Research Paper

Duration in Real Estate: Understanding Interest Rate Sensitivity Across Property Strategies

> The concept of duration is key for multi-asset portfolio construction, risk and asset-liability management, especially in an environment where real rates and credit conditions can change rapidly.

> When applied to real estate, duration can help to understand why different sectors and strategies respond differently to changes in interest rates and capital market conditions. Inflation pass-through is the single most important driver, but yield level amplifies everything.

> Effective duration varies significantly within real estate. The good news is that it can be managed through market and sector selection, lease terms and financing structure.

Introduction

The rise of global conflicts and geopolitical shifts is breaking global supply chains and may result in an increasing economic uncertainty and rapid shifts in monetary policies and a greater likelihood of unexpected inflation. Therefore, it is pivotal for investors to consistently assess and manage interest rate risk.

Real estate has long been considered by investors as a diversifier in a multi-asset portfolio. Yet, not all real estate assets will behave the same during the cycle. Recent market evidence clearly illustrates this. This paper highlights the concept of duration and how, when applied to real estate, it can help to explain this divergence in pricing.

Duration is used in fixed income to measure a bond's price sensitivity to interest rate changes. Higher duration indicates greater price volatility when rates move. Duration is not a concept applicable only to fixed income investments.

When applied to real estate, it can help to understand why different sectors and strategies correct differently to changes in interest rates and capital market conditions.

INREV would like to thank the Research Committee for its work in producing this paper.

Why Duration Matters Now

The post-2022 rate cycle repriced real estate faster than most investors expected. But the adjustment was anything but uniform. Logistics, for example, recovered most of its capital value decline, while large parts of the office sector did not, even when correcting for structural headwinds from working from home and its impact on occupancy levels.

Duration - borrowed from fixed income - offers a disciplined way to explain this divergence. Modified duration expresses the percentage price change in the asset for a 1% move in interest rates. A modified duration of 10 represents a 10% move in the price of the asset (i.e. bond) for a 1% move in interest rates[1]. Applied to real estate, it shows why some assets shrug off rate moves better while others absorb them fully and for longer.

> **"True duration depends on the interaction between discount rates, growth expectations, inflation transmission and capital structure, as higher leverage increases duration when real rates increase."**

Crucially, duration is not the same as lease length. Market heuristics like WAULT (weighted average unexpired lease term) or entry multiples are incomplete proxies. True duration depends on the interaction between discount rates, growth expectations, inflation transmission and capital structure, as higher leverage increases duration when real rates increase. An illustrative modelling approach can be found in Appendix 1.

> **"Crucially, duration is not the same as lease length."**

1 Linear first-order approximation; convexity correction needed for large moves.

What Drives Duration Differences?

This section of the report is focused on the five dominant drivers of duration differences: inflation pass-through, the source of interest rate shock, discount rate, lease structure and sector, and leverage and financing.

Figure 1. Drivers of duration differences

Inflation pass-through

This is the dominant lever. An asset with rents that move with inflation can offset much of the discount rate impact when rates rise because of higher inflation expectations. An asset with fixed or slow-repricing rents cannot. Two assets with the same yield can have very different effective durations depending on how quickly their incomes adjust.

The source of the interest rate shock

A 100 bp rate increase driven primarily by rising inflation expectations will have a muted effect on well leased assets with strong rental growth expectations. The same 100 bp increase driven by rising real rates - tighter monetary policy, higher term premia - hits valuations across the board with no offsetting income uplift. This means that even assets with high inflation pass-through will be affected in this scenario, as they will not be able to soften the impact of the shock via an increase in rents. Investors should condition duration analysis on the most plausible macro scenario, not a single sensitivity.

Discount rate level

Lower-yielding assets are inherently more rate-sensitive. In our modelling, reducing the discount rate from 7.5% to 6.0% - holding everything else constant - increases duration by roughly 40%. This is the well-known convexity effect: when cap rates are already compressed, any further shock has a disproportionate impact on multiples.

On an unlevered basis, a core asset priced at a 4% cap rate is inherently more rate-sensitive than a value addedd asset at 6.5% - even if the underlying lease and sector characteristics are identical. This is the real estate analogue of bond convexity[1]: at low yields, identical rate moves produce disproportionately larger price impacts[2].

Lease structure and sector

Duration rises when cashflows are locked in for longer and repriced less frequently. This means that in portfolios with assets which have a long lease without periodic rent reviews, the cashflows will be locked for longer periods and that asset will not offset the shock in rates, regardless if it is an inflation driven or real rate driven shock. Empirical studies, Hamelink et al (2002), find UK property duration averaging around 3.2, with a range of 1–4 depending on assumptions; US estimates go up to 6. Sector-level analysis by EPRA confirms that interest-rate sensitivity differs substantially across subsectors, with leverage playing an important amplifying role.

