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THE ROLE OF MARKET TIMING AND PROPERTY SELECTION IN LISTED PROPERTY TRUST PERFORMANCE

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INTRODUCTION

Listed property trusts (LPTs) have been a very successful indirect property investment vehicle in Australia in the last ten years (Property Investment Research, 2002). At June 2002, the LPT sector accounted for over $45 billion in market capitalisation, having increased from only $5 billion in 1990, and currently represents over 6 % of the total Australian stockmarket capitalisation (UBS Warburg, 2002b). The LPT sector comprises 36 LPTs with over 850 institutional-grade investment properties valued at over $53 billion (Property Investment Research, 2002) and represents over 50% of the Australian institutional property market (Steinert and Crowe, 2001). These LPT property portfolios include many of the premier property investments in Australian office, retail and industrial property. LPTs currently account for 6% (on average) of institutional asset allocations in Australia, compared to only 2% for direct property (Armytage, 2002). LPTs also have a high level of investor acceptance and offer both sector-specific and diversified property portfolios.

Table 1 shows the performance of LPTs compared to the direct property sectors, and shares and bonds (PCA, 2002; UBS Warburg, 2002b). Over these various holding periods (up to ten years), LPTs are typically seen to outperform the equivalent direct property sector, as well as outperforming the stockmarket. The risk level for LPTs (7.9%) is also seen to be below that of the stockmarket (11.4%) (UBS Warburg, 2002b).

While LPT and stockmarket performance in Australia are correlated (r = .66 over 1985-2002) (Property Council of Australia, 2002), it has been shown that there is no long-term integration between LPTs and the stockmarket (Wilson and Okunev, 1996, 1999; Wilson et al, 1998). This evidence of market segmentation suggests that there are diversification benefits from including LPTs in an investment portfolio. These diversification benefits for LPTs in portfolios have recently been further enhanced, following the lesser correlation between the LPTs and the stockmarket in recent years (Newell and Acheampong, 2001; UBS Warburg, 2002a). The linkages between LPT and direct property performance (Newell, 2001; Newell and MacFarlane, 1996) have further emphasised the role and benefits of LPTs in investment portfolios (Steinert and Crowe, 2001; Stringer, 2001).

Within the area of property investment analysis, the strategic investment issues of:

- **market timing:** ability to adjust portfolio in anticipation of general market movements

- **selection:** ability to select under-valued assets

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are crucial in assessing fund manager performance. Several studies have been conducted regarding these risk-adjusted performance issues for USA REITs and real estate managed funds (Gallo et al, 1997, 2000; Myer and Webb, 2000; O'Neal and Page, 2000), UK property funds (Lee, 1997; Lee and Stevenson, 2002; Stevenson et al, 1997) and Singapore property companies (Liow, 2001). Whilst these risk-adjusted results were not consistent across all property markets, several studies showed superior performance from selection rather than timing (Lee, 1997; Lee and Stevenson, 2002) and some studies showed superior performance from timing rather than selection (Gallo et al, 2000; Stevenson et al, 1997). Lack of superior abnormal returns was evident in Gallo et al (1997), Liow (2000) and O'Neal and Page (2000).

Given the significant investment stature and performance of LPTs in Australia (Murray, 2002), it is important to have a more detailed analysis of the performance of LPTs. Using 19 individual LPTs over June 1997 - June 2002, the risk-adjusted performance of LPTs will be assessed in this paper; particularly concerning the strategic investment issues of risk-adjusted market timing and selection ability. Meta-analysis will also be used to examine the risk-adjusted performance of the overall LPT sector. The implications for LPT investment strategy will also be assessed in terms of this risk-adjusted performance.

METHODOLOGY

Data sources

To assess market timing and selection, quarterly total returns over June 1997 – June 2002 were obtained (UBS Warburg, 2002b) for nineteen (19) LPTs. Details of these LPTs and their property portfolios are given in Table 2. At December 2001, these 19 LPTs had 587 investment properties valued at $42 billion (Property Investment Research, 2002); this represents:

- 53% of LPTs

- 69% of properties in total LPT portfolio

- 79% of value of total LPT portfolio,

and represents both sector-specific (14) and diversified (5) LPTs. Other LPTs were not included in this analysis as they were not available for the full five-year period of 1997-2002, resulting from the significant merger and acquisition activity for LPTs over this period.

The benchmark portfolio used throughout the analysis was the quarterly PCA Australian "composite" property index (PCA, 2002), with 90-day bills used as the risk-free rate. The use of the quarterly PCA property series constrains the overall risk-adjusted analysis to be done quarterly over this five-year period.

Assessing risk-adjusted timing and selection ability

The most popular measure of risk-adjusted performance is the Jensen alpha, which is taken as the intercept in equation (1), which is a general empirical expression of the Capital Asset Pricing Model (CAPM):

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_t \qquad (1)$$

where:

- R_{it} is the excess return of the specific LPT, and
- R_{mt} is the excess return of the benchmark index.

