

THE RELATIONSHIP BETWEEN PROPERTY YIELDS AND INTEREST RATES: SOME THOUGHTS

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EXECUTIVE SUMMARY

Long-run interest rates are likely to stay low when compared to previous cycles, due to lower prospects for potential GDP growth. Moreover, the ECB will have to keep rates lower for longer, as core inflation in the euro zone is still too low. The main implication of a long-run low-interest rates environment is that the potential for increasing property yields is much more limited than in the past, therefore providing some protection to this asset.

History teaches that it is not necessarily true that an increase in interest (or bond) rates must be associated to an increase in property yields. The most likely explanation is related that real estate behaves like a hybrid between fixed income and equity. Higher interest rates are normally related to higher growth rates, which, in turn, should result into faster income growth for real estate assets. The yield gap between property and bonds is at very high levels compared to history. All other things being equal, it will take a significant increase in bond rates to exert upward pressure on property yields.

The volatility in the property yield gap suggests the influence of other factors playing a substantial role in affecting property yields, including bond and equity yields, the cost and availability of credit, rental prospects, international capital flows and asset allocation considerations. When all metrics are considered property looks about fair value.

1. THE NATURAL PATH FOR INTEREST RATES

It is commonly believed that increasing interest rates will result in rising property yields and, eventually, be detrimental to property performance. However, while movements in interest rates affect real estate returns, reality is much more complex. This issue is even more significant today, as the Fed is engaging in a rate hike cycle in the US. On the other hand, the situation in Europe is different and, although headline inflation has come off the lows witnessed in 2015/2016, core inflation is still low and, as a result, the ECB is still not ready to normalise monetary policy.

Overall, the value of forecasting short-run changes in interest rates is limited from the point of view of a property investor. In this sense, there is more merit in understanding how interest rates are expected to behave in the medium-to-long-run. There exist many definitions of long-run interest rate, but the one we prefer describes it as the real (inflation-adjusted) interest rate that the economy will converge to over time. This can be described as the “neutral” interest rate, i.e., the real interest rate at which real GDP is growing at its trend rate and inflation is stable. The neutral rate provides an important benchmark for policymakers to compare with the going rate. When interest rates are neutral the economy is on a sustainable path, and it is deviations from neutrality that cause booms and busts. For example if the market rate is pushed artificially below the neutral real rate, monetary policy is accommodative and tends to stimulate growth. Conversely, if real interest rates are above the neutral rate, monetary policy is restrictive and is detrimental to GDP growth.

The neutral interest rate is time-varying and is not directly observable so it needs to be estimated. In order to estimate the neutral rate, we need to make some assumption about trend GDP. Trend GDP crucially depends on the potential size of the labour force (which is determined by demographic factors and participation rates) and productivity growth¹. Now, trend GDP growth has declined rapidly over the last 25 years (see Table 1) and even more after 2007/2008. This is largely contingent on a) weakening demographics and ageing population, which has resulted in lower labour supply and b) decreasing labour productivity. The decline in the real interest rate in the long run is then consistent with the repeated downward revisions in the long run growth potential of the economy that we have witnessed over the last decades.