Leverage and financing

Leverage amplifies asset-level duration at the equity level. Short debt maturities increase refinancing risk, which can be elevated further depending on the market and the debt facility interest rate level and rate sensitivity. Financing structure is a first-order driver that often receives less attention than sector or lease characteristics.

2 Strictly, bond convexity is the second-order term of the price–yield expansion. The mechanics differ from the textbook fixed-income definition, but the practical takeaway is very similar.

Illustrative Results

Our modelling varies three inputs simultaneously - discount rate, inflation pass-through, and the inflation/real-rate composition of a 1% rate shock - while holding all other assumptions constant.[3] The results illustrate how dramatically duration can differ across real estate exposures, even before factoring in leverage.

Pass-through dominates the range

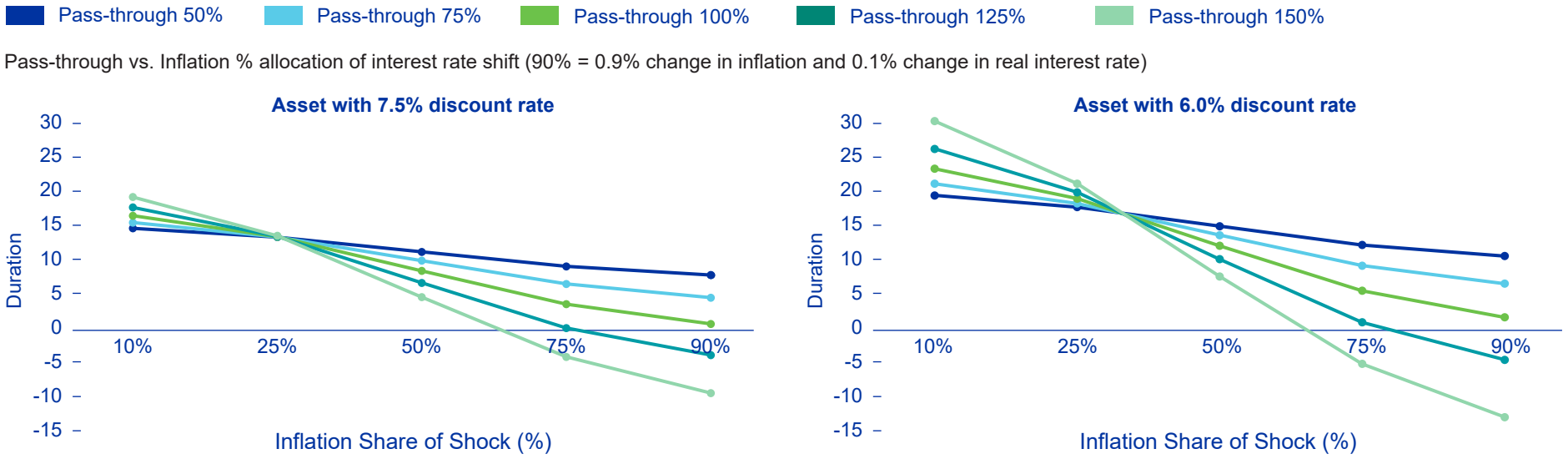
At a 7.5% discount rate and a balanced shock (50% inflation, 50% real rate), based on a 2% inflation assumption, an asset with only 50% inflation pass-through shows an effective duration of roughly 11 - comparable to a long-dated bond. Increase pass-through to 150% (above-inflation rental growth) and duration drops to around 5. That is a more than twofold difference, driven entirely by how fast rents adjust.

The shock composition changes the picture entirely

When 90% of the rate move comes from inflation and the asset has a high pass-through, duration collapses, implying the asset is effectively self-hedging. Flip the composition so that the shock is predominantly real-rate driven, and the same asset shows elevated duration because there is no offsetting rental growth. Two identical rate moves can produce dramatically different valuation impacts depending on their macro source.

The charts below illustrate effective duration across combinations of inflation pass-through (rows) and the inflation share of the rate of the shock (columns), for two discount rate levels and based on the general framework presented above.

Figure 2: Duration by inflation share and pass-through



For everyone interested in the working model - explore here: re-duration.replit.app

3 Base-case assumptions for all illustrative results: expected inflation 2.0%, real risk-free rate 0.5%, market risk premium 3.0%, unlevered (all-equity) capital structure. Inflation pass-through and discount rate are varied as stated. The rate shock is 100 bps (1%) split between an inflation component and a real-rate component as indicated. Results are derived from the Gordon Growth / build-up framework described in the Appendix.

