

INTERNATIONAL REAL ESTATE REVIEW

2007 Vol. 10 No. 2: pp. 1 - 22

Performance of Canadian E-REITs

Lawrence Kryzanowski

Finance Department, John Molson School of Business, Concordia University,
1455 de Maisonneuve Blvd. West, Montreal, Quebec, Canada, H3G 1M8
E-mail: lkryzan@alcor.concordia.ca.

Margarita Tcherednitchenko

Finance Department, John Molson School of Business, Concordia University,
1455 de Maisonneuve Blvd. West, Montreal, Quebec, Canada, H3G 1M8
E-mail: cheritka@yahoo.com.

The return performance and factor sensitivities of Canadian equity real estate investment trusts (E-REITs) are examined. Today, typical and average Canadian E-REIT IPOs are correctly priced based on first-day and subsequent short-run returns. The overpricing evident earlier in the 1993-96 period for typical and average E-REIT IPOs has corrected. E-REITs are equity investments with about one-half the market risk, and greater sensitivity to interest-rate changes, than the S&P/TSX Composite Index. E-REITs outperformed the S&P/TSX Composite over the 1996-2004 period on a return, risk, and market- and/or risk-adjusted basis. Thus, E-REITs provided material diversification benefits with no sacrifice in return, when added to a common stock portfolio during the studied period.

Keywords

equity REIT; IPO; interest-rate sensitivity; risk-adjusted return performance

Introduction

While REITs have been a popular asset class for investment in the U.S. since the 1960s, the first Canadian REIT was created in August 1993, when RealFund was converted from an open- into a closed-end fund structure. The average market capitalization of REITs has more than doubled over the past five years to about \$1.2 billion. According to Standard & Poor's Inc. (S&P), the 26 REITs trading on the Toronto Stock Exchange (TSX) had a total market capitalization of \$17.4 billion at the beginning of 2005. The REIT sector represented about 13% of the \$137 billion income trust market, which itself accounted for 11 percent of Canada's total market capitalization. Thus, REITs represented about one percent of the value of the TSX. Despite the relatively small size of the REIT market, S&P generally gives REITs a better rating on its stability-rating chart than the majority of the other income trusts. Investment dealers began increasing their coverage of this sector in early 2006 (Willis, 2006).¹

Of the 29 equity REITs (E-REITs) that have entered the Canadian market since 1993, 25 were created through an Initial Public Offering (IPO) and four were reorganized from existing open-end funds into REITs. This number is reduced to 26 by the acquisitions of RealFund by Riocan in February 1999, Avista by Summit in November 1999, and CPL by Retirement Residencies in April 2002. Although the international evidence (particularly in the U.S.) finds that the IPOs of operating firms are underpriced for most countries,² most previous studies do not find a similar first-day price increase for U.S. REIT IPOs. The evidence on U.S. REITs is mixed depending upon time period and test methodology, and varies from significant negative to significant positive first-day returns.

In the literature, the after-market performances of REITs are examined primarily from a U.S. context. Overall, the empirical evidence shows that the post-IPO return performance of U.S. REITs varies from significant negative to significant positive first-day returns depending upon the methodology used and the time period studied, and that the long-run, market- and risk-adjusted performance of U.S. REITs is comparable to that of the market.

Canadian REITs provide an alternative laboratory for testing the robustness of U.S. findings for REITs since Canadian REITs differ from U.S. REITs in terms of legal structure, retail investor involvement, actual distributions and distributions required to maintain tax-free status. Canadian REITs operate

¹ This rating assesses cash-flow stability and indicates payout sustainability.

² For example, Ritter and Welch (2002) report that the average first-day return for common stock IPOs in the U.S. is 18.8% between 1980 and 2001. The initial mean return for the IPOs of Canadian operating firms is among the lowest for the many countries reported on the website of Jay Ritter, which is available at <http://bear.cba.ufl.edu/ritter/Int.pdf>.

under a trust legal structure, subject to flow-through taxation rules, while U.S. REITs operate under a limited liability corporation structure.³ The average Canadian REIT has a more retail-oriented shareholder base than its U.S. counterpart, although institutional investor representation is expected to grow in Canada with the inclusion of REITs in the S&P/TSX Composite Index. The average Canadian REIT distributes a higher proportion of its cash flows than its U.S. counterpart, as is discussed more fully in the next section. A Canadian REIT must distribute all of its income and capital gains annually after making appropriate designations to maintain a tax-free status, unlike its U.S. counterpart that only needs to distribute at least 90% of its taxable income.

The remainder of this paper is organized as follows. The sample and its characteristics are discussed in section two. Section three presents and evaluates the after-market performance of E-REITs that begin public life with an IPO. The risk and return performance of E-REITs in the secondary market over the 1996-2004 period is reported and discussed in section four. The sensitivities of E-REIT returns to changes in equity market returns and interest rates are discussed and analyzed in section five. Section six concludes the paper.

Sample and Sample Characteristics

The initial sample of REITs consists of all REITs trading on the TSX during the 1996-2004 period based on a search of the TSX Monthly Review, SEDAR, CFMRC, Investcom and GlobeinvestorGold. The sample is free of survivorship bias. Mortgage REITs (M-REITs), which commonly have at least 75% of their holdings in mortgages and short-term loans, are excluded from this initial sample. The remaining sample consists of equity REITs (E-REITs), which are, by definition, at least 80% invested in real properties.

Information (such as IPO date and gross proceeds) on the Canadian population of 24 E-REIT IPOs is obtained from the Financial Post New Issue, SDC Platinum, Investcom and Bloomberg databases. In the case of conflicting IPO dates, individual filings with SEDAR and press releases are relied upon. Individual E-REITs responded to our requests for information on whether they began life with an IPO or with a re-organization into a REIT structure. Price data for the first 250 trading days following the IPO are obtained from CFMRC.

³ The issue of limiting liability for unitholders of trusts was resolved in Ontario in 2005, following much earlier resolutions in Quebec and Alberta (CAIF, 2005).