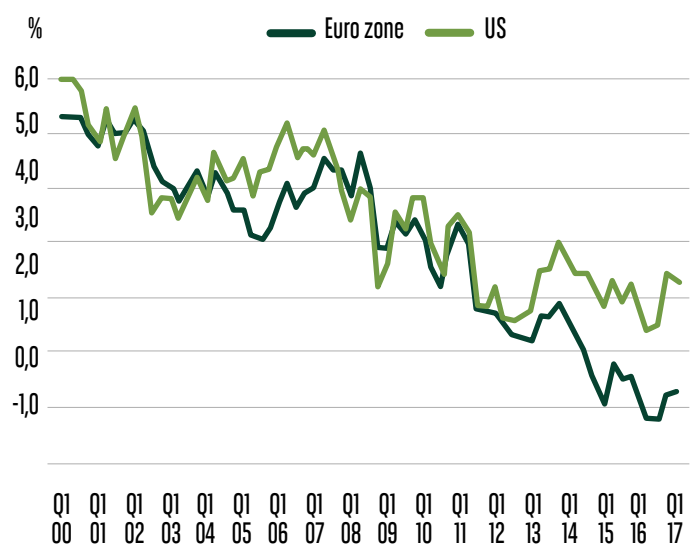
Table 1: ESTIMATES OF TREND GDP GROWTH AND REAL NEUTRAL INTEREST RATES

Trend GDP growth (%)	1990	2007	2015
US	3.3	2.8	1.5
Euro zone	2.7	2.1	1.1
Real neutral interest rate (%)			
US	3.5	2.3	0.4
Euro zone	2.4	2.0	-0.5

Source: Federal Reserve Bank of San Francisco

In the last two decades, there has been considerable co-movement of US and euro zone interest rates. However, the ECB’s unconventional monetary policy has largely succeeded in decoupling nominal interest rates in the euro zone from those in the US since 2014 (see Chart 1). After the US election, the spill-over of the sharp increase in US interest rates has been very limited on the euro zone. This is mainly because investors expect both US economic growth and inflation to accelerate if the new administration cuts taxes, boosts investment, and even raises tariffs on imports.

Chart 1: 10-YEAR GOVERNMENT BOND YIELDS



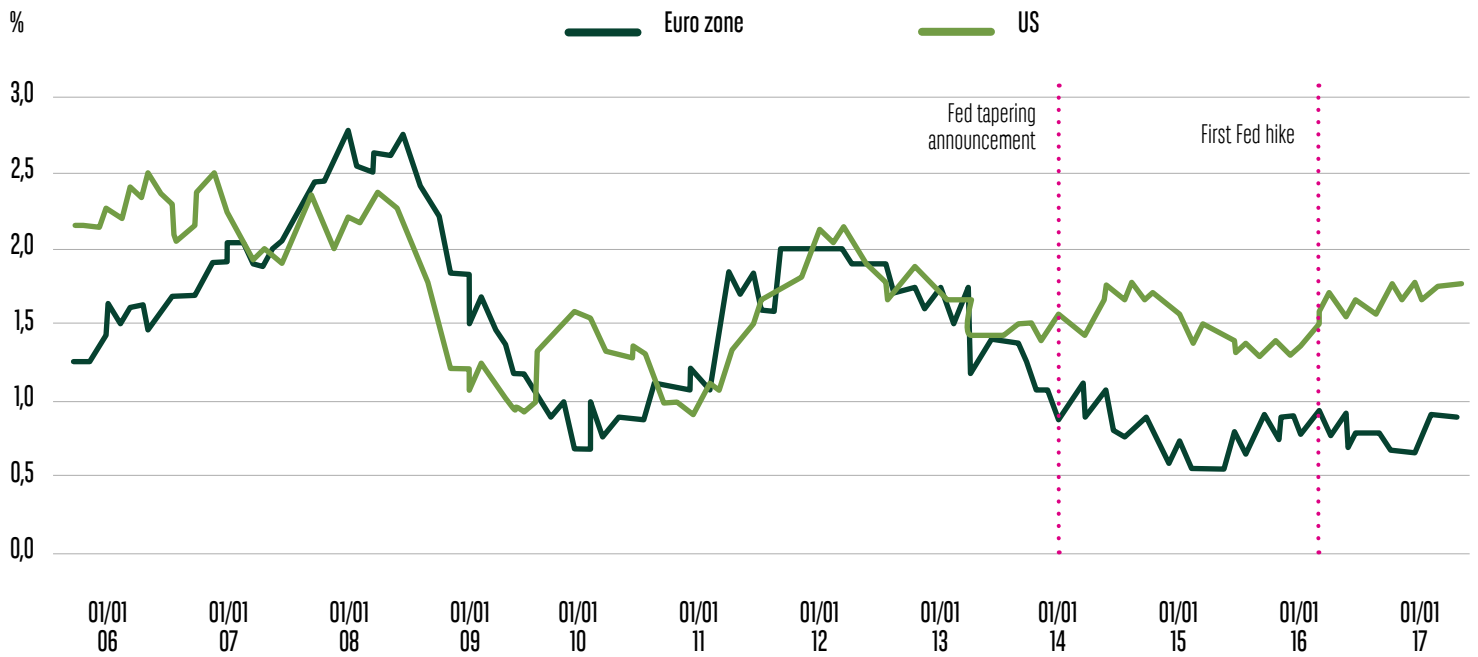
Source: BNPP IREIM Research, Macrobond

(1) This means that potential GDP growth varies over time and by country.

