

Open End Fund Pricing Consultation Paper November 2017



INREV

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The Association of Real Estate Funds

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Executive summary

Pricing mechanisms for open end real estate funds is a topic which has always generated much attention. Different methodologies are employed by investment managers as they argue one is more effective than the other at protecting long-term investors from the dilutive effects of transaction costs over time. This paper aims to provide clarity and context on the various pricing mechanisms by describing the key issues faced by investors in these funds and the tools fund managers use to address these issues.

At a high level, the pricing policy options available can be broken into two broad categories which are single pricing or dual pricing. Differences between geographies in treatment of pricing mechanisms can to some extent be explained by underlying market factors such as the level of transaction costs or commonly accepted features of fund design in given jurisdictions. We have not considered swing pricing mechanisms within this paper. Whilst forms of swing pricing have become popular within traditional asset management and retail funds we have not yet observed them becoming popular within the market for institutional non-listed real estate funds.

For the purposes of our modelling and commentary throughout this paper we have taken the perspective of the seed investor. This perspective is thought to provide a proxy for the overall economic wellbeing of the fund as a whole and as such is suitable for our analysis. Similarly, our modelling has demonstrated that the experience of the seed investor will be equivalent to that of any long term investor subsequently entering the fund thereafter.

The research reveals that both of the models traditionally used in the European market, the classic dual pricing model and the capitalisation and amortisation model, when properly applied, succeed in providing investors with comparatively similar protection from the effects of dilution. The results of the modelling exercise demonstrate that the performance enjoyed by long term investors is not significantly different under either of the two dual pricing methods. Our analysis also demonstrates that, provided these methods are appropriately implemented, the seed investor is not impacted by significant dilution caused by transaction costs incurred on subsequent capital calls from new investors. This same trend is observed for long terms investors entering the fund over its life.

Both models have comparative merits under stress tests. Their relative qualities are such that it is obvious why they enjoy popularity in their respective markets. The dynamic qualities of the capitalisation and amortisation model and its link to established industry guidelines contributes to its popularity in the market for internationally diversified funds. On the other hand, the stability of the classic dual pricing model makes it ideally suited to single jurisdiction funds. The scope of this paper does not extend to marketability of pricing mechanisms. However, consideration must be given to the appetites of investor groups in various jurisdictions when launching products. Certain pricing mechanisms have historically presented challenges for marketing to investors in various jurisdictions.

An effort to combine the comparative qualities of both models has the potential to provide improved results for investors. Alternatively, there

are steps that can be taken to fine-tune each of the two models individually to a point where the comparative differences are negligible. For instance, increasing the amortisation period used under the capitalisation and amortisation approach or regularly re-setting the spread used for classic dual pricing based on actual transaction history can optimise their use.

Introduction

Over the past twelve months, the design of pricing mechanisms for open end real estate funds has become a major topic of discussion. Some of the general themes identified in the terms established for 'post-crisis' funds are:

- > More simple and transparent terms including those relating to pricing strategies;
- > A focus on catering for the expectations of investors from multiple geographic jurisdictions;
- > Introduction of liquidity measures that not only facilitate redemptions in normal market conditions but also allow the manager latitude to balance the interest of all investors during stressed situations.

Real estate as an asset class carries transaction costs which significantly exceed those of most other asset classes. Allowing investors to trade in the units of a fund at a price which is inconsistent with that incurred by the fund when it deals in real estate assets can result in unequal treatment (and indeed a transfer of value) among investors in different subscriber vintages. This impact is commonly referred to as dilution and its impact offsets the other benefits to be obtained from investing in commingled products, such as risk sharing and diversification, for a number of investors. It is for this reason that the majority of open end real estate funds have implemented some form of pricing mechanism which governs how units in their fund are valued for the purposes of subscriptions and redemptions.

It is also clear from these discussions, that there are major differences in market practice between US, European and Asian open end funds that apparently justifiably reflect differing underlying economic realities. It is also clear that, within the European

context, managers approach this issue with slightly different methodologies, which from an investor perspective can be potentially confusing. Misunderstandings may also arise when, say, European funds are sold in the US market and vice-versa. Further, moving from a legacy model to a new model can be costly for both investors and manager, acting as a barrier to successful fund vehicles being able to continue to maintain contemporary terms.

In response to this, INREV established a focus group of investment managers and advisors from the open end fund industry to discuss key concepts and perform a technical analysis with the objective of formulating a common view on the topic. The aim is to promote a further understanding of key principles that better align manager and investor interests, and thereby brings greater confidence to open end products as a whole.

The objective of this paper is to provide, both managers and investors alike, with a more structured and common approach to develop pricing methodologies for open

end real estate vehicles in the best interest of investors. Secondary transfers where investors trade units via the secondary market were out of scope.

The centre of this research was the development of a financial model of a typical open end institutional fund against which the impact of commonly used pricing methods on investor returns were tested. The model is primarily focused on the perspective of the seed investor but the results and trends observed are equally valid for all investors.

This research has been commissioned by INREV and AREF, and the financial modelling was done by Michael Hornsby and Robert White, EY partners, with support from a dedicated project focus group (listed in alphabetical order):

