vdpPfandbrief Akademie

Module Book

Valuation Approaches in Germany to Determine Market Value

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This paper is an extract from the German version "Determining Market Value" containing only topics relevant to the Mortgage Lending Value training course.

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List of Abbreviations

Abreviation	German	English
AG	Aktiengesellschaft	Public Limited Company
AHK	Anschaffungs- und Herstellungskosten	Acquisition and construction costs
ARY	Kapitalisierungszins unter Berücksichtigung aller Risiken	All-Risks Yield
BaFin	Bundesanstalt für Finanzdienst-leistungsaufsicht	Federal Financial Supervisory Office
BauGB	Baugesetzbuch	German Building Code
BauNVO	Baunutzungsverordnung	Building Use Ordinance (German Land Use Ordinance)
BBodSchG	Bundes-Bodenschutzgesetz	Federal Soil Protection Act
BDGS	Bundesdatenschutzgesetz	Federal Association of German Real Estate Surveyors
BDVI	Bund der öffentlich bestellten Vermessungsingenieure	Association of Publicly Appointed Surveyors
BelWertV	Beleihungswertermittlungsverordnung	Regulation on the Determination of Mortgage Lending Value
BetrKV	Betriebskostenverordnung	Services Charges Ordinance
BewG	Bewertungsgesetz	Valuation Statute
BFH	Bundesfinanzhof	Federal Tax Court
BFStrG	Bundesfernstraßengesetz	Federal Highway Act
BGB	Bürgerliches Gesetzbuch	Civil Code
BGF	Bruttogrundfläche	Gross floor area [GFA]
BGH	Bundesgerichtshof	Federal Supreme Court (Germany's Federal Court of Justice)
BHO	Bundeshaushaltsordnung	Federal Budget Code
BIIS	Bundesverband der Immobilien-Investment-Sachverständigen e. V.	Federal Association of Real Estate Investment Experts
BImSchG	Bundes-Immissionsschutzgesetz	Federal Emission Protection Act
BKI	Baukostenindex (Baupreisindex)	Building cost index
BKleingG	Bundeskleingartengesetz	Federal Allotment Act/Federal Garden Plot Law
BMUB	Bundesministerium für Umwelt, Naturschutz und nukleare Sicherheit	Federal Ministry for the Environment, Nature Conservation, and Nuclear Safety
BMVBS	Bundesministerium für Verkehr, Bau und Stadtentwicklung (bis 2013)	Federal Ministry for Transport, Building and Urban Affairs (until 2013)
BMVI	Bundesministerium für Verkehr und digitale Infrastruktur	Federal Ministry for Transport and Digital Infrastructure

Abreviation	German	English
BMZ	Baumassenzahl	Cubic index
BNatSchG	Bundesnaturschutzgesetz	Federal Nature Conservation Act
BRI	Bruttorauminhalt	Gross volume
BRW-RL	Bodenrichtwertrichtlinie	Guidelines on the Determination of Guideline Land Value [GLV]
BVS	Bundesverband öffentlich bestellter und vereidigter sowie qualifizierter Sachverständiger e.V.	Federal Association of Publicly Appointed Inaugurated and Qualified Experts
BW	Bodenwert	Land value [LV]
BWF	Barwertfaktor	Net present value factor [NPV], [NPVF]
BWK	Bewirtschaftungskosten	Operating expenses [OpE]
CPI	Verbraucherpreisindex	Consumer price index (CPI)
CRR	Kapitaladäquanzverordnung der EU für das Bankwesen	Capital Requirements Regulation
DCF	DCF-Verfahren/Barwertverfahren	Discounted cash flow
DG	Dachgeschoss	Attic floor
DIN	Deutsches Institut für Normung	German Institute for Standardisation
DRC	Sachwert	Cost value
DVW	Deutsche Verkehrswacht e. V.	German Surveying Association
ebf	erschließungsbeitragsfrei	Fully-serviced
EG	Erdgeschoss	Ground floor
ErbbauRG	Erbbaurechtsgesetz	Hereditary Building Rights Act
EU	Europäische Union	European Union
EVS	European Valuation Standards	European Valuation Standards
EW	Ertragswert	Income value [IV]
EW-RL	Ertragswertrichtlinie	Guidelines on the Determination of Income Value
FF	Funktionsfläche	Functional space
FRI	Triple-Net-Vertrag	Full Repairing and Insuring (lease)
GBBerG	Grundbuchbereinigungsgesetz	Land Register Correction Act
GdW	Bundesverband deutscher Wohnungs- und Immobilienunternehmen	Federal Association of German Housing and Real Estate Companies
GF	Grundstücksfläche	Site area
GFZ	Geschossflächenzahl	Plot ratio [PR]
gif	Gesellschaft für Immobilien-wirtschaftliche Forschung e. V.	Institute for Real Estate Economic Research
GN	Bewertungsrichtlinien	Guidance Notes
GND	Gesamtnutzungsdauer	Total useful life [TUL]

Abreviation	German	English
GRZ	Grundflächenzahl	Site coverage ratio
GuV	Gewinn- und Verlustrechnung	Profit and loss statement
HGB	Handelsgesetzbuch	Commercial Code
HOAI	Honorarordnung für Architekten und Ingenieure	Fee Scales for Architects and Engineers
i	Zinssatz	Interest rate
IAS	Internationale Rechnungslegungs-standards (ab 2001 siehe IFRS)	International Accounting Standards (from 2001 see IRFS)
IFMA		International Facility Management Association
IFRS	Internationale Standards der Finanzberichterstattung	International Financial Reporting Standards
ImmoWertV	Immobilienwertermittlungs-verordnung	Property Valuation Ordinance
InvG	Investmentgesetz	Investment Act
IPD		Investment Property Databank
IVD	Immobilienverband	German Real Estate Association
IVS	internationale Bewertungsstandards	International Valuation Standards
IVSC		International Valuation Standards Council
KG	Kellergeschoss	Basement
KG	Kommanditgesellschaft	Limited partnership
KP	Kaufpreis	Purchase price [PP]
KWG	Kreditwesengesetz	Banking Act
LandR	Entschädigungsrichtlinien Landwirtschaft	Agricultural Land Valuation Guidelines
LZS	Liegenschaftszins	Capitalisation rate [Y]
MwSt	Mehrwertsteuer	Value-added tax [VAT]
n	Nutzungsdauer (Jahre)	Useful life (in years) [UL]
NHK	Normalherstellungskosten	Standard costs of construction
PfandBG	Pfandbriefgesetz	Pfandbrief Act
q	Zinsfaktor	Interest rate
RE	Reinertrag; Jahresrohertrag	Net income [NI]; Gross annual income [GI]
REIT		Real Estate Investment Trust
RICS		Royal Institution of Chartered Surveyors
RND	Restnutzungsdauer	Remaining useful life [RUL]
RoE	Rohertrag	Return on equity
ROG	Raumordnungsgesetz	Regional Planning Act

Abreviation	German	English
SachenRBerG	Sachenrechtsbereinigungsgesetz	Law of Property Adjustment Act
SolvV	Solvabilitätsverordnung	Solvency Ordinance
SW-RL	Sachwertrichtlinie	Guidelines on the Determination of Cost Value
t	Zeitperiode	Period
TA Lärm	Technische Anleitung zum Schutz gegen Lärm	Technical instructions on noise protection
TA Luft	Technische Anleitung zur Reinhaltung der Luft	Technical instructions on clean air
TEGoVA		The European Group of Valuers' Associations
TF	technische Funktionsfläche	Technical functional space
UK	Umrechnungskoeffizient	Conversion co-efficient
US-GAAP		United States Generally Accepted Accounting Principles
V	Vervielfältiger	Multiplier [M]
vdp	vdpPfandbriefAkademie	Association of German Pfandbrief Banks
VÖB	Bundesverband Öffentlicher Banken Deutschlands e. V.	Association of German Public Banks
VVG	Versicherungsvertragsgesetz	The Insurance Contracts Act
VW	Verkehrswert	Market value
VW-RL	Vergleichswertrichtlinie	Guidelines on the Determination of Comparative Value
WaldR	Waldwertermittlungsrichtlinien	Valuation Guidelines for Forestry
WE	Wohneinheit	Residential unit
WertR	Wertermittlungsrichtlinien	Valuation Guidelines
WertV	Wertermittlungsverordnung	Valuation Regulations
WGFZ	wertrelevante Geschossflächenzahl	Value-specific plot ratio [VR-PR]
WoEigG	Wohnungseigentumsgesetz	Condominium Act
WoFlV	Wohnflächenverordnung	Residential Space Calculation Ordinance
WoFG	Wohnraumförderungsgesetz	Housing Promotion Act
ZierH	Ziergehölzhinweise	Ornamental Trees Notes
II. BV	Zweite Berechnungsverordnung	Second Computation Ordinance

1 Definition, Application and Legal Framework of Property Valuations

Initial case study

An employee of Immo AG has recently started a new job in the property valuation department and wants to get a rough idea of the various tasks, instruments and legal rules relating to property valuation. As they want to make sure that they are well prepared for a good start in the new department, they approach an expert whom they know in this field and express an interest in learning specifically about the areas in which property valuations are performed, the concepts of value used, the relevant legal principles and the information needed to determine value.

LEARNING OUTCOMES

By the end of this chapter you should be able to

- discuss the key concept of market value (*Verkehrswert/Marktwert*) as used in the Building Code (BauGB);
- discuss the essential components of market value (*Verkehrswert*) as defined in the Property Valuation Ordinance (ImmoWertV);
- describe the key banking industry concept of mortgage lending value (*Beleihungswert*) and its constituent components;
- describe the areas in which the various concepts of value are used;
- specify the main practical fields in which property valuations are required;
- name the national and international institutions which are important in the valuation field;
- discuss the tasks undertaken by land valuation boards; and
- describe the different valuation approaches and the conditions in which they are used.

1.1 Significance and fields of application of valuation practice

The increasingly important role of property valuation

Property valuation work has grown in importance in recent years. Numerous national and international consultancy firms offer real estate-related services including property valuation. This is largely due to a growing awareness in many companies that real estate represents much more than just the "underlying structure" needed for the purpose of manufacturing products (Corporate Real Estate Management) but is also a valuable asset which in itself calls for active management.

Property valuations have also grown in importance as international accounting standards have gradually converged. The International Financial Reporting Standards (IFRS) operate using concepts which require ongoing real estate valuations.

Determining the value of developed and undeveloped real estate is often regarded as a static and standardised calculation process. That is incorrect: properly understood, property valuation demands proximity to the market and market transparency.

The nature of property valuation

Valuation is an interdisciplinary task. Anyone dealing with property valuation inevitably encounters technical, legal, commercial, financial and statistical issues. This in turn demands both prudence and an extensive knowledge of related disciplines. Future property valuers and other experts in the field will not find a clearly delineated and specialist property profession waiting for them. Every property valuation assignment is unique. In some circumstances, it may be necessary to analyse contractual arrangements relating to nature conservation, transport planning or landlord and tenant law, and to weigh up their impact on property values.

Buying and selling

The purchase and sale of developed and undeveloped real estate is one of the most important areas in which property is valued. Although both buyers and sellers share an overwhelming interest in determining a fair market value, they may have quite different ideas about the selling or buying price they consider to be appropriate. The value of a property also often plays an important role in commercial operating leases, as it is fundamental to the parties' yield analyses.

Lending

Banks need information about the value of real property in order to secure loans made to their customers. A land charge or mortgage can only be registered if it is possible to determine the value of the property reliably, although the focus of this kind of valuation activity will be quite different. This is reflected in the underlying valuation concepts and the approaches used.

Determining the tax value of real estate

Properties also need to be valued for taxation purposes. Real estate tax, real estate transfer tax, gift tax and inheritance tax are important components of a sovereign tax system. These taxes can only be determined fairly and consistently using a uniformly defined basis of assessment and reference value. The tax payable by a purchaser, owner or heir is calculated according to the tax legislation applicable in each case and paid to the tax authorities. Succession arrangements in particular frequently give rise to extensive valuations.

Urban planning law

The general and special urban planning legislation enshrined in Chapters 1 and 2 of BauGB specify other instances in which a valuation is necessary: compulsory purchases, land reallocations, municipal pre-emption rights, compensation for development freezes and changes to or discontinuance of permitted uses in the context of urban development and redevelopment measures, or rights to transfer of ownership. In the context of such legal concepts, it is in the interest of both the public and property owners that the value of the property is determined as objectively as possible.

Performance

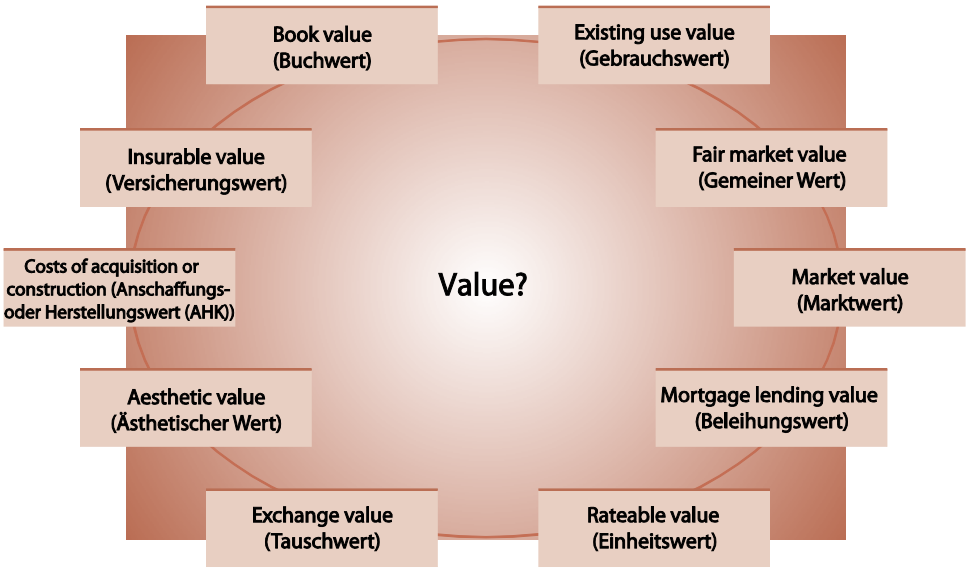
Real estate leasing companies, open and closed-end property funds, real estate stock corporations, pension funds, building societies and insurance companies all need regularly updated and reliable information on the value of their real estate in order to report on the use to which they have put the capital entrusted to them by their investors or their policyholders.

1.2 Concepts of value

Different approaches to the concept of value

The above discussion shows that property needs to be valued in all sorts of contexts and the question inevitably arises as to whether or not a single, identical concept of value can be used in each of these different situations, or whether they lead to different concepts of value (see Fig. 1). One shared feature of different concepts of value is that they are all based on the notion of "value" as an economic concept which emerges from the free play of market forces. In a market-based social and economic order, an objective, or rather objectified value is determined by the interplay of market supply and demand. Both negotiating or contracting parties value a property on the basis of subjective valuation criteria. These criteria reflect the motives of both buyer and seller, based in each case on aesthetic, ecological, social or urban planning factors. Buyers aspire to achieve their own personal ideal home or functional objectives, whilst at the same time their financial aim is to pay the lowest possible price. Sellers, on the other hand, aim at least to recover their original cost of acquisition or construction. In addition, general appreciation in value, speculative price rises, or the cost of refurbishment expenditure are also calculated into the selling price.

Fig. 1 | Concepts of value



An objective yardstick of value

These diverging ideas of value must be reconciled and both sides of the value formula brought together. There are usually a large number of buyers and sellers in any market, each of whom have their own subjective ideas of value. An objective and generally applicable value emerges for a property on the basis of the sum total of subjective judgements, provided that market conditions are such that all the parties involved can act freely. The specific price of a property is therefore not the same as its value. The price results from the impact of a large number of subjective components which are not taken into account when determining a property's objectified value.

Value and price are two different things

Germany's Federal Court of Justice (BGH) ruled on the relationship between these factors as far back as 1967. The court contended that

> *"the price of a thing* [...] *is not (necessarily) the same as its value. Particularly in the case of land, and even more so* [...] *in the case of luxurious villa properties, price is a function of supply and demand and is the outcome of negotiation between the buyer and seller."*

The Federal Court of Justice has regularly confirmed this position in subsequent judgments. The standardised value can only be determined independently of the personal circumstances of actual property owners. Circumstances which may influence the price but not the value of developed or undeveloped real estate may not be taken into account when determining its value. This also implies that the value of a property is not a precisely definable quantity and that any such valuation can be only an estimate (see also Jester, S./Roesch, G., 2006, p 157 et seq.).

1.2.1 Market value (*Verkehrswert/Marktwert*)

Verkehrswert pursuant to BauGB §194

In Germany, the objectified value of a property is referred to as the *Verkehrswert*. *Verkehrswert* is defined in BauGB §194 and requires that non-market influences be disregarded as far as possible when valuing developed and undeveloped real estate, in order to arrive at a generally applicable, intersubjectively verifiable value:

> *"Verkehrswert/Marktwert is defined as the price which would be achieved in an ordinary business transaction at the time when the assessment is made, taking into account the legal circumstances and the factual characteristics, general condition and location of the property or other object of assessment, without consideration being given to any extraordinary or personal circumstances."*

Verkehrswert as a supra-individual value

It is clear from the legal definition in BauGB that *Verkehrswert* is a supra-individual value, i.e. the value of developed or undeveloped real estate is determined by the values at which property changes hands generally on the market. *Verkehrswert* thus becomes the generally applicable value of a property for everyone.

Market value

Internationally, the term used is "market value". It is defined in §30.1 of the International Valuation Standards (IVS [104], 2017) issued by the International Valuation Standards Council (IVSC):

> *"Market value is the estimated sum for which an asset or liability should exchange on the valuation date between a willing buyer and a willing seller in an arm's length transaction, after proper marketing and where the parties had each acted knowledgeably, prudently and without compulsion."*

Standard EVS 1 of the European Valuation Standards (EVS, 2016) published by The European Group of Valuers' Associations (TEGoVA) states:

> *"The market value is the estimated sum for which the property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without being under compulsion."*

Verkehrswert = market value

The definition of *Verkehrswert* in BauGB §194 and the definition of market value provided by IVSC and TEGoVA (as well as those from other sources such as the Royal Institution of Chartered Surveyors (RICS)) clearly differ in their choice of wording. In terms of their actual content, both terms (*"Verkehrswert"* and "market value") are identical. There are two reasons for this: firstly, the legislature first underlined the equivalence of *"Verkehrswert"* as used in BauGB §194, and *"Marktwert"* in §1.3 of the Valuation Guidelines (WertR) 2002 by putting *"Marktwert"* in brackets behind *"Verkehrswert"*; and secondly, Council Directive 91/674/EEC (on the annual accounts and consolidated accounts of insurance undertakings) also equates *Zeitwert* (current value) with market value. Market value is defined in this directive in the same way as in IVSC and TEGoVA. In Germany, the definition in the directive is construed by the Federal Financial Supervisory Authority (BaFin) specifically to imply that the standard valuation approaches used to determine *Verkehrswert* should be used. *Verkehrswert* is regarded suitable for determining current value, and the two terms can therefore be regarded as one in the same.

