

Essentials of Mortgage Value Estimation

Subjects covered:

Basic rental variables

Operating expenses

Modernisation risk

Capitalisation rate

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0. Introduction

The Association of German Mortgage Banks has conducted an intensive debate on appraisal and valuation matters since 1995 in order to create a platform going beyond the specific interests of its members that lays down uniform valuation standards and also strengthens the position of appraisers. In this regard a certification system has been established which, since 1996, has offered appraisers working at or for mortgage banks the opportunity of demonstrating their expertise in a certification examination.

With regard to mortgage value appraisal methods, talks with the Federal Banking Supervisory Authority were also intensified, culminating in October 1996 in the Statement of Principles on the Mortgage Value of Realty, which defines in detail the philosophy of mortgage value in accordance with § 12 of the Private Mortgage Banks Law (HBG) and, in particular, the differences between mortgage value and current value. This Statement of Principles has since been translated into English, Polish and Hungarian. In the mortgage bank sector it serves as a position paper for distinguishing mortgage value from current value and has been used in (western) Europe to underline the autonomy of the term mortgage value for lending purposes as opposed to the term open market value as used by British chartered surveyors.

Moreover, the German position as regards the mortgage value has also been incorporated in a common philosophy of European mortgage value (European Mortgage Lending Value [EMLV]) through the agency of the Fédération Hypothécaire. Under the terms of the Solvability Directive enacted in November 1997, it will in future be possible to use the EMLV on a European level to calculate the capital backing required for commercial mortgage loans.

Taken from the paper drawn up by the Committee for Valuation Matters in consultation with the Federal Banking Supervisory Authority, the information provided below should be seen as a further step towards the concretisation of the Statement of Principles. The income capitalisation value approach justifies the autonomy of the term mortgage value in a sustainable rental figure, an appropriately large deduction for operating expenses, a modernisation risk, if applicable, and a long-term secure capitalisation rate. Particular attention, therefore, will be paid to these special features.

Essentially, one can say that each calculation of the income capitalisation value of a property, as an arithmetic product, is influenced by a number of major variables, irrespective of the intended purpose of the valuation (e.g. mortgage value or current value). These are:

- Rental figure
- Operating expenses
- Capitalisation rate
- Remaining useful economic life

Realistic results that reflect long-term market activity can be obtained only by the professional combination of these carefully estimated elements, giving due consideration to the effect each individual element has on the overall result. This is the only way to avoid the kind of value distortions that can arise if one or more factors are considered in isolation.

A simple analysis reveals how the overall result can alter out of all proportion just by incorporating two influencing factors, e.g. operating expenses and capitalisation rate. If, from the point of view of a reduction in value, both factors are varied by approximately 10 %, the income capitalisation value falls by approx. 18 % compared to the original figure. A 15 % change gives a difference in value of as much as approx. 27 %.

Whereas the special purpose of the mortgage value as defined at § 12 HBG was dealt with in the Statement of Principles, the particular methodical requirements for the basic rental variables, the operating expenses, the modernisation risk and the capitalisation rate will be described in more detail below.

To begin with, the terms will be defined and then placed in contexts of relevance for lending purposes and related to property type. The basis for determining these variables and their context is always formed by market activity and customs. These are used to derive yardsticks for the method adopted to estimate the mortgage value.

1. Basic rental variables

1.1 Definition of rentable floor areas

The rentable floor area corresponds to the net leasable floor area for residential buildings and the permanently leasable effective floor area for commercial properties.

1.1.1 The leasable floor area (net floor area of a house or flat) is defined at §§ 42 to 44 of the II. Calculation Directive (II. BV), and also in DIN 283 (which has since been withdrawn).

1.1.2 No statutory regulations exist for commercial rentable floor areas. DIN 277 does, however, contain a definition of building areas. Accordingly, one of the common leasable areas is the net floor area (NGF), which corresponds to the sum of all the usable floor areas on all the floors of a building, including free-standing fittings and permanently attached fixtures; the NGF breaks down into effective floor area, functional floor area and common area. The effective floor area in accordance with DIN 277 does not equate to the commercial rentable floor area.

