The Blended Approach to Real Estate Allocations: Performance Implications of Combining an Exposure to German Spezialfonds with Global Listed Real Estate Securities

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Literature Review

Listed real estate – Real estate or equity?

For blended real estate allocations to operate effectively it is imperative that the listed and unlisted elements have common, albeit lagged, drivers of performance. The literature is consistent on this point, both by sample region and time period. Hoesli and Oikarinen (2014) examined the similarity of returns and risks for publicly traded securitised assets and privately owned non-securitized assets using real estate market data in the US and UK. They found that the public and private real estate investments can be considered to work as good substitutes in an investment portfolio with several years investment horizon, since they provide similar total returns and return variances, and co-move tightly over the long horizon. As securitised real estate assets enable diversification with smaller amounts of capital, and the liquidity is better and transaction costs are lower in the public market than in the private market,

their findings suggest that those investors who have relatively small amounts of capital and highly value liquidity and small transaction costs should tilt their real estate holdings towards publicly traded REITs. Nevertheless, this does not necessarily hold for all the real estate sectors, and liquidity and transaction costs tend to have less importance the longer is the planned investment horizon. Secondly, the long-term similarity of public and private returns proposes that REIT related ETFs and derivatives can be used to hedge risks created by direct real estate holdings.

Kroenke at al (2015) showed that the expected listed real estate risk premium can be dissected into 36% stock market risk, 40% real estate risk and 24% business cycle risk. Using these quantitative results, our model can help to allocate multi-asset portfolios with publicly traded REITs in order to replicate the exact exposure of the underlying direct real estate market.

Benefits of using a blended approach

Moss and Farrelly (2014) looked at the performance implications of combining an unlisted UK real estate holding with a global listed allocation. They found the following:

Over the past 15 years a 30% listed real estate allocation has provided a total return enhancement of 19% (c. 1% p.a.annualised) to an unlisted real estate portfolio. Over the past 10 years this was 43% (c. 2% p.a. annualised), a result which is consistent with the previous Consilia Capital study. Over five year the enhancement is c. 4% p.a. annualised, amounting to +390% in absolute terms). The price of this enhanced performance and improved liquidity profile is, unsurprisingly, higher portfolio volatility, of around 2% p.a., from 6.4% to 8.4%. . However, because of the improved returns, the impact on the Sharpe ratio is limited. Although there was an additional 4% tracking error cost vs. the direct UK real estate market when including 30% listed allocations, this was felt to be surprisingly small given that the listed element comprises global rather than purely UK stocks. They also found that c. 1.3% tracking error arises for a well-diversified unlisted portfolio highlighting that pure IPD index performance is unachievable. This tracking error rises to 2% if subscription costs are included. While the volatility of listed exposure is well-known, it is equally well-recognised that the true volatility of unlisted funds is greater than commonly stated. They refined their measurements for risk by accounting for non-normalities and valuation smoothing and found that unlisted funds contributed to a greater share of overall risk.

REITs in a multi asset portfolio

The nature of the benefit of adding REITs to a multi asset portfolio has been widely researched (Lee and Stevenson, 2005), with recent evidence (Lee, 2010) confirming that both the benefit (be it return enhancement, diversification, or risk reduction) and the size of the impact are time-variant.

Moss et al. (2015) found that a combined momentum and trend following Global REIT strategy was beneficial for both a dedicated REIT portfolio and adding REITs to a multi-asset portfolio.

Benefits of using automated trading rules

Following the market dislocation in the Global Financial Crisis of 2007-2009 the key risk variable (after liquidity) that a number of practitioners started to focus on was maximum drawdown, and how to minimise it without sacrificing returns. Maximum drawdown is defined here to be the maximum possible loss suffered by an investor over a particular calendar period who purchased the asset at the highest possible price and sold at the subsequent lowest price. This class of risk measure actually has a long history of both practical and theoretical importance dating from Roy (1952). The prospect of losing several years (or even decades) of value accumulation in a brief period meant that attention turned to strategies which could minimise the full loss crystallised in a buy and hold strategy. The two most obvious strategies which could be applied to REITs are momentum and trend following.

The classic equity strategy highlighted by Jegadeesh and Titman (1993) involves buying the 'winners' over the past 6-12 months and selling the 'losers' over the same period. This is frequently referred to as cross-sectional momentum, or relative momentum by Antonacci (2012). Studies by Erb and Harvey (2006) and Miffre and Rallis (2007) demonstrate the effectiveness of this approach within commodity markets.