An independent definition of market value was anchored in §16 of the German Pfandbrief Act to reflect the special requirements of the financial sector:

> *"The market value is the estimated sum for which a property serving as collateral could exchange on the date of valuation between a willing buyer and a willing seller in an arm's length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion."*

Market value pursuant to the CRR

Market value under the CRR can also be used for the purposes of valuing real estate collateral. In Article 4 (76), the CRR defines market value as follows:

> "[...] *for the purposes of immovable property, the estimated sum for which the property should exchange on the date of valuation between a willing buyer and a willing seller in an arm's-length transaction after proper marketing wherein the parties had each acted knowledgeably, prudently and without compulsion."*

Key elements of market value are:

- the reporting date principle;
- arm's-length transactions;

- legal circumstances;
- factual characteristics and general condition;
- the location of the property;
- exclusion of extraordinary or personal circumstances.

1.2.2 Mortgage lending value (*Beleihungswert*)

The primacy of collateral

Mortgage lending value in the banking industry relates to loans secured on real property. It serves a different purpose from market value: special risk-related issues and the need of banks, insurance companies and building societies etc. for collateral play a dominant role when determining this value. This places different requirements on the concept of value, which in some respects are not fulfilled by market value or comparable market-related concepts. In contrast to a potential buyer of a property, who will gear the amount of a loan to the anticipated purchase price in relation to any equity contribution, a lending bank will concentrate primarily on the collateral provided as security for its loan rather than on the price paid for the property. The lending bank must be able to use the value of the property to provide the best possible security for its loan for what are typically lengthy lending periods. In this context, Mortgage lending value focuses on assessing the value of its mortgage over this long period of time. Mortgage lending value is defined in PfandBG §16 (2) as follows:

Principle of determining mortgage lending value according to PfandBG

> *"The mortgage lending value must not exceed the value resulting from a prudent assessment of the future marketability of a property by taking into account the long-term sustainable aspects of the property, the normal regional market conditions and the current and possible alternative uses. Speculative elements must not be taken into consideration."*

It continues:

> *"The mortgage lending value must not exceed a market value calculated in a transparent manner and in accordance with a recognized valuation method."*

The basis on which mortgage lending value is determined is described in BelWertV §3 as follows:

Mortgage lending value pursuant to BelWertV

> *(1) "The value on which the loan is based (mortgage lending value) is the value of the property which, based on experience, may throughout the life of the loan be expected to be generated in the event of sale, unaffected by temporary fluctuations in value on the relevant property market such as those deriving from cyclical factors, and excluding speculative elements."*
> *(2) "The mortgage lending value is to be determined based on the future marketability of the property ascertained by way of a prudent valuation, having regard to its long-term sustainable characteristics, normal regional market conditions, its current use and possible alternative uses."*

The key elements of mortgage lending value are:

- insights derived from long-term market events;
- enduring, future-proof characteristics;
- a lengthy, future-oriented observation period;
- arm's-length transactions.

⇨ See also the "Mortgage Lending Value" module book.

1.2.3 Insurable value (*Versicherungwert*)

Application of the insurable value

The "insurable value" is used when insuring buildings against fire, water and storm damage. This is done by determining the building value alone (reinstatement costs of improvements), as the land itself is deemed indestructible. The Insurance Contracts Act (VVG) §88 defines the insurable value of buildings as:

> *"the sum which the policyholder must spend upon occurrence of the insured event to replace or to restore the insured property to as-new condition, minus the reduction in value resulting from the difference between old and new".*

Valuation literature in the English-speaking world uses the term "Insurance Reinstatement Cost Assessment". This largely corresponds to the German *"Versicherungswert"*.

EXCURSUS

Notes on building insurance

According to PfandBG§15 (1), the secured property must be insured against the substantial risks of damage based on its type and location. It is therefore possible that the valuer may contribute to the assessment of whether the property is underinsured.

It is essential to note that the replacement value of the improvements which has been determined does not have to be identical to the insurable value, as the determination of these values is based on different components and methodological approaches. A comparison of the two values cannot therefore necessarily be used to formulate a statement on any under- or over-insurance that may exist. Nevertheless, an insurable value available to the valuer can provide indications for determining the costs of construction using the cost approach, but the methodological differences must be considered.

Checking for sufficient building insurance against all risks which are substantial in relation to the particular property is beyond the scope of a valuer's mandate.

Information on areas of risk, the likelihood that certain risks will occur and the amount of damage etc. can be found in reinsurers' information leaflets (Munich Re, Swiss Re etc.).

1.2.4 Other concepts of value

In addition to the concepts of value just discussed, other concepts of value are used in related property valuation disciplines (see Fig. 2).

Fig. 2 | Other concepts of value

Rateable value **Individual value (*Bedarfswert*)**	The value of real estate (property value) assessed in line with fiscal valuation legislation, relating to an assessment date and/or an individual value assessment date, pursuant to the provisions of the valuation statute (BewG) and having legal force.
Book value	Value stated in line with commercial and/or fiscal regulations and derived from the cost of acquisition or production, reduced by scheduled or non-scheduled depreciation.
Going-concern value	Portion of the total price paid for an entire business which a purchaser would allocate to an individual asset forming part of the business's assets and liabilities (Income Tax Act, Valuation Act).
Fair market value (*Gemeiner Wert*)	Value pursuant to BewG (Valuation Act) §9: defined as the price which could be achieved on a sale in the ordinary course of business, based on the characteristics of the asset. In this case, all circumstances affecting the price must be considered. Unusual or personal relationships must be disregarded. This means that the fair market value is to a large extent identical to market value under BauGB and ImmoWertV; only the valuation date and the assessment approach are different.

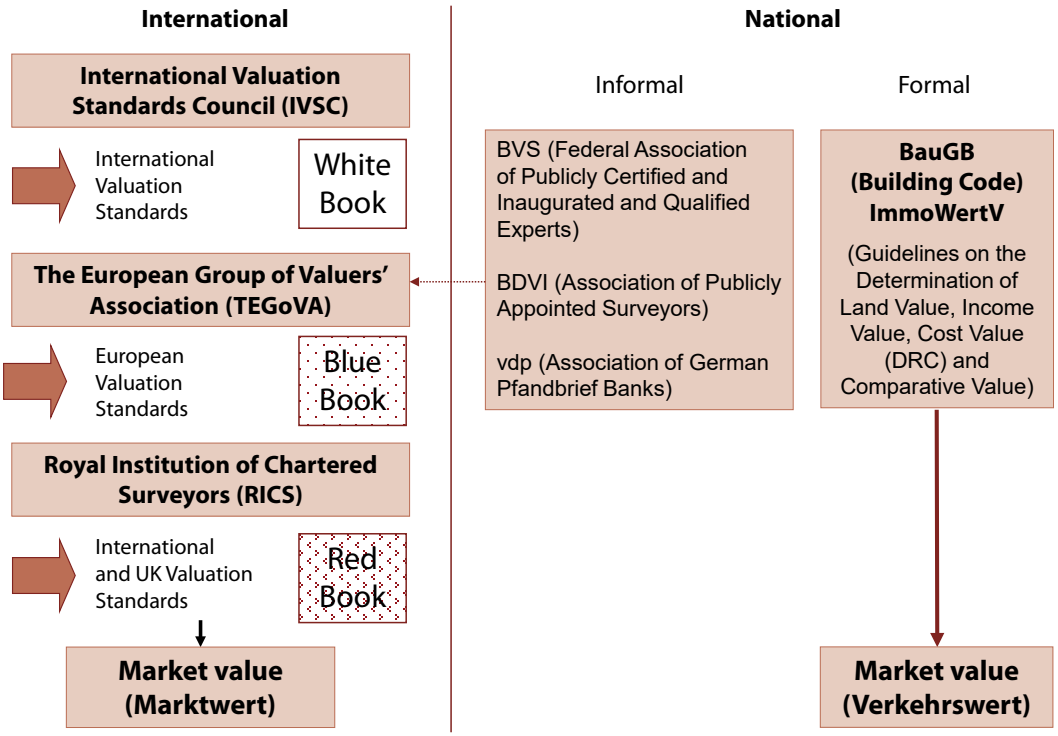
1.3 Legal principles of market value (*Verkehrswert/Marktwert*)

1.3.1 Legal structure and status of domestic and international valuation

International valuation institutions

International institutions involved in the valuation of real estate include the International Valuation Standards Council (IVSC), the European Group of Valuers' Associations (TEGoVA) and the Royal Institution of Chartered Surveyors (RICS) (see Fig.3). All three organisations issue standards for the valuation of developed and undeveloped real estate. The scope of IVSC and RICS standards is not restricted by national borders. They are regarded as globally applicable property valuation standards. The European Valuation Standards (EVS) are by definition limited in application to the territory of the European Union. Nonetheless, these standards are interrelated, at least in the sense that reference is repeatedly made to their relationship with each other. The content of publications includes both the valuation standards and recommendations concerning the training and continuing development of professional valuers and codes of conduct for those working in the valuation field.

Fig. 3 | A selection of valuation institutions



The applicability of international standards

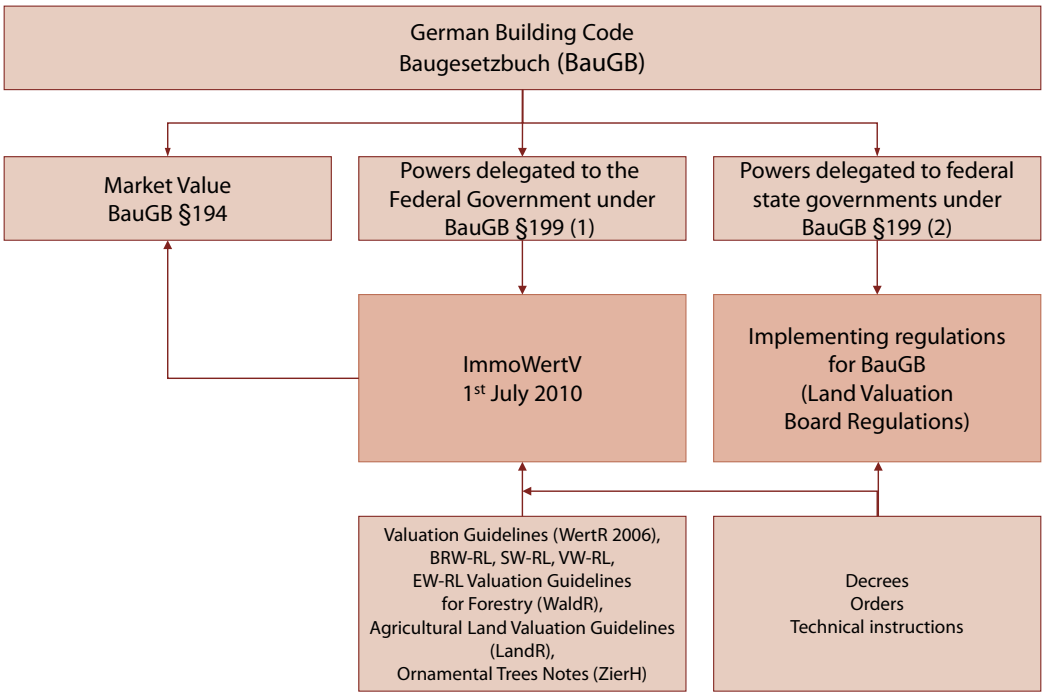
In Germany, international and European valuation standards derive their authority from their claim to international validity. Professional valuers wishing to value properties according to European standards can apply these standards to real estate located in Germany and in other European countries. The valuation of properties in Germany is also subject to national laws, regulations and guidelines. However, these laws, regulations and guidelines are only required to be applied to specific forms of valuations, i.e. valuations produced at the behest of sovereign entities. Having said this, these statutory norms have evolved into generally valid valuation rules and are widely applied in property valuation practice in Germany as a result.

1.3.2 German Building Code (BauGB), Property Valuation Ordinance (ImmoWertV), Valuation Regulations (WertV), Valuation Guidelines (WertR) and other regulations

Legal framework in Germany

In contrast to the structures in place at the international level, the valuation of developed and undeveloped real estate in Germany is regulated by legislation. The basic parameters are set out in BauGB and ImmoWertV, supplemented by various valuation guidelines (SW-RL, VW-RL, EW-RL, BRW-RL) (see Fig. 4).

Fig. 4 | Structure of the legal framework for valuation



Source: Simon, T., 2010 based on Kleiber, W., 2007, p 368

Professional valuation associations in Germany

Several associations have also assumed the function of representing professional interests in the valuation profession. These associations represent experts and property valuers. Property valuation topics are discussed by the specialist bodies of these associations and in their publications.

The associations themselves include the following institutions:

- Federal Association of Publicly Appointed, Inaugurated and Qualified Experts (BVS);
- Federal Association of German Real Estate Surveyors (BDGS);
- Federal Association of Real Estate Investment Experts (BIIS);
- Association of Publicly Appointed Surveyors (BDVI);
- German Surveying Association (DVW);
- German Real Estate Association (IVD);
- Association of German Pfandbrief Banks (vdp);
- The Association of German Public Banks (VÖB).

German Building Code (BauGB)

BauGB §194 contains the definition of *Verkehrswert* (market value). BauGB §195 et seq. also contains provisions on the tasks and organisation of land valuation boards. Furthermore, BauGB sanctions the issue of other regulations on the determination of market value. The legislature has made use of these powers on several occasions to introduce ImmoWertV as well as supplemental valuation guidelines and other regulations governing the determina-

tion of developed and undeveloped real estate values. BauGB does not contain any detailed descriptions of the methodology or individual approaches used to determine market value.

Property Valuation Ordinance (ImmoWertV)

ImmoWertV refines the definition of market value provided by BauGB §194 with general principles for determining market value and fundamental valuation approaches (see Fig. 5). For this purpose, ImmoWertV makes use of the delegated powers provisions of BauGB §199. The application of ImmoWertV is initially only mandatory for land valuation boards under urban planning law. Private valuers are not required to apply ImmoWertV. This principle applies to valuations for lending purposes.

Fig. 5 | The structure of BauGB and ImmoWertV

German Building Code (BauGB)	Property Valuation Ordinance (ImmoWertV)
Chapter 1: General urban planning law (urban land use planning, building use, land reallocation, compulsory purchase, provision of local public infrastructure, nature conservation) **Chapter 2:** Special urban planning legislation (urban development and redevelopment measures, conservation byelaws and urban development enforcement orders, social plan and hardship allowances, tenancies and leases, improvement of agrarian structure) **Chapter 3:** Other provisions (valuation, administrative procedures) **Chapter 4:** Transitional and concluding provisions (special rules for individual federal states)	**Part 1:** Scope, definitions and general principles of procedure (§§1–8) **Part 2:** Guideline land values and other required data (§§9–14) **Part 3:** Valuation approaches – comparison approach, land valuation, income approach, cost approach (§§15–23) **Part 4:** Concluding provisions (§24) **Annexes:** Net present value factors for capitalisation (re §20) Present value factors for discounting (re §20)

Contents

ImmoWertV Part 1 defines its scope, definitions and general principles of procedure. Part 2 explains how the guideline land value is determined, as well as other data which is needed to determine market value. In this context, ImmoWertV §9 refers to guideline land values (§10), index series (§11), conversion coefficients (§12), comparable factors for developed land (§13), market adjustment factors and capitalisation rates (*Liegenschaftzinssätze*) (§14). This data is provided by land valuation boards and is used, inter alia, to take account of other circumstances affecting value, particularly in the context of the comparison approach. Part 3 briefly describes the valuation approach itself, i.e. the comparison approach, income approach and cost approach. Part 4 consists solely of the concluding provisions concerning the implementation of ImmoWertV and the repeal of WertV.

Two annexes contain net present value factors for capitalising a temporary annuity (previously: multiplier) and for discounting individual values.

ImmoWertV came into force on 1st July 2010.

Valuation guidelines

Due to time constraints, since all sections (comparative value, cost value, income value, rights and encumbrances) had not collectively been completed before being adapted to ImmoWertV, they have been published individually as they become available. Guidelines have now been published to allow the determination of:

- Guideline Land Value (BRW-RL);
- Cost Value (SW-RL);
- Comparative Value (VW-RL); and
- Income Value (EW-RL).

For some aspects that are not yet included in these guidelines, such as the valuation of rights and encumbrances, WertR 2006 continues to apply. The Federal Ministry of Construction (BMUB) is currently working on compiling a summary of all the above guidelines and the integration of the elements of WertR not yet adapted. Further revision of individual aspects of these guidelines will be undertaken.

In addition to BauGB and ImmoWertV, there are numerous other statutes, regulations and guidelines relating to the valuation of property which apply in specific circumstances (see Fig. 6).

Fig. 6 | Other valuation-related legal instruments

Federal statutes, particularly:	
Federal Budget Code	Bundeshaushaltsordnung (BHO)
Federal Highway Act	Bundesfernstraßengesetz (BFStrG)
Federal Emission Protection Act	Bundesimmissionsschutzgesetz (BImSchG)
Federal Conservation Act	Bundesnaturschutzgesetz (BNatSchG)
Federal Soil Protection Act	Bundesbodenschutzgesetz (BBodSchG)
Regional Planning Act	Raumordnungsgesetz (ROG)
Condominium Act	Wohnungseigentumsgesetz (WEG)
Housing Promotion Act	Wohnraumförderungsgesetz (WoFG)
Federal Allotment Act	Bundeskleingartengesetz (BKleingG)
Statutory orders, particularly:	
Building Use Ordinance	Baunutzungsverordnung (BauNVO)
New Building Rent Ordinance	Neubaumietenverordnung (NMV)
Second Computation Ordinance	II. Berechnungsverordnung (II. BV)
Service Charges Ordinance	Betriebskostenverordnung (BetrKV)
Residential Space Calculation Ordinance	Wohnflächenverordnung (WoFlVO)
Administrative regulations, particularly:	
Technical instructions on noise protection	Technische Anleitung zum Schutz gegen Lärm (TA Lärm)
Technical instructions on clean air	Technische Anleitung zur Reinhaltung der Luft (TA Luft)

Application of other legal rules

In each specific valuation case

1.4 Components of market value

1.4.1 Valuation and quality reference date

The reporting date principle

Developed and undeveloped real estate is valued as at a specific reporting date, referred to as the valuation date. This makes the valuation process a snapshot of the value of a property at a specific point in time. BauGB and ImmoWertV both make explicit reference to a particular point in time, rather than a period of time, at which value is determined. When determining market value, no account may be taken of changes in value which occur after the valuation date, a rule which is intended to exclude the incorporation of speculative elements. At the same time however, there is nothing to preclude a valuer from taking account of events which are foreseeable on the valuation date. This is true, for example, of changes in rents which are clearly pending and which must be included in the calculation performed on the valuation date. The authors of the ordinance refer, for example, to achievable market gross incomes and operating expenses (see Bischoff, B., 2008, p 466).

Valuation date

ImmoWertV §3 defines the valuation date as the point in time to which the valuation itself relates and at which the economic factors influencing the value apply. The general economic factors affecting the value on the property market are determined by the significant circumstances which determine the price of land in an arm's length transaction. According to ImmoWertV §3 (2) these significant circumstances include the general economic climate, conditions on the capital markets and the economic and demographic trends in the area. The valuation date is often the day on which the on-site property inspection takes place. However, the valuation date may be a point in the past, such as when a valuative for testamentary purposes is backdated to the date of inheritance. In these situations, the actual valuation date may actually be months or years earlier. The most important factor affecting the property valuation in such a case is the date on which the heirs succeed to the estate.