Clauses in their Declarations of Trust state that the E-REITs will distribute at least their taxable incomes to their unitholders, to ensure a nontaxable status. The capital cost allowance (CCA) distributed to unitholders is taxed as capital gains with unit disposition, and all non-CCA-distributed income is taxed at the marginal tax rate of each unitholder.⁴

Summary statistics on the cross-sectional dividend payout, leverage and book-to-market ratios for a sample of Canadian E-REITs are reported in table 1. As expected, the median [mean] dividend payout ratios (dividends per share/earnings per share) reveal that a typical [average] REIT pays out 120% [220%] of its EPS, with considerable cross-sectional variation. Because E-REIT portfolios consist mainly of properties with material CCA write-offs that reduce or shelter taxable income, the annual cash flows often exceed taxable income – making it possible for individual funds to pay out a percentage that exceeds taxable income.

Table 1 reports various summary statistics for three ratios for the sample of E-REITs over the period 1996-2004. Leverage ratio is measured by the ratio of long-term debt to total capital. “Std. Dev.” refers to the standard deviation. The data are obtained from Bloomberg. “NA” refers to values not available in Bloomberg prior to 1999, for the dividend payout ratios.

Table 1: Annual summary statistics for the dividend payout, leverage and book-to-market ratios for the E-REITs for 1996-2004

Year	Dividend Payout Ratio			Leverage Ratios			Book-to-market Ratios		
	Median	Mean	Std. Dev.	Median	Mean	Std. Dev.	Median	Mean	Std. Dev.
1996	NA	NA	NA	0.37	0.33	0.31	0.75	0.75	0.55
1997	NA	NA	NA	0.43	0.40	0.23	0.80	0.74	0.24
1998	NA	NA	NA	0.48	0.41	0.23	1.15	1.12	0.37
1999	1.05	-0.30	6.71	0.52	0.43	0.25	1.05	1.10	0.39
2000	1.08	1.81	2.31	0.60	0.61	0.04	0.92	1.02	0.36
2001	1.14	2.05	2.11	0.49	0.46	0.22	0.79	0.91	0.37
2002	1.16	5.18	15.81	0.51	0.45	0.23	0.94	0.97	0.33
2003	1.07	1.71	3.23	0.54	0.50	0.19	0.73	0.77	0.20
2004	1.69	2.77	4.34	0.56	0.48	0.20	0.69	0.79	0.44
1996-2004	1.20	2.20	5.75	0.50	0.45	0.21	0.83	0.91	0.35

The allowable degree of leverage, also, is specified in the Declaration of Trust of each E-REIT. A typical E-REIT has much less of a tax-shelter incentive for using debt since it pays out all or most of its income to

⁴ Because REITs are qualified investments for registered retirement savings plans (RRSPs), registered retirement income funds (RRIFs), registered education savings plans (RESPs) and deferred profit sharing plans (DPSPs), investors can take advantage of additional tax deferrals by investing in REITs through such plans.

unitholders. Nevertheless, the leverage of the typical [average] E-REIT as measured by the long-term debt to total capital ratio is 50% [45%] over the examined period.

The mean book-to-market equity ratio (BE/ME) is 0.91 over the entire period, and has only exceeded 1.0 during the 1997-99 period. This mean book-to-market ratio is comparable to the Canadian stock average of 0.96 that Kortas, L'Her and Plante (2004) report for the 1988-2001 period.

Post-IPO Performance of Canadian E-REITs

Literature

Although the international evidence (particularly in the U.S.) finds that the IPOs of operating firms are underpriced for most countries,⁵ most previous studies do not find a similar first-day price increase for U.S. REIT IPOs. The evidence on U.S. REITs is mixed, depending upon time period and test methodology, and varies from significant negative to significant positive first-day returns. Wang, Chan and Gau (1992) report underperformance by E-REIT IPOs during first-day trading (2.82% price decline) and for the first 190 trading days relative to seasoned E-REITs. The authors attribute this performance to a higher number of speculative issues and less institutional participation in the IPOs of E-REITs versus operating firms. Below, Zaman and McIntosh (1995) find that any REIT IPO overpricing is removed when returns are based on the bid-ask mid-spread or the ask price. While this result is interesting, it ignores the trade costs that initial buyers of the IPOs would incur if they liquidated their positions during the first day of trading. Impatient sellers would sell at the bid and more patient sellers might be able to sell within the half-spread (i.e., between the inside bid and the bid-ask mid-spread).

Ling and Rynngaert (1997) find that the average first-day price gain is 3.5% and that REIT IPOs outperform a benchmark of seasoned E-REITs over the first 100 days of trading during the 1991-94 period. They attribute this post-1980s result to increased institutional participation and more valuation uncertainty induced by greater active management of REITs. In contrast, for the 1976-95 period, Shelor and Anderson (1998) report negative average returns over the first 25 trading days, which turn significantly positive within 180 days of the issue. Londerville (2002) reports under-pricing for 10 and 20 days following issue, using cumulative market-adjusted returns for 13 Canadian, TSX-listed REIT IPOs.

⁵ For example, Ritter and Welch (2002) report that the average first-day return for common stock IPOs in the U.S. is 18.8% between 1980 and 2001.

Chan, Erickson and Wang (2003) report that the average first-day returns are much lower for the IPOs of REITs versus those of industrial firms (respectively, -3.10% and 9% for the 1970-79 period, -3.14% and 15.30% for the 1980-89 period, and 2.36% and 21.44% for the 1990-2000 period).⁶ Similarly, Buttimer, Hyland and Sanders (2005) report average first-day returns of 2.47% over the 1985-98 period, negative but not statistically significant first-day returns for the first of three waves of IPO issuance (1985), and positive and statistically significant first-day returns of 3.21% and 5.57% during the second (1993-94) and third (1997-98) waves of IPO issuance, respectively. Buttimer, et al. argue that the relatively lower underpricing of REIT IPOs may be due to the greater relative transparency of REITs because of greater valuation certainty attributable to their nature, and more stringent regulatory restrictions. However, the conjecture that REITs are more transparent or easier to value is open to some debate because the financial statements of a typical REIT, like those of a typical industrial firm, are prepared in accordance with generally-accepted accounting principles (GAAP). Furthermore, unlike the case for industrial firms, the generally-accepted or preferred measure of REIT operating performance is not net income. Instead, securities analysts, investors and other interested parties typically evaluate the performance of a REIT using Funds From Operations (FFO), which is a non-GAAP measurement that may not be comparable across REITs.⁷

Hypotheses, a priori expectations and methodology

The first null hypothesis tested in this section is H_0^1 : The mean and median issue-to-open and issue-to-close returns for E-REIT IPOs for the first trading day are not significantly different from zero.

