vdp The German Pfandbrief Banks

Mortgage Lending Value: determination of capitalisation rates for properties located abroad

1. Purpose of this paper

Following the amendment of BelWertV in 2022, the minimum capitalisation rates no longer apply to properties located abroad. This change, which vdp welcomes, makes it possible to take better account of the individual risks of each property when deriving the capitalisation rate. However, it requires valuers to take care when determining the capitalisation rate.

A valuer usually only has information on country-specific yields at their disposal. Besides deriving a sustainable country-specific yield, transposing this yield into a capitalisation rate suitable for the BelWertV methodology is of great importance.

This paper contains recommendations for determining the capitalisation rate. A three-step procedure is proposed:

- Step 1: Analysis of long-term time series
- Step 2: Estimating the long-term sustainable market yield for the subject property
- Step 3: Determining the MLV capitalisation rate

Step 3 introduces two possibilities for determining the MLV based on capitalisation rates derived from sustainable country-specific market yields. The discussion shows that this three-step procedure is widespread, but that the approach within the individual stages differs slightly from one institution to another. The procedures shown as examples are therefore in no way intended to preclude the use of other procedures which may also be equally appropriate.

2. Amended BelWertV (October 2022)

The amended BelWertV published on 7th October 2022 includes a change to the minimum capitalisation rates to be applied when using the income approach. The previous fixed rates (5% for residential properties and 6% for commercial properties) have been changed to a

dynamic derivation model, based on the interest rate payable on 30-year German Federal Bonds plus a risk premium, subject to upper and lower limits.[1] This derivation model, enshrined in §12(4) BelWertV, specifically refers only to properties located in Germany. §12(5) BelWertV, which deals with the possibility of reducing the minimum capitalisation rates for first-class properties, and Annex 3, which deals with surcharges and mark-ups for certain types of properties, both refer to §12(4) BelWertV and therefore also only apply to properties located in Germany.

Moreover, §25(1) BelWertV has been rewritten.[2] This provides that the mortgage lending value (MLV) of properties located abroad is to be determined in accordance with the other provisions of BelWertV only to the extent that nothing else is prescribed in those provisions and §25(2) - (5) BelWertV. This means that §12(3) and §25(3) BelWertV, but not §12(4), apply to the capitalisation rates used for properties located abroad. The capitalisation rate must be derived from the long-term and use-specific market trends applicable in the region; different types of use must be considered separately. Moreover, when deriving the applicable capitalisation rate, an appropriate weighting must be given to the highest values achieved in the relevant market, unless they have been achieved for only short periods.

The new provision makes it possible to apply capitalisation rates which may differ from the minimum capitalisation rates under §12(4) BelWertV for properties located abroad if the requirements of §12(3) and §25(3) BelWertV are met. This allows a better differentiation between properties in terms of market- and property-specific risks when determining the MLV.

3. Determining capitalisation rates – BelWertV framework

To derive capitalisation rates for properties located abroad, the following particular articles of BelWertV must be considered:

