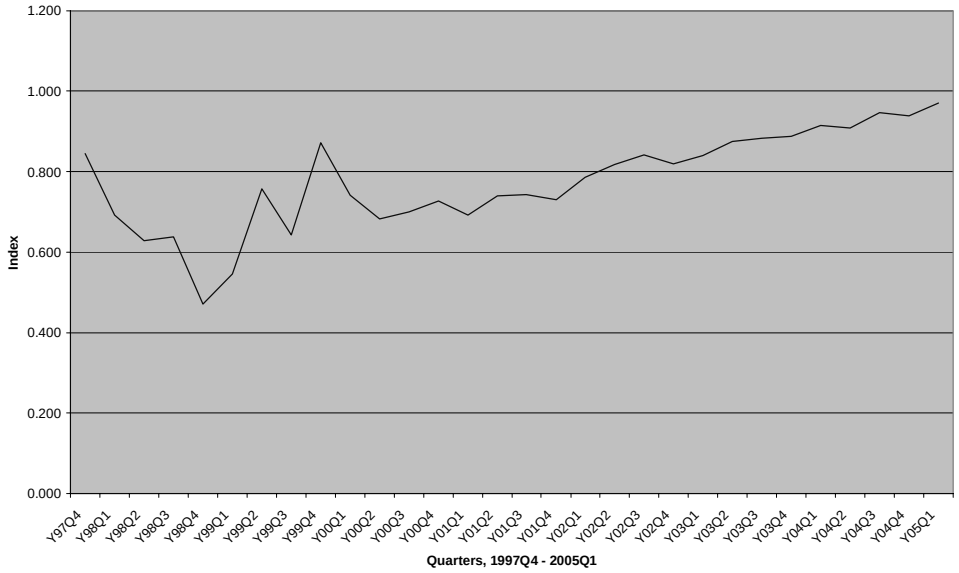
RESULTS

Apartment Price Movements over Time

By applying the WRS method, the author calculated apartment price indices for Auckland and Wellington on a quarterly basis from the fourth quarter of 1997 to the first quarter of 2005. The results can be detailed as follows:

- ***Auckland***

Figure 1: Auckland City Apartment Quarterly Price Index



The statistical analysis showed that there were 1,009 repeated-sales for the WRS index construction, estimated regression variance was 1.01 and adjusted R^2 value was 0.45. In addition, the standard of error was relatively large with respect to the estimated log price index in Table 1.

In order to see how well the above WRS index performed, the author further compared the above WRS index to the same period QVHI index. The results are in Figure 2.

Table 1: General Price Index - Auckland

	Year /Quarter	Estimated price index	Estimated log price index	Std. Error	WRS index
1	Y97Q4	0.845	-0.073	0.050	1115
2	Y98Q1	0.692	-0.160	0.048	913
3	Y98Q2	0.629	-0.202	0.073	829
4	Y98Q3	0.638	-0.195	0.071	842
5	Y98Q4	0.471	-0.327	0.049	622
6	Y99Q1	0.547	-0.262	0.048	721
7	Y99Q2	0.758	-0.120	0.074	1000
8	Y99Q3	0.643	-0.192	0.053	848
9	Y99Q4	0.872	-0.059	0.051	1151
10	Y00Q1	0.742	-0.129	0.040	979
11	Y00Q2	0.683	-0.166	0.040	901
12	Y00Q3	0.700	-0.155	0.038	924
13	Y00Q4	0.727	-0.139	0.039	958
14	Y01Q1	0.692	-0.160	0.038	913
15	Y01Q2	0.740	-0.131	0.038	977
16	Y01Q3	0.744	-0.128	0.038	981
17	Y01Q4	0.731	-0.136	0.038	964
18	Y02Q1	0.787	-0.104	0.038	1038
19	Y02Q2	0.817	-0.088	0.038	1078
20	Y02Q3	0.842	-0.075	0.038	1111
21	Y02Q4	0.820	-0.086	0.038	1082
22	Y03Q1	0.840	-0.076	0.038	1109
23	Y03Q2	0.875	-0.058	0.038	1154
24	Y03Q3	0.884	-0.054	0.038	1166
25	Y03Q4	0.887	-0.052	0.037	1171
26	Y04Q1	0.915	-0.039	0.037	1207
27	Y04Q2	0.909	-0.041	0.038	1200
28	Y04Q3	0.946	-0.024	0.038	1249
29	Y04Q4	0.939	-0.027	0.038	1239
30	Y05Q1	0.970	-0.013	0.039	1280

