PRICING REIT LIQUIDITY THROUGH THE CYCLE THE EUROPEAN EXPERIENCE 2002 -2012

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- Background
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- Results
- Summary and Conclusions

BACKGROUND – KEY POINTS

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- The Fama-French three factor model (1993) highlighted the concept that less liquid stocks (should and do) yield higher returns.
- Similarly, the endowment model, which was pioneered by David Swenson at Yale emphasised investing in illiquid alternative assets such as real estate to improve longer term incremental returns.
- Recent evidence* however suggests that the sensitivity of stock returns to liquidity and liquidity premia have declined significantly over the last four decades.
- The importance of liquidity moves over time **, and over the last 5 years higher levels of liquidity have become more highly prized.
- In listed real estate there has been increased use of sector indices and strategies based purely on liquidity.
- Equity capital market fund raising in European listed real estate has, broadly, been confined to the larger, more liquid companies.

- The diminishing liquidity premium, Ben-Raphael, Kadan, and Wohl 2010, **Liquidity driven dynamic asset allocation , Xiong, Sullivan and Wang 2012,

PURPOSE OF THE STUDY

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- This study looks at the European listed real estate sector only, and deals with one component of return generation, namely valuation movements, as measured by the discount/premium to NAV.
- Since REIT returns converge towards direct real estate returns over the longer term*** longer term returns will be asset driven, whilst current valuations will be, inter alia, liquidity driven.

We are interested in discovering :

- The most relevant way of measuring liquidity for European listed real estate
- Whether liquidity be isolated as a valuation driver for this sector
- If we can quantify a liquidity premium <u>in valuations, rather than returns.</u>
- Current levels of liquidity premia and the implications for capital raising

- ***Are REITs real estate, evidence from international sector level data , Hoesli , Oikarinen 2012

DOES SIZE & LIQUIDITY MATTER IN VALUATION ?

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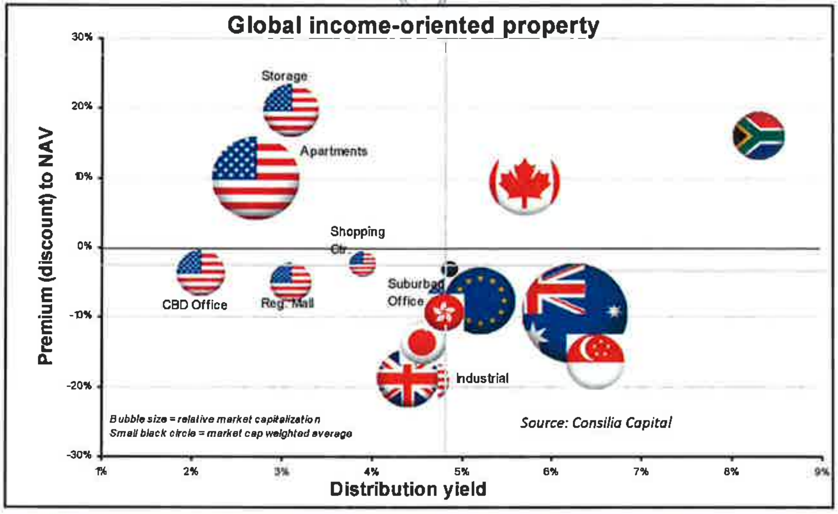

HOW MANY FACTORS AFFECT RETURNS AND VALUATIONS?

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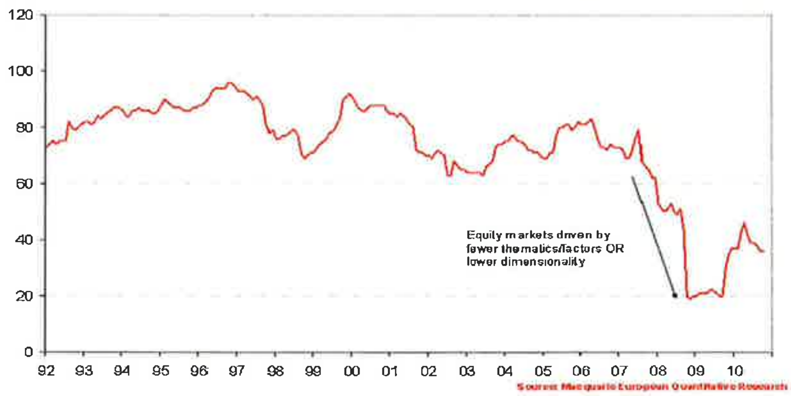
- Concept of market dimensionality and importance of liquidity as a factor