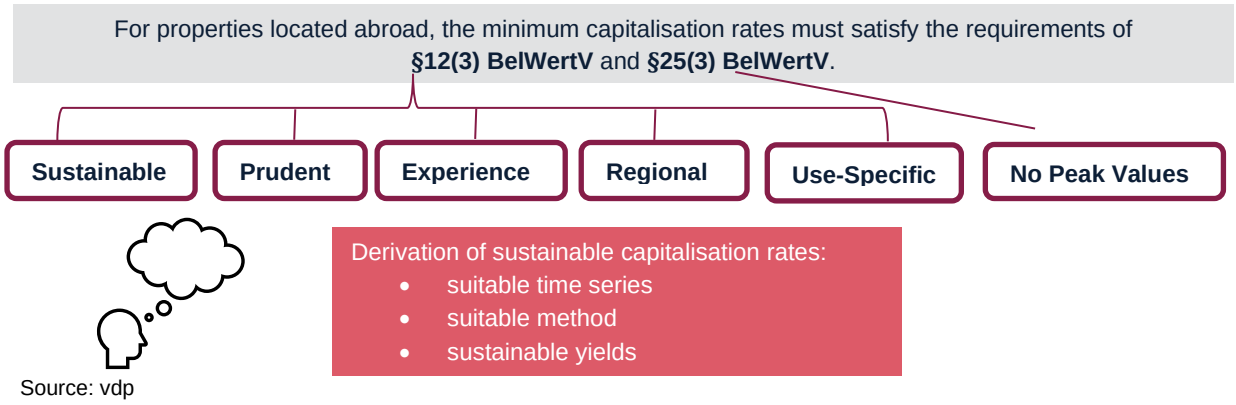
> ***§12(3) BelWertV***
>
> *"The capitalisation rate corresponds to the assumed interest rate at which the sustained net income, achievable in future, of a property, is discounted over the period of its assumed payment on the basis of a prudent assessment and based on experience. It must be derived from the relevant regional long-term and use-specific market developments. Different types of use must be considered separately in each case."*
>
> ***§25(3) BelWertV:***

[1] §12(4) BelWertV: *"[1]Subject to sentence 3 and paragraph 5, the capitalisation rate for properties located in Germany shall be, in the case of residential use, at least 3 percentage points above the yield of 30-year German federal bonds as published by the Deutsche Bundesbank, rounded in accordance with DIN 1333, and, in the case of commercial use, at least 4 percentage points above said yield, plus, in both cases, any markups to be taken into account for individual types of use in accordance with Annex 3. [2]If, on 30 November of any year the yield on 30-year German federal bonds as published by the Deutsche Bundesbank is at least 0.5 percentage points higher or lower than at the beginning of the month preceding the last change in the minimum capitalisation rates, these shall change on 1 January of the following year by the corresponding percentage points, rounded to the first decimal place in accordance with DIN1333. Subject to paragraph 5, the minimum capitalisation rate for residential use shall be at least 3.5 percent and at most 5.5 percent, and for commercial use at least 4.5 percent and at most 6.5 percent, plus any markups to be taken into account for individual types of use in accordance with Annex 3. [4]BaFin shall publish the amended capitalisation rates on its website without delay after the date specified in sentence 2.*

[2] §25(1) BelWertV: *´The determination of the mortgage lending value of properties located outside of Germany is to be conducted in accordance with the other provisions of this Regulation unless otherwise stipulated in pars. (2) to (5).*

> *"In deriving the capitalisation rate to be stated in accordance with §12 par. 3, the peak values achieved in the respective market, not only on a short-term basis, must be suitably weighted."*

These requirements can be summarised as follows:



Source: vdp

The requirement for long-term market data must be read in conjunction with the new sentence inserted in §3(2) BelWertV:

> *"The determination of sustainable aspects of the property and their influence on the valuation requires a long-term view of market conditions. The period under consideration shall be specified and its appropriateness comprehensibly explained."*

From vdp's perspective, both *taking into account market conditions over the long term* and also *comprehensibly explaining the appropriateness of the period under consideration*, which complies with the principle of a prudent, sustainable and long-term determination of the MLV, should depend on the type of property concerned, the region and the individual data available. Specifying a fixed and purely historical period would not do justice to the peculiarities of individual types of property and regional sub-markets, and the related differences in the volume of data available. That is why the Ordinance is right not to provide for a minimum period under consideration.

The extent to which the appropriateness of the period under consideration needs to be documented should be appropriate to the risk in terms of the type and complexity of the property.

When considering market conditions, priority must be given to overall trends for those properties in the region that are relevant to the type of property in question. In the case of mixed-use properties, if one use is clearly dominant in the valuer's opinion (the main use), the documentation can be limited to the main use.

When identifying the period and documenting the market conditions / overall trends, reference can be made to helpful diagrams and tables, and to a times series showing the relevant time periods, including in a standardised form.