Various rationales exist for the expectation that the mis-pricing of E-REIT IPOs should be lower than that for industrial IPOs. First, E-REIT IPOs are arguably more transparent and subject to less uncertainty, on average, than industrial IPOs because an E-REIT, on average, holds a better-diversified portfolio of assets than its industrial counterpart. The secondary market for the assets held by an E-REIT IPO also is more active and developed than the secondary market for the assets held by an industrial IPO (Buttimer, Hyland and Sanders, 2005; Londerville, 2002). Second, the average E-REIT IPO is

⁶ For instance, Helwege and Liang (2003) report average first-day returns of between 17% and 30.6% for industrial IPOs for the 1975-2000 period.

⁷ This measure also is commonly referred to as cash flow from operations or distributable income. Furthermore, S&P reports wide disparities in the calculation and reporting of distributable income based on an examination of the financial statements of 40 unnamed income trusts. These funds used 19 names for distributable income, and 20% of these funds overstated distributable cash by an average of 22% (Langton, 2006).

more focused than its industrial counterpart because the holdings of REITs are constrained by regulation to be primarily in real estate in both the U.S. and Canada. For example, the Canadian Income Tax Act requires that Canadian REITs have at least 80% of their property invested in real property, and interests in real property, located in Canada. Third, the principal-agent problem associated with free-cash-flows should be lower for an average E-REIT IPO compared to its industrial counterpart since E-REITs in both the U.S. and Canada are required to distribute most of their cash flows to their unitholders or shareholders. Fourth, direct investment in real estate, and, especially, obtaining a portfolio of sufficient size to achieve the benefits of diversification, is either not feasible due to capital constraints, or is quite costly for individual investors and smaller institutional investors. As a result, it seems likely that these investors require little or no price concession on an E-REIT IPO to achieve the diversification benefits offered by this investment, especially when real estate as an investment asset class has grown in importance.⁸ In contrast, direct investment in a reasonably-well-diversified portfolio of publicly-traded, industrial, firms is achievable with little capital – and at a relatively low cost – for example, by purchasing one of the many ETFs (Exchange Trade Fund) that trade on one of the exchanges in Canada and the U.S.

However, there could still be some under-pricing associated with E-REITs. Given their low retention rates of cash-flow and accrual earnings, E-REITs expecting to realize future growth opportunities at least partially funded by external equity financing may intentionally under-price their IPOs so that their subsequent season equity offerings (SEOs) are well received by the market (Welch, 1989).

Furthermore, we can reasonably expect that any under-pricing of E-REIT IPOs will be lower in Canada than in the U.S. First, Canadian E-REITs potentially have lower agency problems associated with free-cash-flows since they must distribute at least their taxable income, while their U.S. counterparts must distribute at least 90 percent of their taxable income as dividends. Furthermore, actual payouts for an average Canadian REIT, as reported in the previous section, greatly exceed those for their U.S. counterparts, which were 65.2% in 2001 and 72% in 2004.⁹ Second, the different clientele mixes of retail and institutional investors for E-REITs with a greater retail proportion in Canada should lead to lower under-pricing (if any) in Canada, as these investors attempt to achieve the diversification benefits from real estate investment. Whether Canadian E-REITs have a

⁸ To illustrate, the relative weight of real estate in the portfolios of Canadian pension funds varied between 3.4 and 4.2 and averaged 3.85% over the 1990-1999 period, and varied between 5.2% and 7.1% and averaged 6.2% over the more recent 2000-04 period.

⁹ The U.S. numbers are drawn from the NAREIT website, which is available at: <http://www.nareit.com/portfoliomag/05mayjun/feat1.shtml>.

greater incentive than their U.S. counterparts to under-price their IPOs to facilitate further SEOs is unclear. While Canadian REITs have lower retention of cash-flow and accrual earnings, and do access the SEO market often, it is unknown whether this exceeds such access by their U.S. counterparts.

The second null hypothesis tested in this section is H_0^2 : The mean benchmark-adjusted return performances for E-REIT IPOs for periods of up to one year post-issue are not significantly different from zero. Given market efficiency, our expectation is that the short-run post-IPO performance of E-REIT IPOs in Canada will not be superior on a risk- and market-return-adjusted basis.

To test the above two hypotheses, the first-day and subsequent short-run return performances are examined for un-weighted (i.e., implicit equal-) and issue-size-weighted samples of the 24 REIT IPOs.¹⁰ Average compound daily returns (not) adjusted by the market return are tested for post-IPO trading periods of 5, 10, 21, 63, 125, 188 and 250 trading days (i.e., for calendar periods of approximately 1 and 2 weeks, and 1, 3, 6, 9 and 12 months, respectively). The means and medians of the returns for the various post-IPO trading periods are tested using t- and Wilcoxon tests, respectively. To examine the time-period sensitivity of the findings for the first-day returns, the sample of 24 REIT IPOs is further subdivided into two six-year sub-periods of 1993-98 (12 IPOs) and 1999-2004 (12 IPOs).

Empirical results

The mean and median market-(not)adjusted first-day returns for the two sample weightings are reported in table 2. For the full period, the mean first-day equal-weighted returns are significant and negative (approximately -11% to -12%). Median first-day returns, which are less sensitive to outliers, are substantially smaller (about 1% or less in magnitude) than their mean counterparts, and are only significant for the issue-to-open period when not market-adjusted. The mean first-day size-weighted returns are also significant, but marginally more negative than their equal-weighted counterparts.

Table 2 reports the issue-to-open and issue-to-close, first-day, returns (not) adjusted by market returns for equal and size-weighted samples of the Canadian E-REIT IPOs over the 1993-2004 period and two sub-periods. Equal-weighted (E-W) refers to using the same weight for each IPO in the calculation of the mean and standard deviation. Size-weighted (S-W) refers

¹⁰ One REIT (Summit) without a full year of post-IPO data at the time of data collection was excluded from the sample.

to using a weight for each IPO in the calculation of the mean and standard deviation that is equal to the relative size of the IPO, in terms of dollar proceeds. The median, minimum and maximum values are based on the un-weighted (or same-weighted) returns. The t-test for the mean size-weighted returns is computed based on the Eckbo and Norli (2005) methodology. *, ** and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively, using a t-test for the mean differences and a Wilcoxon test for median differences. N is the sample size.