Quality reference date

Whilst the valuation date is initially simply the date on which the factors influencing values in the property market are determined, ImmoWertV §4 (1) specifies the time at which the relevant condition of the property is determined:

> *"The quality reference date is the point in time at which the condition of the property is determined for the purposes of the valuation. It is the same as the valuation date unless there are legal or other reasons to determine the condition of the property at some other time."*

Normally both dates are the same and refer to a time in the present (such as the time at which the relevant property is bought or sold).

Exceptional cases

In exceptional cases, the condition of a property and the general economic factors affecting value may be determined at a different time. This frequently arises in public law cases, e.g. compulsory purchases, land reallocations or urban redevelopment measures. In compulsory purchase cases, it is possible that an earlier date will be chosen as the quality reference date, because an advance effect is recognised in compulsory purchase law. In the compulsory purchase process, the valuation date is usually the date on which the purchasing authority

decides on the compulsory purchase application. The situation may be reversed when land is reallocated or properties are redeveloped and, in these cases, the condition of the property may be determined as at a future date. The valuation date may also change in relation to general economic factors affecting value.

1.4.2 Ordinary transaction

Supply and demand

BauGB §194 refers to an "ordinary transaction". Likewise, ImmoWertV §3 (2) also uses the same term. However, neither provision provides a clear definition of the term. Therefore, there is no legal definition of an "ordinary transaction". Despite being frequently referred to in Supreme Court judgements, the term remains undefined. In some cases, reference is made to general or normal real estate transactions. These terms and "ordinary transactions" may be regarded as synonymous. Both terms refer to a value which emerges from the free play of market forces, as reflected by supply and demand, where all participants are at liberty to pursue their individual economic objectives in the market without being coerced or subjected to immediate necessity. Such market transactions reflect all the circumstances which affect the value. Nonetheless, prices may diverge from the market price where other factors increase or reduce the value of a property. The key factor is that ordinary transactions always refer to a particular segment (residential or commercial properties), so the type of use, for example, must be uniform. Within a particular range, however, prices can fluctuate.

Special cases

In all events, ordinary transactions do not include dealings in which property changes hands in the case of compulsory auctions or insolvency proceedings, for example, in which sellers are subject to constraints which usually push prices lower than would otherwise be the case. The situation is similar when estates are distributed amongst heirs. Real estate for which there is not usually a market (for example, roadside plots) is assumed to have a pseudo marketable status on a notional market. The price to be determined is that which would be achieved if supply and demand existed, considering the real estate characteristics.

1.4.3 Legal circumstances

Factors determining the characteristics of a property

The legal circumstances are determinants of the condition of a property. In this respect, ImmoWertV §4 (2) states that the condition of a property is determined according to

> "[...] *the entirety of the existing legal circumstances and the factual characteristics, general condition and location of the property (characteristics of the property) which influence the market value. The characteristics of the property include but are not limited to its development status (§5), the type and degree of physical and other use (§6(1)), the rights and encumbrances which affect the value of the property (§6 (2)), the status of the property under tax law (§6 (3)), location factors (§6 (4)) and other characteristics (§6 (5) and (6)).*"

⇨ See also the "Market Value" module book.

EXAMPLES

The nature of these legal circumstances becomes clearer in light of the list below. There are permanent legal situations which may concern building, planning or ownership rights and which affect the market value, such as:

- planning regulations arising from the land use or local development plan;
- the development status of the property;
- public infrastructure available to the property;
- possible uses and restrictions on use;
- protection of ancient monuments;
- parking space redemption obligations;
- rights forming part of the land, such as rights of way, rights concerning separation distances between buildings, wayleaves, rights of encroachment across boundaries, rights held by the owners of adjoining properties, permanent rights of residence and usufructs.

However, a property may also be subject to time-limited encumbrances which can impact on the purchase price paid, without directly affecting the market value. Examples include:

- mortgages;
- rights of purchase or repurchase and reconveyance rights;
- compulsory purchase compensation.

1.4.4 Factual characteristics and general condition

Definition

According to Federal Valuation Ordinance §6 (5):

> *"Other characteristics include but are not limited to the actual use, revenues, size of property, shape of a site and the nature of the ground such as soil condition, suitability as building land or damaging ground changes. On developed land these characteristics may also include the type of building, the type of construction and building design, the fabric and size, quality and building condition of the property, the energy features, the year in which the building was constructed and its remaining useful life."*

This list is by no means exhaustive.

Area

Factual characteristics such as the size of a plot, its shape and soil conditions can usually be determined precisely. The land survey register contains information about the size and layout of the plot. Otherwise the plot will need to be measured. Subsoil maps and geological soil maps provide information about the quality of the building land and the groundwater conditions. The land register may also contain information about any encumbrances.

Condition must be interpreted as a status which is completely independent of the location of a property and must therefore be clearly distinguished from the characteristics of a prop-

erty resulting from its "location" pursuant to ImmoWertV §6 (4). In terms of valuation, the components "factual characteristics and general condition" can either enhance or reduce the value of a property. If a property is used for residential purposes, the per m^2 value of the plot area normally increases the smaller the actual area of land is. Where the plot itself is bigger than the typical size of comparable plots of land in the same neighbourhood, it is normally necessary to investigate how much such oversized plots of land are worth. This is more important in general residential areas than in exclusive residential areas. In the former case, the land should be divided up into different sub-areas and then valued in terms, for example, of a value for land used for housing (for that part of the land which is similar in size to the typical plot size in the neighbourhood) and the value for garden land (for the portion of the plot which exceeds the typical size of plots in the neighbourhood).

Width and length

The width and length of the road frontage may impact the value of a plot of land used for residential purposes. Long and narrow plots are generally considered to be less desirable than roughly square-shaped plots. However, this assessment must again take account of the general setting and any building regulations (e.g. concerning the building line = the boundary between developable and undevelopable land). A differentiated approach is also sensible in relation to these criteria; the factors affecting the value of commercially used land are usually quite different.

1.4.5 Location of the property

Location, location, location …

ImmoWertV §6 (4) characterises the property in relation to its surroundings. The characteristics referred to so far mainly describe the individual locational features of a property (in the broadest sense).

> *"The locational features of a property include but are not limited to its access to transport connections, its neighbourhood and residential and business area and environmental influences."*

This list is not exhaustive either and the catalogue could easily be extended to include factors such as macro or microstructural locations, rural situations, urban locations and densely populated areas.

Transport connections

Transport connections, for example, can be described using the following criteria: how far away the property is from:

- the town or city centre:
- public transport bus stops or train stations:
- main roads or dual carriageways etc.;
- motorways;
- nursery schools and primary and secondary schools;
- shopping centres;
- local authority administrative offices; and
- cultural facilities.

Residential and commercial location

An area used for residential housing is considered to be a good location if most infrastructure facilities can be reached within 15 to 20 minutes. In the case of commercial properties, a differentiated approach must be taken to the locational factors. These can only be assessed in relation to the segments under consideration. Office properties are subject to quite different criteria from shopping centres. Retail property will be worth more if it is located either in a busy pedestrian precinct or at traffic hubs with sufficient parking spaces.

Neighbourhood

Neighbourhood structures also have an impact on property values. Preference is given to residential properties which have a homogeneous neighbourhood structure, and are clearly separated from other sections of the population. This is equally true of commercial property. Real estate situated in the vicinity of similar and similarly-used structures are preferred by purchasers because this proximity can generate an array of subsequent use-related synergies.

Environmental influences

Ecological lifestyles have grown in importance for many people in recent decades. Chimney stack and car fumes, traffic noise and unpleasant smells from farms or recycling facilities are regarded as highly detrimental to the attractiveness of residential areas. Locations which have the lowest exposure to such nuisances are considered to be much more valuable.

1.5 Land valuation boards

Data required

A large volume of data, guideline values and sometimes comparable prices are needed for property valuations, together with the parameters required to compare them. ImmoWertV §§9 to 14 refers to guideline land values, index series, conversion coefficients, comparable factors for developed land, market adjustment factors and capitalisation rates.

Different levels of transparency in property markets

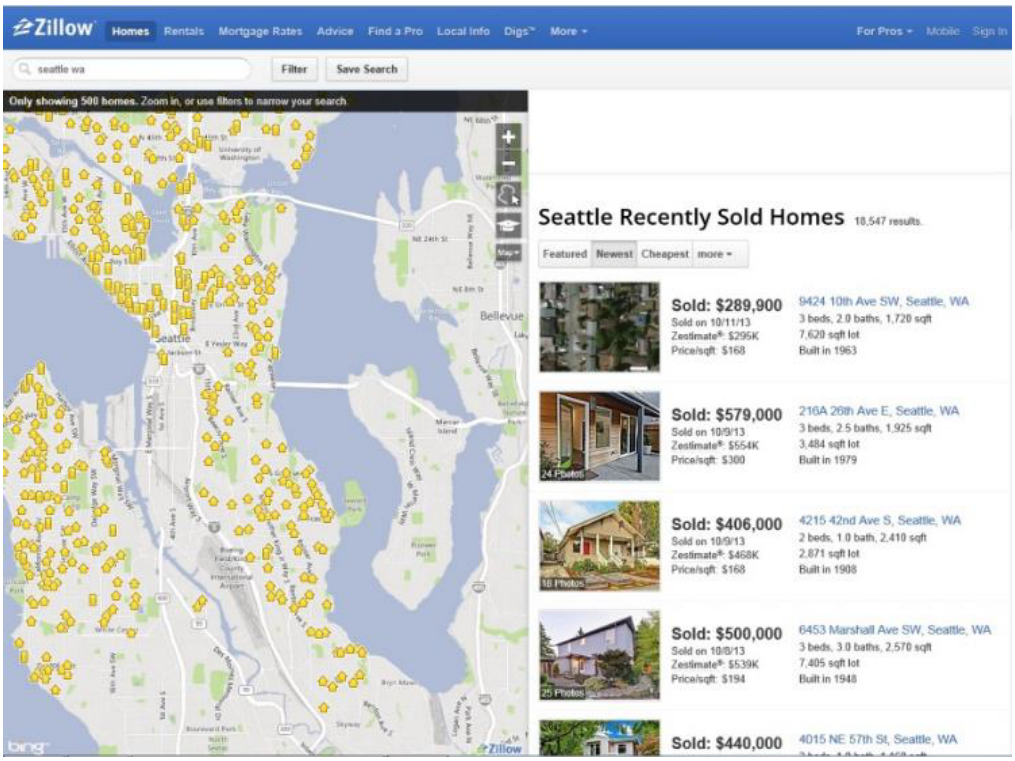
The local land valuation board is an important source of information (see also Schmalgemeier, H. 2005, p 350 et seq.; Schmalgemeier, H. 2006, p 99 et seq.). However, other sources are also available. For example, BauGB §192 (1) states:

> *"In order to determine property values, and for other types of valuation, autonomous and independent land valuation boards shall be established".*

⇨ See also the "The Valuer's Role in Property Valuation" module book.

The land valuation board is a typically German institution which does not exist in other European and non-European countries. Under the particular data privacy rules which apply in Germany, evaluation findings must be shown in anonymised form. The transparency of data relating to real estate transactions in other countries is regulated in many different ways. The publication of transactions in the Scandinavian countries and the USA permits a relatively high degree of transparency (see Fig. 7).

Fig. 7 | Transparency of property markets in the USA



Source: zillow.com, search date 14th October 2013

1.6 Selection of valuation approach

ImmoWertV §8 (1) provides that the market value of a property must be determined using the comparison approach, the income approach, the cost approach or a combination thereof.

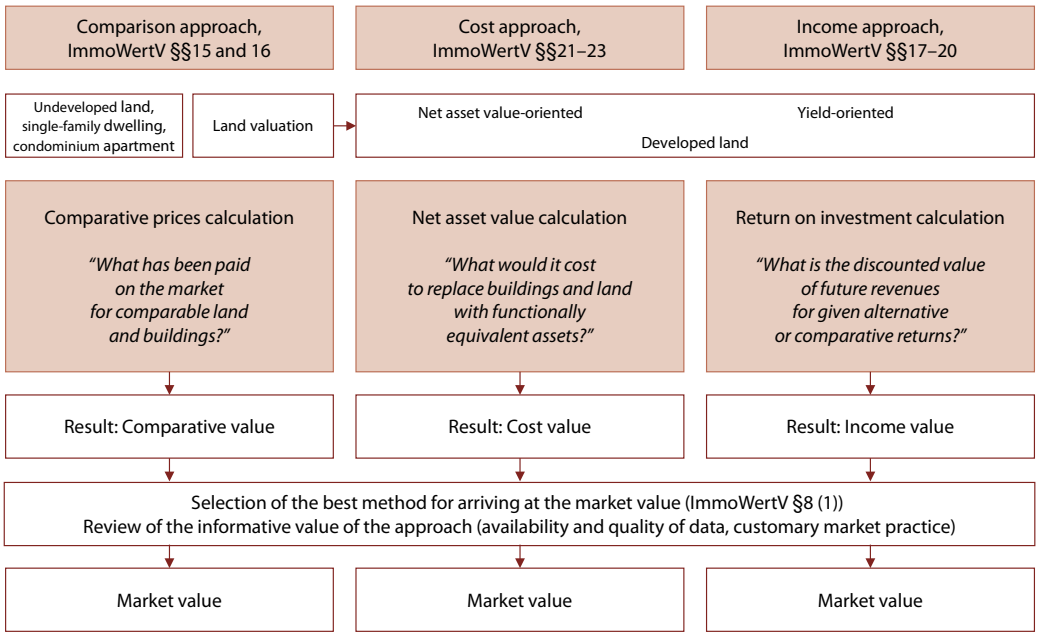
Comparison approach

In contrast to the two other approaches, the comparison approach adopts a present time focus which can be used in principle for developed and undeveloped real estate (see Fig. 8). In practice and in law, the clear thrust is clearly towards determining the value of undeveloped land (refer to Fig. 8). However, ImmoWertV §15 (2) now also applies the comparison approach to developed land by introducing an indirect comparison based on comparable factors.

Income approach

The income approach is used to value developed land when the main focus is on the return on the capital invested, for example, land for rented housing and commercial premises, land used for commercial and industrial purposes, and for garages (see Fig. 8). The property valuer adopts the investor's point of view and endeavours to determine the discounted value of future payments generated by the property. This method is therefore a future-oriented approach to determining value.

Fig. 8 | Valuation approaches referred to in ImmoWertV



Source: Simon, T., 2010

Cost approach

The cost approach is mainly applied to properties for which the market value is primarily derived from its net asset value rather than from the income generated by the property (see Fig. 8). This valuation approach is geared towards the fabric of a building and produces a reinstatement value.

Explaining the choice of approach

According to ImmoWertV §8 (1), the valuer should select the approach which is typically applied for the type of property concerned, taking account of customary business practice and any other special circumstances which apply in the specific case. Valuers must explain why they have opted to use a particular approach to determining market value in each case. Approaches other than those explicitly referred to in ImmoWertV can also be used where their application is appropriate and justified.

Solution to the "Initial case study"

The employee is given a brief introduction to the basics of property valuation by the expert. Starting with the economic significance of developed and undeveloped real estate in economic life today, it becomes apparent that property can be valued from a number of different perspectives and by applying various yardsticks. From an economic perspective, the aim is to produce the most accurate assessment of a property which is wholly distinct from any subjective personal evaluations and to state a neutral, generally applicable value.

International institutions working in the valuation field exercise an informal influence by setting standards. The relevant international standard setters in this field are the IVSC, TEGoVA and the RICS. The market value is the key term and in Germany is identical with

the *Verkehrswert*, which is standardised in law and is intended to ensure that the market value is determined objectively. The market value is influenced by numerous components. These include the valuation date, the conclusion of an arm's length transaction, consideration of all legal matters, factual characteristics and general condition, the inclusion of all locational features and the elimination of unusual and personal circumstances.

As a property valuer in Germany, an Immo AG employee must comply with numerous laws and regulations which apply according to the legal nature of his or her work. The underlying basis is found in BauGB §194, which defines what is meant by the market value of a property. The code also facilitates the implementation of ImmoWertV and its related guidelines. Although the field of application of these directives and guidelines is limited in principle to government institutions which are required to determine market value, both provisions are now generally applicable to the valuer's work. Numerous related laws, regulations and technical instructions may also be applicable in particular cases.

The valuer can obtain the data which is needed to value a property from the land valuation board.

1.7 Chapter 1 activities

Activity 1

ImmoWertV, previously WertV, and the valuation guidelines are widely used in practice when determining market value. These regulations all have a specific character and are applied in specific circumstances. Discuss these.

Activity 2

What rule of law defines the term *Verkehrswert*/market value?

a) Civil Code (BGB)
b) Valuation Act (BewG)
c) Building Code (BauGB)
d) Property Valuation Ordinance (ImmoWertV)
e) Fee Scales for Architects and Engineers (HOAI)

Activity 3

Which components accurately characterise the basis of market value?
Market value is determined by the price which could be achieved

a) in the period to which the assessment refers;
b) in ordinary business transactions;
c) in future circumstances, and
d) according to its factual characteristics;
e) other characteristics, and
f) the location of the property or other object of assessment;
g) taking account of unusual or personal circumstances.

Activity 4 What is the normal relationship between mortgage lending value and market value?

a) Mortgage lending value = market value
b) Mortgage lending value ≥ market value
c) Mortgage lending value ≤ market value
d) Mortgage lending value relates to a period of time; market value refers to a point in time.
e) Mortgage lending value relates to a point in time; market value refers to a period of time.

Activity 5 Which experts are required to determine market value according to the rules of BauGB and ImmoWertV?

a) Publicly appointed and inaugurated valuers
b) Certified valuers
c) Specialists sitting on land valuation boards
d) Freelance valuers
e) Court appointed experts
f) Civil and public servants who undertake expert assessment assignments in the name of national or state governments

Activity 6 Which of the following valuation approaches are standardised in Germany pursuant to ImmoWertV?

a) Cost approach
b) Liquidation value method
c) Residual value method
d) Income approach
e) Comparison approach
f) Discounted cash flow method

Activity 7 For which of the following the comparison approach principally used?

a) Developed land where 2 to 3 comparable properties exist
b) Single-family dwellings
c) Factory buildings
d) Undeveloped land
e) Condominium apartments

Activity 8 For which of the following is the cost approach principally used?

a) Multi-storey car parks
b) Villas with parks
c) Retail properties
d) Two-family dwellings

Activity 9 For which of the following is the income approach used?

a) Restaurant properties
b) Hotels
c) Undeveloped land
d) Single-family dwellings
e) Homes for the elderly

Activity 10 In which of the following cases must the International Valuation Standards be applied?

a) Valuation of the US branch office of a German consumer goods groups
b) Valuation of office property in France by a German professional valuer
c) In principle, there is no obligation at all to apply these standards.
d) Valuation of the entire property portfolio of an Australian multinational property firm
e) Valuation of properties by a non-German valuation firm within its national field of operation

2 Comparison Approach

Initial case study

The Immo AG employee is now faced with their first expert valuation assignment. This entails determining the value of an undeveloped plot of land for which new plans are to be drawn up as part of a development project. The first question which needs to be resolved is whether the comparison method is the right valuation approach to adopt in this case, and what requirements must be met when applying it.

