



L-TSV vdp

The L-TSV network and current developments in Europe on sustainable valuation concepts

IVSC-WAVO Global Valuation Conference 2019

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 - UK
 - Spain
2. Derivation of Long-Term Sustainable Values (L-TSV) for Investment Properties

Report "Long-term Value Methodologies and Real Estate Lending" by the Long-term Value Working Group of the Property Industry Alliance (PIA) Debt Group.*

- Analysis and reconciliation of the characteristics of three alternative long-term value methodologies
- The Working Group has considered three alternative approaches to deriving cycle-insensitive long-term values and **assessed them against historical data to see how reliably they give appropriately early warning** that the CRE market is overheating. The three methodologies that the Working Group tested are:
 1. **Adjusted Market Value**
 2. **Investment Value and**
 3. **Mortgage Lending Value**compared to market value.

Main conclusion of the study:

- Estimates of long-term valuations can provide useful **advance signals** on when the commercial real estate (CRE) market **may be overvalued and face a high risk of a major fall in values**. Lending institutions are encouraged to consider how, in the light of this work, long-term value metrics can be given a central role in **risk management systems**.

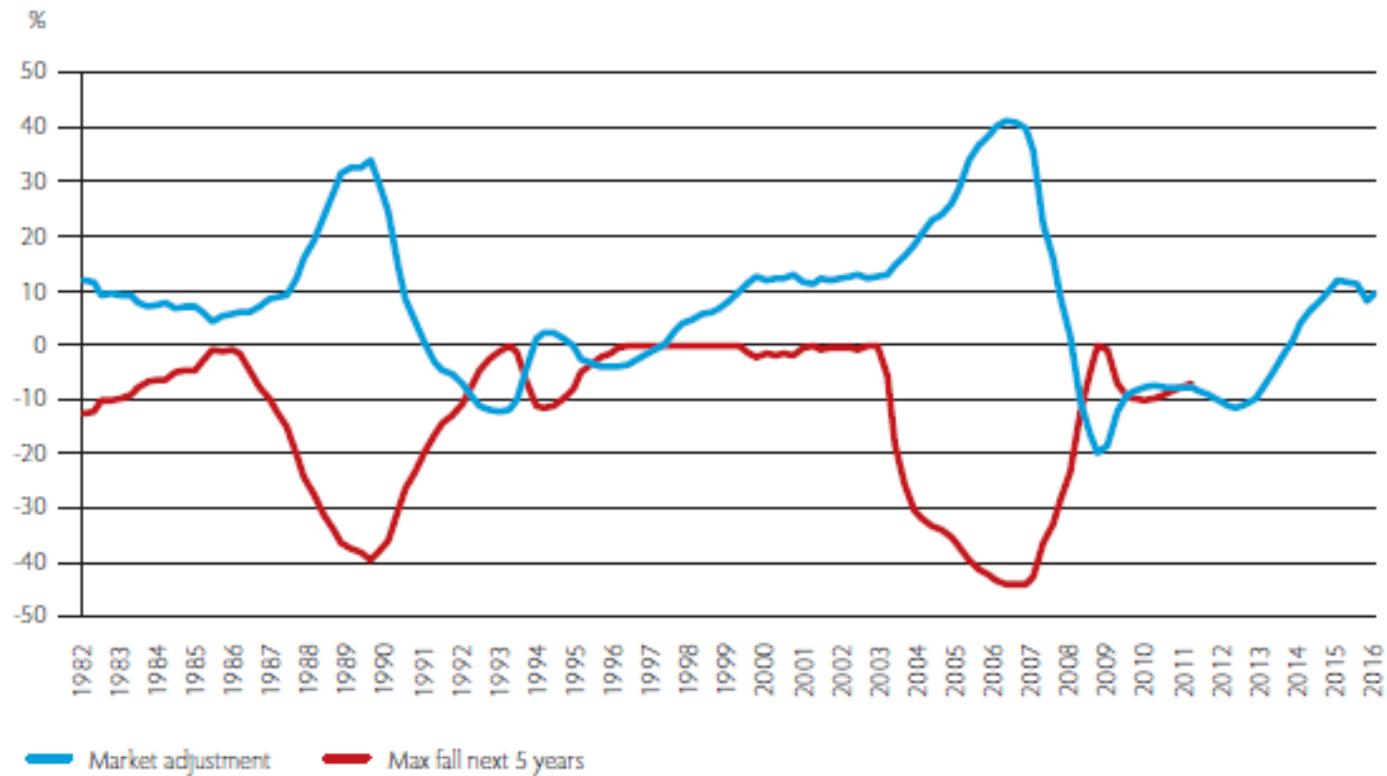
Testing of the three methodologies:

- Each methodology was used to plot long-term value over a period covering at least two cycles (using only information available at each point in time, rather than hindsight).
- An appropriate capital value (i.e. market value) index was then compared to each long-term value line, **highlighting how each methodology identified market over- or undervaluation**.
- Finally, the relevant capital value index was used **to plot the maximum fall in capital values over the next five years**, as at each point during the period covered.
- Each methodology was assessed by reference to **its ability to show overvaluation in advance of the major CRE market crashes and to do so in a timely manner**.

The Conclusions

1. Long-term value can improve **cycle awareness and lender risk management**.
2. **AMV** is the **most reliable** of the three methodologies, based on the work that has been completed.
3. IV has potential, but further analysis is required.

Figure 2: MV/AMV market adjustment vs maximum subsequent fall



Source: MSCI

The Conclusions II

4. MLV is a practical demonstration of adjusted valuations being used by lenders to promote lower credit risk lending in Germany and elsewhere, but there are **problems with applying German MLV to the UK market.**
5. It has not been possible with any of the methodologies to demonstrate the same level of robustness at a more granular (e.g. sector or subsector) level as at the **market level.**



1. Discussion on Long-Term Valuation Concepts in

- UK
- Spain

2. Derivation of Long-Term Sustainable Values (L-TSV) for Investment Properties

AEV'S MORTGAGE RISK RATING [MRR] Approach



- Mortgage Lending Value obtained by applying an adjustment factor to the market value as determined by the **comparison method**
- **How can the necessary adjustment factor be derived?** AEV has developed an objective and consensual system to assess the risk of price falls in the 6 years following the determination of the value of a mortgage (since, statistically, most failed loans stop paying between the 3rd and 6th year since concession).

The complete process for determining MLV consists of 2 phases:

1. **MORTGAGE RISK RATING:** tool that allows to detect **when** and **where**, depending on the economic conditions and the real estate markets, it is necessary to apply a mortgage adjustment on the prices obtained from market comparables.
2. **CALCULATION OF THE ADJUSTMENT FACTOR:** determination of the calculation formula of the **percentage of mortgage adjustment**, establishing what data must be available to be able to apply it.

Objective: Create a tool that allows **to anticipate the proliferation of price "bubbles"** and, in this way, be able **to advise on the prudent or sustainable value of a property at the time of appraisal**.



1. Discussion on Long-Term Valuation Concepts in
 - UK
 - Spain
2. Derivation of Long-Term Sustainable Values (L-TSV for Investment Properties)

In the UK and Spain, approaches are being developed to predict market overruns using sustainable valuations in the sense of a **rating or risk management tool**.

But what could a **long-term sustainable valuation methodology** look like at a single property level that is applicable across Europe?

The L-TSV network tries to find some answers...

- International L-TSV Network has developed draft for approach to calculate so-called **Long Term Sustainable Value (L-TSV)**
- Approach should be applicable (at least) European wide and
 - is **principle-based** instead of rule-based
 - Should refer to the **country-specific valuation approaches**
 - Should be **regularly reviewed** for updating
- Approach formulates **wide-ranging definitions** for principal valuation parameters in the Income Approach such as the **sustainable rent** and **caprate**, thereby allowing valuers the greatest possible flexibility.