Figure 2: Indexes Comparison – Auckland City

In Figure 2, it was observed that the apartment prices tended to be more volatile than the same period housing prices, but in general the WRS index sat below the QVHI index. In a weak market between the fourth quarter of 1997 and the second quarter of 1999 the Auckland apartment prices depreciated more than the housing prices, whilst in a strong market from the first quarter of 2003 to the first quarter of 2005 the Auckland apartment prices appreciated less than the same period housing prices. When the market was stable between the third quarter of 1999 and fourth quarter of 2002, the apartment prices were more correlated with the same period housing prices.

- ***Wellington***

Figure 3: Wellington City Apartment Quarterly Price Index

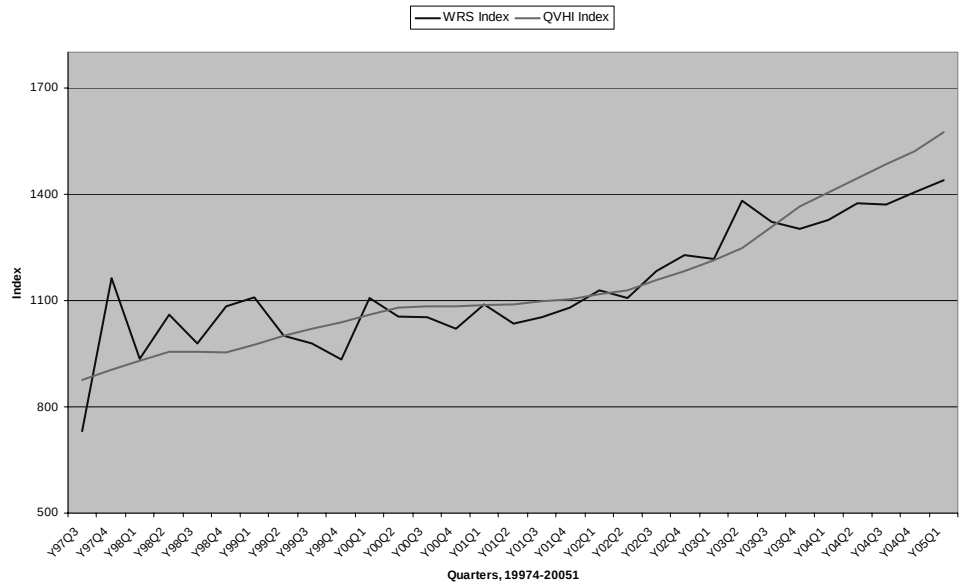
Statistical analysis indicated that there were only 288 observations (transaction pairs) for the WRS index construction with an estimated regression variance of 0.00 and adjusted R^2 value of 0.56. In addition, the calculated standard of error was relatively small with respect to the estimated log price index in Table 2. The results showed that there was an improved adjusted R^2 value for the Wellington apartment statistical analysis when compared to the statistical results for Auckland, but based on a relatively small number of observations.

In a similar way to the Auckland market analysis the author compared the WRS index constructed above with the same period QVHI index. The results are graphed in Figure 4.