LEARNING OUTCOMES

By the end of this chapter you should be able to

- discuss the conditions which must be met for the comparison approach to be used for developed and undeveloped real estate;
- describe the structure of the comparison approach;
- determine the qualitative and quantitative requirements which must be met by the reference material;
- explain how guideline land values are used; and
- describe methods to take account of characteristics which differ from valuation property in terms of the characteristics influencing its value.

2.1 Significance

Major importance of this approach

The comparison approach, or more accurately the classic valuation approach, is a method of determining property values. The comparison of property prices which is intrinsic to this approach is the key element of all valuations and reflects the interplay of supply and demand for property in a specific segment. The other two valuation approaches – the income approach and the cost approach – also incorporate elements of the comparison approach.

Similarities and dissimilarities

A like with like comparison is not a prerequisite for the comparison approach. In fact, the comparison of prices arises precisely from weighing up things which are not alike. The comparison approach can also be applied to properties which appear not to be comparable at first sight. The approach employs tools such as conversion coefficients and indices.

2.2 The structure of the comparison approach

The market as a regulating factor

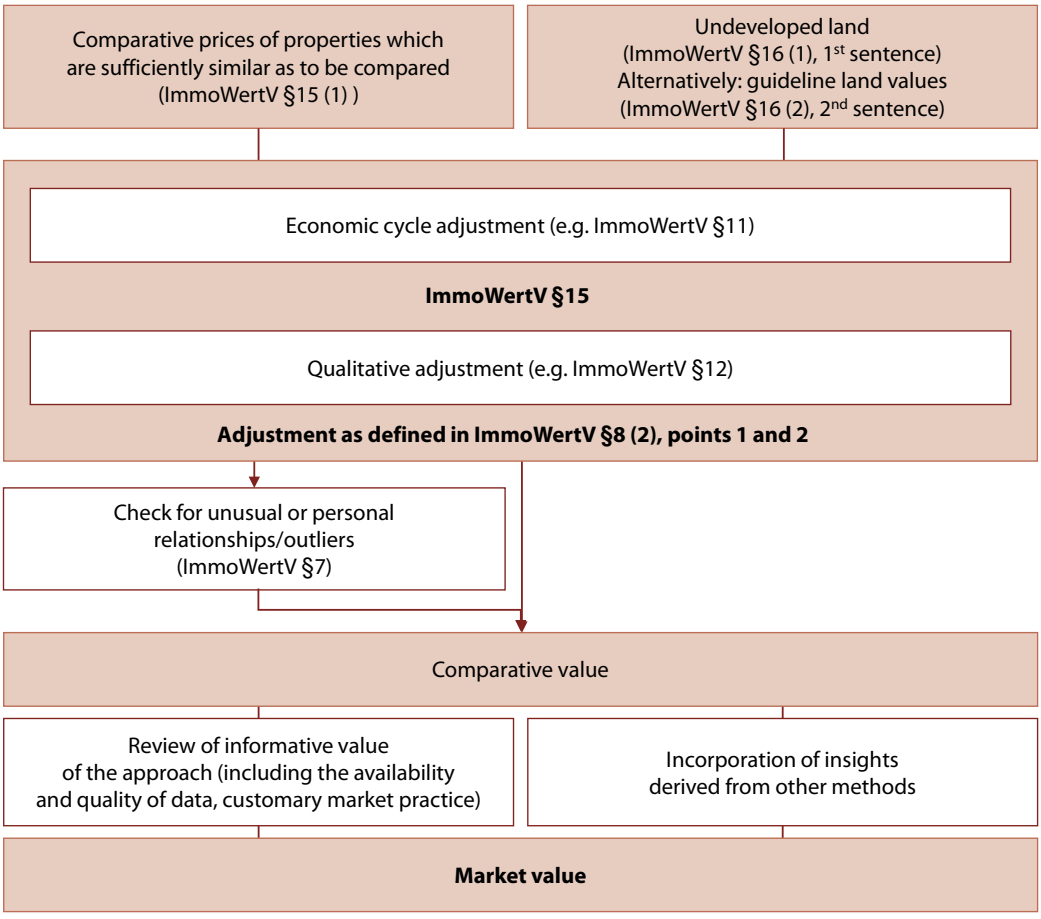
The comparison approach is defined in ImmoWertV §§15 to 16. It is based on the following theoretical economic assumptions: a product is only worth as much as the price a comparable substitute product would normally achieve in an ordinary transaction, i.e. where prices are the outcome of the free play of market forces. This fundamental economic causal relationship has been incorporated in ImmoWertV and explicitly described in the comparison approach. Accordingly, properties are worth as much as the market is prepared to pay for them (see Simon, J./Cors, K./Halaczinsky, R./Teß, W., 2003, p 21 et seq.).

Basis for price comparisons

Only properties with comparable characteristics may be included in the appraisal. The legislature has reflected this requirement: ImmoWertV §15 sets out the basis for a price comparison of developed and undeveloped real estate, i.e. it is assumed that the properties can be compared (see Fig. 9). According to ImmoWertV §15 (1), 1st and 2nd sentences,

> *"the comparison approach derives the comparative value from a sufficiently large number of comparative prices. Comparative prices are derived from the sale prices of properties which share sufficiently similar characteristics."*

Fig. 9 | Comparison approach – structure and procedure



Source: Simon, T., 2010

The 4th sentence stipulates the procedure to be used to deal with differences between the characteristics which influence the value of the comparable property and those which influence the valuation property.

There is no fundamental reason why the comparison approach cannot be used for any type of real estate. It can be used for developed and undeveloped real estate, and also residential and commercial properties.

VW-RL Guidelines

The VW-RL Guidelines published in the Federal Gazette on 11th April 2014 were aimed at

> *"ensuring the proper determination of the comparative value or market value of developed real estate or the value of developed and undeveloped land in accordance with uniform and fair market principles".*

In addition to the principles for applying the comparison approach (definition and derivation of comparative prices, sources of purchase prices and data), it contains, inter alia, implementation provisions for determining land value and deriving comparative prices for developed real estate.

2.3 Requirements which must be met by comparables

Scope and quality of comparables

Valuers who use the comparison approach will often face the challenge of finding a representative number (including in a statistical sense) of comparables. If the valuer is able to draw on a database of comparables, the comparison approach can be used to arrive at the market value after making the appropriate adjustments. Comparables are other properties which have actually changed hands on the market at prices determined by market supply and demand. In practice, this requirement is only met to a certain extent when determining the market value of a property, either because the quantity of comparables needed for statistical purposes is not available, or because properties are simply not comparable (in a qualitative sense).

This reality is reflected in the process of determining market value. A distinction is made between direct and indirect price comparisons depending on the scope and quality of comparables available.

Direct price comparisons

Direct price comparisons are based on the assumption that only comparables whose characteristics affecting value are identical to those of the undeveloped or developed valuation property can be used to determine its market value. This is seldom the case in practice because properties inevitably differ from each other owing to their locational attributes. Every property is unique; nonetheless, rough equivalence is possible between relatively standardised products such as condominium apartments in a multiple dwelling unit, although even here prices may vary according to the position of the apartment in the building (ground floor vs. attic floor; north facing vs. south facing etc.). Therefore, it is almost impossible to make a direct comparison of the prices paid for developed real estate. In contrast, undeveloped land is much easier to compare – despite variations in location – simply because it has not yet been built on.

Indirect price comparisons

When prices are compared indirectly, the comparable properties differ in terms of their characteristics and/or time of sale from the characteristics of the valuation property. The data is not of the quality required to be able to compare prices directly. Therefore, the comparable properties have to be made comparable. This is usually achieved using correction factors or conversion factors. Experience acquired in the business of determining market values has generated a profusion of empirically derived conversion factors which are regularly applied in calculation models. A market view generally implies a spread of purchase prices. Substantial further deviations which are not determined by market mechanisms should not be included in collections of comparative data. Statistical outliers of this kind must be filtered out of the population of comparative prices. These represent property prices which have not arisen in ordinary transactions, but as a result of personal or unusual circumstances.

2.3.1 Quantitative representativeness

Required quantity

Those responsible for drafting the regulation were well aware of the problem described above, that in some circumstances there may be insufficient comparable properties available to be able to determine market value. ImmoWertV §15 (1), 3rd sentence, describes the procedure which must be adopted if there is insufficient sale price data available in the area in which the valuation property is located to be able to make appropriate comparisons.

> *"If there are insufficient comparative prices in the area in which the valuation property is located, the valuer may draw on comparative prices from other comparable areas."*

Comparable areas are other locations in the same local authority district. Circumstances may arise in which the valuer has to look for comparable properties in other towns or communities. This is rarely the case, however (see Kleiber, W./Simon, J., 2007, p 1135 et seq.).

Conversely, there must be sufficient comparable properties in the area in which the valuation property is located for them to be used as the basis of a price comparison. However, the regulation itself does not stipulate a specific number but simply states the order in which the comparable properties should be selected.

1 | Firstly, the valuer must draw on comparable properties from the area in which the valuation property is located.

2 | Only if there are insufficient comparable properties in the area itself may a valuer refer to comparable areas and attempt to identify comparative prices from those areas.

Representativeness

According to the central limit theorem in statistics, comparable properties become increasingly representative for the purposes of determining market value the more comparable property prices are available. From a statistical point of view, at least 10 to 15 comparative prices are needed to perform a meaningful comparison. It is seldom possible to find even this low number of comparative prices in the area in which the valuation property is located. In practice, however, one should not insist on too high a level of suitability, or it will not be possible to identify enough comparative prices, and for this reason valuers often use comparable properties which may be regarded as being of only limited suitability.

2.3.2 Qualitative representativeness

Characteristics

> *"Comparative prices are derived from the sale prices of comparable properties which share sufficiently similar characteristics."* (ImmoWertV §15 (1), 2nd sentence)

Here, the legislation refers to the characteristics of properties which can be used to determine a property's suitability as a comparable. The law requires that the characteristics which determine the value of the comparable correspond sufficiently with those of the valuation property.

Upward and downward adjustments

The initially vague notion of "corresponding sufficiently" becomes much more precise when the legislation deals with deviations. According to ImmoWertV §15 (1), 4th sentence:

> *"Changes in general values in the real estate market or deviations in particular characteristics of properties are usually taken into account by way of index series or conversion coefficients."*

Deviations can be taken on board with the aid of "conversion coefficients". ImmoWertV §12 provides a general definition of conversion coefficients:

> *"Differences in the value of properties arising from deviations in the specific characteristics of properties which are otherwise identical, including but not limited to deviations arising from varying degrees of building use or plot size and depth, should be calculated with the aid of conversion coefficients."* (BauGB §193 (5), 2nd sentence, point 3)

2.3.3 Deviations from circumstances affecting value

2.3.3.1 Conversion coefficients

Location-conversion coefficients

Making adjustments to values is a key valuation activity. Empirically determined conversion coefficients for specific locations are made available to property valuers by the local authority's land valuation boards (see Fig. 10).

Standardised location correction factors make no reference to the applicable region or local authority. They represent composite conversion relationships and are usually allocated to 3 or 5 groups [(unattractive), basic, average, good, (preferred)]. However, the lack of reference to the market means that they must be applied circumspectly and should never be included in a valuation report without first being verified.

Many more influencing criteria need to be considered when valuing commercial properties compared to residential properties.

Fig. 10 | Individualised location conversion coefficients

Property location conversion coefficients

Individualised conversion coefficients

Building lots		By residential location								
		10 preferred	15	20 good	25	30 average	35	40 basic	45	**50 unattractive**
By residential location		%								
preferred	10	–	–	–	–	–	–	–	–	–
	15	–	0	(–14)	(–24)	–	–	–	–	–
good	20	–	(16)	0	–12	–21	–	–	–	
	25	–	(31)	13	0	–11	–22	–	–	–
average	30	–	–	27	12	0	–12	(–25)	–	–
	35	–	–	–	28	14	0	(–14)	–	–
basic	40	–	–	–	–	(33)	(16)	0	–	–
	45	–	–	–	–	–	–	–	–	–
unattractive	**50**	–	–	–	–	–	–	–	–	–

Source: Land Valuation Board for the City of Stuttgart

Conversion coefficients in the determination of land value

Conversion coefficients are also used in the determination of land value. Special conversion coefficients are used here to account for differences in the degree of physical use between the subject and comparable plots. They take account of the fact that, with otherwise comparable properties, a different degree of physical use leads to a more or less efficient use of the land. The plot ratio (GFZ) is determined to quantify the degree of physical use.

Plot ratio pursuant to BauNVO

The plot ratio is defined in the Building Use Ordinance (BauNVO) and takes account of the external floor areas of all the full storeys of a building. What is considered a full storey is defined in the building regulations of the individual federal states.

Value-specific plot ratio pursuant to BRW-RL

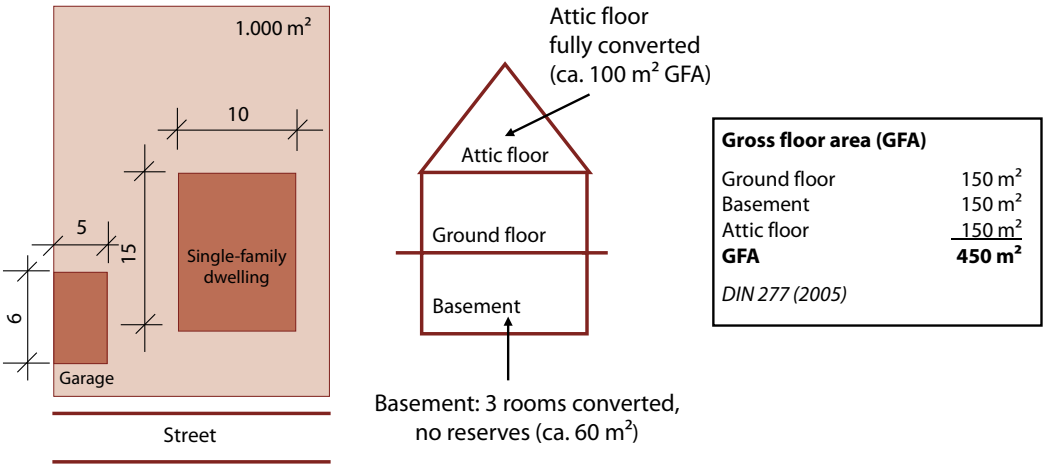
The BRW-RL guidelines go one step further in the scope of the external floor areas to be taken into account and also have regard to the areas in the building which, according to the Building Use Ordinances, are not to be taken into account but are required for economic use (for example, areas in basements or attic floors). This produces the value-specific plot ratio (WGFZ).

Unless otherwise indicated, the guidelines stipulate that the value-specific plot ratio should therefore also include the following when considering the suitability of a guideline land value:

> *"[...] the floor area of a converted or convertible attic floor at a flat rate of 75% of the floor area of the full storey below, [and]*
>
> *the floor area of the basement if staff rooms are available or possible, at a flat rate of 30% of the full storey above".*

In other words, the plot ratio permitted under planning law deviates from the value-specific plot ratio, where such space exists in the basement/attic floor. Fig. 11 shows the differences using an example:

Fig. 11 | Difference between the plot ratio pursuant to BauNVO and the value-specific plot ratio pursuant to BRW-RL



Gross floor area (GFA)

Ground floor	150 m²
Basement	150 m²
Attic floor	150 m²
GFA	**450 m²**

DIN 277 (2005)

Floor area (NFA)

Ground floor	150 m²
Floor area	**150 m²**

BauNVO §20 (3)
(Garage disregarded pursuant to BauNVO §20 (4))

Plot ratio (PR)

apportionable area	150 m²
150 m² / 1,000 m² =	**PR 0.15**

BauNVO §20 (2)
(Garage disregarded pursuant to BauNVO §20 (4))

Value-specific plot ratio (VR-PR)

Ground floor	150 m²
Attic floor	100 m²
Basement	60 m²
apportionable area	310 m²
310 m² / 1,000 m² =	**VR-PR 0.31**

Source: Simon, T., 2013

The example shows that by including the value-specific basement and attic floor space, the value-specific plot ratio has increased by more than 100% compared to the planning law plot ratio, which here includes only the ground floor as a full storey. Therefore, it makes a substantial difference whether a guideline land value is determined on the basis of the plot ratio or the value-specific plot ratio. In the above example, if a guideline land value based on a value-specific plot ratio of 0.3 is quoted as €100/m² (corresponding to the actual circumstances of the property), an inadvertent linear adjustment using the plot ratio of €100/m² × (0.15 / 0.30) would produce an incorrect land value of €50/m².

Adjustment of land value using value-specific plot ratio conversion coefficients

Conversely, a linear adjustment can rarely be applied in practice. Due to the discrepancies between plot ratio and value-specific plot ratio, land valuation boards publish conversion coefficients for value-specific plot ratios for the adjustment of land values (see Fig. 12). These conversion coefficients can be used to adjust the guideline land values published by the respective land valuation boards in relation to value-specific plot ratios to reflect the actual situation on-site (actual value-specific plot ratio).

Fig. 12 | Conversion coefficients to adjust guideline land values to take account of deviating value-specific plot ratios

Conversion coefficients – Value-specific plot ratios (WGFZ = VR-PR)							
WGFZ	UK WGFZ	WGFZ	UK WGFZ	WGFZ	UK WGFZ	WGFZ	UK WGFZ
0.1	0.49	1.6	1.34	3.1	2.18	4.6	3.02
0.2	0.55	1.7	1.39	3.2	2.24	4.7	3.08
0.3	0.61	1.8	1.45	3.3	2.29	4.8	3.14
0.4	0.66	1.9	1.51	3.4	2.35	4.9	3.19
0.5	0.72	2.0	1.56	3.5	2.41	5.0	3.25
0.6	0.78	2.1	1.62	3.6	2.46	5.1	3.30
0.7	0.83	2.2	1.67	3.7	2.52	5.2	3.36
0.8	0.89	2.3	1.73	3.8	2.57	5.3	3.42
0.9	0.94	2.4	1.79	3.9	2.63	5.4	3.47
1.0	1.00	2.5	1.84	4.0	2.69	5.5	3.53
1.1	1.06	2.6	1.90	4.1	2.74	5.6	3.59
1.2	1.11	2.7	1.96	4.2	2.80	5.7	3.64
1.3	1.17	2.8	2.01	4.3	2.85	5.8	3.70
1.4	1.22	2.9	2.07	4.4	2.91	5.9	3.75
1.5	1.28	3.0	2.12	4.5	2.97	6.0	3.81

WGFZ = value-specific plot ratio (VR-PR)
UK = conversion coefficient

Source: Land Valuation Board for the City of Leipzig, Property Market Report 2019

Conversion:

EXAMPLE

The guideline land value is €430/m². This guideline land value is for a plot with a value-specific plot ratio of 0.8. The valuer wishes to determine the guideline land value for a plot with a value-specific plot ratio of 1.4.

Calculation: €430/m² × 1.22/0.89 = €589.44/m²

Conclusion

The adjustment of the land value from €400/m² to approx. €590/m² resulting from the above conversion must then be reviewed by the valuer.