THE SAMPLE

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- We have taken data from 2002 to 2012 for companies from the UK and Europe and divided them into large , medium and small as follows:

	UK	Europe
Large	Land Securities Group PLC	Unibail-Rodamco SE
	British Land Co PLC	Corio NV
	Hammerson Plc	Klepierre
	Segro	Wereldhave NV
Mid	Derwent London	Kungsleden AB
	Great Portland Estates Plc	Beni Stabili SpA
	Shaftesbury Plc	Sponda OYJ
	Capital & Counties Properties PLC	Vastned Retail NV
Small	Primary Health Properties PLC	Vastned Offices/Industrial
	Development Securities PLC	Societe de la Tour Eiffel
	ST Modwen Properties Plc	DIC Asset AG
	Helical Bar Plc	Fastighets AB Balder

CAVEATS AND EXPECTATIONS

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- The sample size is small, as indeed is the European listed real estate sector relative to both the global listed real estate market, declining from c. 25% to c. 12%, and the UK and European equity markets. Therefore results can be distorted by stock specific factors.
- Ideally the underlying assets of the companies would be homogenous so that the liquidity premium could be isolated. In practice this is not the case.
- In the current environment we would expect the most liquid stocks to have superior valuations.
- The most highly regarded (valued) stocks may not be the largest, and may still benefit from an "illiquidity" or scarcity premium.
- The valuation premium for liquidity may not be linear or "graded", but indeed binary , i.e. only companies with a minimum level of liquidity are included in portfolios, and can raise further equity capital

WHAT DO WE MEAN BY LIQUIDITY ?

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- Depth: a market is deep when there are orders both above and below the trading price of an asset.
- Breadth: a market is broad when there is a large volume of buying and selling orders. The spread is large when the order flow is scarce
- Resiliency: a market is resilient if there are many orders in response to price changes. There is a lack of resiliency when the order flow does not adjust quickly in response to price swings.

WHAT DO WE MEAN BY LIQUIDITY ?

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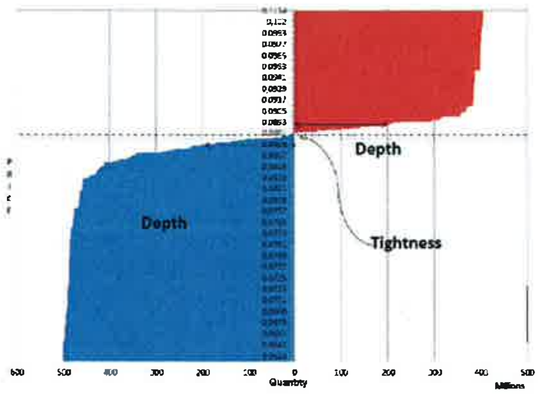

HOW WE MEASURE LIQUIDITY

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- Bid-ask spread (Transaction cost measure)
- Turnover ratio (Volume based measure)
- Hui Heubel liquidity ratio (Volume based measure)

BID ASK SPREAD

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- Definition $$Spread = \frac{(P_{ask} - P_{bid})}{(P_{ask} + P_{bid})/2}$$
- The bid-ask spread arises from three main components: order processing, adverse information and inventory costs.
- A high level of competition between intermediaries allows for a reduction of the order processing component and improves the liquidity condition of the market.
- The informational component of the bid-ask spread sheds light on the degree of efficiency due to the presence of hidden information or insider trading

BID ASK SPREAD RESULTS UK

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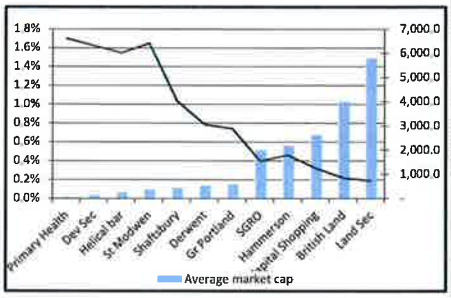
- Findings are consistent with other studies :
- 1) spreads are inversely correlated with market capitalisation