On the other hand, we argue that it will take some time for the ECB to tighten monetary policy. Core inflation in the euro zone is still low and so is wage growth (see Chart 2). To put in context, when the Fed announced to taper QE3 in December 2013, core inflation in the US stood at 1.5%. It took then two more years for the Fed to increase rates for the first time since June 2006. Moreover, the memory of the ECB's untimely hikes in 2011 is

still present, so the hurdle for the bank to tighten policy is still quite high. Eventually, the ECB needs to make sure the euro zone proceeds towards its long-term inflation target, while limiting monetary differences across the countries in the euro zone. As a result, the ECB can tighten monetary policy only very cautiously and at a slow pace.

Chart 2: **CORE INFLATION**



Source: BNPP IREIM Research, Macrobond

As a result of interest rates being historically low for a number of years, investors have flocked to higher-income assets such as real estate, with the ensuing compression in yield levels and strong price increases. While investors are now more and more worried about the prospect of increasing interest rates, it is important to note that the above reasoning behind the decline in trend GDP growth and neutral rates of interest is not going away. In general, what is detrimental to GDP growth, and ultimately to real estate performance, are strong deviations of nominal interest rates from the trend. However, the above analysis shows that interest rates have to stay relatively low compared to the past, and sudden spikes in rates should be unwarranted.

The main implication of a long-run low-interest rates environment is that the scope for property yields corrections is much more limited than in the past, therefore providing some protection to this asset. Naturally, a lower level of potential GDP also means lower real rental growth in the long-run. As a result, while we expect some positive rental growth in this real estate cycle, we should not anticipate the very high rates of growth witnessed in the cycles before 2008. Investors will then have to decide what sector, geography and style of investment will maximise performance and/or minimise risk but this goes beyond the scope of this paper.

2. THE RELATION BETWEEN INTEREST RATES AND PROPERTY YIELDS

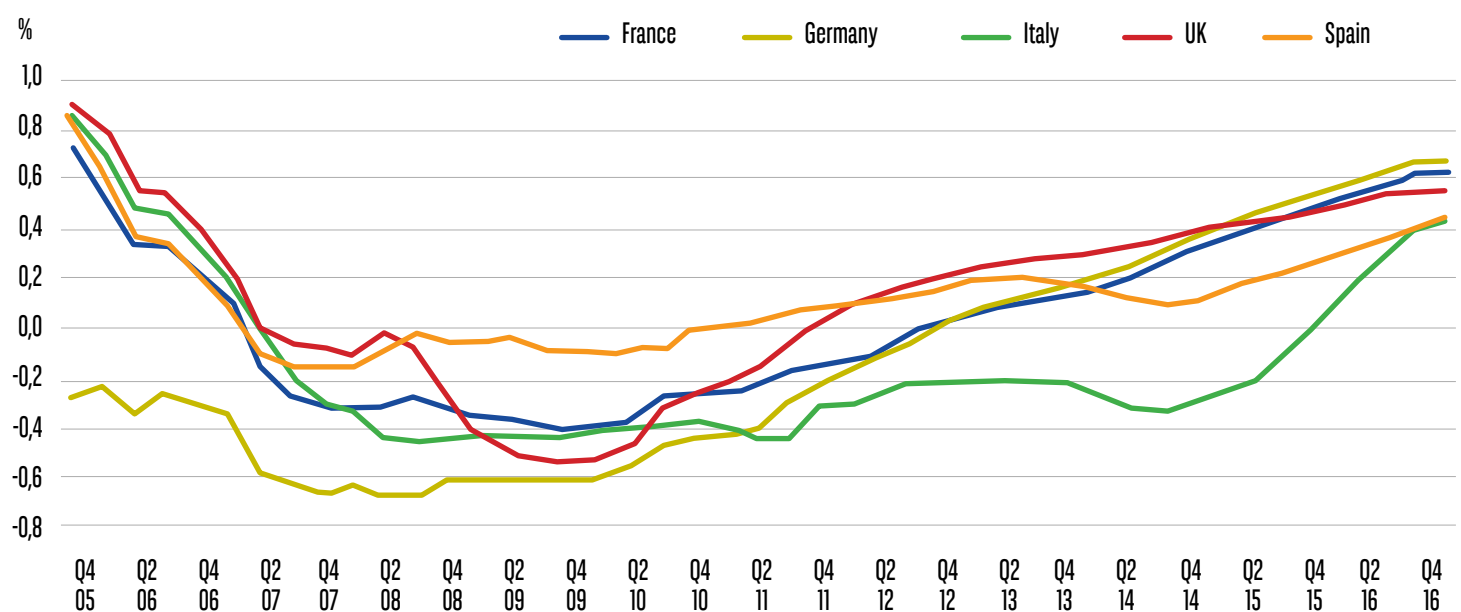
Cautiousness over property's vulnerability in a period of rising interest rates, stems from the perceived risk of rising property yields. Contrary to common belief, however, our analysis only shows a modest correlation between property yields and interest rates. Looking at the different markets across Europe, the correlation of property yields to sovereign 10-year bond yields² varies significantly over time (see Chart 3).