Table 2: First-day returns for IPOs of Canadian E-REITs

Statistic	Not market-adjusted		Market-adjusted	
	Issue to Open	Issue to Close	Issue to Open	Issue to Close
Full period 1993-2004 (N = 24)				
Mean E-W	-0.1148***	-0.1108**	-0.1164***	-0.1124**
StdDev E-W	0.1891	0.1967	0.1920	0.1996
Mean S-W	-0.1190***	-0.1152***	-0.1201***	-0.1162**
StdDev S-W	0.1910	0.1988	0.1939	0.2018
Median	-0.0104**	-0.0050	-0.0098*	-0.0084
Minimum	-0.4200	-0.4100	-0.4282	-0.4182
Maximum	0.1020	0.1700	0.1039	0.1719
First sub-period 1993-1998 (N = 12)				
Mean E-W	-0.2076***	-0.2105***	-0.2101***	-0.2130***
StdDev E-W	0.2061	0.2094	0.2095	0.2127
Mean S-W	-0.2245***	-0.2284**	-0.2269***	-0.2309***
StdDev S-W	0.1971	0.1981	0.2002	0.2011
Median	-0.3350**	-0.3375**	-0.3445**	-0.3423**
Minimum	-0.4200	-0.4100	-0.4282	-0.4182
Maximum	0.1000	0.1000	0.0960	0.0960
Second sub-period 1999-2004 (N = 12)				
Mean E-W	-0.0221	-0.0110	-0.0227	-0.0117
StdDev E-W	0.1162	0.1238	0.1185	0.1261
Mean S-W	-0.0175	-0.0061	-0.0172	-0.0058
StdDev S-W	0.1149	0.1248	0.1170	0.1270
Median	-0.0025	-0.0010	-0.0021	0.0009
Minimum	-0.3750	-0.3700	-0.3805	-0.3755
Maximum	0.1020	0.1700	0.1039	0.1719

The sub-period results show that mean (and median) mis-pricing occurs in the first and not the second sub-period. While none of the mean and median first-day returns are significantly different from zero in the second sub-period, all of the mean and median first-day returns in the first sub-period are

negative and significant. As for the full time period, the mean equal-weighted first-day returns are less [more] negative than their corresponding size-weighted counterparts in the first [second] sub-period. This implies that the overpricing evident for E-REIT IPOs in the earlier sub-period has corrected, and E-REIT IPOs are correctly priced during the more recent sub-period, on average.

Mean average daily compound equal- and size-weighted E-REIT returns (not adjusted for market returns for post-IPO periods of one week through one year are reported in table 3. The equal-weighted and not market-adjusted average daily compound returns are slightly positive and statistically significant for all but two of the time periods considered (the first week and 9 months) based on the mean, and for all but three post-IPO periods (week 1, and 3 and 9 months) based on the median. In contrast, the equal-weighted and market-adjusted average compound daily mean and median returns are not statistically significant, except for the first three months post-IPO (0.08% and 0.13%, respectively) and the first 6 months (median only at 0.31%).

Table 3 reports the average daily compound returns for the sample of 24 Canadian E-REITs for post-IPO periods of approximately 1 and 2 weeks, and 1, 3, 6, 9 and 12 months.

Table 3: Average daily compound returns for the Canadian E-REITs for various post-IPO periods

Post-issue Period	Average Daily Compound Returns							
	Market-adjusted	Mean E-W	Std. Dev. E-W	Mean S-W	Std. Dev. S-W	Median	Min.	Max.
1 week	No	0.0018	0.0059	0.0028**	0.0049	0.0012	-0.0100	0.0160
2 weeks	Yes	0.0000	0.0071	0.0004	0.0065	-0.0005	-0.0145	0.0172
1 month	No	0.0023**	0.0043	0.0030***	0.0038	0.0027**	-0.0060	0.0112
3 months	Yes	0.0013	0.0053	0.0020*	0.0048	0.0014	-0.0089	0.0111
6 months	No	0.0017**	0.0030	0.0019***	0.0023	0.0014***	-0.0052	0.0069
9 months	Yes	0.0011	0.0033	0.0011*	0.0028	0.0008	-0.0049	0.0079
12 months	No	0.0011**	0.0023	0.0009**	0.0018	0.0004*	-0.0038	0.0064
1 week	Yes	0.0008**	0.0019	0.0007**	0.0015	0.0013**	-0.0030	0.0044
2 weeks	No	0.0038**	0.0085	0.0030**	0.0063	0.0032**	-0.0112	0.0340
1 month	Yes	0.0035*	0.0083	0.0027*	0.0062	0.0031**	-0.0111	0.0329
3 months	No	0.0006*	0.0014	0.0004	0.0012	0.0007*	-0.0018	0.0055
6 months	Yes	0.0003	0.0014	0.0001	0.0013	0.0002	-0.0021	0.0049
9 months	No	0.0007**	0.0016	0.0004	0.0015	0.0009**	-0.0026	0.0045
12 months	Yes	0.0004	0.0014	0.0003	0.0012	0.0003	-0.0023	0.0035

The returns are (not) adjusted for market returns. Equal-weighted (E-W) refers to using the same weight for each IPO in the calculation of the mean and standard deviation. Size-weighted (S-W) refers to using a weight for each IPO in the calculation of the mean and standard deviation that is equal to the relative size of the IPO, in terms of dollar proceeds of the issue. The median, minimum (min.) and maximum (max.) are based on the un-weighted

(or same-weighted) returns. The t-test for the size-weighted returns is computed based on the Eckbo and Norli (2005) methodology. *, ** and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively, using a t-test for the mean differences and a Wilcoxon test for median differences.

The mean size-weighted average compound daily returns generally are significantly different from zero only when they are not market-adjusted. The only mean size-weighted and market-adjusted average compound daily return that is significant is the return of 0.07% for the 3-month period post-IPO.