The rentable floor area taken as a basis for estimating the mortgage value should always be the modified net floor area within the rented unit (reduced by the functional areas and common areas, consisting of stairways and lifts). In addition, generally accessible common areas outside the rented unit (e.g. halls, foyers, landings) may be included in the rentable floor area case by case on a pro-rata basis, where this is local practice. For office space this stipulation is largely satisfied by the rentable floor area definition used by the Gesellschaft für Immobilienwirtschaftliche Forschung e.V. (gif).

1.2 Definition of rental terminology/rents

The application and definition of rental terminology used in mortgage value estimation is to be laid down with binding effect as follows:

Net cold rent:	Rent (sustainable market rent), not including operating expenses borne by the tenant, not including value-added tax.
Gross cold rent:	Rent, including operating expenses apportionable to tenants (not including heating), not including value-added tax.
Gross warm rent:	Warm rent, including operating expenses apportionable to tenants (including heating), not including value-added tax.
Net income:	Residual portion of the rent after deduction of all operating expenses, not including value-added tax.

Annual rental income is referred to as net annual cold rent, gross annual cold rent, gross annual warm rent or net annual income.

The general definition of the **net annual cold rent** essentially corresponds to the **gross annual rent** in accordance with § 17 of the Valuation Regulations (WertV).

It should be noted that the rental figures used to determine the mortgage value must satisfy stringent requirements with regard to lasting validity and sustainability.

1.3 Market-based assessment of the rental rate

- 1.3.1 Almost all rental agreements (contracts), the rental index (*Mietspiegel*) and comparable rental publications in Germany are based on "net contract rents", which has not always been the case. In addition, the apportionable secondary/incidental expenses, which tenants usually pay on top of the rent (the so-called "second rent"), are often listed separately.
- 1.3.2 Derived directly from the marketplace, these net cold rents offer a largely realistic and objective opportunity for comparison and, as such, are the basis of the valuation methods customarily used in Germany.
- 1.3.3 One should always differentiate between the lease agreement terms typically encountered on the local market and contractual arrangements and tenancy relationships agreed in individual cases. This means that existing contracts and tenancies must be subjected to individual scrutiny (rentable floor area, the agreed net cold rent, scope of the apportionable/nonapportionable expenses) to ensure that critical consideration is given in the valuation, with due regard for sustainability, to any individual arrangements that vary from the norm.

1.4 Treatment of the rental figure when estimating the mortgage value

- 1.4.1 When appraising a property for its leasability or saleability, the total rent payable by a tenant (net cold rent and all costs apportionable to the tenant) is of importance. Accordingly, the gross warm rent would provide sufficient information on the total costs incurred (including the costs of using the property such as heating, air-conditioning, water, electricity, gas, waste, security and cleaning costs etc.). Estimating such total costs is problematic, however, as they are usually subject to great inaccuracy as a result of

those the cost elements – in particular heating costs - that are heavily dependent upon consumption.

Therefore, the gross or net cold rents offer a reliable starting point for the purposes of estimating the mortgage value, as the largely consumption-related elements are reduced or excluded.

The aim is to determine the amount of sustainable net profit. This can be done on the basis of both the gross cold rent or the net cold rent.

- 1.4.2 Using the gross cold rent as a starting point yields realistic income figures, if the amount of the operating expenses deducted corresponds to the sum of the apportionable (borne by the tenant) operating expenses plus the nonapportionable (borne by the property owner) operating expenses to be deducted from the net cold rent.
- 1.4.3 The net cold rent can be derived directly from the available market data, thus giving realistic and objective opportunities for comparison. As a transparent basic rental variable, the sustainable net cold rent should therefore become established in mortgage value estimation.
- 1.4.4 The appraiser must also direct sufficient attention to the cost-effectiveness and thus the competitiveness of the property under valuation, even where net cold rents are used. To this end, information is required on the amount of the incidental expenses incurred and its appropriateness. Should it become apparent that the property is uneconomic due to excessive total costs (disadvantages compared to the market), the appraiser must make allowance for this when estimating the mortgage value. This can be done either via the operating expenses (increase) or the sustainable net cold rent (lower figure). A further correction to the rental figure used in the calculation has to be made – in accordance with the special mortgage value estimation requirements– if, for example, additional income (overrent) is achieved for a limited time period, which should not be taken into account.