Table 2: General Price Index - Wellington

	Year /Quarter	Estimated price index	Estimated log price index	Std. Error	WRS index
1	Y97Q3	1.047	0.020	0.089	732
2	Y97Q4	1.663	0.221	0.088	1162
3	Y98Q1	1.339	0.127	0.087	935
4	Y98Q2	1.516	0.181	0.090	1059
5	Y98Q3	1.401	0.147	0.067	979
6	Y98Q4	1.552	0.191	0.072	1084
7	Y99Q1	1.588	0.201	0.077	1110
8	Y99Q2	1.431	0.156	0.069	1000
9	Y99Q3	1.399	0.146	0.067	977
10	Y99Q4	1.336	0.126	0.066	933
11	Y00Q1	1.582	0.199	0.066	1105
12	Y00Q2	1.511	0.179	0.066	1055
13	Y00Q3	1.507	0.178	0.065	1053
14	Y00Q4	1.461	0.165	0.065	1021
15	Y01Q1	1.558	0.193	0.066	1089
16	Y01Q2	1.482	0.171	0.065	1036
17	Y01Q3	1.505	0.178	0.066	1052
18	Y01Q4	1.546	0.189	0.065	1080
19	Y02Q1	1.617	0.209	0.065	1130
20	Y02Q2	1.583	0.199	0.063	1106
21	Y02Q3	1.693	0.229	0.065	1183
22	Y02Q4	1.757	0.245	0.065	1227
23	Y03Q1	1.741	0.241	0.065	1216
24	Y03Q2	1.977	0.296	0.065	1381
25	Y03Q3	1.894	0.277	0.065	1323
26	Y03Q4	1.865	0.271	0.065	1303
27	Y04Q1	1.902	0.279	0.065	1329
28	Y04Q2	1.965	0.293	0.065	1373
29	Y04Q3	1.960	0.292	0.066	1370
30	Y04Q4	2.012	0.304	0.065	1406
31	Y05Q1	2.058	0.313	0.070	1438

Figure 4: Indexes Comparison – Wellington City

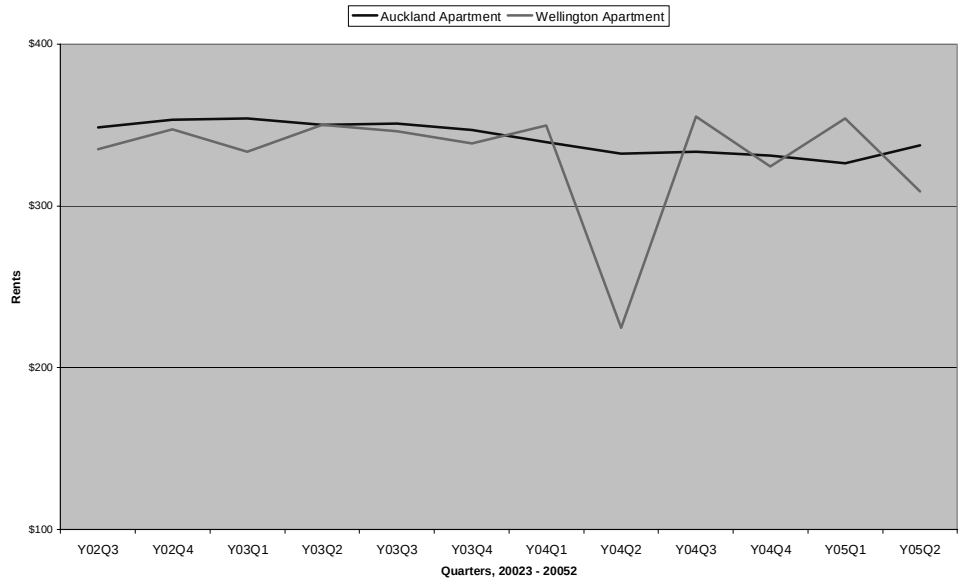


In Figure 4, it was observed that the WRS sale index was closely correlated to the QVHI index but tended to be more volatile than the QVHI index. When comparing to the Auckland apartment market, Wellington apartment prices were more related to the residential housing prices with less volatility of price changes.

Apartment Rental

For Auckland the calculated quarter rentals were generally between $330 to $350 per week but showed a clear trend towards lower rentals over the last 3 years period. A similar trend was observed for Wellington except for a big rental drop in the second quarter of 2004 down to $224 per week. The results are presented in Figure 5:

Figure 5: Median Rents



Survey Results Summaries

In summary the typical apartment in this study was predominantly of 1 or 2 bedrooms, situated in a low-rise (2-5 storey) apartment building with 1 carparking space in Central Auckland or Wellington. The investors intended to self managed their apartments with a median holding period of 3 years since the purchases, and eighty five percent of the respondents expected to keep them for more than 5 years.