Thus, both the mean and median average compound daily returns, after being market-adjusted, are (with few exceptions) not significantly different over longer post-issue measurement periods. Thus, the empirical evidence supports the first and second null hypotheses – that Canadian E-REIT IPOs are not significantly mis-priced at issue.¹¹

Secondary-Market Return Performance

Literature

The empirical evidence finds that the return performance of REITs in the secondary market is comparable to that of other equities, on average, but can be better or worse depending upon the time period considered. Smith and Shulman (1976) report that REITs outperformed [underperformed] the S&P index over the 1963-73 [1963-74] period. Kuhle, Walther and Wurtzbach (1986) find that REITs outperformed [underperformed] the S&P index over the 1977-84 [1973-76] periods. Titman and Warga (1986) report that the risk-adjusted return performance of REITs is not statistically different from that of the market for the 1973-82 period. Goebel and Kim (1989) report that REITs underperformed the S&P index over the 1984-87 period. Han and Liang (1995) report that an equal-weighted E-REIT portfolio underperformed the market for the 1970-75 and 1988-93 sub-periods and outperformed for the 1976-81 and 1982-87 sub-periods, and that the value-weighted REIT portfolio only underperformed over the 1970-75 sub-period.

Chen and Peiser (1999) find that REITs underperformed [in-line performed] the S&P 500 on a non-risk- [risk-] adjusted return basis for the 1993-97 period. Sanders (1998) finds that REITs underperformed the market on a

¹¹ The inferences are not materially affected if the conversions to E-REITs are included in the E-REIT IPO sample.

risk-adjusted basis over the 1978-96 period, but outperformed over two five-year sub-periods included therein (1978-86 and 1990-96).

Hypothesis, a priori expectations and methodology

Equal- and value-weighted portfolios of all REITs are constructed at a monthly frequency for the 1996-2004 period. Since the equal- and value-weighted portfolios place relatively more weight on smaller and larger E-REITs, respectively, they can be used to draw inferences about the relative performances of REITs based on cap size.

The market- and risk-adjusted performances of the two types of E-REIT portfolios or indexes are assessed using Jensen's alpha, α_i , which is obtained by estimating:

$$(r_{i,t} - r_{f,t}) = \alpha_i + \beta_i(r_{m,t} - r_{f,t}) + \varepsilon_{i,t} \quad (1)$$

where $r_{i,t}$ is the return on the E-REIT index i for month t after adjusting for stock splits from CFMRC; $r_{f,t}$ is the risk-free rate of return for month t based on the 91-day T-Bill rate from CFMRC; $r_{m,t}$ is the rate of return on the market (i.e., S&P/TSX total return index in CFMRC) for month t ; β_i is the beta coefficient or sensitivity of the rate of return on E-REIT index i with the market m ; and $\varepsilon_{i,t}$ is the error term with the usually-assumed properties. As a test of robustness, the market-adjusted and not the risk-adjusted performance of the two types of E-REIT portfolios also are examined.

The null hypothesis tested in this section of the paper is H_0^1 : The market- and (non)risk-adjusted E-REIT performance, as captured by alpha, is not significantly different from zero. Significantly positive [negative] alphas indicate superior [inferior] performance for the E-REITs on a market- and (non)risk-adjusted basis. Our expectation, based on the U.S. findings, is that no significant abnormal returns are expected over the longer term in the post-IPO market for our sample of Canadian E-REITs.

Empirical results

The mean monthly [excess] returns for the equal- and value-weighted E-REIT indexes are statistically significant at 2.11% and 2.15% [1.80% and 1.84%], respectively, which exceeds their insignificant counterparts of 0.75% [0.44%] for the S&P/TSX Composite Index. However, the standard deviation of returns for the equal-weighted E-REIT index of 7.58% exceeds that of the value-weighted E-REIT index and S&P/TSX Composite Index (4.66% and 4.90%, respectively). The Sharpe ratios are higher for both E-

REIT indexes (0.237 and 0.396 for the equal- and value-weighted indexes, respectively) than for the market (0.090).¹² Based on table 4, the Jensen alpha estimates are equal, positive, and significant for both E-REIT portfolio weightings based on market-adjusted returns (1.35% and 1.41%, respectively) and on market- and risk-adjusted returns (1.57% and 1.63%, respectively). Thus, a portfolio tilted towards larger E-REITs outperforms one tilted towards smaller E-REITs, over the studied period, based on the Sharpe estimates. However, this difference essentially vanishes for a comparison based on the estimated Jensen alphas, due to differences in the systematic risks or betas of the two E-REIT portfolio weightings.

Table 4 reports the Jensen alphas as a measure of performance for the equal- and value-weighted indexes of REITs. *, ** and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively, using a t-test for the mean differences.

Table 4: Market- and risk-adjusted measures of performance for the E-REIT Indexes

Statistic	Equal-weighted REIT Index		Value-weighted REIT Index	
	Market-adjusted only	Market- and risk-adjusted	Market-adjusted only	Market- and risk-adjusted
Jensen alpha	0.0135**	0.0157**	0.0141***	0.0163**
Beta		0.5181***		0.4753***
Adjusted R ²		0.1032		0.2426

The total risk of the equal-weighted E-REIT index was shown above to be much higher than its value-weighted counterpart (7.58% versus 4.66%). In contrast, the market risk (or beta) of the equal-weighted REIT index is closer in magnitude but still higher in value than that for the value-weighted E-REIT index (0.5181 versus 0.4753), and both E-REIT indexes can be considered to be defensive in relation to the priced risk of the equity market. In addition, the two E-REIT indices have very high levels of non-market risk given the high values of one minus their adjusted R² values (0.8968 and 0.7574 for the equal- and value-weighted index, respectively).

Three inferences follow from these findings for the secondary market performance of Canadian E-REITs. First, a portfolio of Canadian E-REITs outperformed the Canadian equity market on a market- and risk-adjusted basis, over the studied period. Second, a portfolio of Canadian E-REITs was a defensive holding in terms of systematic equity market risk, over the studied period. Third, Canadian E-REITs provided good diversification

¹² The Sharpe ratio, Sh , is given by $Sh = (r_i - r_f) / \sigma_i$, where r_i is the return on the E-REIT index i ; r_f is the risk-free return; and σ_i is the standard deviation of return for index i .

benefits over the studied period since their returns were driven primarily by non-equity-market risk factors.