2. Operating expenses

2.1 Definition

For the housing sector, operating expenses are defined in the II. Calculation Directive (§§ 24 to 29) and the Valuation Regulations (WertV) (§ 18). Accordingly, these are the costs habitually paid to maintain a building or an economic unit. They should be assessed according to the principles of an ordinary (normal) building operation and according to the type of use. In accordance with these definitions the operating expenses consist of: depreciation, management costs, incidental expenses, maintenance costs and loss of rental income risk.

In practice, these cost types and definitions are generally applied in the same way in contracts concluded on the commercial rental market.

2.2 Definition of the individual operating expenses

2.2.1 Depreciation

For valuation purposes, depreciation is taken to mean the periodic capital return of the net income portions accruing to buildings to compensate for the loss in value as a result of wear and tear and age. It is a mathematical consideration in the sense of a return of the invested capital.

Under the income capitalisation value method the return of capital is focussed solely upon the economic aspects in the computation of compound interest, in relation to the pro-rata building income during its anticipated remaining useful life. The maintenance of profitability is done through building upkeep and is thus not subject to depreciation.¹

2.2.2 Management costs

Management costs include the costs of and charges for:

- Collecting, adjusting, altering the rent
- Re-letting property, concluding lease agreements
- Accounting services, financial control, handling payment transactions, annual accounts
- Handling insurance matters
- Organising maintenance work.

2.2.3 Incidental expenses

The costs incurred through ownership of the site or the use of the site and the buildings on it for the intended purpose. Essentially, they are the costs incurred for:

- government levies (e.g. property tax)
- water, drainage
- heating
- refrigeration
- hot water
- lift(s)
- street cleaning
- refuse collection, house cleaning
- gardening work
- communal lighting
- chimney sweeping
- property and third party insurance
- caretaker
- communal aerial
- other incidental expenses.

¹

In the valuation method according to WertV depreciation is already included in the multiplier with which the present annuity value of the pro-rata building income stream is determined using the same debit interest and depreciation rate in relation to the anticipated remaining useful life. If this multiplier is used in the calculation, depreciation is not taken into account with regard to operating expenses. In conjunction with capitalisation in perpetuity, depreciation with regard to operating expenses has to be deducted.

2.2.4 Maintenance costs (standard maintenance costs)

The costs that have to be paid to maintain the intended use of buildings during their useful life as a result of wear and tear, age and weathering (according to DIN 31051: preservation and re-creation of the intended condition). They cover the continuous up-keep and regular repair (including replacement) of a building, but not modernisation. The figure used for maintenance costs in the appraisal should be based on the long-term average for a property, taking into account its current condition. Whereas maintenance costs for new builds are initially low, they rise as the building ages. If, at the time of the valuation, it becomes apparent that there is an acute backlog of necessary maintenance work, the appraiser should not assign this work to the maintenance costs. Instead, a separate deduction should be made in the amount of the anticipated expenditure.

2.2.5 Loss of rental income risk

The loss of rental income risk makes allowance for potential losses in income as a result of temporary vacancies and nonrecoverable rental arrears plus the associated legal costs. It is calculated as a long-term average. If, at the time of the valuation, it becomes apparent that there is an acute risk of a loss of rental income that clearly exceeds the computed average, a separate deduction should be made in the amount of the anticipated loss, unless allowance has already been made for this in the figure employed for the sustainable rent.

2.3 Interrelationships and apportionment of operating expenses

If one considers the individual operating expenses based upon the marketplace, the assessment regularly reveals the following interrelationships and apportionment of costs between landlord and tenant:

- Depreciation: Mathematical collection of capital according to the rules of annuity computation (progressive development), the decisive factors being remaining useful life, capitalisation rate and building income share. Cannot be derived as a percentage directly from the rent. (Not accounted for separately where the WertV multiplier is used.)

⇒ borne by the landlord.

- Management costs: Fixed costs according to:
- building use
- number of leased units

In the residential sector costs are generally assessed independently of the rental rate. For commercial lettings they are based on number of units, the rentable floor area or the rental rate.

⇒ Regularly met by landlord. For commercial lettings – depending on the lease agreement terms – they may be apportioned to the tenant in some cases. (Expert appraisal.)