Table 3 summarises the relationship of net income to gross income for the Auckland City. As some properties were under professional management instead of self management, analysis under both situations is prepared for comparison. For apartments that employed a property manager, the calculated net to gross income ratio was at 72.24%, this was decreased to

67.79% under self-management. Since most apartments are self-managed, the survey indicated a gross yield of 7.19% and a net yield of 4.81% for the Auckland apartment market.

No significant yield differences were found between the professional management and self management except for a lower weekly rent under professional management. This is explained by the body corporate management system where there is a relatively limited management role for each individual property manager, and most property maintenance and management tasks are undertaken by the body corporate.

Table 3: Net Income to Gross Income – Auckland City

	Mean	Median	Std Deviation
Overall			
Estimated MV	$284,800	$250,000	$190,808
Current weekly rent	$361	$330	$123
Gross yield	7.38%	7.14%	1.97%
Average vacancy	25	8	62
Current annual Expenses	$4,787	$3,500	$8,290
Professional Management			
Estimated MV	$370,833	$252,500	$424,380
Current weekly rent	$386	$325	$199
Average vacancy	37	9	86
Gross yield	6.88%	6.66%	1.71%
Net yield	4.52%	4.84%	2.01%
Net/Gross %	**66.38%**	**72.24%**	20.71%
Self Management			
Estimated MV	$273,235	$250,000	$120,526
Current weekly rent	$358	$340	$106
Average vacancy	21	9	45
Gross yield	7.43%	7.19%	2.00%
Net yield	4.60%	4.81%	2.90%
Net/Gross %	**61.09%**	**67.79%**	46.01%

(Data samples: 348 apartments)

Table 4 summarises the net income to gross income relationship for the Wellington City. For apartments that employed a property manager, the calculated net to gross income ratio was at 77.99% in contrast to 69.45% under self-management. As most apartments are self-managed, the survey indicated a gross yield of 6.93% and a net yield of 4.80% for the Wellington apartment market.

Table 4: Net Income to Gross Income - Wellington

	Mean	Median	Std Deviation
Overall			
Estimated MV	$265,422	$250,000	$98,769
Current weekly rent	$347	$320	$106
Gross yield	7.13%	6.93%	1.66%
Average vacancy	10	7	15
Current annual Expenses	$3,938	$3,432	$2,736
Professional Management			
Estimated MV	$292,143	$285,000	$172,212
Current weekly rent	$387	$450	$149
Average vacancy	11	12	11
Gross yield	7.88%	8.64%	2.15%
Net yield	5.33%	6.72%	3.59%
Net/Gross %	**65.73%**	**77.99%**	40.68%
Self Management			
Estimated MV	$263,849	$250,000	$93,322
Current weekly rent	$345	$320	$104
Average vacancy	10	5	16
Gross yield	7.08%	6.93%	1.63%
Net yield	4.81%	4.80%	1.31%
Net/Gross %	**68.37%**	**69.45%**	10.05%

(Data samples: 136 apartments)

In terms of capital expenditure the survey indicated that 46% of the respondents spent nothing at all since their purchase, whilst another 42% of the respondents spent under $10,000. Some higher capital expenditure was recorded between $50,000 and $100,000 or even more partially due to the remediation of leaky home problems. A weighted capital expenditure since purchase was calculated at $6,313 in total, which was equivalent to $2,043 on a yearly basis.

Total Returns

Table 5 summarises the total returns achieved for the Auckland and Wellington apartment market over the period of the third quarter of 2002 and the first quarter of 2005. Changes in property values were calculated from the WRS sales indices for each city, and the median sale prices of the first quarter of 2005 for each city were obtained from the survey. In addition net to gross yield ratios were assumed to be same over the period and similar assumption was made for annual capital expenditure. Due to the available rental information, the total returns were only calculated over a short time period.