Sensitivity of E-REIT Returns to Equity Market Returns and Interest Rates

Literature review

The evidence on the relation between the returns on U.S. REITs and interest rates is mixed. Gyourko and Keim (1992) report correlations of 0.43 and 0.39 between daily REIT returns and long-bond interest-rate changes over the 1978-90 period. Buetow and Johnson (2001) report correlations between REIT prices [S&P 500] and long-term government bonds of 0.229 [0.389] and 0.183 [0.279] during periods of expansive and restrictive monetary policy, respectively, over the 1973-2000 period. Glascock, Lu and So (2000) find evidence that the diversification benefits provided by REITs have decreased, given that REIT returns are co-integrated with the bond market over the 1980-91 but not the 1992-96 period.

Mueller and Pauley (1995) report that the returns of U.S. REITs are less interest-rate sensitive than the S&P 500 for the 1972-93 period, and that both asset classes are negatively related to short-, medium- and long-term interest-rate changes. Similarly, Allen, Madura and Springer (2001) report coefficients of -0.432 and -0.334 for the returns of E- and non-E-REITs with long-term interest-rate changes for the 1992-96 period. He, Webb and Myer (2003) report similar results for seven interest-rate proxies and E-REIT and equity market excess returns for the 1972-98 period.

Using a two-factor model, Sanders (1998) finds that the returns of REITs exhibit greater sensitivity than the S&P 500 to changes in the rates of long-term government bonds (0.73 versus 0.88), and higher sensitivity to changes in a more risky interest-rate proxy (0.77 versus 0.71), for the 1978-96 period. Using a three-factor model, Swanson, Theis and Casey (2002) report estimated coefficients that vary across sub-periods, and are 0.78, 0.22 and 0.08 for the market premium, the maturity premium and credit risk premium, respectively, over the overall 1989-1998 period.¹³

Hypothesis and a priori expectations

¹³ The maturity premium is given by the spread between long-term and short-term bonds, and the credit risk premium is given by the spread between Baa bonds and the treasury-bill rate.

The hypothesis tested in this section of the paper is H_0^4 : The returns of E-REITs are positively related with equity-market returns, and negatively related with changes in various interest rates.

Because of their typically high payout ratios, E-REIT returns are expected to show high negative sensitivity to changes in interest rates. To test this hypothesis, changes in monthly interest rates are proxied by changes in the long-term (10-year) government bond rate, the corporate bond rate and the five-year mortgage rate.

The correlations between the monthly returns for the E-REITs and the TSX/S&P Composite Index, both with each other and with each of the four interest-rate series, are reported in table 5. As expected, the two equity series are positively and significantly correlated, but the correlation is relatively low at 0.374. All the E-REIT correlations are negative, and significantly different from zero. Not surprisingly, the strongest negative correlation of -0.42 is with corporate bond rates, followed by those with long-term and 10-year government bond rates (-0.36 and -0.37, respectively). While the correlations between the returns on the equity market are similarly negative with all four interest-rate series, only the one with corporate bonds of -0.250 is significantly different from zero. This suggests that E-REITs are more interest-rate sensitive than other equities.

Table 5 reports the correlations between the monthly returns of the size-weighted index of Canadian E-REITs, the S&P/TSX Composite Index and changes in four interest-rate series. "LT Gov." refers to the average yield on a portfolio of 10+ year Government of Canada bonds from CFMRC. "10Y Gov." refers to the yield on 10-year Government of Canada benchmark bonds, drawn from Baseline. "Corp." refers to the average yield on a portfolio of high grade, long-term corporate bonds from CFMRC. "5-year Mort." refers to the 5-year conventional mortgage rate from the Bank of Canada, as reported in CFMRC. "Short-term" refers to the 1-year treasury-bill rate, drawn from the Bank of Canada website. *, ** and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively, based on a t-test.

Table 5: Correlations between monthly returns of E-REITs, S&P/TSX Composite and changes in four interest rate series

Index Return Series	Bond rate			5-year Mort.	S&P/TSX Composite
	LT Gov.	10Y Gov.	Corp.		
E-REITs	-0.3626***	-0.3656***	-0.4195***	-0.2574***	0.3739***
S&P/TSX Composite	-0.1258	-0.1357	-0.2502***	-0.1095	

According to Allen, Madura and Springer (2001), the determinants of the returns on REITs are better assessed using a multifactor model. The model should contain the market proxy, as well as proxies for short-term interest rates, to capture the effect of changes in the cost of capital, and long-term interest rates, to capture the market expectations of future interest rates. To this end, a three-factor model is estimated where the E-REIT returns are regressed on the equity-market proxy (S&P/TSX Composite Total Return Index); the short-term interest-rate proxy (1-year Canadian T-bills); and, a long-term proxy (either the Canadian government long-term bond rate series or its 10-year counterpart). Because all interest-rate series are highly correlated, orthogonalization is used to remove the effects of multicollinearity.¹⁴

The R-square values for both long-term interest-rate versions of this model, which are reported in table 6, are reasonable at 0.27 (using the long-term government bond rate) and 0.24 (using the 10-year government bond rate). The estimated coefficient for the short-term interest rate proxy is slightly negative and statistically significant for the model with the long-term government bond rate only. While the estimated coefficients for both long-term bond rate proxies are significant, the estimated coefficient for the long-term government bond rate is positive (0.09) and that for the 10-year government bond rate is negative (-0.04), and is probably due to the different durations of these two long-term interest-rate series. As expected, the estimated coefficient for the orthogonalized equity-market proxy is significant and positive, but small in magnitude (about 0.04 in both regressions).¹⁵

Table 6 presents some summary statistics for a three-factor model for the monthly returns on the Canadian value-weighted index of E-REITs. The factors are the monthly rates on one-year T-Bills (1-yr T-bills), the monthly rates on long-term (LT) or 10-year (10-yr) government bonds (Gov. Bonds) and the monthly orthogonalized equity-market return (Orth. EMR). The equity-market return is orthogonalized to remove the impact of the other two factors. The definition and the source of the data for the various interest-rate series are as reported in table 5. *, ** and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively, based on a t-test.

¹⁴ The process of orthogonalization involves, for example, regressing an independent variable against another independent variable and then using the residuals from the regression instead of actual returns or rates for this independent variable in the basic regression relationship.

¹⁵ These results are consistent with those for various simple regressions between the E-REIT returns and each individual interest-rate series. All of the estimated betas are significant and they are positive [negative] for the equity market [each interest-rate series]. The most negative coefficient estimate of -0.08 occurs for the corporate bond-rate series.