Germany: Minimum CapRates according to § 12 (4) BelWertV

Residential	Commercial
Minimum 5 %, no undercut allowed	Minimum 6 %

Minimum criteria to undercut:

„Prime“ Commercial Properties
Minimum 5,5 %

1. a very good location in the urban agglomeration,
2. a preferred site in keeping with the respective type of property,
3. a good infrastructure,
4. good design,
5. high-quality fixtures and fittings,
6. a high-quality type of construction,
7. an especially high marketability,
8. restriction to the uses retail, wholesale, office and business,
9. a very good state of the property and
10. the given possibility to put the property to other uses.

Property Type	1963*		Property Type	1977*		Property Type	1998*	Property Type	2006*
	Country side	City		Country side	City				
Multi-family homes	4,5 – 5,5 %	5 – 6 %	Multi-family homes	4,5 – 5,5 %	5 – 6 %	Multi-family homes	5 – 6 %	Multi-family homes	5 – 8 %
Commercial Buildings	5 – 6 %	5,5 – 7,5 %	Commercial Buildings	5 – 6 %	6 – 7,5 %	Commercial Buildings, Office Buildings	6 – 7%**	Commercial Buildings, Office Buildings	6 – 7,5%***
Other commercial properties (e.g. hotels, cinemas, factories)	6 – 10 %	6 – 10 %	Other commercial properties (e.g. hotels, cinemas, factories)	6 – 10 %	6,5 – 10 %	All other commercial properties	6,5 – 8,5 %	All other commercial properties	6,5 – 9 %
						Production Buildings			7 – 9 %

*Sources:

1963: Recommendations from Handbuch des Realkredits, Dr. Franz Steffan (Hrsg.), 1. Auflage, S. 513, Fritz Knapp Verlag, FFM

1977: Recommendations from Handbuch des Real- und Kommunal-Kredits, Dr. Franz Steffan (Hrsg.), 2. Auflage, S. 271, Fritz Knapp Verlag, FFM

1998: „Wesentliche Aspekte der Beleihungswertermittlung“, Veröffentlichung vom VDH in Absprache mit BaKred

2006: Beleihungswertermittlungsverordnung (BelWertV), came into force on 12 May 2006

2019: siehe BelWertV

**Undercut for prime Commercial properties by max. 0,5 % possible, analogous to § 12 (4) BelWertV

***Undercut for prime Commercial properties by max. 0,5 % possible, acc to § 12 (4) BelWertV

- Static rules for cap rates are not necessary if data availability (e.g. long time series) is sufficient ➔ Valuer need to know how to derive a sustainable cap rate from the data

Excerpt from L-TSV Guidelines:

„*The sustainable capitalisation rate and/or sustainable yield has to be assessed by having regard to relevant long term market data and trends relating to the respective type of property and its relevant market.*“



Presented Model pursues the following goals/tries to find answers to the following questions:

- Development of a **nationally and internationally acceptable approach to determine (sustainable) real estate values:**
 - Parameterization of central variables of this approach:
 - **Risk-free yield**
 - **Property risk premium**
 - **Rent developments**
 - How much does which parameter vary depending on time phases?
 - Can these variations **justify adjustments in the capitalization rate** to determine sustainable real estate values? Is there a regime change?

Type Net Present Value model

Why? Model makes it easy to integrate important determinants of the Income Approach:

- Net operating income and
- Capitalization Rate (and its components)



highly appropriate as an instrument for the derivation of **sustainable, risk-adjusted real estate values.**

V = Value of an investment property: **Income stream of future net operating incomes** produced by the property which are discounted to the present day using a yield formula to calculate the capital value based on perpetual income.

Y = net operating income, growing at rate **g**

i = yield

V = Value of the investment property at the start of the time line $t=0$:

$$(1) \quad V_0 = Y_0 \frac{1+g}{i-g} = Y_1 \frac{1}{i-g}.*$$



Value of the property is based on

- the net operating income Y_0 ,
- the net operating income of the following time line $Y_1 = Y_0 * (1 + g)$ and
- the gap between the yield i and the growth rate g of the net operating income.

The smaller the yield gap ($i - g$), the higher the resulting property value **V** at a particular net operating income. In valuation, yield gap can be expressed as the capitalisation rate.