Table 5: Total Returns

	Quarterly Percentage Changes in Property Values										
	Y02Q3	Y02Q4	Y03Q1	Y03Q2	Y03Q3	Y03Q4	Y04Q1	Y04Q2	Y04Q3	Y04Q4	Y05Q1
Auckland	2.98	-2.73	2.43	3.96	1.00	0.38	3.02	-0.62	3.93	-0.75	3.16
Wellington	6.50	3.63	-0.90	11.93	-4.39	-1.53	1.96	3.21	-0.26	2.57	2.24

	Estimated Quarterly Market Median Prices										
Auckland	217,105	211,340	216,607	225,545	227,814	228,685	235,804	234,353	243,927	242,109	250,000
Wellington	205,653	213,388	211,494	240,146	230,041	226,569	231,095	238,747	238,132	244,406	250,000

	Quarterly Market Median Rents										
Auckland	$348	$353	$354	$350	$351	$347	$340	$332	$333	$331	$326
Wellington	$335	$347	$333	$350	$346	$339	$350	$224	$355	$325	$354
North shore	$300	$315	$305	$302	$306	$326	$341	$340	$334	$336	$327

	Quarterly Net Percentage Rental Yields										
Auckland	1.46	1.52	1.49	1.41	1.40	1.38	1.31	1.29	1.24	1.24	1.19
Wellington	1.48	1.48	1.43	1.33	1.37	1.36	1.38	0.86	1.36	1.21	1.29

	Quarterly total Percentage Returns Before Capital Expenditure										
	Y02Q3	Y02Q4	Y03Q1	Y03Q2	Y03Q3	Y03Q4	Y04Q1	Y04Q2	Y04Q3	Y04Q4	Y05Q1
Auckland	4.44	-1.21	3.92	5.37	2.40	1.76	4.33	0.67	5.17	0.49	4.34
Wellington	7.98	5.11	0.54	13.26	-3.02	-0.17	3.34	4.06	1.10	3.78	3.53

	Quarterly total Percentage Returns After Capital Expenditure										
	Y02Q3	Y02Q4	Y03Q1	Y03Q2	Y03Q3	Y03Q4	Y04Q1	Y04Q2	Y04Q3	Y04Q4	Y05Q1
Auckland	3.50	-2.17	2.98	4.47	1.50	0.87	3.46	-0.20	4.33	-0.35	3.53
Wellington	6.99	4.15	-0.43	12.41	-3.91	-1.07	2.45	3.21	0.24	2.94	2.71

NB:	1. Auckland Net/Gross ratio	0.70
	2. Wellington Net/Gross ratio	0.70
	3. Annual capital expenditure	$2,043

Finally annual total returns for apartments are summarised in Table 6. This is then compared to the returns made from rental housing in Table 7. It is interesting to note that those investing in apartments had made a higher income return but lower capital gain when compared to people investing in rental housing. Overall total returns from investing in apartments were lower than the returns made from investing in rental housing.

Table 6: Annual Returns for Apartments

	Net returns (%)		Capital gains (%)		Total returns (%)	
Years	2003	2004	2003	2004	2003	2004
Auckland	5.68	5.09	7.77	5.57	13.45	10.66
Wellington	5.49	4.80	5.11	7.47	10.60	12.27

Table 7: Annual Returns for Rental Housing

	Net returns (%)		Capital gains (%)		Total returns (%)	
Years	2003	2004	2003	2004	2003	2004
Auckland	4.82	4.11	16.70	12.30	21.52	16.41
Wellington	4.77	4.20	12.10	16.30	16.87	20.50

(source: Hargreaves, B. & Shi, S. 2005)

CONCLUSIONS

The total returns developed in this study utilise actual rents and property sales data and so do not suffer from valuation smoothing effects. The study attempts to overcome the constant quality problem by utilising WRS method to capture apartment capital appreciation over time, where a careful data screening process is adopted to eliminate all non-market sales and first sales which are directly with developers. Interior redecorations are difficult to identify unless inside visits are carried out, but this can be offset in some extents by property depreciation which is not captured by the repeated-sales method.