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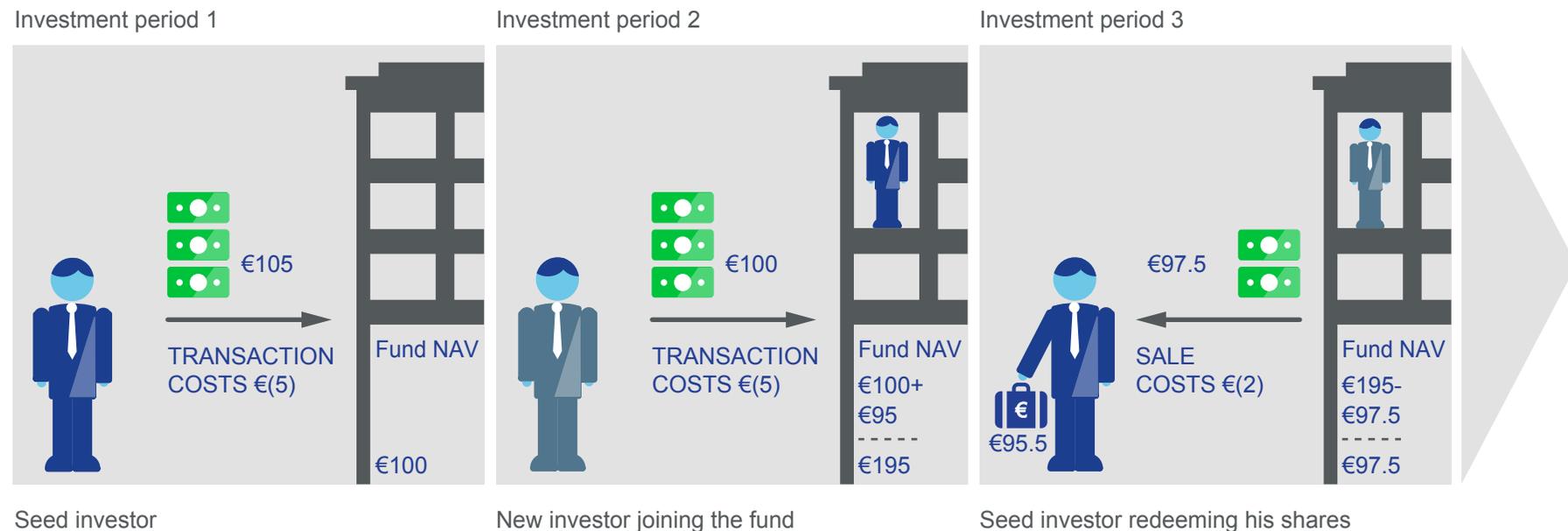
1. The challenges and trends of fund pricing in different markets

Value dilution in open end funds

The objective in setting a fair fund pricing policy is to protect investors from the potentially dilutive effects of transaction costs on an investors' value per unit. Dilution occurs when the cost of acquiring or

disposing of real estate assets is not taken into account in the determination of the unit prices used for the purposes of subscriptions and redemptions. This mismatch, if not addressed, can result in a multitude of economic issues including unfair treatment

of individual investors, particularly where the cost of transacting the underlying real estate is other than a nominal amount. Concepts of treating customers fairly must also be considered as part of this process.



We can illustrate the effect of dilution with a simplified example as presented on page 6:

- Assume we have a fund with no leverage holding a single property asset, valued at €100, and nothing else.
- This fund has a single shareholder holding a single share.
- This fund would have a net asset value of €100 for financial reporting purposes, which reflects the current fair value of the property.
- The net asset value of this fund does not take into account the costs incurred by the existing investors in acquiring the real estate asset.
- Let's assume that this seed investor contributed €105 for their single share of which €5 was spent on transaction costs related to the acquisition of the property.
- If the fund issues additional shares based on this NAV then the incoming investors are succeeding in acquiring shares, based on a value of €100, which have cost the existing investors €105 to acquire.
- Equally, if these new investors contribute an additional €100 on subscription, under identical market conditions, this contribution is not sufficient to allow the fund to acquire an investment which will increase the net asset value by €100 due to the associated acquisition transaction costs of such an asset.
- Therefore, the seed investor's position has been diluted. They paid €105 for an investment that was subsequently valued at €100 for financial reporting purposes and, subsequent to the entry of a new investor, their unit is now worth €97.5 ($(€100+€95)$ divided by two).
- Consider the dilution effect as it relates to redemptions:
 - If the investor who has just entered the fund were to now serve his redemption notice for his entire investment in the fund it would necessitate the fund selling real estate assets sufficient to serve this request.
 - If the value of the outgoing investor's units were established solely with reference to the net asset value as per the financial reporting, €195 in the example above, then it would fail to take into consideration the costs associated with disposing underlying real estate, say €2 in this example, in order to facilitate this redemption.
 - The failure to take this cost into account in determining the price used for the outgoing investor's redemption would again result in dilution for the remaining investors as they are left to carry the cost of the asset sale. Such a transaction would leave a NAV of €95.5 ($(€195)$ less $(€97.5)$ for the redemption, less €2 for the cost of sale).

The above illustration makes it clear that dealing in property assets can have a materially dilutive effect. As a group, we believe that something should be done about this as it would be inappropriate for incoming investors to enjoy the benefits of an established fund without contributing to any of the costs incurred in establishing it. However, there is some debate around the philosophical objective that this pricing mechanism should have. Should the mechanism be backward looking or forward looking in nature? Should incoming investors be making a contribution to compensate existing investors for the historical establishment and transaction costs that they have borne? Or should they be contributing to the costs necessary to deploy the capital they have invested?

As a group, although we agreed that whichever view is preferred it amounts to a similar economic effect in a stable fund, we preferred the backward looking view as it is easier to measure and based on tangible facts, rather than a theoretical view of transactions that may or may not happen in the future. Also, issuing new capital may not directly result in new asset acquisitions. This consideration is important when analysing the merits of potential pricing mechanisms. Finally, we note that commingling of investments necessarily requires compromise not required for segregated mandates. This compromise may well extend to pricing policy considerations.

Different methods: from single pricing to dual pricing

Market consensus on the topic of pricing has not yet emerged and certainly not on a global level. On a more regional level, whilst very little guidance has been codified, we have seen some trends develop.

There are multiple options available in terms of pricing policies. However, the options available can generally be broken into two broad categories – ‘Single pricing’ or ‘Dual pricing’. ‘Single pricing’ effectively means that an investor or existing shareholder can buy and/or sell units at a single defined price, as is the case for most US funds where transaction

costs are relatively low and as a consequence dilution typically immaterial. Alternatively, with ‘Dual pricing’, there is a separate and distinct price established for buying and for selling respectively. There are also numerous variations of these two broad categories.