- Incidental expenses: Dependent upon charges and expenses actually incurred. Building-related features are of influence only with respect to energy costs, otherwise costs are essentially dependent upon charges and rate of consumption. No (percentage-based) connection to the rent exists.
 ⇒ Generally borne by the tenant. The expenses are – with some exceptions – regularly levied separately to the rent, in accordance with rental law. Attention should be paid to individual contractual arrangements.
 (Expert appraisal)

- Maintenance: Building-related expenditure dependent upon the building equipment and type of construction. No (percentage-based) connection to the rent exists.
 The costs are dependent upon:
 - Age and condition of the building
 - Standard of building equipment (quality)
 - Type of construction and design
 - Building use
 Maintenance costs can be assessed on the basis of empirical values, publications (e.g. II. Calculation Directive) or with the aid of a percentage figure taken from comparable new build costs.
 ⇒ Generally borne by the landlord, in most cases at least with respect to structural maintenance. Decoration costs are usually met by the tenant. In the commercial sector some structural maintenance costs may be borne by the tenant.
 (Expert appraisal)

- Loss of rental income risk: Linked to rental income, taking into account:
 - Rental rate
 - Remaining lease term
 - Individual property characteristics
 - Market situation
 - Tenant status
 ⇒ Borne by landlord. (Expert appraisal)

2.4 Market-based assessment of operating expenses

Operating expenses break down into costs that are borne by the landlord and costs that can be apportioned to and are borne by the tenant in addition to the rent. In the residential sector, the incidental expenses, for example, can be apportioned to tenants in full under current rental law (if agreed in the lease). For commercial lettings, management and maintenance costs are also regularly apportioned to tenants, at least in part. In general terms, lease agreements can differ greatly, especially in this area – it is therefore expedient to judge each case on its individual merits. However, when estimating the figure to use for operating expenses some regularities do arise that can be considered to be a typical, market level of expenditure incurred by a landlord (site owner).

2.4.1 When appraising the market value of such nonapportionable operating expenses, one can distinguish between two property groups:

- a) Residential properties
 - Maintenance costs
 - Loss of rental income risk
 - Management costs

- b) Commercial properties
 - Maintenance (varies according to property type)
 - Loss of rental income risk
 - Some management costs.

If some apportionable operating expenses are not in actual fact borne by the tenant, the figure to be used for the nonapportionable operating expenses increases. (Expert appraisal)

2.4.2 The process of mortgage value estimation is associated with stringent requirements with regard to long-term validity and, as a result, sustainable and secure net income streams. As far as the figure to be used for the operating expenses is concerned, it therefore calls for an increased level of standardisation and abstraction over and above the concrete terms of the particular tenancy agreement.

The basis for this is the establishment of a standard rental situation on the basis of empirical values coupled with a definition of the costs regularly borne from a risk point of view by the landlord (i.e. the nonapportionable costs) that is independent of any particular lease agreement.

In accordance with these stipulations, the initial and reference variables to be used for both residential and commercial properties are the net cold rent, the apportionable incidental expenses and the nonapportionable operating expenses.

Standard situation:

- A) Net cold rent (sustainable rental income)
- B) Apportionable incidental expenses (borne by the tenant)
- C) Nonapportionable operating expenses (borne by the landlord)
 - Maintenance costs
 - Loss of rental income risk
 - Management costs

With regard to the level of nonapportionable operating expenses, contractual arrangements in favour of the landlord (e.g. triple net or FRI agreements) should not normally be taken into account - especially in the commercial sector - unless a correspondingly lower rent has already been agreed on the basis of this contractual arrangement.

In contrast, however, contractual arrangements such as these that deviate from the norm and raise the level of costs to be borne by the property owner, i.e. incidental expenses that are not apportioned to the tenant in full, should be taken into account when estimating the mortgage value in the form of an increase in operating expenses or a reduction in income (reduction of the figure used for the net cold rent).