The analysis shows that correlations in all countries diminish rapidly and become negative roughly between 2005 and 2007, a period characterised by declining property yields and rising bond yields. The interest cycle peaks in most countries in 2008³, and bond rates start declining henceforth, while property yields keep rising into 2009 and correlations are typically negative. The period between 2010 and 2013 is generally characterised by decreasing interest rates and stable property yields. Correlations during this

period are negative or moderately positive. Correlations start rising again from 2015, possibly in relation to the increasing importance of the QE program.

The whole point about this analysis is to show that it is not necessarily true that an increase in interest (or bond) rates must be associated to an increase in property yields. History teaches that frequently this is not the case and other explanations need to be considered. The most likely explanation is that real estate behaves like a hybrid between fixed income and equity. Higher interest rates are normally related to higher growth rates, which, in turn, should result into faster income growth for real estate assets, all else equal. Consequently, real estate investors should accept lower initial yields on a real estate asset.

Chart 3: CORRELATION BETWEEN PRIME OFFICE YIELDS AND 10-YEAR SOVEREIGN BOND YIELDS



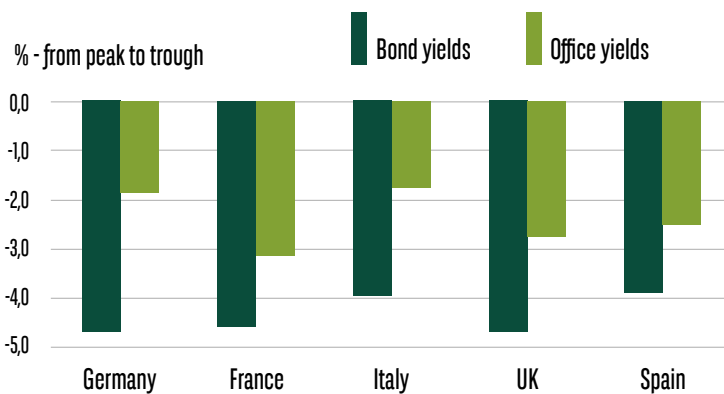
Source: BNPP IREIM Research, Macrobond

(2) We use 10-year bond yields as a proxy of long-run interest rates.

(3) With the due exception of Spain and Italy who witnessed a further spike in 2011, as a result of the euro-crisis.

Moreover, despite the correlation, the magnitude of the moves in property yields and bond rates has differed significantly over the past years. Property yields fell by an average of 230bp across major European markets from peak to trough⁴, while sovereign bond yields reduced around 440bp over the same period (see Chart 4). When measured over the last 15 years, data show that volatility for property yields is between 30% and 40% of bond yields.