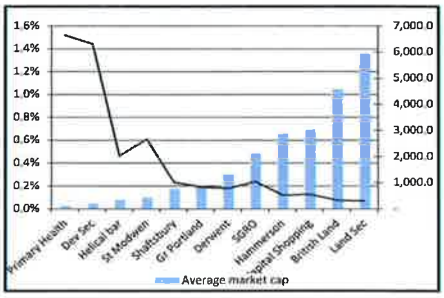
2002-2006



Source: Bloomberg, Authors

- 2) Spreads have reduced over time

2007-2012



BID ASK SPREADS EUROPE

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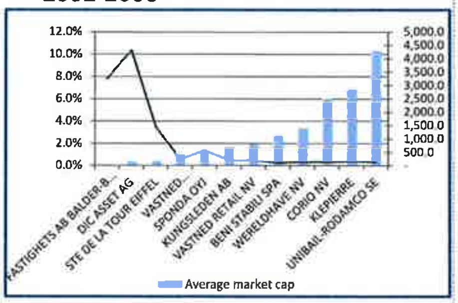
- In Europe , spreads have been higher than in the UK.....

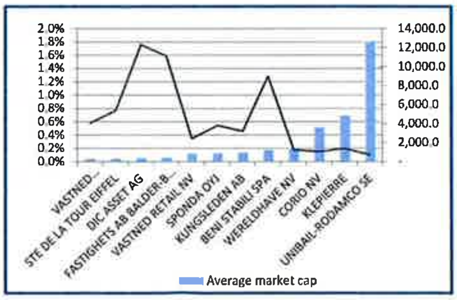
2002-2006



Source: Bloomberg, Authors

....but have shown a similar downward trend

2007-2012



TURNOVER RATIO

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- Definition

$$V = \frac{N_t}{N_{total}}$$

- It represents the number of shares traded vs. the total number of shares outstanding

- As a volume based measure it is defined as the volume traded vs. the total volume outstanding

TURNOVER RATIO RESULTS UK

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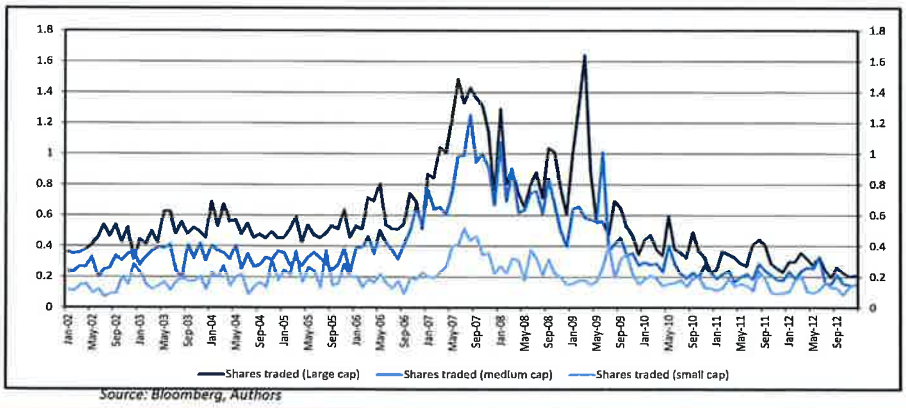
- In the UK there is a clear correlation between the size of the company as measured by market capitalisation, and the percentage of shares traded relative to the amount outstanding



Source: Bloomberg, Authors

TURNOVER RATIO RESULTS EUROPE

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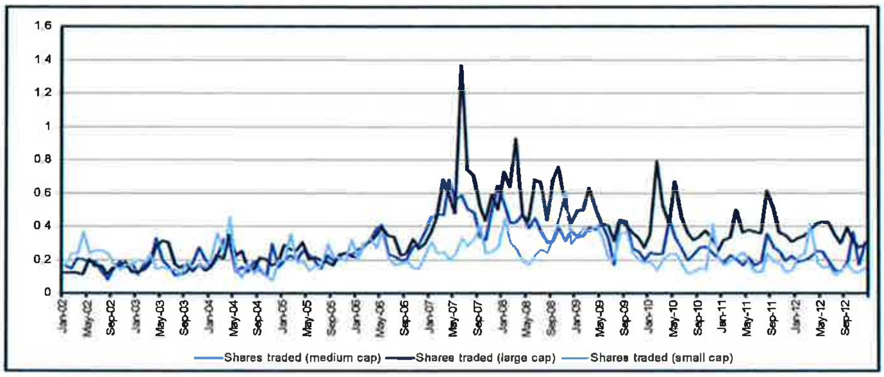
- In Europe the picture is less concrete, and absolute levels of turnover are lower, but there is still a clear correlation between gross market capitalisation and relative liquidity.