2.5 Relationship between operating expenses and rental rate

- 2.5.1 The operating expenses are – as the above comments show – a relatively independent variable. For the most part they are not directly related to the amount of rent paid. Exceptions are formed by the loss of rental income risk, depreciation (taken into account in the multiplier) and, in individual cases, the management costs (commercial sector).
- 2.5.2 This can be illustrated, for example, by means of calculation tables for comparable commercial and residential properties with varying rental income streams. Where the rent is low, it is apparent that the level of reasonable property-related operating expenses is high in percentage terms compared to the rent, whereas for high rents it is low.
- 2.5.3 General lump sum percentages for operating expenses are therefore usually of little value for reliable, transparent and thus low-risk assessments. If used mechanically instead of with regard to the situation, they can lead to distorted valuations. For this reason, the differentiated approach to assessing the operating expenses for the property under appraisal brings major benefits and has now become accepted practice for qualified valuations, in particular for complex appraisals.

If no figures are available as a basis for assessing the long-term normal operating expenses, reliable empirical figures should be selected for the individual cost elements, which in the experience of the appraiser realistically reflect future developments.

2.6 Yardsticks for operating expenses when estimating the mortgage value

- 2.6.1 Long-established processes on the property market and the data derived from them – in particular the typical rental rate and level of operating expenses – constitute a reliable basis for valuations. Sustainable figures for mortgage value appraisals in accordance with § 12 HBG that take into account long-term income risks should be derived from this reliable market data.
- 2.6.2 Instead of the lump-sum figures previously taken for the operating expenses, risk-reducing figures based on long-term market experience should be used for the individual cost elements (loss of rental income risk, maintenance costs, management costs and, if applicable, other nonapportionable operating expenses) and, where appropriate, allowance should be made for a property-related reinvestment risk/modernisation risk. Although the reinvestment risk is anticipated by the market within the framework of the rental rate, the remaining useful life and the property rate etc., it must, however, be incorporated in the appraiser's report insofar as it is considered insufficient for the purposes of estimating the mortgage value (cf. 3.).
- 2.6.3 The following individual figures, based on long-term experience, can be used for maintenance and management costs and for the loss of rental income risk:

Management costs

a) Residential/mixed properties

Calculated on a unit basis

Cost range:

- Flats DM 400 to 500/unit p.a.
- Garages DM 45 to 60/unit p.a.

b) Commercial properties

If costs cannot be calculated on a unit basis, the calculation should be performed on the basis of the rental rate and property income structure.

Range:

1 to 3 % of the net annual income

However, in each individual case the appraiser should ensure that the absolute amount quoted for the property concerned is in line with what would normally be required for management purposes.

Maintenance costs

Calculation basis: new build costs per m² net floor area or effective floor area, not including secondary building costs and external areas. Dependent upon the condition the property is in at the time of the appraisal, the equipment/technological scope and the age of the property, the lower end of the scale applying to new properties and the upper end to older properties (50 years old).

Category A:

For example, warehouses and factory buildings

DM 500 to DM 1,000 (per m² new build costs*) 0.8 – 1.2 %, lower limit DM 5

Category B:

For example, commercial properties of simple standard, hypermarkets

over DM 1,000 (per m² new build costs*) 0.8 – 1.2 %, lower limit DM 10

* per m² living/effective floor space not including external areas or secondary building costs

Category C:

For example, residential and commercial buildings, average standard over approx. DM 2,000 (per m² new build costs^{*}) 0.5 – 1.0 %, lower limit DM 14

Category D:

For example, high-quality office and retail properties over approx. DM 4,000 (per m² new build costs^{*}) 0.4 – 0.8 %, lower limit DM 17

The range of construction costs should be considered approximate values.

Loss of rental income risk

Standard:

- a) Residential 2 % or more in individual cases
- b) Commercial properties 4 % or more in individual cases

The loss of rental income risk is directly dependent upon the property type, the location and the individual mortgaged property.

2.6.4. Range of figures to be used for operating expenses

On the basis of the individual property criteria (e.g. building use, location, equipment, condition) and varying rental rates, a detailed individual review of the property is required with regard to the operating expenses.

This should be performed – as mentioned above – using empirical property-related figures for the individual cost elements.