The yield i comprises two components:

- i^{rf} = risk-free yield and
- irp = property risk premium

Formula is extended by

- d = rate of depreciation due to age and

$$(2) \quad V_0 = Y_0 \frac{1+g}{i^{rf} + irp - g + d} = Y_1 \frac{1}{i^{rf} + irp - g + d}$$



The Higher:

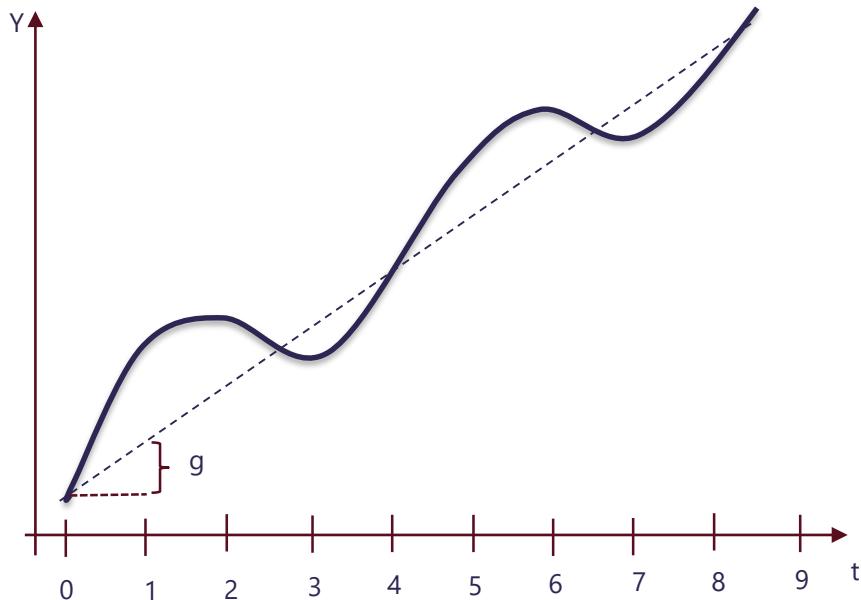
- Net Operating Income Y and
- its growth rate g

The Lower:

- Rate of depreciation d
- risk-free yield i^{rf}
- property risk premium irp

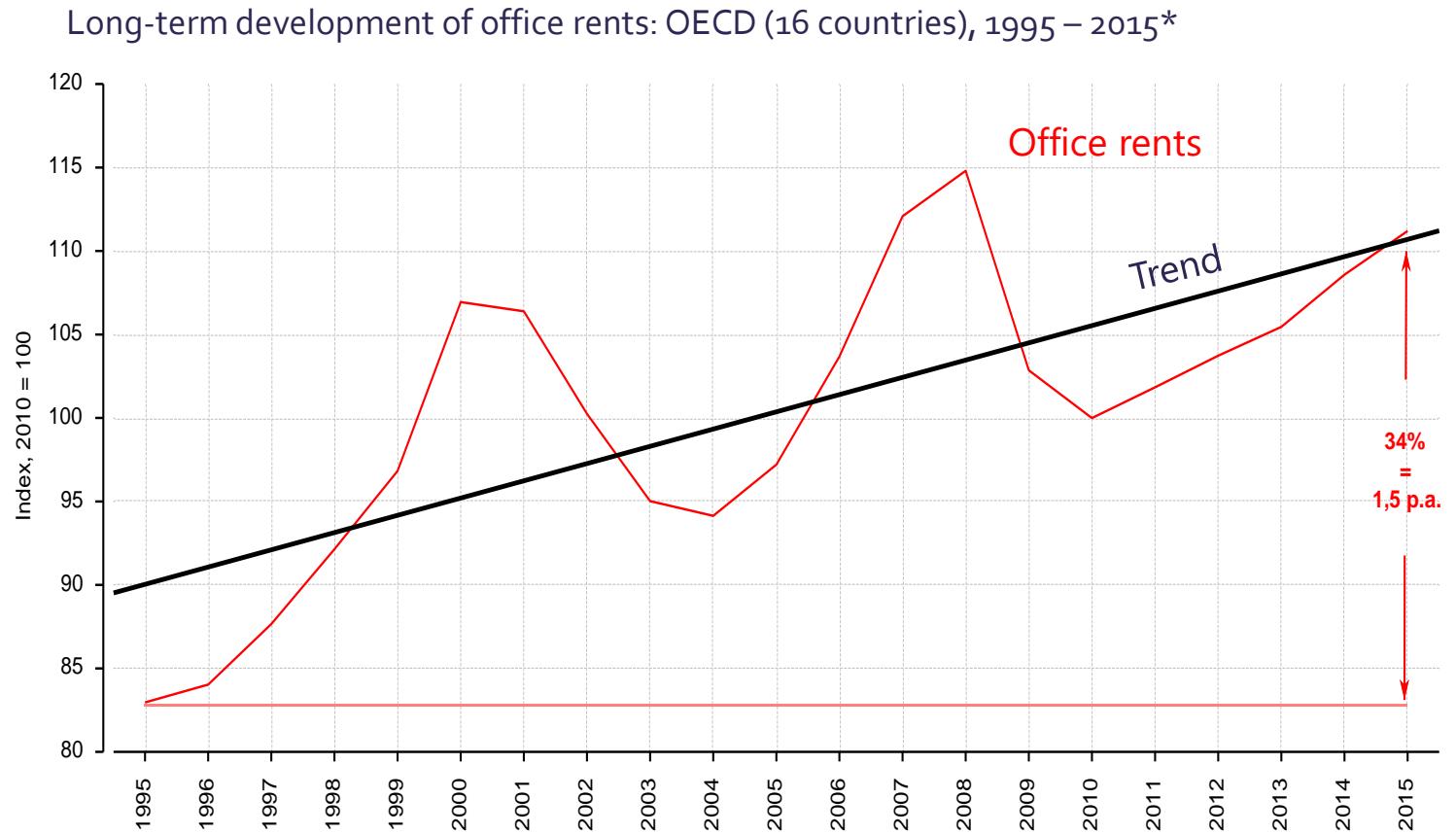
...the higher the value of the property.