Table 1: Single and dual pricing

	Single Pricing		Dual Pricing	
Sub-category	SWING	NAV	CLASSIC	CAPITALISATION AND AMORTISATION (‘Cap & Am’)
Typically used in	Daily priced funds targeting retail investors	US domestic funds	UK domestic funds	Pan European and Asian funds (multi-country funds)
Brief description	Provides for a mechanism whereby the NAV is ‘swung’ upwards or downwards by a predetermined factor depending on whether the net capital flows are positive or negative	Trade directly based on the NAV of the fund determined in accordance with the prevailing financial reporting framework.	A defined spread exists and is applied to the NAV. Units can be bought at a premium to NAV and sold at a discount to NAV.	Similar to the classic dual priced model but in this instance a spread is established using the capitalisation and amortisation approach coupled with a defined redemption levy.
Pros	<ul style="list-style-type: none"> + Protects against dilution + Acts as a deterrent against frequent trading 	<ul style="list-style-type: none"> + Readily understandable + Determined with reference to market standard financial reporting framework + May not result in immediate write off of the spread at investment in books of investor 	<ul style="list-style-type: none"> + Protects against dilution + Relatively simple + Well understood in some markets 	<ul style="list-style-type: none"> + Protects against dilution + Spread established using principles from industry established guidelines + Easier to market this model internationally + Less subjectivity in the setting of a spread
Cons	<ul style="list-style-type: none"> - Complex - Distorts ability of investors to compare fund performance - Not understood in all markets 	<ul style="list-style-type: none"> - Full exposure to dilution - Not in line with economic fundamentals of underlying asset class 	<ul style="list-style-type: none"> - Challenging to market this model internationally - Subjectivity in the setting of the spread - Results in immediate write off of the spread at investment in books of investor 	<ul style="list-style-type: none"> - In an inactive fund, capitalised costs may be fully amortised - Not as simple as the classic model

US market prefers single pricing approach

We first take a look at the US market and summarise at a high level how financial reporting and unit pricing for open end real estate funds is performed:

- Net Asset Value (NAV) for these funds is generally determined based on US GAAP, which writes off the transaction costs of acquiring real estate.
- This NAV forms the basis for the determination of unit pricing.
- A 'single price' is determined from this NAV with no adjustments made to the value of the underlying assets and liabilities of the fund.
- There are generally no supplementary adjustments performed for pricing purposes in order to negate dilutive effects on investors resulting from dealing costs.

The first and most obvious advantage of this approach to pricing is that it is simple. The basis for determining this unit price is a financial reporting framework that is familiar to all market participants in the jurisdiction. However, the most obvious drawback is that it takes no account of dealing costs and therefore the investors in the fund are fully exposed to dilution.

An assumption which is generally taken by US fund managers in arriving at this policy is that dilution is immaterial owing to four distinct factors:

1. Funds are bigger and therefore the relative impact of dilution may be less significant. On average funds are four times larger than their European counterparts.
2. Transaction costs for real estate assets in the US are lower. These vary by state but are generally lower than 1%.
3. The fund liquidity mechanisms and 'lock-in' features are generally tighter.
4. There is a highly active secondary market for fund capital (this paper does not specifically cover secondary market pricing).

These assertions are valid in a US context and provide some alleviation from the issues of dilution. However, these assertions are not valid globally and, in jurisdictions outside the US, this form of unit pricing does not consistently protect investors from dilution as transaction costs can be materially higher.

European and Asian funds prefer dual pricing as impact of dilution is higher

In jurisdictions with low levels of real estate transaction costs the impact of dilution is immaterial. As such, it is unsurprising that the topic of pricing for open end real estate funds is greeted with confusion and/or less interest in these markets. However, in international markets such as those of Europe and Asia, the effects of dilution can be material and mechanisms are required at a unit pricing level to protect investors and ensure that all vintages of investors are treated fairly.

European and Asian real estate transaction taxes are much higher and holding structures generally more complex. Transaction costs attributable to a buyer of real estate assets in Europe are typically in the range of 4 to 6% but can be as high as 12% in some markets. Additionally, the costs incurred to sell a real estate asset are typically in the range of 2 to 4%. These acquisition and disposal costs combine to form a significant 'dealing spread' on real estate as an asset class. The challenge faced is designing a policy that recognises this asset level 'dealing spread' within the pricing of units of the fund. Allowing investors to trade in units of a fund in a manner, and at a price, which is inconsistent with that of the fund's underlying trading in assets can have adverse effects for the fund as a whole and for investors individually.

As such, the dilutive effect of transaction costs cannot be ignored on the grounds of materiality, albeit that the impact of transaction costs may be mitigated on a case-by-case basis by exit strategies such as selling shares of asset holding entities rather than the asset itself.

Significant changes post-crisis

It is also important to consider the significant changes that have taken place in the European market following the economic crisis. Pricing policies and associated mechanisms utilised by 'pre-crisis' funds are generally less sophisticated than their 'post-crisis' counterparts. The reasons for this are clear. Firstly, the 'post-crisis' vintage of funds have benefited from lessons learned in the fallout of the crisis. Secondly, in the 'post-crisis' market we have witnessed a degree of institutionalisation of real estate as an asset class which has brought with it standardisation of terms expected by the market. This standardisation has been facilitated by the emergence of industry standards and 'market-practice' which have been codified by various trade organisations.

2. Model: Cap & Am pricing method and Classic dual pricing method have relative qualities

The working group established jointly by INREV and AREF has undertaken a comparative analysis of the merits and flaws of the principal types of alternate pricing policies applied by open end real estate funds. In order to do this, a financial model has been constructed which allows the performance of a real estate fund to be tracked over a twenty-year period. This model allows various outcomes and results for investors to be measured over any given time period and it allows certain key inputs and assumptions to be flexed within the model for the purposes of stress testing. Comparing the impact that alternate pricing policies have on the measured outputs provided the group with an empirical basis to comment on the relative qualities of the respective pricing policies.

The model allows all key judgements and assumptions to be flexed for the purposes of stress testing and analysis. However, for our initial case study the following inputs and assumptions have been taken:

- The Fund has an opening Gross Asset Value of €1.25 billion and an opening Net Asset Value of €1.0 billion
- Leverage of 25% is utilised
- Growth in property values of 4% per annum is assumed
- Net income of 4% per annum is generated by the portfolio
- 100% of net income is distributed as dividends
- Property acquisition costs are assumed to be 5%
- Property disposal costs are assumed to be 2%
- The fund's portfolio consists of i) a cash portfolio and ii) a real estate portfolio – these two components have different returns
- Subscriptions of €200 million every 2 years are assumed
- Redemptions of €100 million every 2 years are assumed
- Property disposals of €100 million every 2 years, starting in Year 2, are assumed
- Property acquisitions of €200 million in Year 1, €100 million in Year 2, €200 million in Year 3, etc., are assumed.