In mortgage value appraisal practice this system provides percentage rate ranges for operating expenses on the basis of the net cold rent for some typical property groups, taking into account the individual influencing variables:

* per m² living/effective floor space not including external areas or secondary building costs

Example operating expense ranges (not including incidental expenses)

Property type	New build costs DM/m ²	Rent (p.m.) DM/m ²	Maintenance costs				Management costs				Loss of rental income risk				Operating expenses range					
			from		to		from		to		from		to		DM/m ² rentable floor area			% of rent		
			%	DM/m ²	%	DM/m ²	%	DM/m ²	%	DM/m ²	%	DM/m ²	%	DM/m ²	from	to	average	from	to	average
Residential	2,000	7.50	[0.5]	14.00	0.9	18.00	[6.7]	6.00	8.0	7.15	2.0	1.80	2.0	1.80	21.80	26.95	24.38	24.2	29.9	27.1
	2,000	20.00	[0.5]	14.00	0.9	18.00	[2.5]	6.00	3.0	7.15	2.0	4.80	2.0	4.80	24.80	29.95	27.38	10.3	12.5	11.4
	3,000	7.50	[0.5]	15.00	0.8	24.00	[6.7]	6.00	8.0	7.15	2.0	1.80	2.0	1.80	22.80	32.95	27.88	25.3	36.6	31.0
	3,000	20.00	[0.5]	15.00	0.8	24.00	[2.5]	6.00	3.0	7.15	2.0	4.80	2.0	4.80	25.80	35.95	30.88	10.8	15.0	12.9
Offices	2,000	15.00	[0.5]	14.00	0.9	18.00	1.0	1.80	4.0	7.20	4.0	7.20	4.0	7.20	23.00	32.40	27.70	12.8	18.0	15.4
	2,000	40.00	[0.5]	14.00	0.9	18.00	1.0	4.80	4.0	19.20	4.0	19.20	4.0	19.20	38.00	56.40	47.20	7.9	11.8	9.8
	4,000	15.00	[0.4]	17.00	0.8	32.00	1.0	1.80	4.0	7.20	4.0	7.20	4.0	7.20	26.00	46.40	36.20	14.4	25.8	20.1
	4,000	40.00	[0.4]	17.00	0.8	32.00	1.0	4.80	4.0	19.20	4.0	19.20	4.0	19.20	41.00	70.40	55.70	8.5	14.7	11.6
Retail	2,000	25.00	[0.5]	14.00	0.9	18.00	1.0	3.00	4.0	12.00	4.0	12.00	4.0	12.00	29.00	42.00	35.50	9.7	14.0	11.8
	2,000	100.00	[0.5]	14.00	0.9	18.00	1.0	12.0	4.0	48.00	4.0	48.00	4.0	48.00	74.00	114.00	94.00	6.2	9.5	7.8
	4,000	25.00	[0.4]	17.00	0.8	32.00	1.0	3.00	4.0	12.00	4.0	12.00	4.0	12.00	32.00	56.00	44.00	10.7	18.7	14.7
	4,000	100.00	[0.4]	17.00	0.8	32.00	1.0	12.00	4.0	48.00	4.0	48.00	4.0	48.00	77.00	128.00	102.50	6.4	10.7	8.5
Warehouses and factory buildings	1,000	5.00	[0.8]	8.00	1.2	12.0	1.0	0.60	4.0	2.40	4.0	2.40	4.0	2.40	11.00	16.80	13.90	18.3	28.0	23.2
	1,000	15.00	[0.8]	8.00	1.2	12.00	1.0	1.80	4.0	7.20	4.0	7.20	4.0	7.20	17.00	26.40	21.70	9.4	14.7	12.1

Note: Maintenance costs in percentages of the new build costs (not including external areas and secondary building costs) taking into account lower limits in DM/m², management costs in residential sector on basis of DM 420 and DM 500 per year and an assumed floor area of 70 m². All figures refer to annual expenditure.

As a rule, over 90 % of all property valuations in which the figures detailed below are used for the individual cost elements exhibit an adequate deduction in accordance with the real estate lending specific requirements placed on mortgage value appraisals:

- Residential use
between 10 % and 35 % (depending on the quality of the property and the rental rate)
and
- Commercial use
between 10 % and 30 % (depending on the quality of the property and the rental rate)

As, however, the need to make appropriate provision in the valuation, wherever possible, for all future risks having the potential to reduce the amount of sustainable income is of decisive importance for the mortgage value appraisal, the fixing of a minimum figure for operating expenses in the amount of 15 %, based upon the net cold rent, is professionally justifiable and expedient.