As the expected value of the error term in equation (1) is equal to zero, the intercept can be taken to be a measure of the portfolio manager's selection ability. However, Fama (1972) noted that the performance of fund managers could be separated into two components:

- selectivity (the ability to select undervalued assets), and
- timing (the ability to adjust portfolio in anticipation of general market movements).

Jensen's framework does not allow for the possibility of market timing and as a consequence, the results of the analysis based on equation (1) will be biased and any tests of significance will be distorted. As such, this study also uses the Treynor-Muzay (TM) quadratic model of risk-adjusted performance that incorporates both micro (selectivity) and macro (market timing) forecast abilities. The TM quadratic model adds a quadratic term to equation (1) to allow for market timing ability, and can represented as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i R_{mt}^2 + \varepsilon_t \qquad (2)$$

Although the coefficients of the ordinary least squares (OLS) estimation of equations (1) and (2) provide consistent parameter estimates, they may require correction for heteroscedasticity in the error term ε_{it}, which causes the parameter estimates to be inefficient. This is corrected using the methods of Hansen (1982) and White (1980).

Other available methods to assess risk-adjusted performance; eg: dual-beta models of Henriksson and Merton (1981) and Henriksson (1984), were not used in this study.

Meta analysis

Meta analysis is a parametric technique for the accumulation of results across studies (Coggins and Hunter, 1987, 1993; Hunter and Schmidt, 1990). However, a number of "study artefacts" can cause the results from one study to appear different or even contradictory to those of another. Among the more obvious artefacts is sampling error and measurement error. Meta analysis is designed to overcome these problems and provide estimates of the mean and standard deviation of the population values. Although meta-analysis was originally designed for cross-sectional data, the time-series models used in this study have identical specifications across the sample of LPT fund managers. Thus, in terms of the meta-analysis technique, each LPT fund manager is viewed as a "study" and the results are accumulated across LPT managers. In this way, the method provides a means of examining whether the observed variation in timing and selectivity across LPTs is real or artificial. In addition, it provides information on the proportion of the observed variation that can be explained by sampling error variation (Coggins and Hunter, 1993).

Full statistical details of the meta analysis methodology is given in Lee and Stevenson (2002). While meta analysis has been used to assess timing and selection ability in several funds management areas (eg: Coggins and Hunter, 1993; Sahu, 1998), the only previous property study using meta analysis was Lee and Stevenson (2002) for UK property funds over 1991-2001.

RESULTS AND DISCUSSION

Initial LPT analysis

Table 3 presents the initial LPT performance analysis over June 1997- June 2002, reporting average annual return, annual risk and Sharpe index for each of the 19 individual LPTs. The best risk-adjusted performance was delivered by Centro Properties, Westfield America, Macquarie Office, Macquarie CountryWide and Macquarie Goodman. The hotel LPTs (Grand Hotel and Thakral) showed the least risk-adjusted performance.

Assessing risk-adjusted LPT timing and selection ability

Table 4 presents the results of the risk-adjusted performance evaluation over June 1997 – June 2002 using Jensen's alpha to assess selection ability (column 1), and the selectivity (column 2) and market timing (column 3) abilities using the Treynor-Mazuy (1966) quadratic model.

Using Jensen's alpha, there is strong evidence of outperformance over the market benchmark by the LPTs, with 100% of the 19 LPTs displaying positive risk-adjusted performance. Only two LPTs (Centro Properties and Deutsche Diversified) showed statistically significant selection ability over this five-year period.

The results for the TM timing and selection model highlight some of the problems inherent in the Jensen selection ability measure and the potential bias that can be introduced in this Jensen measure if market timing is also present. Using the TM quadratic model, only 17 of the 19 LPTs displayed positive selection ability, with only three of these LPTs (ING Office, ING Industrial and Westfield) showing significant selection ability. None of these LPTs are the same as the two LPTs identified as showing significant selection ability under the Jensen method. Also, two LPTs (Grand Hotel and Thakral) are now seen to display negative selection ability, although this is not significant.

For market timing, 17 of the 19 LPTs displayed positive market timing ability, with only two of these LPTs (ING Office and ING Industrial) showing significant positive market timing ability. Two LPTs (Grand Hotel and Thakral) showed perverse market timing, with this being significant in the case of Thakral.

While 17 LPTs were able to show both positive selection ability and positive market timing ability, only two LPTs (ING Office and ING Industrial) showed both significant positive selection ability and significant positive market timing ability.

Overall, these LPTs showed that superior risk-adjusted performance is more attributable to the LPT fund manager's selection ability rather than to their market timing abilities.