- Annual **net operating income** Y = gross rental income less operating costs.
- Question: Under what conditions can the rent be called sustainable?
- Answer: Depends on the **current rental level** and its **expected growth in future**.
- Thesis: Rents do follow a stable deterministic growth trajectory (expressed here by the growth rate g) over the long term, even if there are short-term fluctuations between booms and recessions (not to be considered).

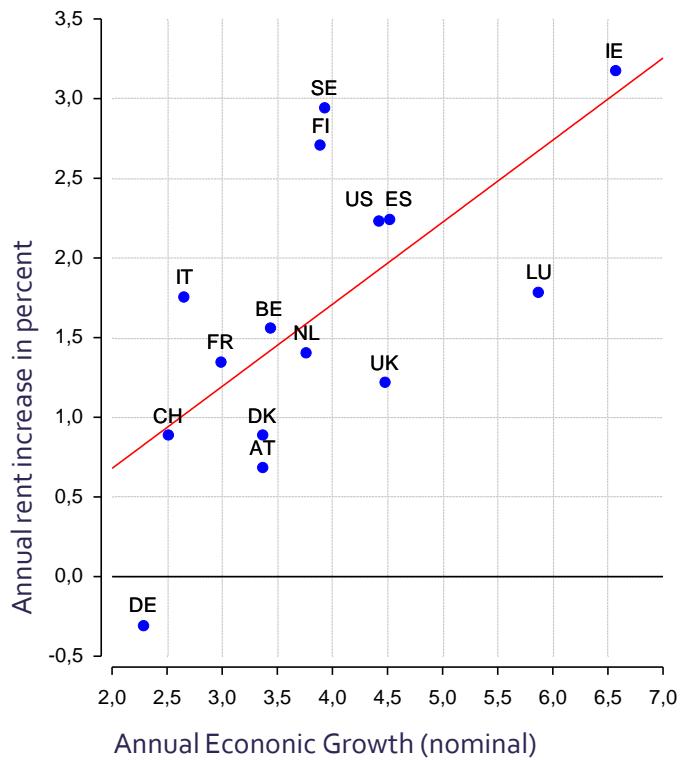
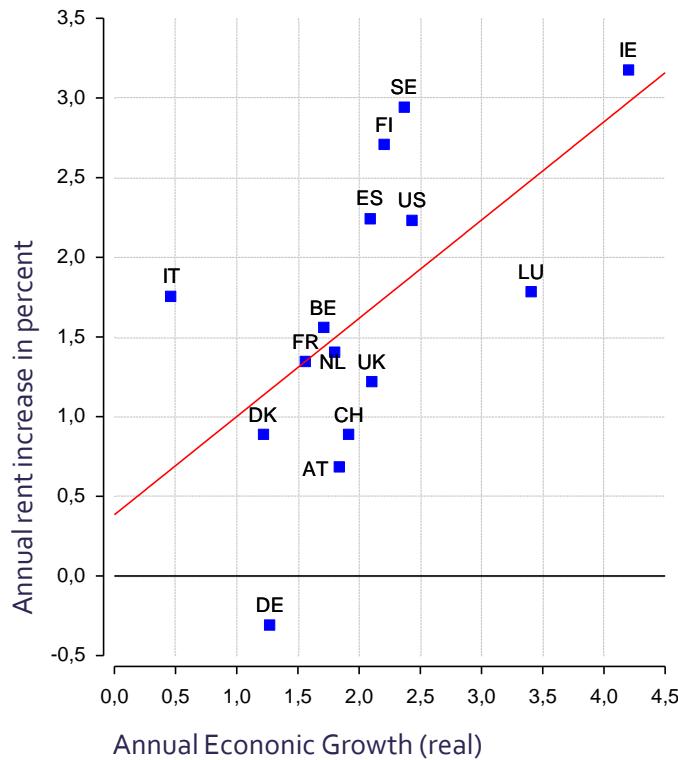