An alternative type of momentum investing is where one is interested only in the direction of prices or returns rather than how they fare against their peer group. This type of activity is known as trend following (other names include time series momentum and absolute momentum) and is frequently used by Commodity Trading Advisors (CTAs) (see Szakmary et al, 2010). This is the methodology that we will be employing in this paper. As examples, trend following rules may use the current price relative to a moving average (Faber, 2007), or the length of time that excess returns have been positive over a range of timeframes (Hurst et al, 2012). The aim is always to trade in the direction of the prevailing price, i.e. when prices are rising long positions are taken and when prices are falling then cash or short positions are taken.

Trend following has been an investment approach used for many decades, particularly in commodities markets (see Ostgaard, 2008). Essentially investors are looking to own assets that are showing rising (positive) trends (returns) and sell assets that are in downward (negative) trends (negative returns, falling prices). A number of papers have demonstrated the validity of the strategy such as Hurst et al (2012) in futures markets, Faber (2007) and Clare et al (2014) in a multi-asset context and Szakmary et al (2008) in commodities. There are a very large number of ways of defining a 'trend' and these have been explored extensively in the investing literature: one can look at today's asset price and compare it with an average of the last 90, 120, or 200-day averages (so-called 'moving averages'), or compare different moving averages to see when (if) they 'crossover', or one could simply ask if recent (however defined) returns are positive. Clare et al (2013) investigate a very wide range of such technical rules for investing in the S&P 500 for most of the 20th century and conclude that very simple trend-following investing rules are at least as good as, if not superior to, more complex rules.

Evidence for the effectiveness of trend following strategies has been presented by Faber (2007), ap Gwilym et al (2010) and Moskowitz et al (2011), amongst others. Clare et al (2012) demonstrate that when relative momentum is compared to trend following it is the latter that provides by far the more impressive investment performance enhancement for a variety of asset classes.

Data

We have used the following indices to reflect the respective asset classes for this study, all (re) based in Euros:

- German Unlisted Real Estate (Spezialfonds) : IPD / BVI German Quarterly Spezialfonds Index (SFIX)
- Global Real Estate securities : EPRA Global developed Index
- Bonds: Datastream German 10yr Bonds,
- Alternatives: Barclay Hedge Multi Strategy Index
- Domestic Equity: MSCI Germany Index
- Global Equity: MSCI World Index
- Cash: 3m EURIBOR.

Our sample period is December 2004 to March 2015 and we are using quarterly data.

Methodology and Results

We first examine the underlying returns of the two elements of the real estate allocation that we are modelling, the MSCI Spezialfonds Index (which we will call the German unlisted real estate exposure) and the EPRA Global Developed Index (which we will call the global listed real estate exposure).

Exhibit 1 shows the return profile from December 2004 to March 2015. As expected the unlisted element has a low level of both return and volatility, whilst the global listed element reflects continuous pricing throughout several periods of market turbulence and therefore exhibits higher returns and volatility.

We then consider the returns of the blended approach (70% unlisted, 30% listed) vs a 100% unlisted real estate portfolio (Exhibit 2).

As can be seen the impact of this 70/30 blending (which is rebalanced each quarter) is to improve the returns consistently (ex the GFC), the question is how do these returns look on an annualised basis (Exhibit 3)?

As can be seen the basic German unlisted real estate portfolio produced an annualised return of 2.88% over the period. In contrast the Global Listed real estate portfolio produced an annualised return of 9.64%. The key point, however, is that the blended portfolio, which substituted just 30% of the unlisted allocation for listed exposure, produced a return of 5.42% pa. , representing in absolute terms an uplift of 1.54% p.a. . The cost of this increased return is an increase in volatility to 6.53% (still low relative to typical equity volatility), and a subsequent reduction in the Sharpe Ratio. However, the key drawback is the other risk measure which we are monitoring, i.e. Maximum Drawdown. It is because of this that we now examine a rules-based strategy (Trend Following) to see if this can reduce the Maximum Drawdown without sacrificing the returns.