Meta analysis for LPTs

Table 5 presents the meta analysis for these 19 LPTs over June 1997 - June 2002. The aim of this meta analysis is to assess whether the observed variation in timing and selection ability across these 19 LPTs is real or artificial.

In each case, the variation in results across the LPTs is real and not due to sampling error. However, this sampling variation is less significant for selection ability (sampling error = 22% of total variation) than for timing ability (sampling error = 51% of total variation). Overall, this implies that although there is some evidence of market timing ability on the part of LPT managers, the results are much stronger for the selection ability of these LPT managers. This meta analysis result confirms the above selection and timing results for individual LPTs, and is consistent with the more significant role of selection ability over market timing ability seen for UK property funds (Lee, 1997; Lee and Stevenson, 2002).

LPT PERFORMANCE IMPLICATIONS

This paper provides evidence regarding the risk-adjusted performance, and timing and selection abilities of LPT managers in Australia over June 1997 - June 2002. Overall, the results are generally favourable towards LPT managers showing superior risk-adjusted performance over this period, with this performance more attributable to superior selection ability by the LPT fund managers rather than to their market timing ability. Both selection ability and timing ability were also generally more evident for sector-specific LPTs rather than diversified LPTs. As such, although LPT managers are unlikely to outperform a passive buy-and-hold strategy through market timing ability, they are likely to improve their risk-adjusted performance through superior selection ability.

Given that the underlying assets in LPT portfolios are direct property, the LPT manager can not realign these property assets as quickly and effectively as for the more liquid and divisible equity portfolios. Similarly, selection ability for LPT managers is often limited by the lack of quality property in specific markets and the need to address property portfolio diversification and risk management issues within a typical LPT property portfolio valued at approximately $1 billion (see Table 2). Given these constraints, the more significant role of property selection over market timing highlights the ability of LPT managers to more effectively identify under-valued properties for inclusion in LPT portfolios, thus reflecting more investment focus by LPT managers on micro-forecasting (selection) abilities rather than macro-forecasting (timing) abilities. This was particularly evident for the sector-specific LPTs of ING Office, ING Industrial and Westfield (see Table 4).

Other issues that will form the basis for ongoing research in this area of risk-adjusted LPT performance include:

- why are these selection attributes and timing attributes (to a lesser degree) more evident in sector-specific LPTs than diversified LPTs

- what specific investment strategy features are employed by ING Office, ING Industrial and Westfield in delivering significant superior property selection abilities and market timing abilities (compared to other LPTs)

- what are specific issues concerning the lesser selection and timing abilities for LPTs with significant hotel portfolios (eg: Grand Hotel, Thakral)

- what are the implications for top-down versus bottom-up property investment strategies

- examining other property selection and market timing models to obtain more accurate information on the relative significance of these two key investment aspects of LPT performance.

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Table 1: LPT and direct property performance: June 2002

	Average annual returns (%)			
	1 year	**3 years**	**5 years**	**10 years**
LPT sector				
Diversified	14.2%	14.1%	10.6%	12.1%
Office	13.3%	12.6%	8.8%	10.7%
Retail	17.1%	13.4%	13.5%	12.5%
Industrial (1)	21.5%	16.4%	11.5%	n.a.
Hotels (1)	-1.5%	5.5%	-3.0%	n.a.
Total	15.5%	13.9%	11.1%	12.1%
Direct property sector				
Office	8.1%	9.5%	9.2%	6.0%
Retail	10.7%	11.1%	10.9%	10.8%
Industrial	11.6%	12.1%	13.2%	12.3%
Total	9.7%	10.5%	10.5%	8.3%
Stockmarket	-4.5%	5.7%	6.7%	10.8%
Bonds	5.6%	6.2%	6.2%	8.0%

(1) : industrial LPT and hotel LPT series do not extend for full period of ten years

Source : Author's compilation from UBS Warburg (2002b) and PCA (2002)

Table 2 : LPT property profile: December 2001

LPT	Value of property portfolio	# of properties	Portfolio composition				
			Office	Retail	Industrial	Hotel	Other
AMP Diversified	$1,517M	30	48%	43%	9%	0%	0%
AMP Industrial	$ 463M	26	0%	0%	100%	0%	0%
AMP Office	$1,402M	11	100%	0%	0%	0%	0%
BT Office	$1,679M	11	100%	0%	0%	0%	0%
Centro Properties	$1,190M	21	0%	98%	2%	0%	0%
Deutsche Diversified	$1,290M	24	28%	33%	23%	0%	16%
Gandel Retail	$1,962M	12	0%	100%	0%	0%	0%
Grand Hotel	$ 561M	6	0%	0%	0%	100%	0%
General Property Trust	$5,655M	36	38%	52%	2%	8%	0%
ING Industrial	$1,023M	55	0%	0%	100%	0%	0%
ING Office	$1,216M	16	100%	0%	0%	0%	0%
Investa Property	$1,092M	20	100%	0%	0%	0%	0%
Macquarie CountryWide	$ 703M	90	0%	100%	0%	0%	0%
Macquarie Goodman Industrial	$1,146M	54	0%	0%	100%	0%	0%
Macquarie Office	$1,002M	20	100%	0%	0%	0%	0%
Stockland	$2,540M	59	35%	31%	15%	2%	17%
Thakral	$ 500M	17	2%	25%	0%	73%	0%
Westfield America	$9,519M	39	0%	100%	0%	0%	0%
Westfield	$7,500M	40	0%	100%	0%	0%	0%
TOTAL	**$41,960M**	**587**	**34%**	**36%**	**18%**	**10%**	**2%**