A period may cover a full property cycle (including a peak and a trough). It should also include an assessment of the foreseeable future. This does not imply, however, that shorter periods

may not be warranted in many cases, especially where the cycles in a market are only weak, or where there is no pronounced cycle, or where discernible longer-term structural shifts overlap with the market cycle. Examples of the latter are:

- the overall decline in inflation and interest rates since the 1990s
- the increasing transparency and liquidity of real estate markets in recent decades
- technological changes and increasing emphasis on ESG
- underlying trends in demographics, consumer behaviour and workplace patterns
- certain asset classes (e.g. logistics and healthcare) reaching maturity in recent years

These long-term changes may mean that data which goes back too far is fundamentally out of date, even if it still lies within the current cycle.

The choice of the appropriate time period from which to draw market data therefore remains fundamentally a matter for valuers to judge in the context of the particular valuation, and which they must support with an adequate explanation.

Once an appropriate time period has been chosen, valuers need to apply their judgement to interpret the data from the series on a case-by-case basis. Generalised procedures, such as using averages or minimum or maximum values over a selected period or extrapolating past market trends, do not sufficiently reflect the heterogenous nature of real estate markets or the qualities of individual properties. Whilst the MLV focuses specifically on safety, which naturally suggests an emphasis on data from weak market phases, one cannot rigidly apply the highest capitalisation rates from the period under consideration, and this is particularly true of values which have been achieved only during short periods (cf. §25(3) BelWertV).

Finally, whilst valuers must draw on data from the past as a guide when choosing an appropriate capitalisation rate, the rate chosen must itself be adjudged to be reliable for the whole life of the loan (cf. §3(1) BelWertV).

4. Determining capitalisation rates – approach / example

Outside Germany there is usually no historical market data available that could be directly compared to MLV capitalisation rates. Market data is available mainly in the form of yields[3] which are based on a fundamentally different methodology from MLV capitalisation rates.[4] It is therefore recommended that valuers proceed as follows when determining the capitalisation rate:

STEP 1: ANALYSIS of long-term time series

- Choose and explain the appropriate period (see section 3 for more guidance).
- Apply the valuer's judgement to interpret the time series on a case-by-case basis; avoid using generalised procedures such as averages or minimum or maximum values or extrapolating past market trends (see section 3 for more guidance).
- The yield used must also be assessed to establish whether it is sustainable for the foreseeable future.

[3] This also refers to all other customary local terms such as "cap rates" in the U.S.
[4] The main difference here is explicitly taking account of the remaining useful life when deriving a multiplier in accordance with the German BelWertV rules.

- Statistical approaches, e.g. separating the data into a long-term trend and a short- to medium-term cycle, including realistically expectable scenarios for the future, can also be used when analysing time series and determining a sustainable market yield.

EXAMPLE:

A hypothetical example, which is nonetheless closely based on a real-life case, will be used here to illustrate the possible approach for a notional commercial property, fully let on market terms. Based on the recommendation in section 3, the following procedure is applied to the example:

In the relevant regional market for the subject property, there is market data available for prime yields. The historical data shows the following values:

Years before / after valuation date	**-14**	**-13**	**-12**	**-11**	**-10**	**-9**	**-8**	**-7**	**-6**
Prime market yield in %	5.25	5.75	4.75	4.75	4.5	4.25	3.75	3.25	3.0
Years before / after valuation date	**-5**	**-4**	**-3**	**-2**	**-1**	**0**	**+1**	**+2**	**+3**
Prime market yield in %	3.0	2.75	2.5	2.5	3.25	3.5	4.0	4.5	4.5

Appropriate time period:

As the data shows a pronounced cycle, an appropriate series should cover an entire cycle including a peak and a trough. It should also cover the valuer's assessment of the foreseeable future. The prime yields show a marked cyclical trend and therefore this time horizon is appropriate within the meaning of §3(2) BelWertV.

Valuer's assessment of the sustainable yield:

The peak of 5.75% was reached only during a single year, and it can therefore be disregarded because it was not sustainable as required by §25(3) BelWertV, whereas a prudent approach in line with this provision would indicate that preferential weight should be accorded to the next higher values.