Table 6: Summary results for regressions of the returns on the value-weighted E-REIT index based on a three-factor model

Regression	Independent Variables	Coefficient	Adjusted R-square
1	1-yr T-bills	-0.0113*	0.2705
	LT Gov. Bonds	0.0896***	
	Orth. EMR	0.0345***	
2	1-yr T-bills	-0.0104	0.2354
	10-yr Gov. Bonds	-0.0405***	
	Orth. EMR	0.0357***	

Sanders (1998) and Swanson, et al. (2002) propose regressing excess REIT returns on the term premium (i.e., rate spread between long-term government bonds and T-bills) and the default premium (i.e., rate spread between high-yield or Baa corporate bonds and long-term government bonds). Since the Canadian bond market is much less developed compared to the U.S. market, no high-yield corporate bond series exists for the full period examined herein. Therefore, we use the equity premium instead of the default premium in the model estimated herein.

As is evident from the regression results summarized in table 7, similar results are obtained using either long-term bond proxy. The betas for both government bond premia are significant and negative (-0.044 to -0.059), while that for the market premium is also significant, but positive (0.039 to 0.044). This implies that E-REIT excess returns are negatively and positively related with term premia and equity premia, respectively. These results are robust to the choice of ordering of the orthogonalization.

Table 7 presents some summary statistics for a two-factor-premium model for the monthly excess returns on the Canadian value-weighted index of E-REITs. The factors are the monthly excess rates on long-term (Excess LT) or 10-year (Excess 10-yr) government bonds (Gov. Bonds) and the monthly excess equity-market returns (Excess EMR). Excess returns are obtained by subtracting off the monthly Treasury bill rate. Either independent variable or factor is orthogonalized (Orth.) to remove the impact of the other factor. The definitions and the sources of the data for the various interest-rate series are as reported in table 5. "Reg." refers to regression. *, ** and *** indicate statistical significance at the 0.10, 0.05 and 0.01 levels, respectively, based on a t-test.

Table 7: Summary results for regressions of the excess returns on the value-weighted E-REIT index, based on a two-factor-premium model

Reg.	Independent Variables or Factors		Estimated Coefficient		Adjusted R ²
	Bond	Equity	LT Bonds	Market Premium	
1	Excess LT Gov. Bonds	Orth. Excess EMR	-0.0592***	0.0394***	0.2239
2	Orth. Excess LT Gov. Bonds	Excess EMR	-0.0524***	0.0440***	0.2244
3	Excess 10-yr	Orth. Excess EMR	-0.0500***	0.0390***	0.2251
4	Orth. Excess 10-yr	Excess EMR	-0.0439***	0.0441***	0.2251

Conclusion

Various aspects of the historical return performance of Canadian E-REITs were examined. Over the full period studied herein, the first-day abnormal returns of an average [typical] E-REIT are [in]significantly negative. Significant overpricing of average and typical E-REIT IPOs has corrected over time. No robust evidence exists for any abnormal returns during the first week to the first full year after issue, for the sample of Canadian E-REITs examined herein. This finding is inconsistent with the buyer strategy prescribed in the extant literature (with the exception of Below, Zaman and McIntosh, 1995) – that investors should buy REIT IPO issues only after they begin trading. This is especially inconsistent when one considers that trade costs are incurred with secondary market purchases, but not with purchases of an IPO issue.¹⁶ This finding adds to the unresolved question: Why are IPOs in Canada correctly priced, while those in the U.S. are mis-priced? We provide some possible reasons why this is the case, but leave the testing of these possible reasons to future study.

Secondary market investment in Canadian E-REITs, over the studied time period of 1996-2004, has generated considerably higher returns than for the S&P/TSX Composite with lower [higher] risk for a value- [equal-] weighted portfolio of E-REITs. Nevertheless, the Sharpe ratios, as measures of reward-to-variability, clearly indicate that both portfolio weightings of E-REITs outperformed the S&P/TSX Composite over the studied period, and that the size-weighted index outperformed its equal-weighted counterpart. These results are robust, since the outperformance based on the Jensen alphas as measures of reward-to-systematic risk clearly indicate that both

¹⁶ For an approximation of the likely magnitude of the nonbroker-commission component of such trade costs, Kryzanowski, Lazrak and Rakita (2006a) report proportional quoted and effective half-spreads of 50 and 42 basis points for Canadian business trusts during the first six months of 2004.

portfolio weightings of E-REITs earned significantly positive alphas with the same performance ranking as they did with the Sharpe ratios for the two weightings of the E-REITs.

However, caution should be exercised when basing future expectations on the secondary market performance of REITs over the studied period because the catalyst for the emergence of Canadian REITs was a liquidity crisis caused by rapidly declining asset values. Specifically, because of the sharp downturn in the value of North American property during the early 1990s, four Canadian open-end mutual fund trusts suspended redemptions during 1993 due to acute deficiencies in liquidity caused by a marked decline in the marketability of their asset holdings (Scotton, 1993; White, 1994). Three of these entities (North American Real Fund, the Metfin Real Estate Growth Fund and the Counsel Real Estate Fund) were restructured as closed-end funds and listed on the TSX during 1993.¹⁷ The fourth entity (MD Realty Fund) merged with the Canadian REIT (CREIT) in 1996.

Not only are the E-REIT indices not highly-correlated with the S&P/TSX Composite but, also, these indexes display approximately one-half the systematic market risk of the S&P/TSX Composite, over the studied period. Therefore, if past history is a useful guide for predicting the future relationship between these two asset classes, then E-REITs offer valuable diversification benefits, with no sacrifice in return, if added to a portfolio of common stocks.

As equity investments with greater fixed-income sensitivities, the returns of E-REITs are positively related to stock market returns and negatively related – with greater sensitivity than other equities – to interest rate changes. Furthermore, a greater portion of the variability of E-REIT returns is explained by the term premium than by the equity-market premium.

Acknowledgements

Financial support from the Concordia University Research Chair in Finance, SQRC_CIRPÉE, IFM2, SSHRC_CREF and SSHRC are gratefully acknowledged. The usual disclaimer applies. Please do not quote without the authors' permission.

¹⁷ They became Realfund REIT, Counsel REIT (later RioCan REIT) and Canadian REIT or CREIT, respectively.