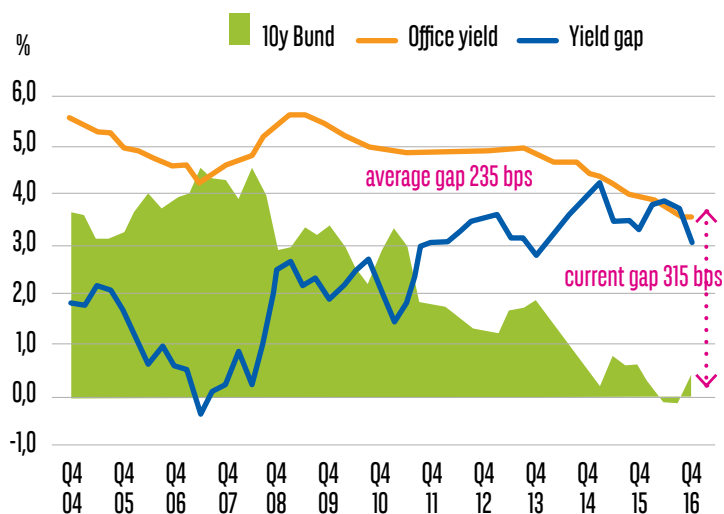
Chart 4: CHANGE IN PRIME OFFICE YIELDS AND 10-YEAR SOVEREIGN BOND YIELDS



Source: BNPP IREIM Research, Macrobond

The yield gap between property and 10-year bonds is a useful tool to understand whether property is correctly priced or not. The historic pattern of the yield gap in Europe is shown in Chart 5. Over the period the gap, while showing cyclical tendencies, is on a long-term increasing trend, suggesting the risk premium is gradually falling.

Chart 5: CHANGE IN THE YIELD GAP FOR PRIME OFFICES IN EUROPE



Source: BNPP IREIM Research, Macrobond

The yield gap in Europe5 at end-2016 was around 315bps. This is quite comfortable when compared to the long-term average, i.e. 235 bps. This premium is even more comfortable if the analysis is extended to the mid-1990s (when inflation decreased to “normal” levels). The long-run average yield gap for this period is around 170 bps.

There is no mathematical rule that can tell us what level of yield gap can be considered as a warning of a possible property yield decompression. The most representative historic evidence can be found just before 2008, when the yield gap was negligible or even negative in few cases. As of today, we are still remote from this scenario. As a result, all other things being equal, we would argue that the Bund yield has to move up somewhere between 80 and 140 bps to be at levels compatible with the long-term average. This level of gap would be still far away from the dangerous levels observed before 2008.

(4) This is roughly between 2008 and 2016 for bond yields and 2009 and 2016 for office yields.

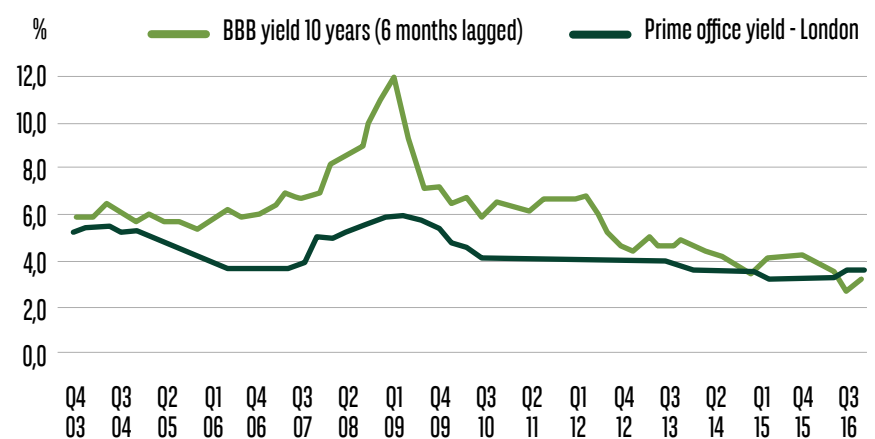
(5) The European office yield is made of a number of tier 1 markets, including London, Paris and the main German cities. Similar conclusions can be reached for all developed markets.