For the purposes of our analysis we have measured the following key outputs over the modelled period for each of the pricing policies being compared:

- NAV per share
- Redemption price per share
- Ownership of the Seed Investor
- Dividend yield
- Capital return
- Total return
- Effective 'spread' applied to the intrinsic NAV under each policy

Our model includes three pricing policies:

- **Trading off an intrinsic NAV (referred herein as the ‘base case’)**

Under this regime units are issued to and redeemed by investors directly at the financial reporting NAV. For the purposes of our analysis we assume that this reporting NAV is a fair representation of the intrinsic value of the underlying assets and liabilities. This policy makes no adjustment to the fund’s unit price to consider the cost of trading in underlying real estate assets.

- **Classic dual pricing**

Under this regime a fixed spread is established. A subscription premium of 5% is charged on the issuance of new units and a redemption levy of 2% is charged on the redemption of units.

- **Capitalisation and amortisation**

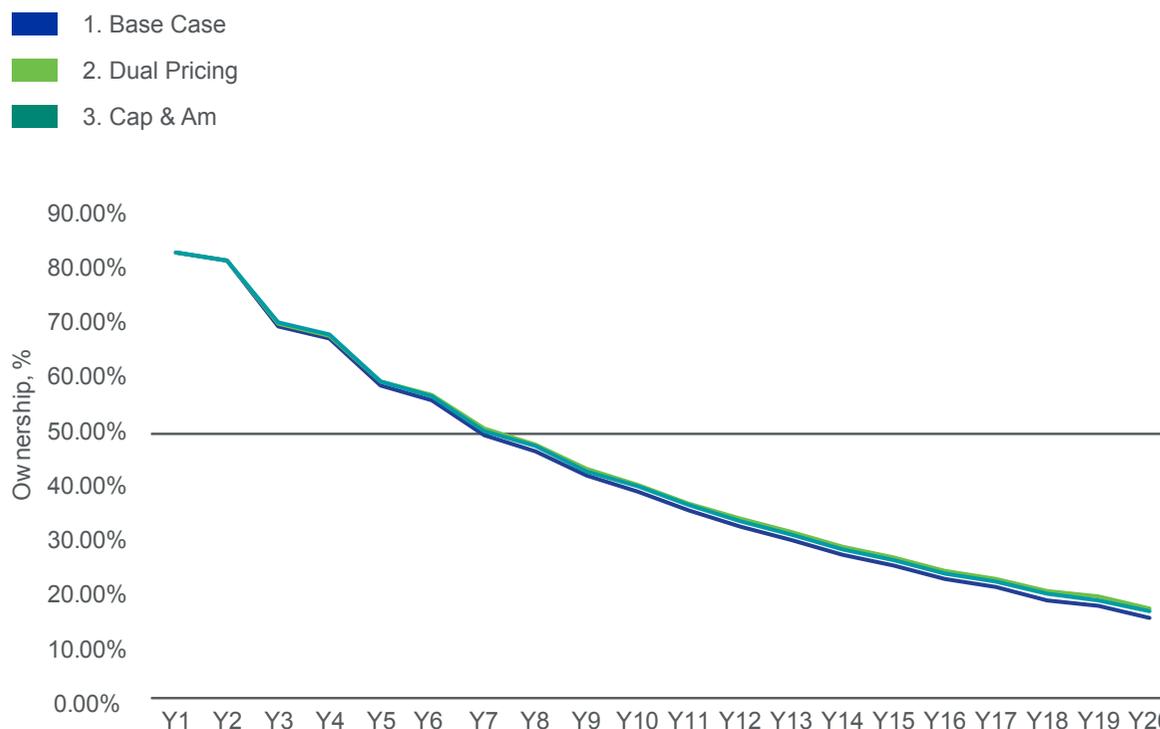
All acquisition costs incurred are capitalised and amortised over a period of five years. The costs capitalised are allocated to the account of the incoming vintage of investors. Should this group of investors wish to leave within a period of five years they are charged the remaining unamortised balance on their account. Additionally, there is a standard redemption levy of 2% charged on all redemptions.

Dilution of long-term investors percentage holding

One of the key questions explored as part of this project is the effect that the pricing policy applied to subscriptions and redemptions has on the percentage holding of the seed investor. An appropriately designed pricing policy should ensure that investor groups are not disproportionately

impacted by the effects of other investors trading in units of the fund. Below, we illustrate the evolution of the percentage holding of the seed investor under each of the pricing policies modelled using the parameters noted above for the model. As can be seen below, the experience of the seed investor is similar under each of the three policies. The base case experiences greatest dilution.