If rents indeed follow a deterministic trend: What to do?

→ Identify the **central determinants of the growth trajectory**. If we know these determinants, it is possible to use orientation parameters based on these.

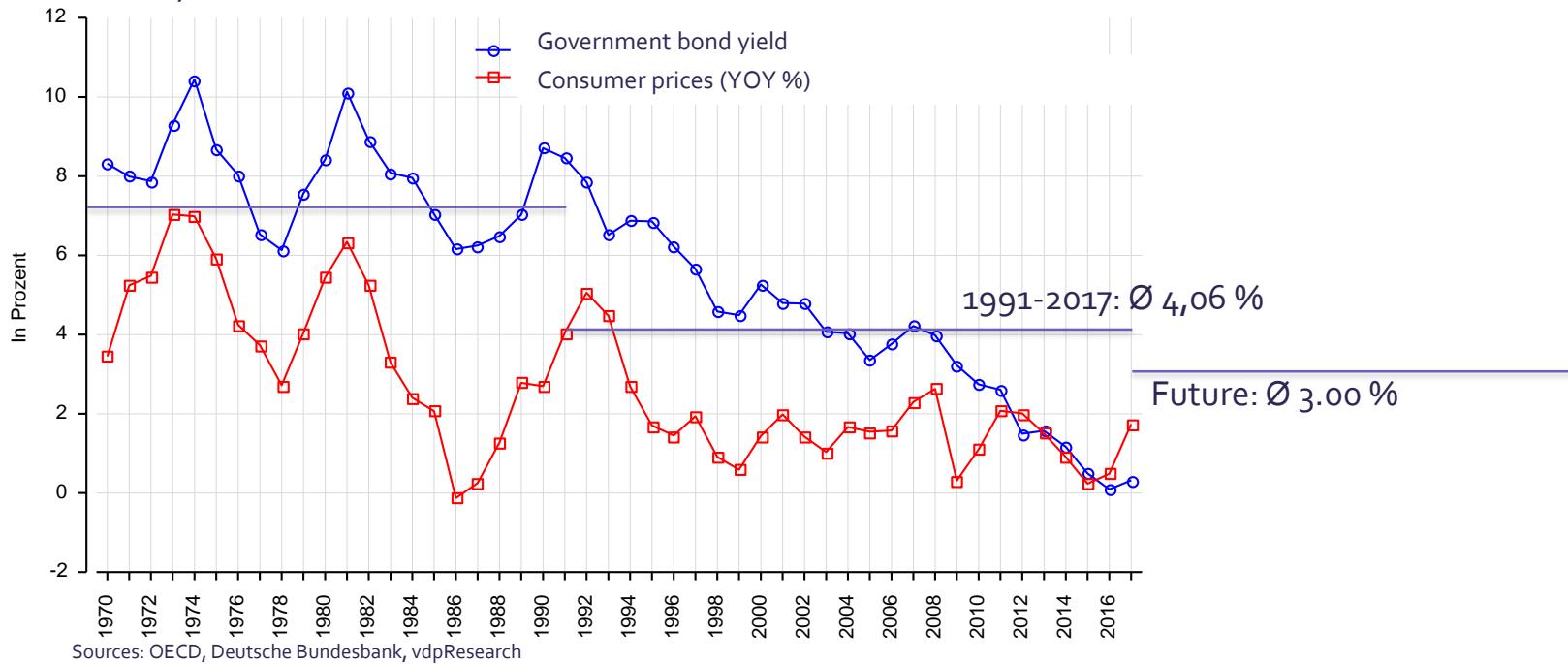


Long-term development of office rents, 1995 – 2014: Relationship between rent increase and nominal and real economic growth



- Development of rents paid for new lease contracts on office markets show generally high correlation with economic growth (measured in GDP offers the)
- Offers possibility for a future-orientated valuation approach

Inflation and yield for German government bonds with long unexpired terms, 1970 to 2017
– Nominal yield and inflation



- Risk-free yield typically equates to the yield for government bonds with long unexpired terms.
- In Germany, yield has **fallen significantly** since the early 1990s, interrupted only by short counter-movements.
- In 2017, the **nominal yield was approaching zero** and the **real yield was -1.8%**.

Assumption: Inflation rate in Germany will be **2%**.

Based on assumed inflation rate and interest rates over the past 15 years: **risk-free yield $i^{rf} = 3\%$** .

Parameterisation of the model variables – Property risk premium (*irp*)

- **Property risk premium *irp*** is a **key variable** for the risk-adjusted valuation of properties, but **can not be measured directly**
- Property-specific risk premium is largely **constant over the long term**, but is affected in the short-term by strong cyclical fluctuations corresponding to the risk tolerance of the investors.
- Constant or almost constant risk premium must be adopted for the determination of sustainable property values, and this should only **vary depending on property type and regional market**.