VR-PR conversion coefficients in the VW-RL Guidelines

Conversion coefficients are usually published by land valuation boards which have sufficient data at their disposal, i.e. mostly land valuation boards for larger cities. Numerous smaller towns and local authority areas do not have sufficient real estate transactions, and so no statistically determined value-specific plot ratio conversion coefficients can be provided.

Conversion coefficients intended to reflect deviances in value-specific plot ratios when determining the value of land for multiple-dwelling sites can also be found in Annex 1 to the VW-RL Guidelines. These can be used if no suitable conversion coefficients are available for the corresponding regional submarket.

However, when conversion coefficients have been used, the results must always be reviewed by a valuer to prevent implausible results.

Implausible results are to be expected, for example, in commercial locations where the value of land may be much more dependent on the higher value uses to which the space is put than on the value-specific floor area. In such cases, the VW-RL Guidelines recommend instead *"to examine whether an appropriate adjustment of the purchase prices can be made using the rents"*.

Fig. 13 shows the conversion coefficients quoted in the VW-RL Guidelines for different value-specific plot ratios for multiple-dwelling sites.

Fig. 13 | Value-specific plot ratio conversion coefficients (VW-RL Guidelines)

GLV €/m²	Value-specific plot ratio (VR-PR)													
	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8	3.0
200	0.88	0.93	0.97	1.00	1.03	1.05	1.07	1.08	1.10	1.11				
250	0.79	0.88	0.94	1.00	1.05	1.09	1.13	1.17	1.20	1.23	1.26			
300	0.71	0.83	0.92	1.00	1.07	1.13	1.19	1.24	1.29	1.34	1.38	1.43		
350		0.80	0.91	1.00	1.08	1.16	1.23	1.30	1.36	1.42	1.47	1.52	1.58	
400		0.77	0.89	1.00	1.10	1.18	1.27	1.35	1.42	1.49	1.56	1.62	1.68	
450			0.88	1.00	1.11	1.21	1.31	1.40	1.48	1.57	1.64	1.72	1.79	1.86
500			0.87	1.00	1.12	1.24	1.34	1.45	1.55	1.64	1.73	1.82	1.90	1.98

GLV = Guideline land value

For guideline land values between the guid eline land value intervals, conversion coefficients can be determined by linear interpolation. An extrapolation of the conversion coefficients is not appropriate beyond the range of validity listed in the table (< €200/m² or > €500/m²).

Guideline land values are shown not only in relation to the degree of physical use, but also in relation to different plot sizes, particularly in rural areas and in residential areas with predominantly single- and two-family dwellings. In their market reports, the land valuation boards publish corresponding tables of conversion coefficients for the adjustment of guideline land values to take account of deviating plot sizes.

Annex 2 to the VW-RL Guidelines also contains conversion coefficients for deviating sizes of plots for single- and two-family dwellings. According to subsection 4.3.3 of the guidelines:

> *"as a rule, conversion coefficients should be used to take account of deviations in the sizes of the comparable land plots compared to the subject plot* [...], *unless this difference in value has already been taken into account by the value-specific plot ratio adjustment (see subsection 4.3.2) or in some other way* [...]*".*

The conversion coefficients can be used within a guideline land value range of €30/m² to €300/m². The conversion coefficients can be determined by linear interpolation for plot areas between the specified intervals. Extrapolation is not permitted. Fig. 14 therefore shows that the maximum adjustment is around +/– 7% (more precisely: 1.0729 or 0.9320).

Fig. 14 | Conversion coefficients for deviating plot sizes (VW-RL)

	Plot size in m²							
	500	600	700	800	900	1,000	1,100	1,200
Conversion coefficients	1.03	1.02	1.00	0.99	0.98	0.97	0.96	0.96

EXAMPLE

The available guideline land value is €200/m². This price is for a plot with an area of 600 m². The valuer wishes to determine the price for a plot with an area of a) 900 m² and/or b) 1,050 m².

Calculation:

a) €200/m² × 0.98 / 1.02 = €192.16/m² = rounded to €190/m²
b) €200/m²× ((0.96 + 0.97) / 2) / 1.02 = €189.22/m² = rounded to €190/m²

Here too, it is essential that the valuer reviews the result of the conversion.

Conclusion

2.3.3.2 Temporal adjustments using index series

Changes in price levels

The dates on which the comparable properties are bought and sold must also be fairly close in time to the valuation date. It is rarely the case that sale prices for properties are available which correspond exactly with the valuation date. In this respect, comparative prices must be made comparable by, for example, relating them to the same point in time (the valuation date). This is achieved using land price or Building Cost Index series. Substantial corrections therefore depend on general price trends on the property market. Prices on the property market regularly change as a result of shifting supply and demand and cyclical fluctuations. These changes take place quite separately from changes in general characteristics.

Conversion based on index series

Where comparative prices for the same time period are unavailable, prices derived from earlier property sales are normally used. These prices then have to be adjusted to reflect market conditions on the valuation date before they can be used appropriately in the com-

parison approach to determine the market value. Valuers can obtain support from the land valuation boards in each town/city or local authority area. ImmoWertV §9 in conjunction with §11 requires these boards to produce index series which capture the changes in the general conditions on the property market.

Definition

ImmoWertV §11 (1) describes the purpose of index series:

> *"Changes in the general market conditions must be recorded in index series."*

§§2 and 3 explain the method used to produce index series:

> *"(2) An index series consist of index figures resulting from the average ratio between prices during an observation period and prices during a base period where the index figure is 100. The index figures may also relate to particular points in time within the observation and base periods.*
>
> *(3) The index figures are derived for properties with comparable locations and uses. In suitable cases, the results for an observation period may be changed after comparing them with index series for other sectors and previous observation periods."*

EXAMPLE

A building plot for a single-family dwelling is to be valued as at the valuation date of 1st June 2019. The comparative price for a comparable plot for 2016 is €275/m².

Valuation date:	1st June 2016
Index of land prices figure (2018):	104
Comparative price:	€275/m²
Index of land prices figure (2016):	100

Calculation: $€275/m^2 \times \frac{104}{100} = €286/m^2$

Problem

In principle, there is no reason why corrective calculations should not be integrated provided that the correction factors applied are determined and used correctly. However, this method may produce inaccurate results despite indexation to the reference year. It is normally also difficult to use a point in time in the past to reflect the condition of a property. Any changes made in the interim period may distort the picture significantly. However, the deviations may not be so large as to make comparisons very difficult.

In practice, often the valuer cannot fall back on location-based comparative values, location factors, conversion coefficients and the like. Where such information is not available, the only remaining option is to have recourse to standardised factors which must then be transposed to reflect the individual characteristics of the valuation property. In any case, it is not advisable to adopt the parameters like-for-like without verification. This also applies to data supplied by different software providers as part of computer-aided valuation. This should also be evaluated critically in relation to the specific valuation property.

Also, the valuer is frequently confronted with the problem that not all land valuation boards implement the ImmoWertV guidelines in full. Available guideline land values are often out-of-date. Furthermore, development trends in the relevant property market are often not communicated. Sometimes even the area to which the zonal guideline land value refers is too large or too heterogeneous to be able to reach a well-founded conclusion in respect of the specific valuation property.

2.4 Determining the value of undeveloped land

The valuation of land is regulated by ImmoWertV in a separate subsection (ImmoWertV §16). ImmoWertV §16 is supplemented by the VW-RL Guidelines. VW-RL Part 9 deals in more detail with the determination of land values. This emphasises the importance of land value, especially in relation to urban redevelopment and development measures. The declared aim of the VW-RL Guidelines is also to ensure that undeveloped land is properly valued in accordance with uniform and fair market principles.

2.4.1 Determining the value of undeveloped land using comparative prices

Land ready for development

The value of undeveloped land, the land value, can almost always be determined by looking at comparable prices. Conceptually, the range of factors influencing value is stripped down to the main factors and comparative prices are applied to the valuation property – and, of course, the valuation date. This means, for example, that the value of land which is ready for development is determined by converting comparables, in terms of their location, realisable scale of building use, size of the property and time, to the valuation property and valuation date. However, in the case of oversized plots, the question must be asked whether the land value must not be differentiated between the more profitable front part of the site and the less profitable or wholly unprofitable land to the rear. Further important parameters for determining land value are the development itself and the level and continuity of the returns generated.

Undeveloped land and land earmarked for development

If comparative prices are available, undeveloped land and land earmarked for development (or prospective building land) is valued according to the same principles which apply to land which is ready for development. If the properties from which the comparative prices are derived are in other locations, the value determined must be adjusted upwards or downwards for the time it would take to develop a greenfield site (i.e. the time it is likely to take before a site is actually ready for development), which may differ from the time needed to make the comparable sites ready for development. If no suitable comparative prices are available, or if the price comparison fails for any other reason, an arithmetical discount method can be used to derive the value of the undeveloped land or land earmarked for development from the value of the land ready for development.

The VW-RL Guidelines permit the use of discount methods if there are no appropriate comparative prices.

Agricultural and forestry land

Passing reference should also be made to the valuation of agricultural and forestry land. Comparisons of prices for this category of land are largely determined by the characteristics of the valuation property such as location, credit rating, size and layout. Upward or downward adjustments must be made to take account of differences. Part 9.1 of the VW-RL allows the LandR or the WaldR to be used to supplement this approach.

Developed land

It is important at this point to mention the process of determining the value of developed land. There is no separate market on which the value of developed land is specified. The land component of developed land cannot be marketed separately from the buildings erected on it. This means that the value of developed land is not a separate market value but a land value component of the market value attributable to a plot of developed land and, as such, is an inherent part of the overall valuation. The land value is determined for an undeveloped plot of land and is included in the valuation. ImmoWertV §16 (1) clearly states that the value of land must be determined *"subject to §2 to §4 without taking account of the buildings currently on the land and primarily by applying the comparison approach (§15)"*. This provision explicitly prohibits making reductions in land values simply because of the existence of buildings on the site. The exceptions referred to in this paragraph relate to buildings in undesignated outlying areas as defined in BauGB §35 (and ImmoWertV §16 (2)), as otherwise the condition of the property would have to be downgraded, in the case of liquidation properties (ImmoWertV §16 (3)), and where the actual use deviates substantially from the principal use (ImmoWertV §16 (4)).

2.4.2 Determining the value of undeveloped land using guideline land values (*Bodenrichtwerte*)

Application

According to ImmoWertV §16 (1):

> *"Subject to §2 to §4, the value of land must be determined without taking account of the buildings currently on the land and primarily by applying the comparison approach (§15). To do this, the value of land may be determined on the basis of suitable guideline land values. Guideline land values are deemed suitable whenever the characteristics of the underlying reference plot correspond sufficiently with the characteristics of the plot of land to be valued. §15 (1), 3rd and 4th sentences, shall be applied accordingly."*

Definition

BauGB §196 (1) defines the guideline land value as the average geographical value of land in areas with substantially the same situation and uses.

> *"(1) An assessment shall be made on the basis of purchasing price data of average local land values for each section of the municipal territory, taking due account of varying degrees of development (standard land values)."*

These refer to 1 m^2 of undeveloped land (see Bischoff, B., 2008, p 505 et seq.).

Priority

Although the law, as stated in ImmoWertV §16 (1), basically gives the valuer the option of determining the land value of a valuation property on the basis of individually determined comparative prices or on the basis of guideline land values, the case law gives priority to valuations based on a direct comparison of purchase prices (for example, ruling by the Fed-

eral Supreme Court (BGH) dated 17th May 1991 and ruling by the Federal Tax Court (BFH) dated 8th September 1994).

Guideline land value map

Guideline land values are usually reported annually in what are referred to as guideline land value maps published by the land valuation boards and are also notified to the local tax authorities. Anyone who can demonstrate they have a legitimate interest is entitled to access this information (BauGB §196 (3)). Guideline land values are now available online via the BORIS land value information platform which is available free-of-charge in most federal states (see Fig. 15).

Fig. 15 | The BORIS guideline land value information system in Lower Saxony

Source: www.gag.niedersachsen.de

The guideline land value is not the same as the market value

In many cases, the valuer must decide upon which guideline land value to base a valuation. It is critically important that the guideline land value corresponds with the characteristics of the valuation property. The guideline land value may on no account be treated as identical to the market value of a specific property, as this will usually have other attributes which the notional reference plot will not have.

These characteristics are also shown in the guideline land value map. ImmoWertV §15 (1), 4th sentence, stipulates that differences between the characteristics of the valuation proper-

ty and the reference plot must be taken into account by way of upward or downward adjustments, or in some other suitable manner (see also Holzner, P./Renner, U., 2005, p 407 et seq.).

Determination of guideline land values by land valuation boards

The determination of guideline land values by land valuation boards is governed by ImmoWertV §10. Valuations should be undertaken *"in automated form based on official GIS data"* (ImmoWertV §10 (3)).

The following procedure is stipulated:

> *Guideline land values (BauGB §196) shall be determined primarily using the comparison approach (§15). In the absence of a sufficient number of comparative prices, the guideline land value may be determined using deductive methods or in any other suitable and comprehensible approach. Guideline land values must be expressed as a sum in euros per square metre of land."* (ImmoWertV §10 (1))

In addition to the requirement to show guideline land values in euros, ImmoWertV §10 (2) also stipulates which other qualifying factors that determine value must be included:

> *"Of the characteristics which determine the guideline land value, the development status and type of use should be shown. The following should also be shown:*
>
> 1. *in the case of land used for agricultural purposes, an appraisal of the quality of soil, as a farmland or grassland index rating;*
> 2. *the servicing status of land which is ready for development and – depending on its relevance to the value – the degree of physical use, size, depth or width of the plot;*
> 3. *in the case of formally designated redevelopment areas (BauGB §142) and formally designated urban development areas (BauGB §165), the condition of the plot to which the guideline land value refers. Either the condition of the plot before work on the relevant measures begins or after completion of such measures must be shown.*
>
> *If the guideline land value covers various different types or dimensions of use, these should also be shown."*

BRW-RL Guidelines

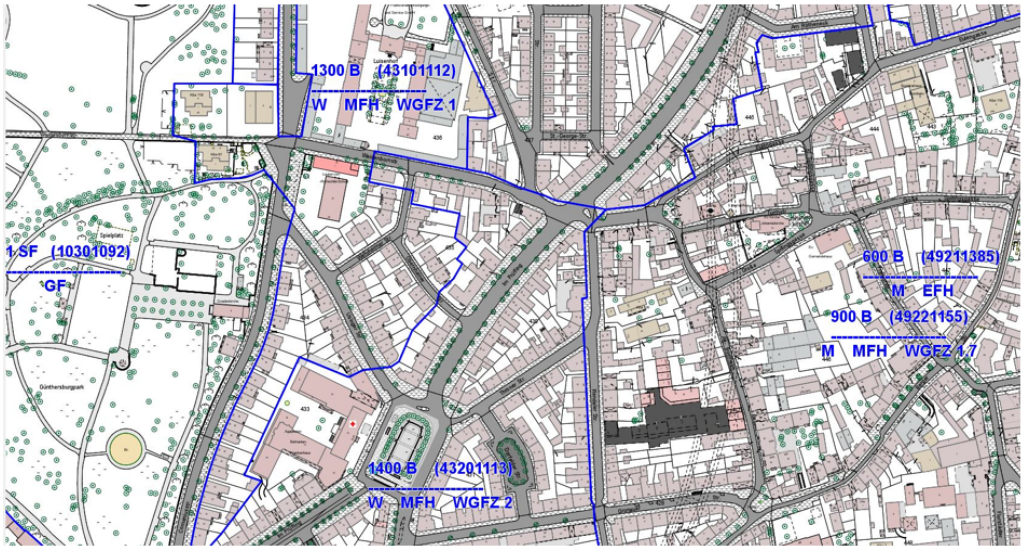
The BRW-RL Guidelines are intended to ensure, from the legislature's point of view, *"the determination and presentation of land values in accordance with uniform and fair market principles"*. Besides instructions on the establishment and provision of guideline value zones, the guidelines also contain instructions on the recording of significant value-influencing site characteristics.

As a rule, the boundaries of the guideline land value zone and all descriptive information on the guideline land value can be seen in the guideline land value map (see Fig. 16). The representation in the guideline land value map is based on the requirements in BRW-RL.

Critical appraisal of guideline land values

The goal of being able to derive average locational values for both developed and undeveloped plots with a well-defined level of accuracy in accordance with BauGB §196 (1) must be regarded as ambitious. If there are not enough comparative purchase prices for undeveloped plots for a reliable statistical analysis, especially in built-up city centres, valuers must always question the guideline land values critically.

Fig. 16 | Section of the guideline value map for the city of Frankfurt am Main



Source: Land Valuation Board for the City of Frankfurt am Main

EXAMPLE

How can a realistic estimation of a "typical" land value "for the location" be made from three comparative prices in a guideline value zone measuring approximately 3 km × 3 km = 9 km² and agreed within the last twelve months, particularly when "typical" site characteristics are referred to?

It is true that the database can be enlarged, for example, by including weighted averages from purchase prices of less recent transactions or by using price index series for undeveloped (or developed) land derived from other local conditions. However, the more such data is used, the further one moves away from the basic idea of deriving it from current transactions in the relevant guideline land value zone.

If, on the other hand, a sufficient number of purchase prices is available for land with characteristics which are comparable in terms of value, it will be sufficient in most cases for the valuer to look at the purchase price register.

The valuer should therefore proceed carefully when selecting the data included when determining land value and, in case of doubt, should also be prepared to reject implausible guideline land values and rely on his or her own market experience. It may be some consolation that deficient (guideline) land values are usually corrected in the cost approach by the use of cost value factors which are also based on those values, to the extent that they are available, and that land values for investment properties with long remaining useful lives are not mathematically significant.

2.5 Determining the value of developed land

2.5.1 Determining the value of developed land using comparative prices

Condominium apartments

Condominium apartments are not classified as investment properties for valuation purposes

In the context of developed land, condominium apartments are the category of properties with the highest number of purchases and sales, and this type of building is therefore well-suited to the comparison approach. Although condominium apartments may occasionally be purchased as investments, for the purpose of determining market value they are not generally regarded as investment properties – contrary to the specific rules governing the determination of the mortgage lending value. This means that both the cost approach and the income approach are normally inappropriate for this category of property. Price comparisons are basically subject to the same principles as those which apply when determining the value of undeveloped land. The essential characteristics which influence the value of comparable properties must be recorded and compared with those affecting the value of the valuation property: in most cases, these are the location, size, age and fit-out specification of the property (the age of a building will usually provide reliable indications of the fit-out specification as long as it is typical for buildings of the same age).

Investment properties

Income approach applied in most cases

For property valuation purposes, investment properties are those properties whose market value on the local property market is reflected primarily, or perhaps with some qualifications, by the revenues which the property may potentially yield from letting or leasing rather than from operating income. This is why properties which are mainly acquired for owner occupation and/or are considered as being used by the owners themselves in accordance with local practice, i.e. properties which are not let out, should not normally be regarded as investment properties. Investment properties are usually plots of land on which are built multiple dwellings, mixed-use properties or properties used purely for business purposes, including for the leisure sector, where such use is not governed by public law and where the leisure facilities can be operated on a for-profit basis. Investment properties also include plots of land with warehouses, storage areas which are not suitable for building on, petrol stations and land containing commercial structures which can easily be converted for alternative uses. On the other hand, land containing massive factory structures or building structures for special uses, such as in the steel and mining industries, which are used mainly by owners themselves and which are appropriate only for their original use, do not count as investment properties at all, or only with qualifications. Investment properties are usually valued by applying the income approach.