Putting it together: three archetypes

Short-duration profile (~2–5):

Logistics, industrial assets with indexed leases, above inflation pass-through, moderate-to-high yields. Rate moves driven by inflation are largely self-hedging.

Medium-duration profile (~6–9):

Core offices (due to repricing), mixed-use and necessity driven retail with periodic rent reviews, partial pass-through, and moderate yields.

Long-duration profile (~10+):

Long-leased single-tenant assets, government-let offices, or compressed-yield core with fixed or slow-repricing rents in subprime locations.

On an asset and micro market level, there might be substantial deviations from the above archetypes which underline the requirement for a thorough asset level analysis.

Portfolio Implications

Real estate is not a single duration bucket. In particular, allocations designed to diversify bond-heavy portfolios should be stress tested for effective duration and for the macro regime driving the rate move.

For insurers and pension schemes — where interest-rate risk sits at the centre of the investment framework — duration awareness is a governance requirement. The good news is that investors have more levers than they might assume: effective duration can be managed through market and sector selection, lease terms, indexation and financing structure.

The practical takeaway is straightforward: before adding real estate to a multi-asset portfolio on the assumption that it diversifies interest-rate risk, it is important to measure whether the specific assets in question actually do so, given their pass-through, their yield level, and the rate and macro scenario that a given investor considers most plausible.

Conclusions

- Duration is a risk indicator that measures how much an asset's value changes when interest rates move by 1%. It is not the average lease length or fund life, it is a measure of valuation sensitivity to interest rate changes, typically used in the bond markets.
- For real estate assets, inflation pass-through is the single most important driver, but yield level amplifies everything. Higher-yielding assets with rents that reprice with or above inflation will have a lower interest rate sensitivity compared to lower-yielding assets with rather low rental growth.
- Generally speaking, and on an unlevered basis, value added returns are less rate-sensitive because a larger share of return comes from operational alpha. However, this is heavily dependent on leverage and cashflow profile (front- vs. back-loaded).
- The source of the interest rate move matters. An inflation driven rate rise can be partly self-hedging through rental growth. A real rate shock hits valuations with no offset through the rental growth transmission channel.
- Leverage, debt maturity and financing structure amplify duration at the equity level and deserve as much attention as lease and sector characteristics when accounting for interest rate sensitivity in a business plan.
- The concept of duration is key for multi-asset portfolio construction, risk and asset-liability management, especially in an environment where real rates and credit conditions can change rapidly. For investors seeking diversification from bond-heavy portfolios, high duration real estate may replicate rather than offset existing interest rate exposure and vice versa.
- Effective duration ranges significantly within real estate, and applying the traditional bond approach, especially when ignoring the pass-through component, can lead to a wrong perception about the interest-rate sensitivity of a real estate portfolio. Nonetheless, the traditional approach implying that real estate is by definition a 'short duration' can also be spurious when applied to portfolios formed by assets with low pass-through, long WAULT and low yields.
- The good news is that effective duration can be managed through market and sector selection, lease terms, indexation and financing structure.

Appendix I. Our Illustrative Modelling Approach

This paper builds on the cashflow duration tradition by combining a build-up approach to the discount rate with the Gordon Growth framework for deriving the capitalisation rate. The simplified model decomposes the discount rate into its economic building blocks:

Discount rate: $r = r_f + \pi + MRP + ASRP$

Where r_f is the real risk-free rate, π is expected inflation, MRP is the market risk premium, and ASRP is an asset-specific risk premium. MRP and ASRP are nominal premia; no explicit accounting of unexpected inflation for reasons of simplification.

Rental growth: $g = \text{pass-through} \times \pi$

Where pass-through captures how fully inflation feeds into rental income — 100% for a full pass-through, less for assets with fixed or slow-repricing leases.

Capitalisation rate: $cap = r - g$

Multiple (Gordon Growth): $M = (1 + g) / (r - g)$

All inputs are treated as stochastic variables with user-defined means, volatilities, bounds and correlations.

Why decomposing the shock matters

Key to our approach is that the 1% interest rate change used to calculate duration is split into two components:

1. **An inflation component (α):**
   The portion of the rate move driven by changing inflation expectations

2. **A real risk-free rate component (1 − α):**
   The portion driven by changes in the real rate

This distinction is essential. An asset with full inflation pass-through in its rental growth can largely offset the discount rate impact of an inflation driven rate increase — rents rise to compensate. But that same asset remains fully exposed to a shock in real risk-free rates, which increases the discount rate without any offsetting rental growth.

For duration, the shocked growth rates and multiples adjust accordingly. Higher pass-through reduces the inflation component of the cap rate shock, thereby lowering effective duration.

A working version of the model is available here: Model.

Appendix II.
Selected Sources

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