Source: Bloomberg, Authors

HUI HEUBEL LIQUIDITY RATIO

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- Definition

$$HH = \frac{[(P_{\max} - P_{\min})/P_{\min}]}{(V/(S * \ddot{P}))}$$

- The Hui Heubel liquidity ratio is a volume based measure, relating average volumes over a defined period (i.e. 1 day, month, etc.) to observed price ranges

- Pmax is the highest daily price over a 1month-day period, Pmin is the lowest daily price over the same horizon, V is the total volume of assets traded over a 1month-day period, S is the total number of assets outstanding and P denotes the average closing price

HH LIQUIDITY INDEX RESULTS

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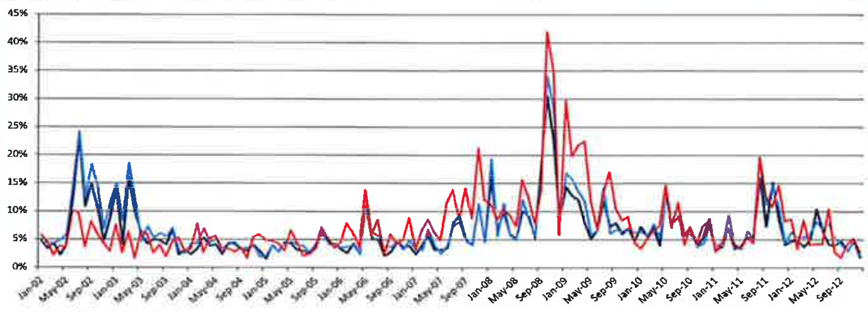
- The lower the index the higher liquidity. We show below the HH Index results for the UK equity market, the European equity market and the European listed real estate market (EPRA). Although the sector exhibited lower levels of liquidity at times of market stress (2008-09) , current levels are similar to the equity market overall.



Source: Bloomberg, Authors

HH LIQUIDITY INDEX RESULTS

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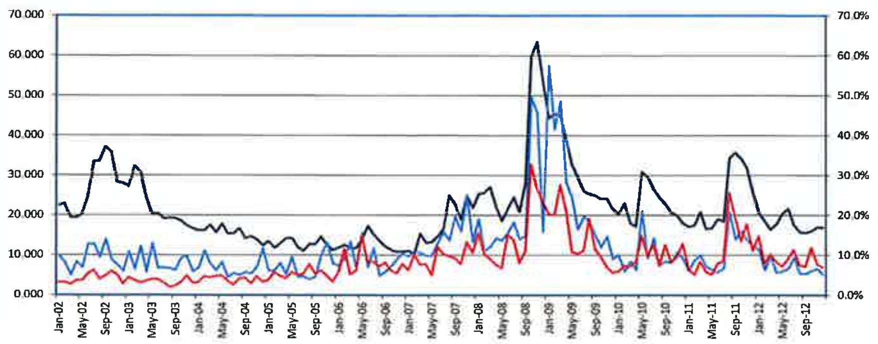
- We show below the relationship between an overall measure of volatility (uncertainty) and the liquidity of our sample stocks. As expected as volatility increases so liquidity reduces. The correlation to the VIX Index is 74% for the UK stocks and 69% for the European stocks.



Source: Bloomberg, Authors

VALUATIONS – UK

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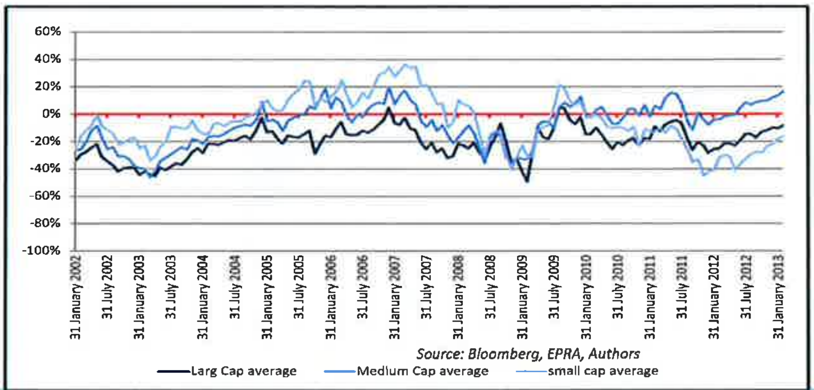
- We show below the discount to NAV of the stocks in our sample. NB the NAVs have been "smoothed" on a monthly, linear basis
- This shows very clearly that up to 2008 smaller, and since 2010 medium sized stocks (which have a C. London bias) command a valuation premium.