Whilst due consideration must be given to the past, any choice of relevant parameters must also take account of current trends and developments which are already foreseeable at the valuation date. Whilst in the present case the market has experienced a downturn in the two years prior to the valuation date, insofar as an educated assessment of the foreseeable future can be made, it cannot be expected that yields will return to the levels of the previous peak.

As a consequence, a long-term sustainable prime market yield of 5.25% is used for the regional submarket relevant to the notional property.

STEP 2: ESTIMATING the long-term sustainable market yield for the subject property

- As yields from time series may be stated as prime yields, or qualified in terms of the quality of the building and/or the location, adjustments may be necessary depending on the location and building specifications and the age of the subject property.
- The adjusted yield will be the long-term sustainable market yield for the property.

EXAMPLE:

While the subject property is a good quality asset, it is not a prime property and is valued in the market with a premium of 25bp compared to prime product (3.75% vs. 3.5%). A long-term sustainable market yield (Y_{LTP}) of 5.5% is therefore used for the subject property.[5]

STEP 3: DETERMINING the MLV capitalisation rate

As a final step, it is necessary to transpose the previously determined country-specific sustainable market yield so that it is appropriate to the BelWertV methodology. For this purpose, two procedures are explained in the following overview, based on the above example.

To transpose the yield, one needs to know the precise definition / methodology which underpins it, e.g. whether the yield includes non-recoverable operating expenses and acquisition costs. It should also be noted that in some countries there may also be different types of market yields, depending on the data source.

EXAMPLE:

In this example, a very common definition is used:
Yield = NOI / (purchase price + acquisition costs), where the NOI is calculated as the headline rental income less typical market non-recoverable outgoings. The latter comprise (cf. market valuation) management costs, a reserve for structural maintenance and certain other running costs. To calculate the market-equivalent NOI based on the sustainable rent for the purposes of determining MLV, only typical market non-recoverables must be considered.

Property-specific factors such as CapEx or vacancies must also be taken into consideration to rule out misinterpretations when backtesting. This can be done, for example, by converting recognised items which impact the value, such as CapEx, vacancies or over/underrent, into an appropriate yield correction. It should also be noted that separate consideration of the useful lives of the land and the building leads arithmetically to an increase in the yield for the building.

Besides backtesting the result, as shown in the following example, it is also possible to specify a market value based on sustainable yields, as a maximum value for the MLV. However, this is subject to the limitation that, based on the available market data, MLV is less or equal to Market Value.

[5] This is an example and should not be followed automatically: premiums can vary depending on the yield and market conditions and must be considered on a property-by-property basis.

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Step 3

Market Value

Site Value (in EUR):	225.000.000
Replacement costs of the building (in EUR):	87.500.000
Total useful life (in years):	60
Remaining useful life (in years):	55
Market Rent: = estimated rental value (in EUR p.a.):	20.000.000
Non-recoverable operating expenses:	
Management costs: 0,25% of rent passing (in EUR p.a.)	50.000
Structural maintenance reserve (in EUR p.a.):	150.000
Other running costs (in EUR p.a.):	500.000
Total opex p.a. (3,5% of MR) =	**700.000**
NOI p.a. (96,50% of market rent):	**19.300.000**
Current Prime Yield in the relevant regional market (in %):	3,50%
Chosen market yield for the valuation property (in %):	3,75%
Applicable yield definition: $Market\ Yield = \frac{NOI}{MV\ (1+Acquisition\ costs)}$	
Gross Market Value:	514.666.667
Applicable Acquisition Costs: 7,0%	
Market Value (rounded):	**481.000.000**
Estimated long term sustainable prime market yield for the relevant regional market (based on historic data and assessment for the foreseeable future):	5,25%
Estimated long term sustainable market yield for the property Y_{LTP}:	**5,50%**