Figure 1: Ownership Seed Investor, %

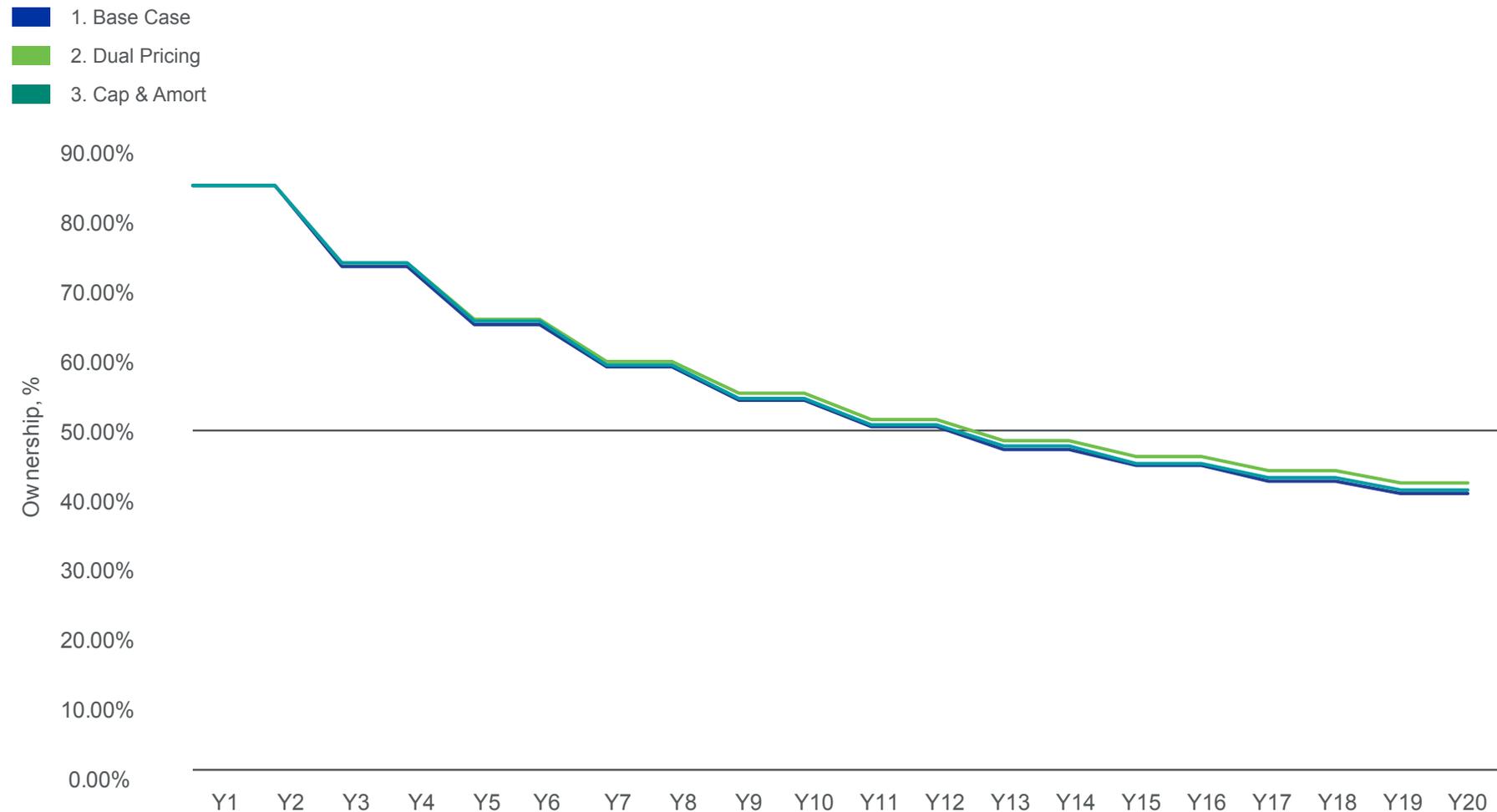


Alternatively, if we were to assume no redemptions over the life of the fund, the evolution would be as shown in Figure 2. Again, the experiences are closely aligned with the base case demonstrating greatest dilution.

Our model therefore reveals that both of the pricing methods traditionally used in the European market, the classic dual pricing model and the capitalisation and amortisation model when properly applied,

succeed in providing investors with comparatively similar protection from the effects of dilution.

Figure 2: Ownership Seed Investor, % (no redemptions)



3. Stress testing elements

The financial results (annualised) of the chosen scenario under each of the three pricing policies is illustrated below. We have displayed these results from the perspective of the seed investor and over the time horizon of 3, 9, 15 and 20 years, to model the impact of dilution on them leaving the fund at different points in time. This same trend is observed of long term investors entering the fund over its life.

Base case provides higher returns for the seed investor over the initial 3-year hold period

Using a three-year time horizon, the base case policy maximises total returns for

the seed investor compared to both the dual pricing and cap & am policies. This is largely because no spread is charged on the former policy. Both dual pricing and Cap & Am charge a spread on subscription and redemption. These mechanisms are in place to protect investors' interests. However, if an investor were to leave within three years from the initial subscription, the cost they have incurred through paying this spread when investing in the fund results in their overall performance being lower than the base case. From a fund perspective, this can be viewed as a positive as it evidences that both dual pricing and Cap & Am discourage short term trading of units.

Similar results for Dual Pricing and Cap & Am with 9-year hold period

The ranking of pricing policies changes as we move to a nine-year time horizon. As expected, the base case underperforms as the costs of transactions uncompensated by a spread weigh on the seed investor's returns. Dual pricing performs slightly better over this period.

Table 2: Results over 3-year period

3-Year	Dividend Yield	Capital Return	Total Return
Base Case	4.64%	3.25%	7.89%
Dual Pricing	4.65%	2.80%	7.45%
Cap & Am	4.65%	2.96%	7.61%

Table 3: Results over 9-year period

9-Year	Dividend Yield	Capital Return	Total Return
Base Case	4.80%	3.47%	8.26%
Dual Pricing	4.86%	3.52%	8.38%
Cap & Am	4.83%	3.43%	8.27%

Slightly higher difference with 15-year hold period

At a fifteen-year time horizon, the performance observed at the nine-year interval is largely similar. The base case continues to underperform. A 22 bps annualised differential is observed between the performance of the dual pricing and the Cap & Am policy.

A 20-year time period still shows insignificant differences

At a twenty-year time horizon, the ranking observed at the fifteen-year intervals remains. The base case continues to underperform with the other two pricing policies showing better outcomes for long-term investors. However,

considering the timeframe under analysis, the variation in return is not as significant as one might imagine. A 27 bps annualised differential is observed between the performance of the dual pricing and the Cap & Am policy. Relative to other parameters that drive fund returns (see initial model assumptions), this is relatively insignificant.

The base case shows us that transaction costs incurred at a property level impact the relative performance of a fund for different investors' perspectives. Comparing this to the two alternative models demonstrates that performance for long-term investors is protected by introducing a pricing mechanism which compensates for this fact.

It should be noted that in this example the 5% spread used for the classic dual pricing exactly matches the 5% transaction costs at a property level. As such, its performance is not surprising.

Classic dual pricing can be more effective when acquisition costs are known and stable and levels of debt are low

The stress testing conducted reveals that both models have comparative merits. Their relative qualities are such that it is obvious why they enjoy popularity in their respective

Table 4: Results over 15-year period

15-Year	Dividend Yield	Capital Return	Total Return
Base Case	4.77%	3.51%	8.29%
Dual Pricing	4.89%	3.66%	8.55%
Cap & Am	4.83%	3.50%	8.33%

Table 5: Results over 20-year period

20-Year	Dividend Yield	Capital Return	Total Return
Base Case	4.67%	3.47%	8.14%
Dual Pricing	4.84%	3.65%	8.50%
Cap & Am	4.75%	3.48%	8.23%

markets. The fixed nature of the classic dual pricing model makes it ideally suited to single jurisdiction funds. Both Cap & Am and Dual pricing methodologies provide reasonable protection from the effects of dilution and when appropriately implemented, the results over the long term are not materially different. In an environment with known, stable acquisition costs and low levels of debt, dual pricing is comparatively more effective (eg in a large domestic fund).