Trend Following Strategy

We adopt the straightforward but robust rule outlined below, which has been applied successfully in many studies covering different asset classes, countries and time-periods (see Faber (2007)).
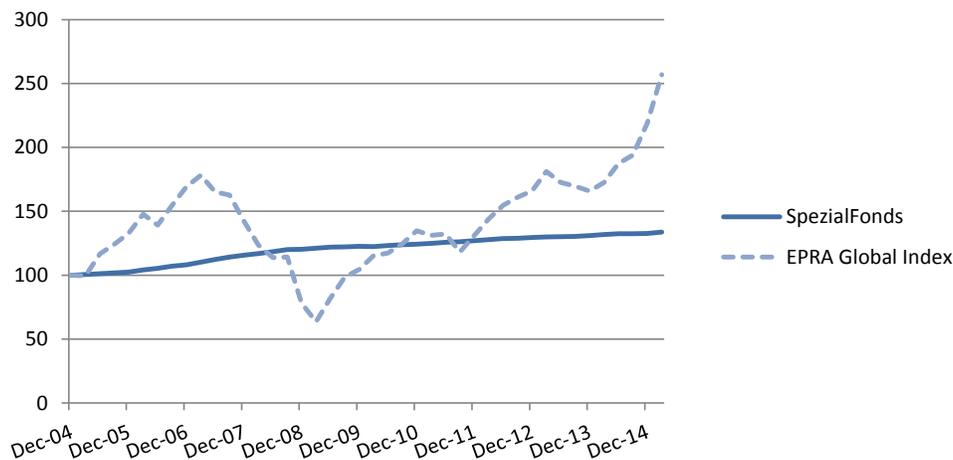

Exhibit 1: Unlisted German Real Estate Returns vs Global Listed Returns 2004-2015
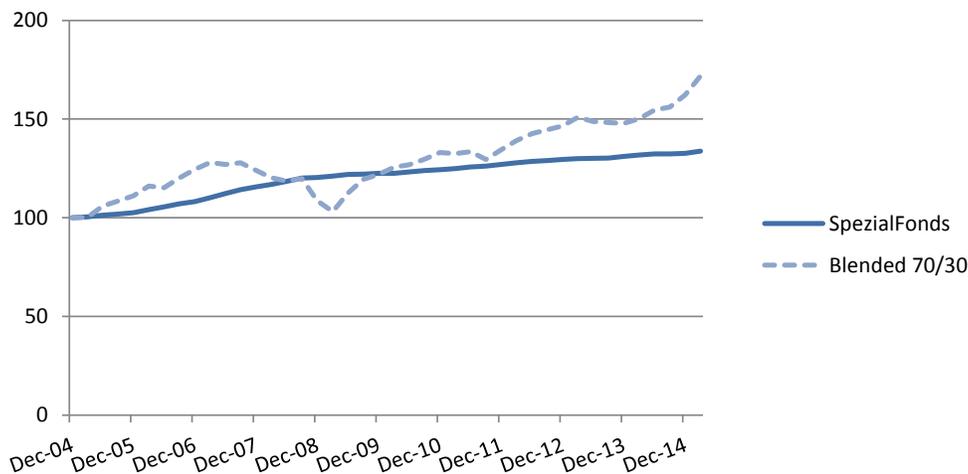Source: MSCI/IPD, EPRA

Exhibit 2: Unlisted German Real Estate Returns vs Blended Returns 2004-2015
Source: MSCI/IPD, EPRA

This rule states that If the price of the asset class index is above its 10-month moving average (i.e. the average of the previous 10-months' last trading day's closing price) then we classify the asset class as in an uptrend and it is purchased, if not already held. However, if the price is below the 10-month moving average then the asset is classified as in a downtrend and the asset is sold with the proceeds invested in US Treasury Bills (or equivalent). We use 3 month EURIBOR as this is a European study. Signals are determined on an end-of-month or end-of-quarter basis. Consistent with Faber (2007), no short-selling is permitted and no transactions costs are deducted. As mentioned, Clare et al (2013) examined whether more complex technical trading rules, stop-losses or more frequent trading would improve performance but they show conclusively that this is not the case so we have stuck with the straightforward model.

Firstly we examine the impact of adopting a Trend Following strategy on the EPRA Developed Index, over the longer time period available (i.e. back to Dec 1990 rather than Dec 2004 which is when the Unlisted Index data is available) and also using monthly data frequency rather than quarterly.