The results indicated that the capital appreciation for the Auckland and Wellington apartment markets over the period of 1997 to 2005 was behind the same period residential housing market with more volatile price changes. In Auckland the WRS price index for the first quarter of 2005 was as much as twice the index for the fourth quarter of 1998, representing an average yearly price increase of 16.3% with respect to the level of the fourth quarter of 1998. A similar situation was evident in the Wellington apartment market, the WRS price index for the first quarter of 2005 was almost twice the index for the third quarter of 1997. This represented an average yearly price increase of 14.3% with respect to the level of the third quarter of 1997.

On the other hand apartment rents were in a clear downward trend over the past 3 years. This is seen as the result of many new apartments being built over the last 2 or 3 years thus having a detrimental affect on the level of achievable rents, especially in Auckland.

Analysis of the questionnaire has established that net income, which takes account of the opportunity cost of the investor's time, is around 70 per cent of gross income for Auckland and Wellington. Moreover investors tend to self manage their apartments with intentions to keep them for a medium or long term.

No sizeable returns difference has been found between properties under self management and properties that employ a property manger in this study. This suggests that there might be limited roles for individual property managers in terms of building maintenance, because under the current apartment management system the body corporate has undertaken most of the responsibilities of building exterior and common area maintenance.

In comparison with rental housing, a similar yield trend has been observed as they have continued on a downward trend over the last 3 years with increases in apartment prices and decreases in apartment rents. Apartment investors have achieved a higher income return but lower capital appreciation when compared to returns from investing in rental housing. Overall total returns from investing in apartments are behind the same period's total returns made from investing in rental housing in Auckland and Wellington.

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Appendix 1 - Copy of mail questionnaire

Apartment Survey Questionnaire

Property Details (tick appropriate box)

Ticking ☐ DK, if you Didn't Know (DK).

1. Number of Bedrooms

☐ 1 bdrm ☐ 2 bdrms
☐ 3 bdrms ☐ 4 bdrms and more

2. Size of Apartments

☐ < 20m^2 ☐ 21- 50m^2 ☐ 51- 80m^2
☐ 81- 100m^2 ☐ 101- 150m^2 ☐ 151m^2 and more

3. Number of Carparks

☐ 0 ☐ 1
☐ 2 ☐ 3 and more

4. Storey of Building

☐ single storey ☐ 2 -5
☐ 6 -10 ☐ 11 and more

5. Location

Wellington: ☐ Central ☐Thorndon
☐ Courtenay Place ☐Te Aro

Auckland: ☐Central ☐Parnell
☐Vidauct/St Mary Bay
Northshore: ☐Central ☐Takapuna
Manukua: ☐Central
Others:_____

6. Date you purchased the apartment

Month _____Year_____ ☐ DK

7. Price you paid for property

$_____ ☐ DK

8. What is your estimate of its current market value?

$_____ ☐ DK

9. The current weekly rent is

$_____ ☐ DK

10. Average vacancy over the holding period

_____days ☐ DK

11. The property was rented

☐ Unfurnished ☐ Partially furnished
☐ Fully furnished ☐ DK

12. Current annual expenses

☐ Rates: $_____ ☐ DK
☐ Insurance: $_____ ☐ DK
☐ Repair & Maintenance: $_____ ☐ DK
☐ Body Corporate Fees: $_____ ☐ DK
☐ Property Management Fees: $_____ ☐ DK
☐ Others: _____

13. The total amount of capital expenditure spent since the purchase except for normal repair and maintenance

☐ Nil ☐ $1 – $10,000
☐ $10,001 -$50,000 ☐ $50,001 - $100,000
☐ $100,001 and more ☐ DK

14. Do you

☐ Employ a property manager
☐ Self manage the property

15. How long do you expect to keep it?

☐ 1 year ☐ 2 years ☐ 3 years
☐ 4 years ☐ 5 years ☐ 6 years and more