Fixed nature of the spread drives performance decline

Analysis reveals that the number of units issued to investors on subscription has a more significant impact on dilution than any other factor. As such, a spread which is maintained outside

of the NAV per unit and charged as a one-off entry fee generally performs comparatively better than a spread maintained within the NAV per unit (ie when transaction costs are absorbed in the number of units issued).

The fixed nature of the spread in a classic dual pricing policy is what drives its decline in comparative performance. Introducing a dynamic quality to the spread would resolve this issue.

Cap & Am can be more effective in internationally diversified funds

Factors such as increase in debt, increase in amortisation period and variability of acquisition costs improve the comparative effectiveness of Cap

& Am – a certain level of increase in these inputs can result in Cap & Am being more effective than dual pricing – these factors contribute to the argument that this model is more suited to internationally diversified funds. The dynamic qualities of the capitalisation and amortisation model and its link to established industry guidelines contributes to its popularity in the market for internationally diversified funds.

Table 6: Seed Investor's respective returns under Dual Pricing and Cap & Am methods over different levels of acquisition costs (in %)

5% acq. costs	Dual Pricing	Cap & Am	Difference
3-Year	7.45%	7.61%	-0.16%
9-Year	8.38%	8.27%	0.12%
15-Year	8.55%	8.33%	0.22%
20-Year	8.50%	8.23%	0.27%

7% acq. costs	Dual Pricing	Cap & Am	Difference
3-Year	7.19%	7.50%	-0.31%
9-Year	8.16%	8.13%	0.03%
15-Year	8.33%	8.19%	0.14%
20-Year	8.26%	8.07%	0.19%

9% acq. costs	Dual Pricing	Cap & Am	Difference
3-Year	6.93%	7.39%	-0.46%
9-Year	7.94%	8.00%	-0.06%
15-Year	8.11%	8.04%	0.07%
20-Year	8.03%	7.91%	0.12%

12% acq. costs	Dual Pricing	Cap & Am	Difference
3-Year	6.54%	7.23%	-0.69%
9-Year	7.62%	7.80%	-0.18%
15-Year	7.78%	7.83%	-0.05%
20-Year	7.68%	7.68%	0.00%

Increasing variability of acquisition costs improves effectiveness of the Cap & Am method over classic dual pricing

It becomes clear that the relationship between the fixed spread and the actual transaction costs being incurred on underlying real estate transactions is critical to the comparative effectiveness

of the classic dual pricing policy. The capitalisation and amortisation policy automatically takes into account actual transaction costs incurred and as such the mechanism ensures that a disconnect between the spread imposed at a unit level and the spread incurred at an asset level doesn't develop.

The key message here is an obvious one. An ideal pricing policy must be designed to take into account the evolution of the level of transaction costs incurred and their variation; if these vary significantly over the lifetime of a product as a result of changing economic circumstances (eg an increase in stamp duty taxes), or as a result of changing portfolio allocations. This can either be achieved automatically by having a spread which is determined with reference to historical transactions, such as the capitalisation and amortisation model, or by introducing a level of governance to the spread setting process which caters for variability.

Interestingly, increasing the length of the amortisation period used under the capitalisation and amortisation policy improves its comparative effectiveness. When increased to a 7-year amortisation period, the Cap &

Am consistently outperforms the classic dual pricing method over each of a 3, 9, 15 year period and beyond.

This is not surprising. The increase in the amortisation period results in an increased unamortised balance on the trading NAV at any given point in time. Incoming investors are therefore charged a slightly higher 'effective spread'. For this reason, extended amortisation periods have been considered by some as appropriate for certain types of funds.

Increasing the amortisation period improves the effectiveness of Cap & Am

Table 7: Impact of amortisation period

	5Y Amort.		7Y Amort.		10Y Amort.		15Y Amort.	
	Dual Pricing	Cap & Am						
3-Year	7.06%	7.45%	7.06%	7.43%	7.06%	7.42%	7.06%	7.41%
9-Year	8.05%	8.07%	8.05%	8.25%	8.05%	8.48%	8.05%	8.51%
15-Year	8.22%	8.12%	8.22%	8.27%	8.22%	8.46%	8.22%	8.69%
20-Year	8.15%	7.99%	8.15%	8.15%	8.15%	8.34%	8.15%	8.58%

Higher levels of debt utilised make Cap & Am more effective

Increasing the level of leverage employed by the fund results in improved

comparative performance of the capitalisation and amortisation approach. Again, this makes sense as it is due to the fact that all transaction costs incurred are capitalised in the capitalisation and amortisation approach, as opposed to the classic dual price approach applying the premium to a net NAV. This results in a higher unamortised balance at any given point in time and therefore a higher 'effective spread' being imposed on unit trading under the Cap & Am policy.

A downward market has no significant implications on the pricing mechanism

The quantitative analysis performed so far was based on a constant rate of growth in property value. Within the real estate market cycle, modelling

the recession phase where a decline in property values is expected can be of further interest. For illustration purposes, table 9 highlights the annualised results of the seed investor over a twenty-year period when

Table 8: Impact of leverage

	25% leverage		40% leverage		50% leverage	
	Dual Pricing	Cap & Am	Dual Pricing	Cap & Am	Dual Pricing	Cap & Am
3-Year	7.27%	7.20%	7.76%	7.79%	8.08%	8.18%
9-Year	7.58%	7.29%	8.19%	7.96%	8.61%	8.41%
15-Year	7.09%	6.72%	7.81%	7.47%	8.31%	7.99%
20-Year	6.24%	5.83%	7.04%	6.66%	7.60%	7.24%

Table 9: Results over 20-year time period considering downward market

20-Year	Dividend Yield	Capital Return	Total Return
Base Case	1.62%	-1.10%	0.53%
Dual Pricing	1.72%	-1.16%	0.56%
Cap & Am	1.74%	-1.15%	0.58%

there is a decline in property values over this period. We have assumed a capital decline of 2% per year.

As shown above, the Cap & Am model now performs relatively better than classic Dual Pricing, although the annualised differential of 2 bps is not significant. The primary driver for this is the fact that the classic dual pricing

model applies a spread on the NAV while Cap & Am model capitalises all incurred transaction costs to the unamortised balance of the incoming investor. In a downward market, where debt remains constant, this means that the NAV is significantly reducing and therefore the ability of the fixed spread to compensate existing investors against dilutive effects is also reduced.