The key point is that all risk and return measures improve significantly. Annualised returns rise by over 4% p.a. and Maximum drawdown reduces to under 17% from over 65%. We can therefore see that this automated rules based trading strategy should help minimise the deterioration of the risk metrics which we showed in Exhibit 3.

We now look at what impact using a Trend Following strategy has on the Blended portfolio over the shorter period 2004-2015. N.B. The Trend Following strategy is still applied monthly, but for consistency with the unlisted data only the quarterly values are shown for returns, volatility, Sharpe Ratio and Maximum Drawdown are used.

We can see how the performance of the blended portfolio improves, relative to the buy and hold strategy by comparing the results of Exhibit 4 with those in Exhibit 3. By using Trend Following we have seen the following enhancements:

- Annualised returns of the Blended Portfolio increase from 5.42% p.a. to 6.94%

- Volatility declines from 6.53% to 3.45%

- Because of the above, the Sharpe Ratio improves from 0.55 to 1.49

- Critically, the Maximum Drawdown reduces from 19.41% to 1.83%.

Impact on a Mixed Asset Portfolio

Finally, we have taken a standard German pension fund allocation (source: Mercer EU Asset allocation Survey 2014) of 65% Bonds, 7% Domestic equities, 7% non-Domestic equities, 9% real estate, 11% alternatives as our benchmark Multi-Asset portfolio. We have then shown 5 different compositions of the 9% real estate allocation, namely;

- 100% allocation to Spezialfonds

- 70/30 unlisted/listed blended portfolio

- 50/50 blended portfolio

- 70/30 blended portfolio with Trend Following applied

- 50/50 blended portfolio with Trend Following applied

For purposes of comparison, we have also shown (in the first column of Exhibit 6) the results for a 100% German Bond portfolio over the same period. As can be seen, the Multi-Asset portfolio generated greater returns, lower volatility and therefore a higher Sharpe Ratio, for all combinations of real estate compositions.

The impact of using a blended portfolio of listed and unlisted exposure on a mixed-asset portfolio is still noticeable. Taking 100% Unlisted exposure as one extreme, and a 50/50 balance using Trend Following as the other, annualised returns for the multi-asset portfolio are improved from 7.66% to 8.28% , the Sharpe Ratio improves from 0.91 to 0.98 , whilst the impact on volatility is marginal (6.43% rising to 6.46%) and maximum drawdown is unaffected .

Dec 04 - Mar 15 Inclusive	German Unlisted	Global Listed	Blended (70/30)
Annualized Return (%)	2.88	9.64	5.42
Annualized Volatility (%)	1.03	21.90	6.53
Sharpe Ratio	1.05	0.36	0.55
Max Drawdown (%)	0.09	64.23	19.41
NB. Quarterly Data in EUR.			

Exhibit 3: Annualized Risk and Return Measures of the Three Portfolios
Source: MSCI/IPD, EPRA

Dec 04 - Mar 15 Inclusive	German Unlisted	Global Listed(TF)	Blended (TF)
Annualized Return (%)	2.88	16.37	6.94
Annualized Volatility (%)	1.03	11.62	3.45
Sharpe Ratio	1.05	1.25	1.49
Max Drawdown (%)	0.09	9.20	1.83
NB. Quarterly Data in EUR.			

Exhibit 4: Global Listed Returns 1990-2015– Basic and Using Trend Following (TF)
Source: MSCI/IPD, EPRA

Dec 90 - Mar 15 Inclusive	EPRA Dev. Index	EPRA with TF
Annualized Return (%)	10.69	14.95
Annualized Volatility (%)	17.46	12.30
Sharpe Ratio	0.42	0.94
Max Drawdown (%)	65.45	16.59
NB. Monthly Data in EUR.		

Exhibit 5: Annualized Risk and Return Measures Using Trend Following
Source: MSCI/IPD, EPRA

	100% Bonds	100% Spzl	70/30	50/50	70/30 TF	50/50 TF
Annualized Return (%)	6.72	7.66	7.9	8.06	8.03	8.28
Annualized Volatility (%)	6.71	6.43	6.61	6.76	6.55	6.64
Sharpe Ratio	0.74	0.91	0.92	0.93	0.95	0.98
Max Drawdown (%)	6.85	8.96	9.58	9.99	8.97	8.98

Exhibit 6: Annualized Risk and Return Measures of a Mixed Asset Portfolio, with Altered Real Estate Compositions
Source: MSCI/IPD, EPRA

Conclusions

We have examined how changing the composition of the real estate portfolio for a German institution from 100% exposure to unlisted funds to incorporate an element of global listed real estate will effect risk and return measures over the period that data is available for both components (2004-2015). We found that there were significant benefits to doing so, as follows:

- By blending a 30% global listed portfolio with a 70% allocation to Spezialfonds returns increase from 2.88% p.a. to 5.42% p.a.