VALUATIONS – EUROPE

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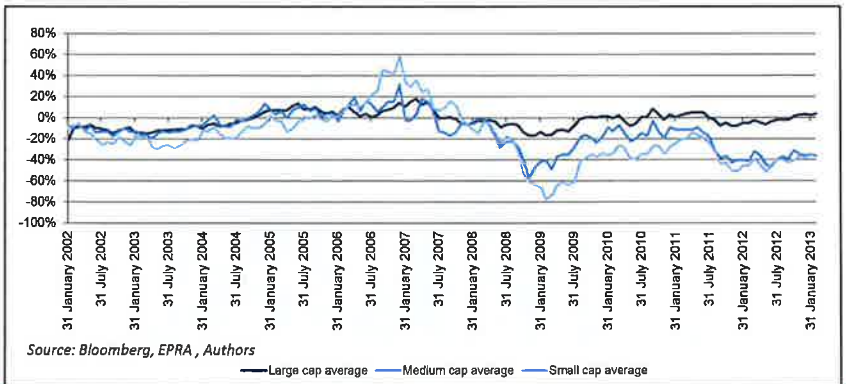
- In Europe, by contrast , with the exception of the latter stages of the bull market in 2006 and early 2007 the larger , more liquid companies have a higher valuation. NB this is at least partly attributable to the impact of by the largest stock Unibail being widely regarded as the best managed.



SECTOR LEVEL LIQUIDITY

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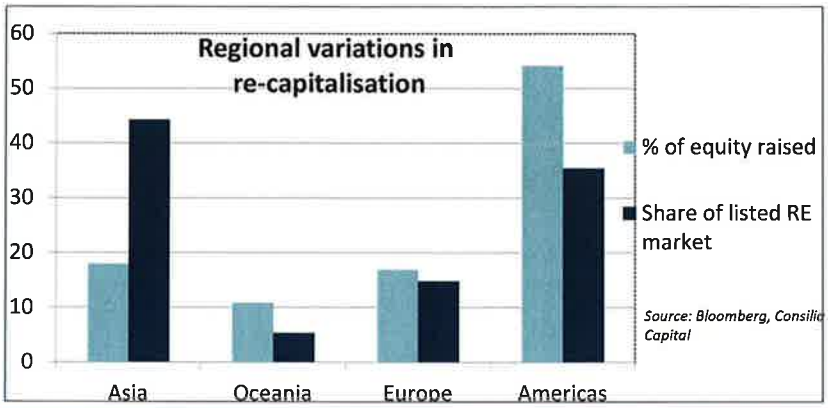
- The level of equity capital raising is clearly a key determinant in sector level liquidity. In this regard Europe has lagged significantly behind the US in raising new equity, and growing as a sector.



CAPITAL MARKET ACTIVITY – DEBT AND EQUITY

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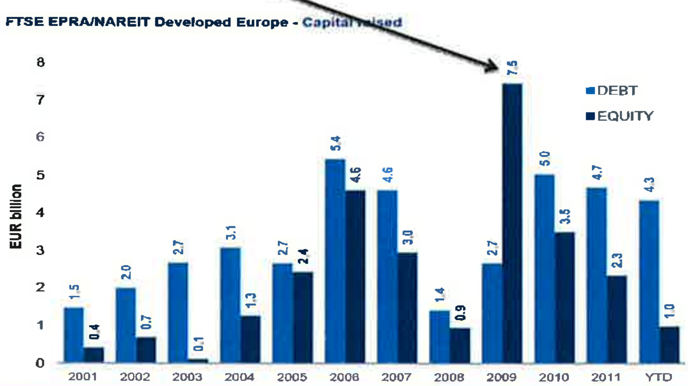
- The table below , which shows equity and debt fund raising activity in Europe (source: EPRA) illustrates clearly the "windows of opportunity" for equity raising in particular.



SUMMARY AND CONCLUSIONS

We believe that the questions posed at the outset can be answered as follows:

•The most relevant way of measuring liquidity for European listed real estate

A combination of the turnover ratio and the Hui-Huebel Liquidity ratio

•Can liquidity be isolated as a valuation driver for this sector

Yes, but only at certain times in the cycle.

• Can we quantify a liquidity premium in valuations, rather than returns.

Yes, by using a discount to NAV methodology and grouping stocks by size/liquidity bands

•Current levels of liquidity premia and the implications for capital raising

These vary from UK to Europe. In both cases, however, smaller companies are denied access to equity capital markets at anything other than highly dilutive levels. This may lead to private equity style or "club" investing.