- Examinations say the risk premium for shares reaches an average value of 6%.*
- With reference to individual bibliographical references for determining the risk premium for office real estate, **property risk premium *irp* of 2.5%** is applied here.

Parameterisation of the model variables

- Rate of depreciation due to age (d)

- According to Appendix 2 of BeWertV, the useful life of office buildings is between 30 and 60 years. On this basis, a useful life of 50 years is assumed.
- If a **linear depreciation** is used, the **depreciation due to age d** is **2%**.
- This depreciation rate is only applicable to the building. For the sake of simplicity, a distinction between plot and building is omitted here. ➔ Ceteris paribus, depreciation is too high in all locations with very high land values.

Value Formula:

$$V_0 = \frac{Y_1}{i^{rf} + irp - (g + \pi) + d}$$

Capitalisation rate for Germany, 1991 - 2017 and future

Variable	Unit	Period	
		1991 – 2017	Future
Risk-free yield	i^{rf}	%	4.06
Property risk premium	irp	%	2.50
Yield	$i = i^{rf} + irp$	%	6.56
Depreciation due to age	d	%	1,8
Inflation	π	%	2.00
Sustainable rental growth = GDP growth (real)	g	%	1.38
Capitalisation rate	$i - g$	%	4.98

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Assumptions:

- Potential growth in the German economy is estimated at 1.5% by the German Council of Experts in its current annual report. Very high. **Assumption here = 1.3%.**
- Inflation: Target of the European Central Bank = 2.0 %
- Risk-free interest: Yield for German government bonds with a maturity of 10 years.

All data and calculations are **preliminary**, and it is likely that these **could change significantly** in the course of necessary further analysis!

Interested in L-TSV-Network ?
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