- Volatility increases, but only to 6.53%.

- The most noticeable impact is on maximum drawdown which increases to 19.4%.

We then used a simple Trend Following Strategy for the global listed element to see how this impacted risk and return metrics. We found that:

- Raw returns improved from 5.42% for the simple 70/30 blended portfolio, by over 1.5% p.a to 6.94% p.a. This represents an increase of 4.1% p.a. by adding this rules-based listed element to a Spezialfonds portfolio

- Significantly, there is only a marginal increase in volatility from 1.03% to 1.49%, so the Sharpe Ratio has increased from 1.05 to 1.49, and the Maximum Drawdown ratio is now only 1.83% compared to 19.4% using a buy and hold strategy

Finally we considered the impact on a Multi-Asset portfolio, using what is considered a typical mix in 2014 for a German institution. Taking 100% Unlisted exposure as one extreme, and a 50/50 balance using Trend Following as the other, annualised returns for the multi-asset portfolio are improved from 7.66% to 8.28%, the Sharpe Ratio improves from 0.91 to 0.98 , whilst the impact on volatility is marginal (6.43% rising to 6.46%) and maximum drawdown is unaffected .

Compared to a 100% Bond portfolio, the Multi-Asset portfolio generated greater returns, lower volatility and therefore a higher Sharpe Ratio, for all combinations of real estate compositions.

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Authors' Bios

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Alex Moss has been involved in research and transactions in the global listed real estate sector for over 30 years. His career has encompassed award-winning sell side research (BZW), corporate broking (CSFB), private equity (Apax Partners Capital), and fund management (M&G). He formed AME Capital in 2002, which developed a proprietary database and analytical tool for all listed real estate companies and real estate securities funds globally. This business was sold to Macquarie Securities in 2008, where he stayed for over three years as Head of Global Property Securities Analytics. He formed Consilia Capital, a real estate investment advisory firm, in 2012, and has developed an international institutional client base, as well as publishing regularly in academic journals. Consilia Capital produces a monthly publication, based on the performance of real estate, infrastructure and real asset funds, which features academic papers of interest to practitioners.

He is a member of the EPRA Research Committee, the Editorial Advisory Board of the Journal of European Real Estate Research, and was Chairman of the IPF Research Steering Group which sponsored the report on Real Estate Allocations within DC Pension Schemes in the UK. He is an advisor to Investec Asset Management, working with the Multi-Asset team, and is the Chairman of the Investment Committee for the Investec GSF Global Real Estate Securities Fund, which he has been involved with since inception. In 2015 he was appointed a Visiting Professor at Henley Business School, University of Reading.

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Andrew Clare is the Professor of Asset Management at Cass Business School and the Associate Dean responsible for Cass's MSc programme, which is the largest in Europe. He was a Senior Research Manager in the Monetary Analysis wing of the Bank of England which supported the work of the Monetary Policy Committee. While at the Bank Andrew was responsible for equity market and derivatives research. Andrew also spent three years working as the Financial Economist for Legal and General Investment Management (LGIM), where he was responsible for the group's

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Stephen Thomas is currently Professor of Finance at Cass Business School, London, having previously been a professor at the University of Wales, Swansea, and the University of Southampton. He was Houblon-Norman Fellow at the Bank of England, 1990, and in 2005 was ranked 11th for finance research across Europe.In 1994 he co-founded the Investment Management Certificate for CFA UK and is co-author of the Training Manual, now in its 12th edition. He has been active in investment with Firecrest Hambro, the Bear Stearns ' Global Macro fund, Hasley Investment Management, and Solent Systematic Investment Strategies. His research in financial markets and investment management has won several international prizes. He is a Member, Academy of Experts, 2013-present.

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James Seaton previously worked as a researcher at Cass Business School. He studied at the University of Southampton for a BEng in Civil Engineering, an MSc in International Financial Markets, and PhD in Finance.

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