Yet this figure is used only if the percentage figure obtained from the standardised figures for the individual cost elements adds up to less than 15 %. In all other cases the higher total figure for the individual costs applies for the operating expenses amount.

3. Modernisation risk/renovation risk

The so-called modernisation risk is a quantifiable variable deducted in conjunction with certain property types on the basis of the long-term value analysis. Hitherto the risk (in particular in conjunction with high-rent properties) has been taken into account when estimating the mortgage value by increasing the operating expenses and/or capitalisation rates or by reducing the remaining useful life. The purpose of the desired individual analysis of this risk is to allow it to be quantified transparently and comprehensibly.

The quantified modernisation risk is used to make allowance for any adjustments required in addition to the maintenance work needed to sustain the marketability and the profitability (initial rental level) of the property ascertained at the time of the valuation. In this respect only the modernisation/renovation expenditure required to secure the initial rental level in the long term should be taken into account. The extent to which this is done by ongoing or step-by-step modernisation work is irrelevant.

A time period of approx. 30 years should be applied when determining the assessment and risk period (term of a typical loan).

If, at the time of the valuation, it becomes apparent that there will be an acute and concrete requirement for modernisation work in the foreseeable future (approx. 3 – 5 years), it may not be absorbed via the provision for risk. If the appraiser ascertains such a requirement or maintenance backlog, an additional deduction in the form of a reduction in value must be made on the basis of the calculated expenditure. However, the advantages ensuing from the modernisation and the reduced modernisation risk may in this case be included in the valuation.

Above all, the modernisation risk is dependent upon:

- a) the type of property
- b) the location of the property
- c) the building structure and equipment
- d) the condition of the property and
- e) the initial rental level.

A property that is still marketable in the long term at the time of the valuation but no longer satisfies contemporary requirements is allocated an appropriately lower rental figure. Owing to the lower rental level it is not subject to the same modernisation pressure or risk as highly priced comparable properties.

Put simply, we can say that:

The modernisation risk is generally greater:

- the more up-to-date the building equipment and layout has to be,
- the older the property is,
- the more exposed and central the property is,
- the higher the rents are.

Building upon long-term empirical values the relevant property types can be divided into four risk groups with differing degrees of risk, the extreme positions being formed by no (arithmetical) risk (e.g. residential properties) and very high risk (e.g. sanatoria).

As with the maintenance costs it is advisable to take a percentage of the new build costs (see maintenance costs) as a reference basis for the modernisation risk along the lines of an annual allocation to reserves. This also serves to illustrate the ratio of this expenditure to normal maintenance costs.

Modernisation risk	% of new build construction costs (not including secondary building costs and external areas)
No (arithmetic) modernisation risk e.g. housing, small residential and commercial buildings, small- and medium-sized office buildings, warehouses and factory buildings	0 %
Low/average modernisation risk e.g. large office buildings, large office complexes, town-centre shopping arcades etc.	0.1 – 1.2 %
High modernisation risk e.g. town-centre hotels, shopping centres, department stores, leisure facilities within travelling distance of towns etc.	0.5 – 2.0 %
Very high modernisation risk e.g. sanatoria, clinics, other leisure facilities, hotels and department stores with particularly high location requirements etc.	0.75 – 3.0 %

In valuation practice, one can make allowance for the modernisation risk by:
reducing the remaining useful life,

increasing the capitalisation rate,
 increasing the operating expenses or
 effecting an (individual) reduction in value.

The quantified effect of the risk on the estimated mortgage value must be the same for all the various options.

For reasons of transparency it is advisable to make allowance for the modernisation risk by using a property-specific figure with regard to the operating expenses when estimating the mortgage value.

4. Capitalisation rates

4.1 Definition

The capitalisation rate is the basis used for estimating the present value of future income streams (discounting). Alongside the net cold rent, the figure used to estimate the operating expenses and the remaining useful economic life of the building, it is a major factor when calculating the income from property.

4.1.1 The capitalisation rate is the assumed rate at which achievable and sustainable future net income from a property is discounted to the time period of their anticipated payment to ascertain the cash value (present value as present value of annuity). The sum of all cash values corresponds to the income capitalisation value.