Determining value using comparable factors

At least in the case of buildings which are used solely as multiple dwellings, the comparison approach can be used in addition to, or instead of the income approach by multiplying the gross annual income derived from the valuation property by a comparable factor for investment properties which are, or can be used in the same way. This is often referred to in

jargon as a multiple of the gross annual income. This method is explicitly provided for in ImmoWertV §13.

Single- and two-family dwellings

Cost approach applied in most cases

Houses which do not meet the definition of multi-unit dwellings (such as single- and two-family dwellings, and three-family dwellings in conurbations where land prices are very high) are, as outlined above, not usually regarded as investment properties, because such properties are held primarily for owner occupancy or use rather than for letting. As a result, the income approach and revenue-based price comparisons are inappropriate as methodologies. The cost approach is usually adopted when valuing properties of this type in Germany.

Feasibility of price comparisons

Outside Germany, the comparison approach is the standard approach for the valuation of single- and two-family dwellings. In Germany too, there is a clear tendency towards an increased use of the comparison approach as an alternative or in addition to the cost approach when comparing identical or similar properties on the local property market (type of building, area structure, age, condition and fit-out specification of the building) where properties are actually bought or sold.

2.5.2 Determining the value of developed land using comparable factors pursuant to ImmoWertV §13

Problems of comparability

It was noted in the introduction that the comparison approach can also, in principle, be used to determine the value of developed land. The process itself becomes more complex given that the criteria for the comparability of the site are joined by criteria concerning the comparability of buildings. In general, building age, type, size and state of repair must all correspond. The unique character of a property is the reason why there may not be a sufficient number of comparable properties available. The individuality of real estate as a "product" often makes a direct comparison very difficult or impossible to compare prices. At best, a direct price comparison is possible in areas in which almost identical buildings have been erected. However, prices cannot simply be adopted in these cases either; values must always be checked to ensure that prices paid in the past can still be realistically achieved on the current property market. For this reason, direct price comparisons are seldom used for developed real estate.

Alternative comparable factors

The law as set out in ImmoWertV §15 (2) reflects this situation by stipulating the use of comparable factors for valuation purposes.

> *"Appropriate comparable factors can be used in addition to, or in lieu of comparative prices to determine the comparative value of developed land. The comparative value is then determined by multiplying the annual income or other reference unit for the valuation property by the comparable factor. Comparable factors are suitable whenever the characteristics of the underlying property correspond sufficiently with the characteristics of the valuation property."*

ImmoWertV §13 describes the method used to determine the comparable factors:

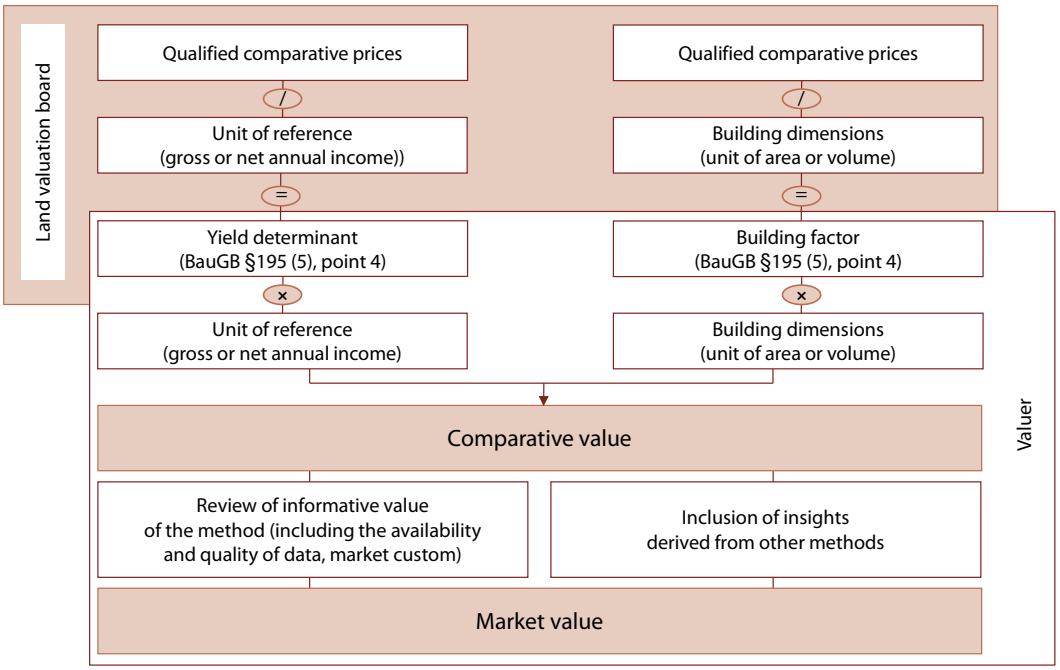
> *"Comparable factors (BauGB §193 (5), 2nd sentence, point 4) are intended for the purpose of determining comparative values for developed land. Comparable factors must be related to the achievable market annual income (yield determinant) or any other appropriate unit of reference, including a unit of area or volume for the building (building factor)."*

Two variants: yield determinants and building factors

There are therefore two different types of comparable factors:

- yield determinants, and
- building factors (see Fig. 17)

Fig. 17 | Application of yield determinants and building factors



Source: Simon, T., 2010

General calculation

In mathematical terms, the comparable factors are arrived at by determining the ratio of the purchase price achieved to the corresponding unit of reference (capital values per m^2). These are empirical factors. ImmoWertV §15 (2), 2nd sentence stipulates how the comparative value must be determined with the aid of comparable factors:

> *"The comparative value is determined by multiplying the annual income or other reference unit for the valuation property by the comparable factor."*

Yield determinants

Definition

Yield determinants are factors which can be calculated from purchase prices and achievable market income. The ratio of purchase price and income is derived from a large number of real estate transactions involving comparable properties. The result is a representative and average yield determinant. This is normally shown relatively vaguely, as can be seen in Fig. 18.

Calculation

ImmoWertV does not stipulate whether yield determinants should be calculated on the basis of annual net or gross incomes. However, the use of yield determinants for the plot in its entirety only makes sense if the value of the land as a proportion of the overall value of the comparative plots is consistent (for example, in the case of rented condominium apartments where the value of the land as a proportion of the overall value is low). The comparative value is then determined by multiplying the annual income from the valuation property by the comparable factor determined in accordance with ImmoWertV §13.

Fig. 18 | Yield determinants (gross income multipliers) derived from purchase prices for multiple dwelling units refurbished after 1990 with a less than 20% commercial component

Purchase prices with a less than 20% commercial component					
City district	No. of sales	Means			
		Purchase price (€/m²)	Rental income (€/m²)	Gross income multiplier	Vacancy rate %
Centre	9	1,633	6.30	28.3	5.7
Northeast	10	1,203	4.96	23.3	2.6
East	17	1,208	4.66	25.6	6.6
Southeast	21	1,256	5.39	25.0	2.1
South	16	1,279	5.84	25.0	3.5
Southwest	16	1,322	5.24	26.6	0.5
West	–	–	–	–	–
Old West	23	1,099	4.88	23.6	4.8
Northwest	6	1,452	5.83	24.2	2.4
North	26	1,352	5.37	28.2	2.9
City total	**144**	**1,280**	**5.30**	**25.7**	**3.5**

Source: 2019 Property Market Report Leipzig, published by the Land Valuation Board

The use of yield determinants can be problematic, for example, for older buildings or very high land values (≥ 50% share of market value).

EXAMPLE

The Land Valuation Board for the City of Hannover has derived gross annual income multipliers from a sample of 417 purchases of multiple-dwelling units. An average age of around 40 years produced an average gross annual income multiplier of 11.5. The gross income multipliers in the overall sample ranged from 8.4 to 17.4. The multiple-dwelling unit being valued generates an annual and achievable market gross income of €40,000. Multiplying the yield determinant by the gross annual income produces a comparative value of €460,000 (within a range between €336,000 and €696,000).

Characteristics

A characteristic of yield determinants is that they are empirically determined multipliers. Numerous specialist publications, particularly those issued by broker associations, regularly publish yield determinants. The comparable factor is a mean value which relates to a notionally comparable property of average quality (in terms of location, usability, condition etc.). In the event of the characteristics of the valuation property differing from those of the notional property, using only comparable factors and no other inputs can lead to incorrect results. This method

Gross annual gross × yield determinant = market value

may be regarded as both an income-oriented price comparison and a quick income value method which can be usefully applied whenever the various influencing factors (such as operating expenses, remaining useful life and land value) do not fundamentally differ from each other, and when corresponding properties can be found on the market fairly frequently.

Problems

It is essential to remember when determining value on the basis of yield determinants that the published factors are usually insufficiently specific. In many cases they do not differentiate between groups of properties or remaining useful lives. This problem is compounded by the necessary but often difficult task of differentiating between investment and non-investment residential properties in accordance with local market practice. A single-family dwelling is rarely, and a two-family dwelling is seldom an investment property because the focus is on owner occupation and not on letting the property for profit. Three-family dwellings could potentially be investment properties in predominantly rural areas but are unlikely to be so in conurbations, particularly in urban centres. Prevailing practice on the local property market is, as always, crucial to a qualified opinion.

Primarily used to ascertain plausibility

The comparison approach using comparable factors outlined here is therefore a very good way of assessing the plausibility of the market value arrived at using the income approach.

Building factors

Definition

The second comparable factor, the building factor, is defined in ImmoWertV §13. The concept of "building factor" has been chosen to allow a unit of space or area in a building to be selected as a unit of reference. The law gives valuers a discretion to base their calculations on any kind of unit of reference they wish. As an example, Fig. 19 shows building factors related to the residential area in square meters for refurbished multiple dwelling units.

Fig. 19 | Building factors per m² of residential area for refurbished multiple dwelling units

Purchase prices for renovated multiple dwelling units						
City district	Sub district		No. of sales	Purchase price, € per m² residential/usable area		
	No.	Name		Minimum value	Maximum value	Mean
Centre	0	Centre	–	–	–	–
	1	Centre East	2	2,519	2,774	2,647
	2	Centre Southeast	–	–	–	–
	3	Centre South	4	994	2,345	1,694
	4	Centre West	1	1,829	1,829	1,829
	5	Centre Northwest	5	1,657	2,724	2,248
	6	Centre North	2	1,838	2,888	2,363
		Total	**14**	**994**	**2,888**	**2,133**

Source: 2019 Property Market Report Leipzig, published by the Land Valuation Board

Calculation

Arithmetically, building factors are arrived at by determining the ratio between the purchase price achieved and the volume or the residential area and usable area of the relevant building. The building factors are determined as average and representative values from a large number of real estate transactions in a particular segment. In order to arrive at a comparative value using building factors, the building factor is multiplied by the building volume or the residential or usable area of a valuation property.

EXAMPLE

In 2009, the Land Valuation Board for the City of Hannover assigned a building factor of €2,110/m² residential area (including land value and a garage) to detached single- and two-family dwellings of solid construction in the state capital of an average age of 10 years and in an average quality residential area. The stated value refers to a typical residential area of 140 m², average fit-out specification and a site area of 700 m². The valuation property is basically comparable with these valuation characteristics, despite having a different site area, of around 1,000 m². Based on the property market report a corrective increase of €100 per m² of residential area should be made. The comparative value is therefore obtained by multiplying the adjusted building factor by the residential area:

$$140\ m^2 \times (€2{,}110 + €100) = €309{,}400 = \text{rounded to } €310{,}000.$$

Whilst in this case it is possible to make an adjustment to reflect the specific characteristics of the land, using the building factors as comparative parameters to check the plausibility of the valuation becomes problematic, for example, in the case of older buildings with a short-

er remaining useful life and very high land values due to their location. In addition, yield determinants, multipliers and building factors sometimes have broad ranges which are only of limited informative value, even if a mean value/median is given and whose accuracy is limited if accepted without critical examination. Also, the particular characteristics of the valuation property may make the use of such factors obsolete. They are nevertheless helpful as an instrument for reviewing and appraising the feasibility of value statements obtained by other means.

2.6 Determining market value

Situation on the property market

As has been shown, the comparison approach is a highly market-focused approach. The comparative value determined in this way should be almost identical to the market value. However, this is only the case if all the data used precisely reflects the situation in the property market. If the situation in the property market has not yet been sufficiently considered, it is possible to arrive at the market value by adjusting the comparative value upwards or downwards as appropriate (ImmoWertV §8 (3)). If there is no evidence that inadequate account has been taken in the comparison approach of characteristics which are relevant to a property's value, and if other procedures have not provided contrary results, the comparative value will be identical to the market value.

Several approaches

ImmoWertV §8 (1) also specifies that the market value of a property must be determined using the comparison approach, the income approach, the cost approach or a combination of these approaches. If several approaches are used for this purpose, the market value is determined on the basis of the results delivered by all the approaches applied, taking account of the informative value of each (ImmoWertV §8 (1), 3rd sentence). The resulting comparative value can then also be rounded up or down (see Fig. 20).

Fig. 20 | Rounding rules for current value (suggestion)

As showing mathematically exact market values would give a false impression of precision, the sums determined are usually rounded up or down.	
Market value < €10,000	rounded to the nearest 100
€10,000 < market value < €500,000	rounded to the nearest 1,000
€500,000 < market value < €1,000,000	rounded to the nearest 10,000
Market value < €1,000,000	rounded to the nearest 100,000

Source: Own presentation

Solution to the "Initial case study"

The Immo AG employee discovered that the comparison approach is a suitable and plausible means of determining property values. The approach can in principle be applied to both developed and undeveloped real estate. Having said this, in practice, it is usually the value of undeveloped land which is determined. Comparative data is required when applying the comparison approach in practice. Comparative data includes land prices, guideline land values and rents for residential or commercial properties. According to ImmoWertV, other data such as price index series, conversion coefficients or comparable factors must also be included in the valuation.

When using the comparison approach, care must be taken to ensure that there are sufficient suitable comparables. If this is not the case, it may be possible to use conversion factors which take the qualitative characteristics of the valuation property into account.

When working with guideline land values, their conditions of use must be considered. The uncritical adoption of guideline land values derived from property market reports produced by land valuation boards should be avoided. Account must be taken of differences between the characteristics of the valuation property and the characteristics of the underlying reference plot.

2.7 Chapter 2 activities

Activity 1

What different approaches can be taken to determine the market value of undeveloped land?

a) Determining the value using yield determinants
b) Direct comparisons of price
c) Differentiated comparisons of price
d) Indirect comparisons of price
e) Determining the value using comparable factors

Activity 2

What criteria are applied in price comparisons to comply with official regulatory requirements concerning comparability?

a) How close in time to the valuation date the property transaction giving rise to the comparative prices took place
b) Relationship with the purchaser
c) The characteristic of the comparable property
d) Information in property market reports published by land valuation boards

Activity 3 What is meant by the guideline land value?

a) The average geographical value of land in areas with substantially different situations and uses
b) The exact value of a property in a geographically separate part of a municipality which must be applied when determining value
c) The average geographical value of land in areas with substantially the same situations and uses

Activity 4 How is the building value calculated arithmetically?

a) As the product of the purchase price achieved and the volume, residential or usable area of a building
b) As the sum of the purchase price achieved and the volume, residential or usable area of a building
c) As the ratio of the purchase price achieved to the volume, residential or usable area of a building
d) As the ratio of the purchase price achieved to the income produced by a building

3 Cost Approach

Initial case study

The Immo AG employee is asked by the head of the valuation department to check a valuation report for a single-family dwelling which is coming up for sale. The company wishes to buy the property and wants to have some idea of what the purchase price should be.

LEARNING OUTCOMES

By the end of this chapter you should be able to

- describe how the cost approach is applied;
- identify the area and volume factors involved in determining cost;
- discuss and determine the standard costs of construction;
- discuss correction factors and apply them in the calculation;
- distinguish and determine the components of the building;
- determine deprecation in value due to age and wear and tear, as well as building defects and structural damage, and include these factors in the valuation process; and
- understand and make appropriate use of adjustments to market value in the cost approach.

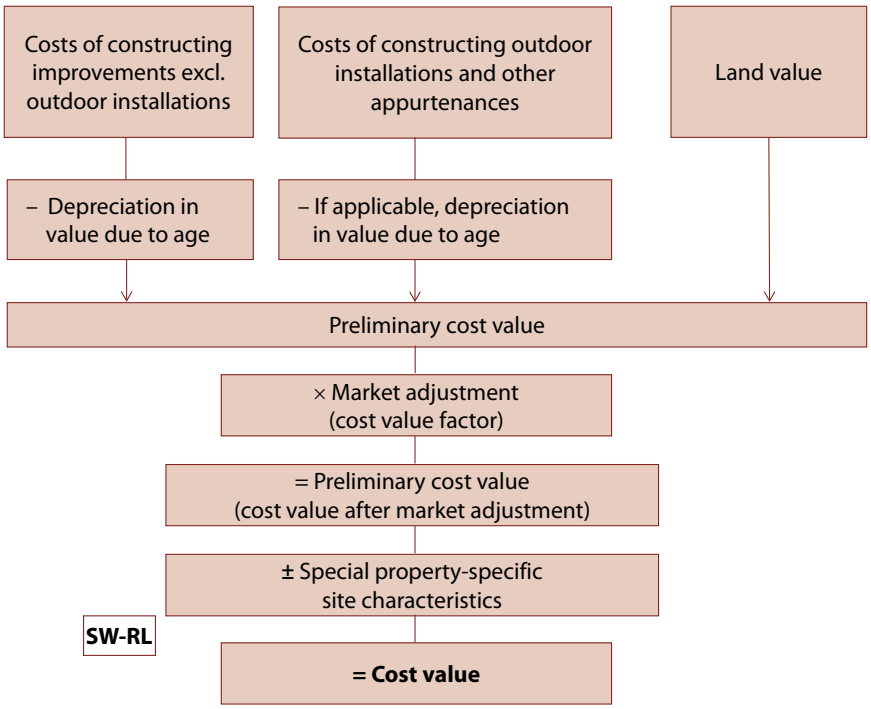
3.1 Structure of the cost approach

Tripartite approach

The notion of cost is approached from three different angles. Age-related depreciation is based on the costs of constructing the building, empirical factors/costs of construction for the outdoor installations and other appurtenances on the valuation date. These factors are applied as upward or downward adjustments, adding in the separately determined land value to determine the preliminary cost value. The preliminary cost value is adjusted on the basis of the market situation to reflect market conditions to determine the market-adjusted preliminary cost value. As the next step, any other property-specific site characteristics are determined and quantitatively considered as an upward or downward adjustment to value. The cost value thus determined is generally the market value derived from cost value.

The following chart illustrates this process, which is explained in greater detail in the SW-RL Guidelines (see Fig. 21).