Table 3: LPT performance analysis: June 1997 - June 2002

LPT	Average annual return (%)	Annual risk (%)	Sharpe index *
AMP Diversified	11.29	11.11	0.54 (11)
AMP Industrial	10.62	13.31	0.40 (15)
AMP Office	8.31	9.25	0.32 (16)
BT Office	7.49	9.64	0.22 (17)
Centro Properties	19.85	11.51	1.26 (1)
Deutsche Diversified	10.25	10.33	0.48 (13)
Gandel Retail	12.88	12.03	0.63 (8)
Grand Hotel	-13.37	20.46	-0.91 (19)
General Property Trust	10.71	13.09	0.41 (14)
ING Industrial	12.51	11.70	0.61 (9)
ING Office	9.98	8.68	0.53 (12)
Investa Property	11.34	10.03	0.60 (10)
Macquarie CountryWide	15.85	12.43	0.85 (4)
Macquarie Goodman Industrial	12.40	9.15	0.77 (5)
Macquarie Office	14.18	8.40	1.05 (3)
Stockland	14.24	12.08	0.74 (6)
Thakral	3.60	23.06	-0.08 (18)
Westfield America	20.18	13.32	1.11 (2)
Westfield	14.05	12.31	0.71 (7)
LPT sector	12.65	8.72	0.84
PCA “composite” property	10.48	0.62	8.29

* : ranks given in brackets

Table 4: LPT selection and timing analysis: June 1997 - June 2002

LPT	Jensen model Selectivity coefficient	Quadratic model Selectivity coefficient	Quadratic model Timing coefficient
AMP Diversified	0.039 (14)	0.216 (10)	11.781 (6)
AMP Industrial	0.084 (5)	0.255 (5)	11.302 (8)
AMP Office	0.029 (17)	0.220 (9)	12.648 (5)
BT Office	0.048 (11)	0.224 (8)	11.714 (7)
Centro Properties	0.119* (2)	0.206 (11)	5.762 (14)
Deutsche Diversified	0.091* (3)	0.172 (13)	5.395 (16)
Gandel Retail	0.012 (18)	0.058 (17)	3.031 (17)
Grand Hotel	0.044 (12)	-0.238 (18)	-18.715 (18)
General Property Trust	0.036 (16)	0.313 (3)	18.360 (3)
ING Industrial	0.052 (10)	0.413* (2)	23.938* (2)
ING Office	0.043 (13)	0.451* (1)	27.037* (1)
Investa Property	0.004 (19)	0.121 (16)	7.772 (11)
Macquarie CountryWide	0.072 (8)	0.239 (6)	11.082 (9)
Macquarie Goodman Industrial	0.073 (7)	0.226 (7)	10.159 (10)
Macquarie Office	0.037 (15)	0.155 (15)	7.770 (12)
Stockland	0.077 (6)	0.173 (12)	6.381 (13)
Thakral	0.161 (1)	-0.564 (19)	-48.038* (19)
Westfield America	0.085 (4)	0.168 (14)	5.522 (15)
Westfield	0.054 (9)	0.312* (4)	17.101 (4)
Average	**0.061**	**0.164**	**6.842**
Positive	19	17	17
Negative	0	2	2
Significantly positive	2	3	2
Significantly negative	0	0	1

Table 5: LPT meta analysis: June 1997- June 2002

	Jensen	Quadratic	
Parameter	**Selectivity**	**Selectivity**	**Timing**
Average β coefficient: β mean	0.0610	0.1642	6.8422
Standard deviation of average β coefficient: σβ	0.0013	0.0486	250.2724
Error term: σε	0.0081	0.0962	347.5448
χ^2 statistic for ratio of observed variance to sampling error variance: χ^2	5.1116	15.9980	22.8109
Average correlation between residuals: ρ	0.3954	0.4002	0.4002
p value	0.9256	0.1412	0.0188
Percentage of total variance accounted for by sampling error: $(1-\rho)\sigma^2_\varepsilon / \sigma^2$	0.0020	0.2190	0.5088