4.1.2 Normally, a constant income stream is assumed, which means that the sum of all cash values can be determined using series formulas as a multiple of the net annual income. Arithmetically, this multiplication factor (multiplier) corresponds to the present value of annuity factor in relation to the remaining useful life and the capitalisation rate.

4.2 Market-based assessment of the property rate in accordance with WertV

For the purposes of estimating the current value of a property, the capitalisation rate is derived from current market data and referred to as the 'property rate' [*Liegenschaftszins(satz)*] (net annual income in relation to the sales price of the property).

4.2.1 The property rate is defined according to § 11 WertV: "The property rate is the average rate at which the current value of properties is computed on the marketplace. The property rate should be established on the basis of appropriate sales prices and the corresponding net income for similarly developed and used sites taking into account the remaining useful life of the building in accordance with the principles of the income capitalisation value method (§§ 15 - 20)."

4.2.2 The amount of the property rate is greatly influenced by the particular property-related income risk. A low risk (equivalent to secure income streams) leads to a low rate, a high risk (threat of uncertain income streams) a high rate.

4.2.3 The major factors of influence for the property rate are , for example:

- Use: Residential, commercial, industrial use
- Location: Micro- and macrolocation, local environment
- Rental rate: Typical for local market? Sustainability, potential for increases
- Building attractiveness: Appearance, design, cost-effectiveness

- Market situation: Supply and demand, development perspectives
- Economic situation/stability: Actual situation, forecast, general mood
- Interest rate level: The rate of interest on capital in Germany has relatively little effect on the return from real estate (not the case in some EU countries).

4.3 Market-based assessment of the capitalisation rate for the purposes of estimating the mortgage value

- 4.3.1 In accordance with § 13 of the Mortgage Bank Act, mortgage banks are obliged to issue valuation instructions for approval by the Federal Banking Supervisory Authority. These valuation instructions include details on the fixing of capitalisation rates.
- 4.3.2 In contrast to current value assessments, the capitalisation rates used to estimate the mortgage value are not based upon current short-term market activity. They must be derived from long-term market developments.
- 4.3.3 Hitherto in Germany, capitalisation rates have normally been set no lower than 5 % for residential properties and no lower than 6 % for commercial properties when calculating the income capitalisation value for the mortgage value. These figures should continue to serve as a basis because in the large majority of cases in Germany they have proved sustainable and thus stable for income properties.
- 4.3.4 The capitalisation rate must be fixed separately in each individual case in accordance with the local market situation, taking into account property, location and demand criteria and the potential for alternative uses - see above, especially Sections 4.2.2 and 4.2.3, which also apply to the capitalisation rate.

The higher the assessment of the income and sales risk of the property, the higher the capitalisation rate must be. Long-term market activity is the major determining factor in this respect.

The standard capitalisation rate brackets, derived from long-term market analysis, are:

1) Residential sector:

- Housing
5.0 - 6.0 %

2) Commercial sector:

- Business premises
6.0 - 7.0 %
- Office blocks
6.0 - 7.0 %
- Department stores
6.5 - 7.0 %
- Superstores and specialist shops
6.5 – 7.5 %

- Hypermarkets, shopping centres
6.5 – 7.5 %
- Hotels and inns
6.5 – 7.5 %
- Leisure properties (e.g. tennis centre)
6.5 – 8.5 %
- Clinics, rehabilitation centres
6.5 – 8.5 %
- OAP and nursing homes
6.5 – 8.5 %
- Parking garages, filling stations
6.5 – 8.5 %
- Warehouses
6.5 – 8.5 %
- Factory buildings
6.5 – 8.5 %

4.3.5 The above standard brackets can be undercut by 0.5 percentage points for very good commercial properties, if they are first-class real-estate products in a good location that is appropriate to the particular use. The appraiser must, however, provide an acceptable justification for undercutting the particular bracket.

To undercut the minimum capitalisation rate of 6 % by 0.5 % for commercial properties, the following criteria must be met.

Criteria for this assessment are:

1. Present use: retail only, business premises, office blocks
2. Preferred location
3. Well situated in the agglomeration area (macrolocation)
4. Good infrastructure (microlocation)
5. Good design, equipment and method of construction
6. Particularly high marketability (property size)
7. Top property condition
8. Potential for alternative use