Fig. 21 | Cost approach – structure and procedure



Source: vdp, based on the provisions of SW-RL §3 (3)

SW-RL Guidelines

The objective of the SW-RL Guidelines is to *"ensure the proper determination of the cost and market value of real estate in accordance with uniform and fair market principles"*. It contains, inter alia, implementation provisions for determining the standard costs of construction of buildings, outdoor installations and other appurtenances, the relevant gross floor area, age-related depreciation and the general and property-specific market adjustment, and for deriving the market value. In their annexes, the guidelines contain the standard costs of construction tables (NHK 2010) (see p 76 et seq.) and a revised version of the recommendations on total useful life (Annex 3).

Binding force of the guidelines

As with all other valuation guidelines, SW-RL is a federal administrative guideline which has no independent binding authority apart from internal official assignments. Despite their purely advisory character, because of their overarching significance, they are applied widely by land valuation boards and property valuers and in case law. In some federal states, the guidelines are followed by exceptions, so they are not applied like-for-like. The guidelines also contain options for individual methodological situations, such as taking account of outdoor installations. Ultimately, this leads to a heterogeneous application of the guidelines in Germany.

Conclusion

In principle, a valuer should always begin with an awareness of his or her responsibility towards the task at hand, namely the determination of a plausible market value which is also comprehensible to third parties, and should not in principle submit to a systematic valuation method dominated by arithmetic, where he or she doubts the results or the intermediate steps.

3.2 Quantitative components: area or volume dimensions

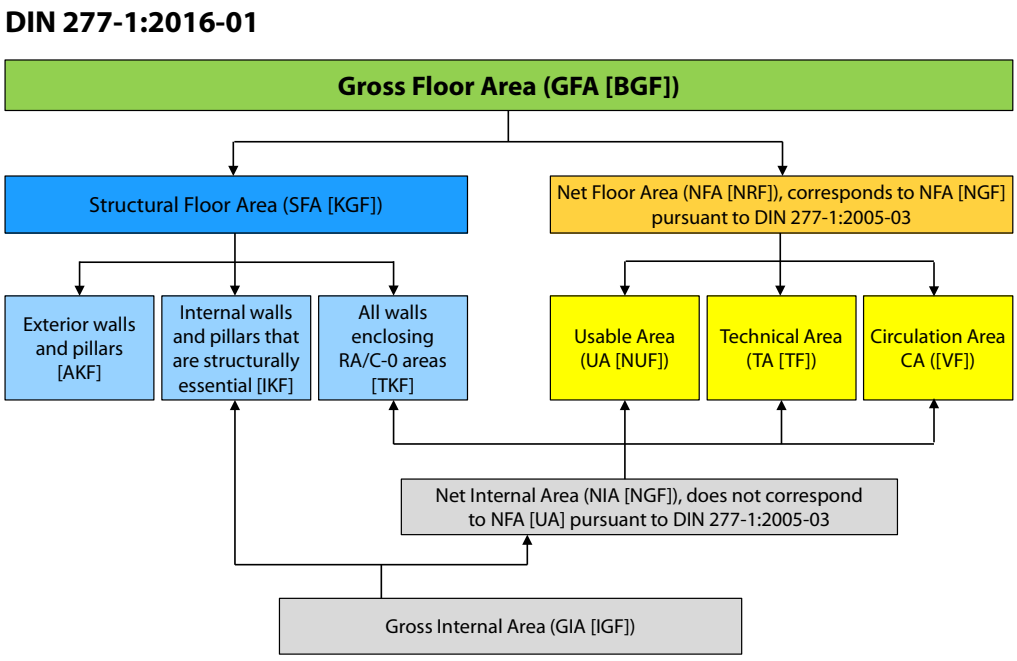
Factors of area and volume

The actual reference values must be available in order to calculate the costs of constructing the valuation property. Various standards specifying definitions of area and volume, as well as rules for calculation, are used in Germany (see also Bottmeyer, M., 2008, p 91 et seq.). Currently, there appears to be a trend towards using area as the reference unit (for example, in the standard costs of construction table (NHK 2010), or in the Building Cost Index (BKI) published by Baukosteninformationszentrum Deutscher Architektenkammern GmbH). The most important reference unit for area is gross floor area (GFA). Previously used factors such as gross volume or enclosed space have largely ceased to be used, except in one or two exceptional cases in the commercial sector.

Definition of GFA in DIN 277

DIN 277 "Surface areas and building volumes in construction" ensures a uniform determination of areas. The DIN 277-1 area classification dated January 2016 is shown by the Bavarian Chamber of Architects in Fig. 22; examples of some modifications compared with the older 2005 DIN can also be seen there.

Fig. 22 | Area classification according to DIN 277

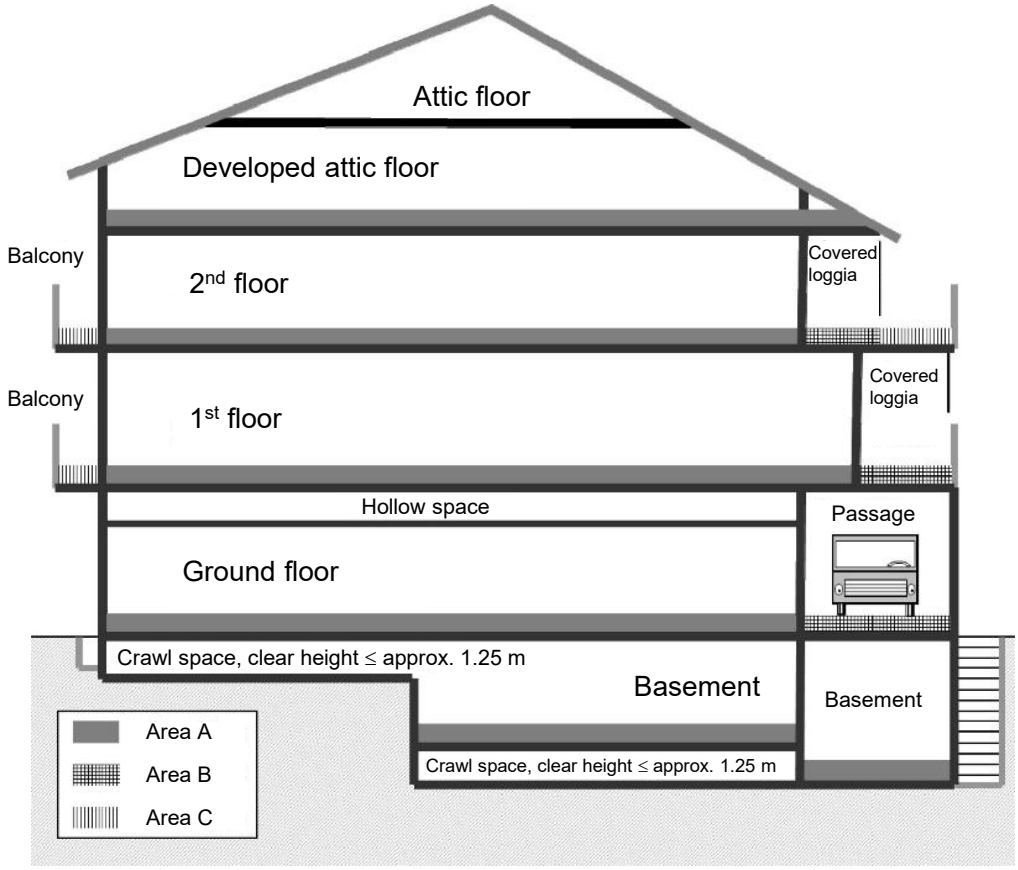


Source: Leaflet on areas, Bavarian Chamber of Architects, as at 01/2016

As the cost parameters of NHK 2010 refer exclusively to gross floor area, the SW-RL Guidelines contain information on how gross floor area is determined in accordance with the model.

In the guidelines, the external areas of the building were divided into three different areas based on the 2006 DIN 277. These areas are marked on the following illustration (see Fig. 23), which is taken from SW-RL.

Fig. 23 | Gross floor areas as defined by the SW-RL Guidelines



Source: SW-RL

Area A is the area of the building which is roofed over and enclosed on all sides to full height (i.e. room-height walls).

Area B covers all areas that are also roofed over, but where not all the sides are enclosed to full height.

Non-roofed areas of a building, such as uncovered roof terraces, should not be considered in the gross floor area.

According to the SW-RL Guidelines, Area C and a building's balconies, even when they are roofed over, are not included in the gross floor area. The same applies to so-called crawl space and pitched roofs with a clear height of < 1.25 metres.

Calculation of Area C not covered by NHK

However, the non-roofed Area C (roof overhangs do not count as roofed areas) is included in the DIN 277 definition as part of the gross floor area. This presents a calculation problem given that the costs quoted in NHK 2010 relate only to Areas A and B. Area C is not covered

by standard costs of construction. The reasons given in law is that non-roofed spaces are rare in any case (for example, balconies under a roof overhang) and that this area is negligible in terms of relative cost.

In practice, valuations usually omit Area C when measuring gross floor area. This area must be deducted from existing GFA calculations. This means that balconies or similar Area C structures are normally considered to be parts of the building which must be considered separately.

Pitched roofs

In accordance with SW-RL §4.1.1.4, areas under pitched roofs are not counted towards gross floor area, but are added to the costs of construction, provided that the attic floors have been converted for use and are normally regarded as a positive characteristic in terms of value.

Application of gross areas of attic floors

SW-RL §4.1.1.4 also specifies which gross areas in pitched roofs are to be counted towards the gross floor area for the purposes of the cost approach. The usability of the space in pitched roofs is recommended as a criterion:

- In buildings with flat roofs or low-pitched roofs with a clear height of less than approx. 1.25 metres, the attic floor cannot be used and so the gross area of the attic floor is not considered.
- Attic floors with a clear height greater than approx. 1.25 metres and lower than approx. 2.00 metres are referred to in the guidelines as "restricted-use" and included in the gross floor area only if the attic floor is suitable for use in principle, has a fixed ceiling and is accessible (SW-RL §4.1.1.4 (6)). A more precise definition of the term "accessibility" has not been provided, and so, as before, a "fixed staircase" is to be assumed when considering the practical implementation.
- Gross areas of fully usable attic floors are generally included in the gross floor area.

Problems with the indirect measurement of GFA

It is important to note that, whilst it is possible in principle to measure GFA from a property's residential or usable area, this may only be done to check the plausibility of a calculation. In this context, reference is again made to the amended measurement standards (DIN, II. BV, WoFlV). Property valuers ultimately have no choice but to use construction drawings or an official measurement to measure the GFA.

⇨ See also the "Principles of Valuation" module book.

3.3 The components of value: costs of constructing buildings and other improvements

3.3.1 Costs of constructing buildings

Three elements

The cost approach divides real property into three elements: the building, the special operating/other facilities and the outdoor installations. The most important element in terms of value is usually the building itself. As the structure on the land, the building is the key asset at the heart of valuations undertaken using the cost approach. Special operating facilities,

as defined in ImmoWertV, are items which usually constitute part of the building but are not part of its basic configuration. In residential buildings these may include refuse disposal systems, lifts, telephone systems and so on. In the commercial field, these operating facilities may include cold rooms, checkout facilities or tank systems. Outdoor installations are all those structural components which are located above or below the land, such as pavements, tarmac or paved open spaces, walls, fences, drains and ducts, electrical cables, gas or water pipes leading to the building etc. (see also Holzner, P./Renner, U., 2005, S. 407 et seq.).

Incidental building costs

Incidental building costs must always be included in the value of the improvements as at the valuation date. Incidental building costs include all the design and approval costs incurred prior to or during construction work, including charges for (planning) permission or fees for architects, structural engineers and/or energy consultants.

The aim of the first step in the procedure is to determine the cost of constructing the improvements on the valuation date.

Standard costs of construction (NHK)

The cost of constructing the building is calculated from what are referred to as the standard costs of construction (NHK). In this context, "standard" refers to generally applicable, customary costs of construction. The actual cost of constructing buildings is usually influenced by an array of factors, such as surcharges for night shifts or work on public holidays, work contributed by the owner, special purchasing terms etc. If all these cost factors were in fact to be taken on board when determining the costs of construction, the result would be a subjective value derived from a highly specific and individual building project. However, market value is by definition a factor which should be untainted by subjective influences such as those arising from personal relationships. For this reason, objectified building costs are used to determine the cost of constructing the structure. These objectified building costs represent average costs of construction which are determined on a differential basis for different types of building. This is done by using either regionally specific standard costs of construction provided by land valuation boards or national standard costs of construction tables such as NHK 2010, and increasingly the BKI Building Cost Index for the respective years.

NHK 2000

The most recent version of the standard costs of construction was published in 2010 (NHK 2010). The previous set of figures, NHK 2000 (for the year 2000), were issued by decree on 1st December 2001. Prior to that, there were standard costs of construction relating to 1995 and 1913/14.

No regionalisation

In contrast to previous editions of the standard costs of construction tables, no regionalisation factors such as for federal states, town sizes and economic adjustment are specified in NHK 2010. The use of federal averages therefore makes it necessary for all corrections for regional costs of construction and market level to be included in the cost value factor under ImmoWertV §14 (2), point 1.

GFS as reference unit

The above explanation of how area is measured has already touched on the relationship between standard costs of construction and the definition of space itself. NHK 2010 refers only to gross floor area (GFA). NHK 2010 is part of the SW-RL Guidelines and is available in the literature in this field. It can also be downloaded free-of-charge from the BMVBS website (www.bmvbs.de).

Calculation

The costs of constructing a specific property are calculated by multiplying the applicable GFA in m^2 with the empirical values for the relevant unit and basis year. This calculation produces an average cost of constructing the valuation property in relation to the general economic factors pertaining in 2010. As the valuation date is seldom 2010, the actual figures must be adjusted to take account of changes in prices up to the applicable valuation year. This is done by applying the Building Cost Index. Upward adjustments are made for structures which are not included in the GFA or in the enclosed space. Account must also be taken of incidental building costs. These are stated on the NHK technical data sheets.

3.3.1.1 Quality standards

Fit-out specification criteria focused on the individual building components

The systematisation criteria used for fit-out specification standards are the various building components. Façades, windows, roofs, plumbing and fixtures, wiring etc. are key fit-out specification criteria. To classify the standards, NHK 2010 classifies detached single and two-family dwellings, and semi-detached and terraced houses into five standard levels 1 to 5 (1 = simplest standard to 5 = complex standard). All other building types must make do with the three levels based on BKI (BKI designation: simple, average, high standard). The classification by standard must take account of the fact that the fit-out specification criteria, which are focused on building components, generate costs to different extents.

Weighting standards

The fit-out specification criteria are weighted. Furthermore, standards which are not included in the table (such as those that are particularly exclusive, or that do not meet state-of-the-art technological standards) can be taken into account by increasing or reducing the standard costs of construction.

CASE STUDY (continued)

The value of a detached single-family dwelling built in 1984 with a basement, ground and first floors and non-converted attic must be determined. The building has a gross floor area of 400 m^2. Using criteria based on the building components such as façade, windows, roof, plumbing and fixtures etc., the property is classified as lying 60% within level 3 and 40% within level 4 of Building Type 1.12 NHK 2010. This corresponds to a weighted standard level of 3.4 or 0.6 × €730/m^2 GFA + 0.4 × €880/m^2 GFA = €790/m^2 GFA.

3.3.1.2 Indexation

Building Cost Index

The determined value of €567/m^2 represents the average costs which would be incurred if the property, which was built in 1984, was rebuilt in Germany in 2010 as a functionally equivalent new building. The changes in prices which have occurred between 2000 and the valuation date must be considered using the Building Cost Index. The Building Cost Index reflects the relative change in prices affecting the cost of constructing buildings. The index can be obtained from the Federal Statistical Office or the statistical offices of the individual federal states. The relevant specialist literature also publishes building price indices on a regular basis.

The SW-RL specifies in §4.1.2 that the Building Cost Index published by the Federal Statistical Office must be used for adjusting construction costs.

CASE STUDY (continued)

The valuation date is 1st February 2019. Initially, the Building Cost Index for 2010 is used to evaluate standard costs of construction (NHK 2010). This is not 100, as the basis for the Building Cost Index since August 2008 has been fixed at 2015 = 100. The index value sought for the year 2010 is 86.8 (Basis 2015 = 100) (see Fig. 24). The applicable Building Cost Index on the valuation date is from the fourth quarter of 2018 (November) and is 111.8. This is higher than in 2010 and the standard costs of construction taken from the NHK 2010 table (selected: €790) must be adjusted as a result:

€790 × (111.8 / 86.8) = €1,017.53 = rounded to €1,020

The adjusted costs of construction on the valuation date are rounded to €1,020.

Based on the existing gross floor area of 400 m^2, the costs of constructing the building including incidental building costs (see §4.3.4) are calculated as follows:

400 m^2 GFA (a, b) × €1,020/m^2 GFA (a, b) = €408,000

Fig. 24 | Building Cost Index issued by the Federal Statistical Office

Price indices for the construction of new residential and non-residential buildings, including VAT; 2005 = 100				
Year/Month	Single-family dwellings	Multiple-family dwellings	Office buildings	Commercial buildings
2018 A	110.9	109.9	110.2	110.2
2017 A	107.8	105.3	105.5	105.5
2016 A	103.5	102.1	102.2	102.1
2015 A	100.0	100.0	100.0	100.0
2010 A	86.8	90.1	89.8	89.7
2005 A	73.6	79.1	78.0	77.2
2019 February	115.1	113.4	113.7	113.9
2018 November	111.8	111.5	111.7	111.9
2018 August	111.4	110.6	110.9	111.0
2018 May	110.2	109.2	109.5	109.5
2018 February	110.0	108.2	108.5	108.5
2017 November	108.5	106.4	106.7	106.8
2017 August	108.3	105.7	105.9	105.9
2017 May	107.5	104.9	105.1	105.1
2017 February	107.1	104.0	104.2	104.1
A = Annual average				

Source: Federal Statistical Office, – Volume 17, Series 4 (Price Indices for the Construction Industry); refer also to www.gug-aktuell.de

New Building Cost Index 2015 = 100

Every five years, the Federal Statistical Office converts the index series for construction services prices to a new base year, when methodological improvements (e.g. in the calculation procedure) and an updated weighting formula are normally introduced (see Fig. 24).

Further index series

There are other index series in addition to the Building Cost Index, such as those produced by the statistical offices of the federal states. In practice, however, these are seldom used in valuation practice.

The SW-RL Guidelines themselves address the lack of regionalisation in the Federal Building Cost Index. §4.1.2 states:

> *"The costs of construction determined from the cost parameters of NHK 2010 must be related to the valuation date. For this purpose, the price index for the construction industry published by the Federal Statistical Office (Building Cost Index) current at the valuation date and appropriate to the type of building must be used, with the appropriate base year. Using the Building Cost Index also takes account of any changes in value added tax that may have occurred."*

3.3.2 Costs of constructing special operating facilities

Special consideration

Normally buildings contain various special operating facilities. These may, for example, include swimming pools, alarm systems, building telephone systems, vault facilities, saunas, escalators, lifts for the elderly and sprinklers. These are usually built in as additional fixtures and fittings at the request of the building owner and are consequently not part of the costs of actually erecting the building. Standard costs of construction do not include the costs of these fixtures and fittings either. They must therefore be valued separately (including from the cost of construction).