3. FACTORS INFLUENCING PROPERTY YIELDS

Property yields are influenced by capital markets and macroeconomic variables, as well as local property fundamentals. Overall, the volatility in the property-bond yield gap suggests the complex influence of several factors playing a substantial role in affecting property yields, including:

- **Stock returns:** property yields should also potentially be a function of the returns on the stock market. However, while there is some consensus that stock market returns affect property yields, the relationship is difficult to quantify.
- **Risk appetite:** the Bank of England produced a statistical analysis of the 60% increase in UK commercial property values from 2000 to 2007. The BoE concluded that around two-thirds of the increase in values could be attributed to 'residual' factors, i.e. investors in UK real estate reducing their return requirements. While we would not subscribe the totality of the BoE's statement, we believe changing risk appetite has a significant impact on pricing.
- **Cost and availability of credit:** this factor is also crucial in explaining property yields variations. Credit spreads may be used to quantify the state of the appetite for risk. In the UK, property yields have been 82% correlated to 10yr BBB bond yields over the past 14 years, once a six-month lag is taken into account (see Chart 6). While some sort of contraction of credit conditions, as a result of the scheduled end to euro zone QE in 2018, could have the potential to put some upward pressure on property yields in Europe, property investors are much less leveraged in comparison to 2007⁶ and the effect on property values should then be much lower.

Chart 6: LONDON PRIME OFFICE YIELDS VS. BBB 10 YEARS YIELDS

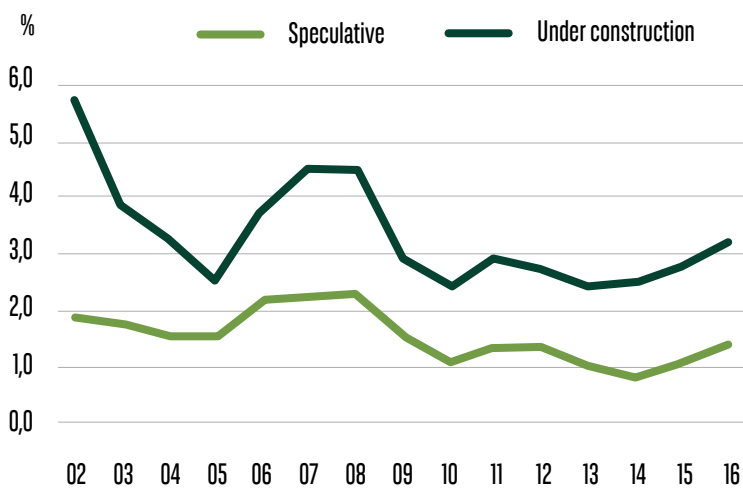


Source: BNPP IREIM Research, Macrobond

(6) At the peak in 2007, the average leverage was in excess of 70%, while today the equivalent number is probably around 50%.

- Rental growth expectations: this variable should impact property yields via influencing forward-looking returns. Rental growth is assumed to lag GDP growth for commercial property, albeit with different levels of response to GDP, based on variable supply/demand dynamics. All other things being equal, slowing GDP growth should then indicate a chance of yield expansion, while accelerating GDP growth tends to coincide with yield compression. A look at historical data shows strong evidence for France and Italy and weaker evidence for both Germany and the UK. Greater supply of property, all other things being equal, is negatively associated with rental growth. In general, the development cycle lags an increase in tenant demand. The result of oversupply is falling rentals, prices and reduced investor demand. Factors affecting the elasticity of supply include access to development credit, the nature of the local planning system and the availability of building land. Currently, and with some due exceptions, new development in Europe is relatively low compared to history, as it is shown in Chart 7. Most important, as a result of risk-aversion on the side of both developers and bankers, speculative development is particularly low⁷. This, along with improving prospects for the European economy, results into positive short-term rental expectations for most European markets, which, in turn, points at further support for yields over the next two years.

Chart 7: **OFFICE NET ADDITIONS TO STOCK IN EUROPE**



Source: BNPP IREIM Research, PMA

(7) While the chart shows data for the office sector only, the same conclusions can be reached for the other property sectors.

(8) For example, ATP considers four main factors, i.e. interest rate, inflation, equity and other factors. Norway's GPFG is also considering adopting a similar approach.