4. Testing a hybrid pricing policy

The question is then, is it possible to take the positive factors from each of these pricing policies in order to arrive at a model that outperforms both of them?

Cap & Am comparative strengths include:

- It provides relative protection from the effects of dilution.
- It is derived with reference to historical transactions.
- It is fluid and moves with reference to levels of debt and levels of acquisition costs.
- It is readily understood by the market.

Cap & Am comparative weaknesses include:

- It can be complex
- Effectiveness of results depends on accuracy of implementation.

Classic Dual comparative strengths include:

- It provides relative protection from the effects of dilution.
- It is simple.
- Maintaining a spread outside of the NAV per unit is comparatively more effective than maintaining one within the NAV per unit.

- In a stable environment, when appropriately set, provides comparatively more effective results.

Classic Dual comparative weaknesses include:

- Lacks dynamism and can become inappropriate if not flexed to current trends.
- The effectiveness of results depends on the spread being in line with the actual asset level spread.

So what characteristics would an ideal pricing policy have?

- It would provide relative protection from the effects of dilution.
- It should be derived with reference to historical transactions.
- It should be fluid and capable of change when in the interest of all investors collectively.
- The process of altering the spread would be accompanied by robust governance.
- Key concepts would be universally understood by managers and investors alike.
- It would be mechanical and simple.

- It would be calculated and maintained outside of the underlying NAV thus increasing its effectiveness and making the fund NAV a pure representation of the intrinsic value of the underlying assets and liabilities.

As an example, another alternative pricing policy could be therefore designed as follows:

- Track and record historical acquisition costs.
- Take the acquisition costs of the last 5 years and, rather than capitalising and amortising them, simply calculate the average % incurred over this period.
- Apply this as a spread on the issuance of new units.
- Track and record historical disposal costs.
- Take the costs of the last 5 years and calculate the average % of disposal costs incurred over this period.
- Apply this as a spread on the redemption of units.

For the purposes of our analysis we have taken this alternative policy and compared it against both classic dual pricing and capitalisation and amortisation over a 20-year period assuming an active fund with property acquisitions costs varying between 2% and 14% on given transactions over the period and property disposal costs varying between 0,5% and 2,5% on given transactions over the period. The results reveal that in such an environment of regularly and materially varying levels of transaction costs, similar to that of a multi-jurisdictional fund, this dynamic spread strategy consistently outperforms each of the other models.

Table 10: Results of the alternative dynamic pricing

	Dual Pricing	Cap & Am	Dynamic Pricing
3-Year	7.26%	7.51%	7.45%
9-Year	8.22%	8.23%	8.33%
15-Year	8.36%	8.23%	8.52%
20-Year	8.28%	8.10%	8.49%

Conclusions

An effort to combine the comparative qualities of both fund pricing models analysed in this paper has the potential to provide improved results for investors. Alternatively, there are steps that can be taken to improve each of the two models individually to a point where the comparative differences are negligible. For instance, by increasing the amortisation period used under the capitalisation and amortisation approach to a point where it matches average investor life, or by regularly re-setting the spread used based on actual transaction history or fund model portfolio for the classic dual pricing model. Such steps would need to take account of the specific strategies and market allocations of an individual fund and the pay-off between introducing complexity and change versus the materiality of potential outcomes given all the other potential variables that drive fund performance.

In all scenarios examined, it is imperative to clearly define an underlying 'intrinsic value NAV' representing the underlying assets and liabilities of the fund. This is the NAV of the fund on which an appropriate pricing spread, if any, would operate. In our model, this is the INREV NAV without the effect of adding back sunk transaction costs and establishment costs, a concept similar to US GAAP fair value NAV.

One must not forget that many components of this underlying NAV are best estimates of uncertain quantities, such as the fair value of a property asset transaction or the value of shares in a share transaction where latent capital gains tax is allocated between buyer and seller. The plausible variation within the acceptable range of outcomes for such estimates far outweighs the impact of pricing mechanisms described in this paper.

The key objective is to arrive at a policy which is in line with the fund's investment strategy, simple for investors to understand, provides flexibility to cater for variability in market conditions and is accompanied by an appropriate governance framework over the judgements and estimates of the underlying NAV and setting an appropriate pricing spread.

Appendices

Appendix 1 – Details of the pricing methods

Single price

- Swing – this is a form of single pricing that is far more common in financial funds and is less commonly seen within real estate funds. Effectively, it provides for a mechanism whereby the NAV is ‘swung’ upwards or downwards by a predetermined factor depending on whether the net capital flows are positive or negative. ‘Full’ or ‘Partial’ derivations of the policy exist. Proponents of this model argue that if properly designed, it protects against dilution and can act as a deterrent against frequent trading. However, many view this model as complex and difficult to explain to investors. Equally, it is not a model that is understood globally.
- NAV – another option is to simply trade directly based on the NAV of the fund. This provides for a single price that is readily understood by investors as it is determined with reference to a market standard financial reporting framework. The problem with this model is that investors are fully exposed to the impact of dilution, which can be material in some markets.

Dual

- Classic – under the classic dual price model a defined spread exists and is applied to the NAV. Units can be bought at a premium to NAV and sold at a discount to NAV. This premium is generally intended to represent the costs that have been incurred in establishing the underlying portfolio and/or the costs that must be incurred to deploy the invested capital. The discount is generally intended to represent the costs that must be incurred to sell an underlying asset in order to provide liquidity to the outgoing investor. A key point to consider in this model is how the spread is to be determined. Is it to be determined based on a fixed rate which reflects the cost of transaction in a given market? or is it based on a more dynamic approach reflecting actual historical acquisitions or an estimate of the cost of projected future acquisitions? The classic dual price model is effective in protecting against dilution but the judgement that can be applied in setting the spread is a matter that receives some criticism. The model is readily understandable but has been observed to present challenges in marketing to international investors who are not familiar with it.
- Capitalisation and amortisation – this model has been popular among the open end real estate funds launched in Europe in the post-crisis period. It is also a model that has been misunderstood by some within the market. Effectively this is not a single pricing model but a dual pricing model that spreads the costs of transactions out over a defined time period. The starting point for this process is the establishment of a NAV that reflects the intrinsic value of the underlying assets and liabilities in accordance with the respective fund’s offering documents. After this, a ‘trading NAV’ is determined by capitalising costs incurred in acquiring new properties and amortising these over a defined period. The difference between the intrinsic NAV and the trading NAV serves as a spread. Many funds borrow principles from the INREV Guidelines in constructing this approach. To give an example:
 - Acquisition costs incurred by the fund are capitalised to the trading NAV and amortised over a period of five years.
 - New investors buying into the fund at this trading NAV are effectively charged a spread because the unamortised balance is included in the price they pay.