MLV: Iterative determination of the cap rate

Description	Calculation	
	Site Value:	225.000.000
	Replacement costs of the building:	87.500.000
	Total useful life:	60
	Remaining useful life:	55
	Sustainable Rent (SR) in EUR p.a.:	**18.000.000**
	minus **Non-recoverable operating expenses**:	
See § 11 (3) BelWertV	Management costs: 1,0% of SR p.a., i.e.	180.000
See § 11 (4) BelWertV	Maintenance costs p.a.: 0,40% of replacement costs of the building:	350.000
See § 11 (5) BelWertV	Loss of rental income p.a.: 4,0% of SR, i.e.	720.000
	Total (=6,94% of SR) =	1.250.000
Apply 15% Minimum for Opex acc.to § 11 (2) BelWertV	6,94% < 15%. 15% of SR =	2.700.000
Add Opex which fall under § 11 (6) and (7) BelWertV	plus Other running costs:	500.000
	plus Modernization risk (0,20% of replacement costs of the building):	175.000
	Total opex p.a. (18,75% of SR) =	**3.375.000**
Substract the opex from SR to obtain NOI	**NOI on sustainable rent p.a. (81,25% of sustainable rent):** =	**14.625.000**

MLV: Determination of the cap rate using § 25 (4) BelWertV

Description	Calculation	
	Site Value:	225.000.000
	Replacement costs of the building:	87.500.000
	Total useful life:	60
	Remaining useful life:	55
	Sustainable Rent (SR) in EUR p.a.:	**18.000.000**
	minus **Non-recoverable operating expenses**:	
See § 11 (3) BelWertV	Management costs: 1,0% of SR p.a., i.e.	180.000
See § 11 (4) BelWertV	Maintenance costs p.a.: 0,40% of replacement costs of the building:	350.000
See § 11 (5) BelWertV	Loss of rental income p.a.: 4,0% of SR, i.e.	720.000
	Total (=6,94% of SR) =	1.250.000
Apply BelWertV 15% Minimum for Opex	6,94% < 15%. 15% of SR =	2.700.000
Add Opex which fall under § 11 (6) and (7) BelWertV	plus Other running costs:	500.000
	plus Modernization risk (0,20% of replacement costs of the building):	175.000
	Total opex p.a. =	**3.375.000**

If market yields in the relevant market are based on a capitalisation **in perpetuity**, § 25 (4) BelWertV needs to be applied, i.e. the net operating income is capitalised in perpetuity, but in arriving at the net operating income, a **depreciation** for the building needs to be considered. This latter can be posited as equalling the **replacement costs** of the building **divided by** the **total useful life**, but **diminished by** the **already deducted maintenance costs** and **modernization risk** to avoid double counting.

Building depreciation p.a. in acc. with § 25(4) BelWertV:		
Replacement costs of the building / Total useful life, i.e.		**1.458.333**
minus Maintenance costs		350.000
minus Modernization risk		175.000
	=	**933.333**
Substract the opex adjusted for building depreciation to obtain NOI	**NOI on sustainable rent p.a. (76,06% of sustainable rent):** =	**13.691.667**

Iterative determination of the MLV Cap Rate (Target value search)

The premise for the determination of the MLV Cap Rate is, that the MLV corresponds to the market value of the property, as it would be estimated by applying the Sustainable Rent SR and the estimated long term sustainable market yield of the property Y_{LTP}. This means that on the market value side of the equation, the NOI corresponds to the sustainable rent minus market standard non-recoverable operating expenses, while the applicable yield will be the Y_{LTP}. The MLV side of the equation differs according to whether §25(4)BelWertV is applied or not.