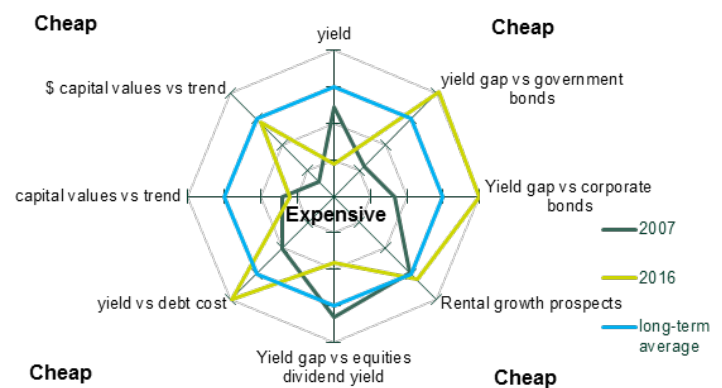
Asset allocations: the impact of large changes in asset valuations on multi-asset portfolios, especially those of large investors, can be quite significant. For example, as multi-asset portfolios contracted in 2008 (mainly due to stock losses), the size of more illiquid assets, such as real estate, relative to the whole portfolio, grew. As a result, while the denominator (portfolio) became smaller, the numerator (real estate) became larger. In order to re-weight portfolios, investors were forced to sell some more illiquid assets such as real estate, which resulted in weaker prices. On the other hand, a strong increase in stock prices would require the investor to acquire real estate assets, to return to the desired allocation. On top of that, investors allocations to real estate are increasing all over the world, which, in turn, will mitigate the effects of sudden changes in allocations due to swings in equity prices.

Some investors are currently changing the way they look at asset allocations and have started to use an investment portfolio approach based on risk factors⁸. This approach is believed to be particularly useful when treating an asset class such as property. This framework is based on risk weighting and, as a result, it does not translate in traditional asset allocation percentages. For example, under this guideline, an investor may decide to purchase a property asset and fund it with sales of equities or bonds denominated in the same currency, rather than by selling assets across its whole portfolio.



While we believe that the gap between property and government bond yields has strong merits and is a very useful benchmark to evaluate if property is under or overvalued, we have engaged in an exercise aimed at assessing property pricing on a number of different metrics. As a didactic example, we have chosen the Frankfurt office market but the analysis can of course be replicated for other markets. Each pricing metric is shown in standard deviations from its long-term average. As a period, we have chosen to show the data for 2016, for the long-term average and for 2007 (the peak before 2008). The analysis is shown in Chart 8.

Chart 8: **PROPERTY PRICING METRICS – FRANKFURT OFFICE MARKET**



International capital flows: in addition to recognized institutional investors such as pension funds, insurance companies and listed real estate companies, other types of real estate investors have become very important over the last few years. These investors mainly include, among others, sovereign funds, specialist investment managers and private equity firms. Increase in foreign investment, all else equal, produces a compression in property yields. However, it is likely that both property yields and foreign investment levels are actually mutually determined by interconnected variables such as real estate transparency, economic status and market risk.

Currency fluctuations can also affect both the direction and size of cross-border capital flows. A good example is the recent devaluation of the UK sterling. Specifically, the value of UK assets has strongly decreased when converted into non-UK currencies, making UK property more attractive for non-UK-denominated investors. This has resulted into a flood of “new money” coming into the UK, on the assumption that the UK sterling will revalue in the future.

We would also argue that, even if a high share of foreign investment is associated with lower yields, investors should focus on markets where there exists a solid domestic investor base. This is especially important in case foreign liquidity dries out, as prices can be supported by domestic capital.

Absolute yield levels remain high, as are capital values compared to the long term trend. However, capital values in US\$ have started to look cheap vs. their long term trend (this is important for non-€ denominated investors). Relative pricing vs. dividend yields seems relatively high. However, if property yields were measured vs. earnings yields, this would show a more favourable picture⁹. Most important, pricing vs. bond yields looks cheap on any measure.

When all metrics are considered property looks about fair value.

(9) Data availability has limited our analysis for this variable.