References

- Allen, M.T., J. Madura, and T. Springer. (2001). REIT characteristics and the sensitivity of REIT returns, *Journal of Real Estate and Economics* 21, 141-152.
- Below, S., M.A. Zaman, and W. McIntosh. (1995). The pricing of real estate investment trust initial public offerings. *Journal of Real Estate Finance and Economics* 11, 55-64.
- Buetow, G.W., and R.R. Johnson. (2001). The real estate asset allocation decision: Monetary policy implications, *Journal of Real Estate Portfolio Management* 7: 3, 215-224.
- Buttimer, R.J, D.C. Hyland, and A.B. Sanders. (2005). REITs, IPO waves and long-run performance, *Real Estate Economics* 33: 1, 51-88.
- CAIF. (2005). Income trusts and REITs included in S&P/TSX Composite Index: Sector achieves mainstream recognition, Canadian Association of Income Funds, Press Release: January 26, 2005.
- Chan, S.H., J. Erickson, and K. Wang. (2003). *Real estate investment trusts: Structure, performance, and investment opportunities*, Oxford University Press.
- Chen, J., and R. Peiser. (1999). The risk and return characteristics of REITs - 1993-1997, *Real Estate Finance* 21, 61-69.
- Eckbo, E.B., and Ø. Norli. (2005). Liquidity risk, leverage and long-run IPO returns, *Journal of Corporate Finance* 11, 1-35.
- Glascok, J.L., C. Liu, and R. So. (2000). Further evidence on the integration of REIT, bond and stock returns, *Journal of Real Estate and Economics* 20: 2, 177-194.
- Goebel, P.R., and K.S. Kim. (1989). Performance evaluation of finite-life real estate investment trusts. *Journal of Real Estate Research* 4, 57-69.
- Gyourko, J., and D.B. Keim. (1992). What does the stock market tell us about real estate returns, *Journal of the American Real Estate and Urban Economics* 20: 3, 457-487.
- Han, J., and Y. Liang. (1995). The historical performance of real estate investment trusts, *Journal of Real Estate Research* 10, 253-263.
- He, L.T, J.R. Webb, and F.C.N. Myer. (2003). Interest rate sensitivities of REIT returns, *International Real Estate Review* 6: 1, 1-21.
- Helwege, J., and N. Liang. (2003). Initial public offerings in hot and cold markets. Working paper. *Federal Reserve Board-Finance and Economics Discussion Series*.

- Kortas, M., J-F. L'Her, and J.F. Plante. (2004). A prize at the right price, *Canadian Investment Review* (Winter), 15-21.
- Kryzanowski, L., S. Lazrak, and I. Rakita. (2006a). Trade costs and market behavior of TSX-listed income trusts. *Canadian Investment Review* 19:1 (Spring), 10-16.
- Kryzanowski, L., S. Lazrak, and I. Rakita. (2006b). The behavior of prices, trades and spreads for Canadian IPOs. *Multinational Finance Journal*, forthcoming.
- Kuhle, J.L., C.H. Walther, and C.H. Wurtzbach. (1986). The financial performance of real estate investment trusts (REITs), *Journal of Real Estate Research* 1, 67-75.
- Langton, James. (2006). Can all income trusts be trusted to provide income safely?, *Investment Executive* (February), 10.
- Ling, D.C., and M. Ryngaert. (1997). Valuation uncertainty, institutional involvement, and the underpricing of IPOs: The case of REITs, *Journal of Financial Economics* 43: 3, 433-456.
- Londerville, J. (2002). Canadian real estate investment trusts: A review of the IPO literature and preliminary analysis of Canadian REIT IPO pricing, *Canadian Journal of Administrative Sciences* 19: 4, 359-369.
- Marr, G. *REITs still rank low in trust sector: But stability rating good*, National Post. April 21, 2005. p. FP.9
- Mueller, G.R., and K.R. Pauley. (1995). The effect of interest-rate movements on real estate investment trusts, *Journal of Real Estate Research* 10, 319-325.
- News from Reuters, *Globeinvestor.com*. (2005). Bay Street week ahead – REITs are on a roll, April 24, 2005.
- Perkins, T. (2005). REIT sector faces challenges in keeping up its pace of growth: DBRS, *Canadian Press NewsWire*. Toronto: September 29, 2005.
- Ritter, J.R., and I. Welch. (2002). A review of IPO activity, pricing, and allocations, *Journal of Finance* 57, 1795-1828.
- Sanders, A. (1998). *The historical behavior of REIT returns: A capital markets perspective in real estate investment trust: Structure, analysis, and strategy*, McGraw-Hill.
- Scotton, Geoffrey. (1993). Struggling real estate funds suspend redemptions, *Financial Post* 87: 20 (May 15), M5.
- Shelor, R.M., and D.C. Anderson. (1998). The financial performance of REITs following initial public offerings, *Journal of Real Estate Research* 16, 375-387.

Smith, K.V., and D. Shulman. (1976). The performance of equity real estate investment trusts, *Financial Analysts Journal* 32, 61-66.

Swanson, Z., J. Theis, and K.M. Casey. (2002). REIT risk premium sensitivity and interest rates, *Journal of Real Estate Finance and Economics* 24: 3, 319-330.

Taxation of real estate, REITs and royalty trusts, www.professionalreferrals.ca.

The REIT Guide: 8th Edition, Real Estate, Real Estate Investment Trusts, Deloitte, Canada – Deloitte & Touche LLP.

Titman, S., and A. Warga. (1986). Risk and the performance of real estate investment trusts: A multiple index approach, *Journal of the American Real Estate and Urban Economics* 14, 414-431.

Wang, K., S.H. Chan, and G.W. Gau. (1992). Initial public offerings of equity securities: Anomalous evidence using REITs, *Journal of Financial Economics* 31, 381-410.

White, Scott. (1994). REIT on time, *Benefits Canada* 18: 5 (May), 59-60.

Welch, Ivo. (1989). Seasoned offerings, imitation costs and the underpricing of initial public offerings, *Journal of Finance* 44: 2, 421-449.

Willis, Andrew. (2006). Dealers step up REIT coverage. *The Globe and Mail*, February 15, B16.

Zietz, E.N., G.S. Sirmans, and H.S. Friday. (2003). The environment and performance of real estate investment trusts, *Journal of Real Estate Portfolio Management* 9: 2, 127-165.