Value based on
- sustainable rent SR and
- long term sustainable yield of the property Y_{LTP}

MLV based on the splitted Income Approach according to BelWertV

$$\frac{SR(1-OpexMV)}{Y_{LTP}(1+acquisition\ costs)} = Site\ Value + [SR(1-OpexMLV) - Site\ Value * MLV\ Cap\ Rate]\frac{(1+MLV\ Cap\ Rate)^{RUL}-1}{MLV\ Cap\ Rate(1+MLV\ Cap\ Rate)^{RUL}}$$

Solving approximatively for MLV Cap Rate through iteration/ target value search:

$$\frac{€\ 18.000.000(1-3{,}5\%)}{5{,}50\%(1+7\%)} \approx €\ 225.000.000 + [€\ 18.000.000(1-18{,}75\%) - €\ 225.000.000 * 4{,}85\%]\frac{(1+4{,}85\%)^{55}-1}{4{,}85\%(1+4{,}85\%)^{55}}$$

Determine annual return on land value	Return on Land Value (€ 225.000.000 x 4,85%):	**10.912.500**
Deduct annual return on land value from NOI on SR to receive Income Value of Building (Building NOI)	Building NOI (€ 14.625.000 p.a. - € 10.912.500 p.a.):	3.712.500
Chose Multiplier under consideration of CapRate and RUL	Multiplier (Cap Rate **4,85%, RUL 55 years**):	19,0945
	Income Value (€ 225.000.000 + 19,0945 x 3.712.500 p.a.)	**295.888.331**
	Mortgage Lending Value (rounded):	**295.000.000**
	(i.e. 61,33% of Market Value)	

Transposition of the long-term sustainable market yield into an MLV cap rate

Compute the MLV cap rate on the basis of the estimated long-term sustainable market yield Y_{LTP}:

Value based on
- sustainable rent SR and
- long term sustainable yield of the property Y_{LTP}

MLV based on application of § 25(4) BelWertV

$$\frac{SR(1-OpexMV)}{Y_{LTP}(1+acquisition\ costs)} = \frac{SR(1-OpexMLV)}{MLV\ Cap\ Rate}$$

$$MLV\ Cap\ Rate = Y_{LTP}\frac{(1-OpexMLV)}{(1-OpexMV)}(1+acquisition\ costs)$$

$$MLV\ Cap\ Rate = 5{,}50\%\ \frac{76{,}06\ \%}{96{,}50\ \%}(1{,}07)$$

	=	**4,64%**
Multiplier (Cap Rate **4,64 %, in perpetuity**):		21,5574
Income Value (21,5574 x € 13.691.667 p.a.)		**295.156.735**
Mortgage Lending Value (rounded):		**295.000.000**
(i.e. 61,33% of Market Value)		

Backtesting = Market Value based on long-term sustainable yield not below MLV

Verification by computing a MV at a rent equal to the SR and capitalised with the long-term sustainable market yield for the valuation property. Applicable yield definition:

$$Market\ Yield = \frac{NOI}{MV\ (1+Acquisition\ costs)}$$ with NOI = Headline Rental Income minus Market Standard non-recoverable Operating Costs

Market Rent (= Sustainable Rent) p.a.:	18.000.000
NOI p.a.(96,50% of market rent):	17.370.000
Long-term sustainable market yield for the property:	5,50%
Acquisition costs:	7,00%
Solve the equation for Market Value and obtain: **Market Value** ((17.370.000 p.a. / 5,5%) / 1,07)	**295.157.179**

Applying the sustainable rent and the long-term sustainable market yield for the property in a market value computation renders a market value equal to the mortgage lending value. This means that the market value under the combined most prudent hypotheses derived from market data would not have been below the mortgage lending value. It must be mentioned in this regard, that a simultaneous emergence of low rental levels and high yield levels is uncommon in market cycles, as low rental levels normally imply future expectations of rental growth, which in turn result in lower yields.

5. Concluding considerations

The approach illustrated by this hypothetical example must be adapted to the conditions of the market relevant to the actual subject property. The definition of the market parameters used for the long-term analysis (yield, cap rate, etc.) must be stated, and the adjustments must be applied to calculate an appropriate parameter for assessing the MLV. This is true above all when considering the non-recoverable operating expenses, whether or not to include acquisition costs, and any adjustments necessary to reflect the specific qualities of the subject property in terms of location and building specifications.