- This ‘subscription premium’ is charged over a period of five years as the amount amortises.
- However, should the investor wish to leave the fund prior to the completion of this five-year period they will generally be charged this unamortised balance. ie investors cannot exit the fund without paying this.
- In addition, there is generally a redemption levy applied to all redemptions to cover potential marketing and disposal costs which may result from significant redemption requests.
- These items combine to constitute a dealing spread that is determined with reference to a recognised industry standard.

Proponents of this model cite the facts that:

- it is a dual pricing model and is designed to protect investors from dilution,
- as the spread is derived with reference to actual historical transactions it removes subjectivity,
- as the principles are grounded in the INREV guidelines they are readily understood by European market participants,
- as the costs incurred in acquiring properties are capitalised it avoids the initial spike in NAV that can be experienced and is therefore more palatable to certain investor types.

Critics of this model point to the fact that it is more complex than a classic dual model. Additionally, if the fund were to go through a period of inactivity the capitalised costs could become fully amortised thereby allowing investors to buy units at intrinsic NAV with no spread. However, it is often argued that this may be beneficial as allowing investors to buy at NAV without a spread after a long period of inactivity could result in capital inflows to the benefit of the fund and investors collectively.

Appendix 2 – Definitions

Net Asset Value – NAV

Reflects a vehicle's GAV less all liabilities as per the chosen valuation principles.

Fair value of vehicle according to INREV Guidelines

Represents the NAV as reported by the manager in accordance with the INREV NAV module.

Fair value (IFRS definition)

IFRS defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. The IFRS definition of fair value is assumed in the INREV Guidelines, except where specifically mentioned otherwise.

For more terms and definitions see **Global Definitions Database** (<https://www.inrev.org/definitions/>)

Appendix 3 – Additional graphical representation of findings

Figure 3: Redemption price per share, €

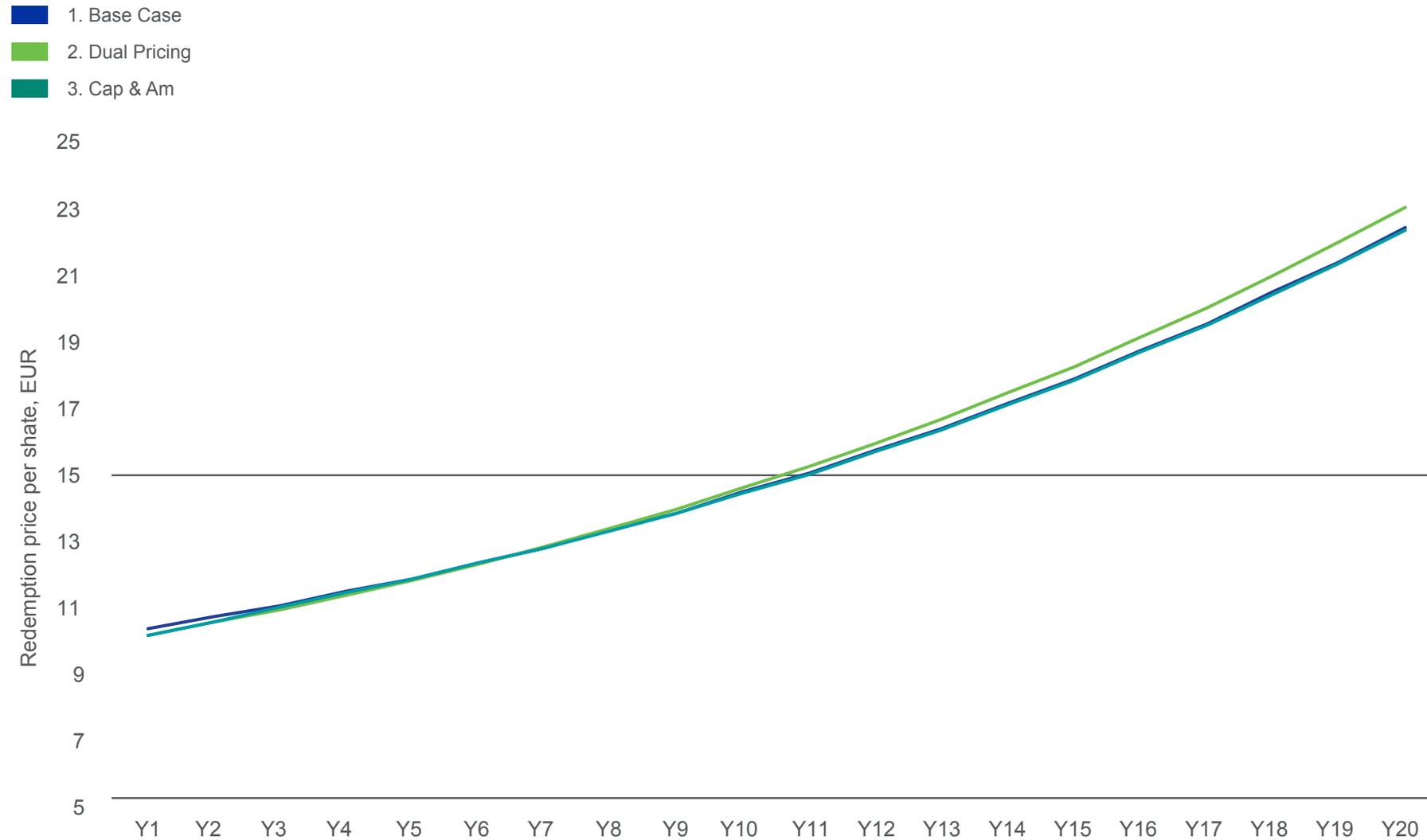


Figure 4: NAV per share, €

- 1. Base Case
- 2. Dual Pricing
- 3. Cap & Am