Standard or actual costs of construction

The costs of constructing special operating facilities are normally worked out in much the same way as the costs of the building, i.e. standard costs of construction are used as the average cost of constructing special operating facilities. However, no such standard costs of construction exist. This means that the only alternative is to use the actual cost of such building components. Comparative inquiries placed with several manufacturers or suppliers, wholesalers or retailers may provide reference values. Indexing using the Building Cost Index is not usually necessary given that the prices concerned are current prices.

3.3.3 Cost of constructing outdoor installations

Outdoor installations not part of the standard costs of constructing the building

The external features – be they structural outdoor installations or landscaping elements – may have an impact on the value of a property. Examples of such outdoor installations include site boundaries in the shape of fences, walls and embankments. Paved access paths or driveways are also outdoor installations. Building work to prepare the land for development by installing drains, gas connections, electric or telephone cables also push up the costs of construction and must be included as part of the outdoor installations.

Standard costs of construction or empirical factors

Standard costs of construction are also determined when working out the value of outdoor installations. An alternative approach is to apply empirical factors, i.e. by quoting the costs of constructing outdoor installations as a percentage of the costs of constructing the building. This assumes that the value of the outdoor installations is proportional to the value of the building. In most cases, a flat rate of 3% to 5% is added to the costs of construction.

Standard met by the facilities	%
Exterior features meeting low-quality standards	3
Exterior features meeting average-quality standards	4
Exterior features meeting high-quality standards	5

Green spaces

Exterior features may be either outdoor installations or green spaces. The valuation of a property must usually consider whether a garden design or the planting around the property has an intrinsic value which enhances the value of the land itself, or whether their value is included in the land value. Normal bushes or trees are included in the value of the land. However, the value of the plants on the land must be reflected in the appraised value if they are of a superior type and quality. Examples include extensively landscaped areas with park-like character, mature trees, generously proportioned ponds, natural swimming pools etc. These features are normally shown as "other appurtenances".

CASE STUDY (continued)

A property's outdoor installations are built to an average specification. The value of the outdoor installations is taken into account by applying a flat rate increase in value of 4%. The cost of constructing the valuation property determined so far is €408,000.

Solution

	€408,000
€408,000 × 0.04	= € 16,320
Total	€ 424,320

3.3.4 Incidental building costs

Definition

DIN 276 defines incidental building costs as follows:

> *"Design and execution costs incurred on the basis of fee scales, charge scales or other contractual agreements."*

In Cost Group 700 et seq. incidental building costs include, for example, fees for architects or other specialist designers, charges for official permits, insurance premiums, interim financing costs, costs of building-related artworks and surveys. Incidental building costs are also defined in Annex 1 to II. BV §5 (5). Incidental building costs are not usually included in the standard costs of construction.

Incidental building cost levels

The difficulty in determining incidental building costs is that, where a property already exists, they cannot be broken down retrospectively into individual items. For this reason, they are usually expressed as a percentage of the costs of constructing the improvements. Depending on the building standard, this may be anything from 11% to 24% of the costs of constructing the improvements. In this context, the fit-out specification is of crucial importance. In general, the higher the costs of construction, the lower the percentage of incidental building costs, because not all of the latter depend directly on the costs of constructing the improvements.

NHK 2010

The incidental building costs in cost group 700 of DIN 276 included in NHK 2010 only include cost items 730 (architects' and engineers' services) and 771 (tests and approvals). They are shown as a percentage in each building data specification sheet but are already included in the cost parameters shown.

In contrast to the old NHK 2000 methodology, it is no longer necessary to consider additional incidental building costs, but many computer programs still require an input and it is therefore advisable to calculate them separately from the cost parameter and to state them separately.

CASE STUDY (continued)

According to the NHK 2010 data specification sheet, the incidental building costs are 17% of the costs of constructing the improvements and outdoor installations. This additional cost is already included in the costs of construction determined to date of €424,320.

The incidental building costs can be presented as follows:

Solution

€424,320 × (0.17 / 1.17) = €61,653

As indicated above, the calculation can initially be undertaken without considering the incidental building costs. For this purpose, these costs must be deducted from the NHK 2010 cost parameter. The following example uses unrounded values for comparison purposes:

Cost parameter excluding incidental building costs:	€1,020 / 1.17 =	€871.80
Costs of constructing the improvements:		
	400 m^2 GFA (a, b) × €871.80 €/m^2 GFA (a, b) =	€348,718
Outdoor installations:	€348,718 × 0.04 =	€13,949
Subtotal:		€362,667
Plus incidental building costs:	€362,667 × 0.17 =	€61,653
Costs of constructing the improvements and outdoor installations		€424,320

3.4 Age-related depreciation

Obsolescence or depreciation

Real estate depreciates with age due to technical and economic factors. Technical factors are determined by the specific use made of the property or by environmental factors. Economic factors include users' changing functional requirements placed on a building's fixtures, fittings and equipment. The standard costs of constructing a building must therefore be reduced according to age.

Definition

ImmoWertV §23 provides an explicit description of this deduction from the building value.

> *"The deduction from building value due to age is calculated according to ratio which the property's remaining useful life (§6 (6), 1st sentence) bears to the total useful life of the improvements. In most cases, the value of a property is assumed to depreciate at a constant rate. Assuming proper management and upkeep and use, the total useful life is the same as the usual economic useful life of the building."*

The relevant influencing elements are explained in more detail below. These are:

- the total useful life;
- the remaining useful life; and
- age-related depreciation.

3.4.1 Total useful life

Total economic useful life is critical

The total useful life of a building refers to the period of time in which the improvements can economically be put to their intended use. The total useful life is determined differently depending on the purpose – commercial or residential – to which the structure is put. Factors such as thermal insulation, room layout, floor-to-floor height or the standard of plumbing and sanitary installations all play a key role in the residential sector. Conversely, in the commercial field the key factors influencing the total useful life are the variability of rooms, flexible use and the level of service charges. Suggested total useful lives are provided in Annex 3 to the SW-RL Guidelines (see Fig. 25). The values cited are average values based on long-term observations of the market. The property is assumed to have been properly maintained and not to have any building defects. Explicit reference is made to the economic perspective and not to property's physical useful life. Given the dynamism of many property markets, it is best to use figures from the lower range (see Kleiber, W./Simon, J., 2007, p 1809 et seq.).

Conclusion

Contrary to previous practice in the calculation of total useful lives, SW-RL breaks real estate down into different asset types, primarily single- and two-family dwellings, and semi-detached and terraced houses ("cost approach properties"), and other property types. For the former, the total useful life is to be assumed as a function of the quality level determined. However, this approach – sensible in its own right – will probably lead to a situation in which land valuation boards will nevertheless have to determine a uniform total useful life due to the problems involved in deriving cost value factors. Since 2013, for example, the Lower Saxony land valuation boards have been consistently expecting a total useful life of 70 years.

Fig. 25 | Suggested economic total useful lives (SW-RL Annex 3)

Detached single and two-family dwellings, semi-detached and terraced houses			
	Quality level 1 Quality level 2 Quality level 3 Quality level 4 Quality level 5	60 years 65 years 70 years 75 years 80 years	
Multiple dwelling units		70 years	+/– 10
Mixed-use residential buildings		70 years	+/– 10
Retail buildings		60 years	+/– 10
Office buildings, banks		60 years	+/– 10
Community centres, halls/events locations		40 years	+/– 10
Kindergartens, schools		50 years	+/– 10
Residential homes, retirement and care homes		50 years	+/– 10
Hospitals, out-patient clinics		40 years	+/– 10
Accommodation and catering establishments		40 years	+/– 10
Sport centres, public swimming pools/therapeutic baths		40 years	+/– 10
Supermarkets, car dealerships		30 years	+/– 10
Department stores		50 years	+/– 10
Single garages		60 years	+/– 10
Standalone underground and multi-storey garages		40 years	+/– 10
Factories/workshops, production buildings		40 years	+/– 10
Warehouses and distribution buildings		40 years	+/– 10
Farm buildings		30 years	+/– 10

CASE STUDY (continued)

The valuer classified the valuation property as 60% quality level 3 and 40% quality level 4. Since the more basic quality level predominates slightly, he or she decides to set the total useful life at 70 years.

3.4.2 Remaining useful lifespan

Definition

ImmoWertV§6 (6):

> *"The remaining useful life is the number of years in which the improvements can probably continue to be used economically if properly managed; repairs or refurbishments carried out or neglected maintenance or other circumstances can prolong or shorten the remaining useful life. Refurbishments are an example of measures which bring about a substantial improvement in living or other conditions of use, or substantial savings in energy or water."*

Remaining economic useful life

The remaining useful life is often calculated by subtracting the age from the economic total useful life of the improvements. The age of the property is determined by the difference between the year of the valuation and the year of construction. The residual useful life is determined on the basis of the economic remaining useful life. As a rule, this can and will differ from the technical lifespan of the building (which is therefore not considered by ImmoWertV). Market participants think only in economic categories. For example, a property built in the post-war years usually has no thermal insulation but has lead piping, coal ovens, single glazing and surface-mounted electrical wiring. The fabric of the walls, ceilings and roof construction is, however, good in many cases, so that the building will continue to exist for several decades and is not threatened by collapse. The building has a technical lifespan of a similar length. On the other hand, it is no longer economically viable to use it because of its fit-out specification, as no buyer or tenant will be found. The economic useful life is therefore the period of time during which a building can be used economically for its intended purpose. The economic remaining useful life is also decisive in the determination of the income value, as it expresses a property's profitability. It is necessary to estimate the period for which the developed land will achieve an adequate return, taking into consideration its state of repair and anticipated economic and regional market conditions.

A property's economic useful life can be prolonged indefinitely (at least theoretically) through regular maintenance and refurbishment. If such measures are neglected, the remaining useful life is shortened accordingly. The valuer determines the remaining useful life on the basis of the state of repair and maintenance and the above-mentioned economic aspects of the valuation property.

Trend towards declining remaining useful lives

The economic total useful life of buildings has declined on average in recent decades. Pronounced changes in the market structure have often led to a shortening of total useful lives and thus of the remaining useful life. This applies to both residential properties and commercial units. Houses and apartments constructed in the post-war years no longer meet today's standards of modern, comfortable and mostly ecological living. The lifecycles of commercial properties have also shortened as a result of these dynamics and the associated process of adaptation in many industries. The legislature has also taken up this trend and adjusted total useful lives downwards in WertR 2006 and the SW-RL Guidelines.

Calculation

The simple difference calculation (economic total useful life deducted from age) is applicable only if the building has not undergone any major conversions or extensions since construction and is in a proper state of repair. ImmoWertV §6 (6) indicates that both repairs or refurbishments carried out and neglected maintenance or other circumstances may prolong or shorten the remaining useful life. Because long remaining useful lives have a positive effect on the income value, determining the economic remaining useful life plays a central role (see also Holzner, P./Renner, U., 2005, p 413 et seq.).

"Ancient" buildings

Of course, buildings which have reached or even exceeded the standard total useful life are not worthless simply because they are very old.

In the case of ancient buildings, the actual age of a building is only very indirectly relevant to their value. A more important characteristic is their condition on the valuation date and the economic remaining useful life derived from this.

Remaining useful life must be measured, inter alia, by the proportion of renovated or refurbished building components. Since the actual technical lifespan of the main structural works can clearly exceed the standard total useful life of a building, a building with predominantly refurbished building components can have a remaining useful life that is close to that of a new building. In such cases, it is important to know whether there are any time limitations on the technical lifespan due to important individual building components (e.g. shell construction).

Due to the type and proportion of renovated or refurbished components, this results in a theoretical "rejuvenation"; this leads to a "theoretical year of construction" in conjunction with a standard total life determined in terms of economic aspects. Therefore, the tables presented above showing age-related depreciation can also be applied to ancient buildings. These cases are dealt with in the context of monument-listed properties.

Assistance in deriving the remaining useful life of rejuvenated buildings can be provided by building component tables and/or tables listing the technical lifespans of the various building components.

3.4.3 Prolonging the remaining useful life

The effect of refurbishments

Refurbishment not only prolongs the remaining useful life of a building, it also ensures that the property is in a more modern condition and thereby fulfils the requirements of the market. Prolonging the remaining useful life by 20 years, for example, means that the building has been notionally rejuvenated by the same number of years.

Age-related depreciation therefore takes account of what is known as the notional year of construction. The total useful life does not change, but the remaining useful life is prolonged when the notional year of construction is defined as a particular year (in our example: year of construction + 20 years) (see Fig. 26).

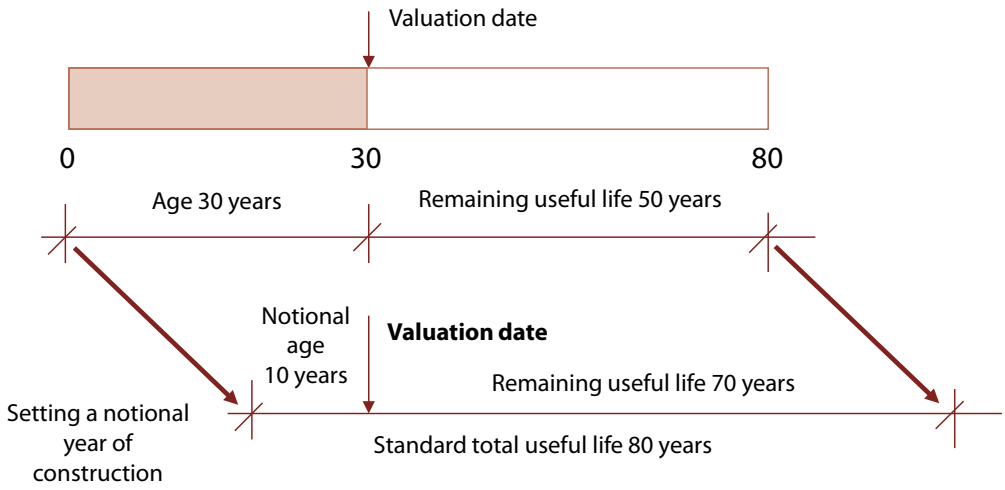
SW-RL model

According to SW-RL §4.3.2, a model contained in Annex 4 to the guidelines can be used to prolong the economic remaining useful life to reflect refurbishment work carried out. This procedure is based on a parabolic adjustment formula which extends the remaining useful life to a maximum of 70% of the original total useful life, depending on the degree of refurbishment achieved.

Conclusion

The refurbishment matrix and points system described in detail below can be used as an aid for determining the remaining useful life of the valuation property. However, this does not release the valuer from his or her duty to make a critical assessment of actual market behaviour. The following also applies here: the schematic application of even the most detailed calculation models does not take the place of the valuer's responsibility to place the emphasis on an appraisal of the value parameters against the background of the relevant regional and use-specific submarket, based on his or her competence and experience.

Fig. 26 | Prolonging the remaining useful life



Source: Simon, J., 2010

First step

For this purpose, the degree of refurbishment must first be determined using a points table shown in Fig. 27. For this purpose, scores must be awarded for eight partially differently weighted refurbishment elements in accordance with the degree to which each goal is actually achieved. A maximum of 20 points can be awarded in total. It is important that points are also awarded for non-refurbished building components, as long as they still meet modern requirements.

Fig. 27 | Definition of the degree of refurbishment (SW-RL Annex 4)

Refurbishment element		Maximum points
Replacement of roof including upgrading thermal insulation		4
Renovation of windows and external doors		2
Upgrading public utilities (electricity, gas, water, drainage)		2
Upgrading the heating system		2
Thermally insulating external walls		4
Renovating bathrooms		2
Interior refurbishment, e.g. ceilings, floors, stairs		2
Substantial improvement of the floor plan design		2
The degree of refurbishment must be determined by an expert on the basis of the total number of points determined in each case. The following table provides an indication of this.		
Degree of refurbishment		
≤ 1 point	= not refurbished	
4 points	= minor refurbishment carried out as part of the maintenance programme	
8 points	= moderate refurbishment	
13 points	= predominantly refurbished	
≥ 18 points	= extensively refurbished	

Second step

In the second stage, the new remaining useful life can be derived from the attached tables showing total useful lives of between 30 and 80 years and the points awarded in the first stage. Fig. 28 shows an example of the prolongation table for a total useful life of 70 years.

Fig. 28 | Definition of the modified remaining useful life based on a total useful life of 70 years (SW-RL Annex 4)

Building age	Degree of refurbishment				
	≤ 1 point	4 points	8 points	13 points	≥ 18 points
	Modified remaining useful life				
0	70	70	70	70	70
5	65	65	65	65	65
10	60	60	60	60	62
15	55	55	55	57	60
20	50	50	51	54	58
25	45	45	47	51	57
30	40	40	43	49	55
35	35	36	40	47	54
40	30	32	37	45	53
45	25	28	35	43	52
50	20	25	33	42	51
55	16	23	31	41	50
60	14	21	30	40	50
65	12	19	29	39	49
≥ 70	11	19	28	38	49

Extensive refurbishment

Generally, the model does not lead to a plausible result in the case of extensive refurbishments, which is why in such cases SW-RL intimates by way of an exception that *"the remaining useful life may be up to 90% of the respective total useful life"*. (Annex 4 SW-RL)

Conclusion

In the preamble to Annex 4, SW-RL states that:

> *"The model serves as an orientation for taking account of refurbishment measures. It does not replace the expert appraisal necessary in each individual case."*

This is to be accepted without reservation.

Points should therefore be awarded using expert judgement and justified in a comprehensible manner in the valuation report. Where works are currently being carried out, this task is much simpler (because in these cases the maximum number of points will often be used); it is more difficult to assess the effects on the remaining useful life of refurbishment measures which took place in the more distant past. The situation is even more complex if the valuation property has been refurbished several times in the past and to different degrees.

The valuer should also check whether the costs incurred by planned refurbishment works are generally economically viable in relation to the increase in value or preservation of the value of the property.

CASE STUDY (continued)

The building was constructed in 1984 and is therefore 35 years old on the valuation date. Based on a total useful life of 70 years, the calculated remaining useful life is 35 years.

However, the property has undergone several structural alterations and partial refurbishments over the last five years. According to the valuer, the following components were refurbished. He appraised them according to his own expert judgement:

Refurbishment element	Maximum points	Points
Replacement of roof including upgrading thermal insulation (2014)	4	2
Windows and external doors (2014)	2	1
Public utilities, still old	2	0
Heating system (2018)	2	2
Thermally insulating external walls (2014)	4	2
Bathrooms, condition dates from 1996	2	0
Interior fit-out, regularly renewed	2	1
Floor plan design, generally considered modern	2	1
Total number of points	20	9

The degree of refurbishment for 9 points cannot be read directly in Table 2.3 of Annex 4.

The valuer opts for linear interpolation between the two adjacent degrees of refurbishment for 8 and 13 points, respectively:

Remaining useful life based on 8 points and 35 years, age: 40 years
Remaining useful life based on 13 points and 35 years, age: 47 years
Linear interpolation: 40 + (9 – 8 = 1) × (47 – 40) / (13 – 8): 41.4 years

The modified remaining useful life is fixed at 41 years and has therefore been prolonged by six years compared to the previously calculated remaining useful life.

3.4.4 Shortening the remaining useful life

Neglected upkeep reduces the remaining useful life

The remaining useful life is always reduced if, for example, the valuation property is not maintained adequately. For example, incorrectly performed roof repair work can result in water ingress, damaging the roof structure. This damage then shortens the remaining useful life of the building in comparison with other buildings which have been properly repaired.

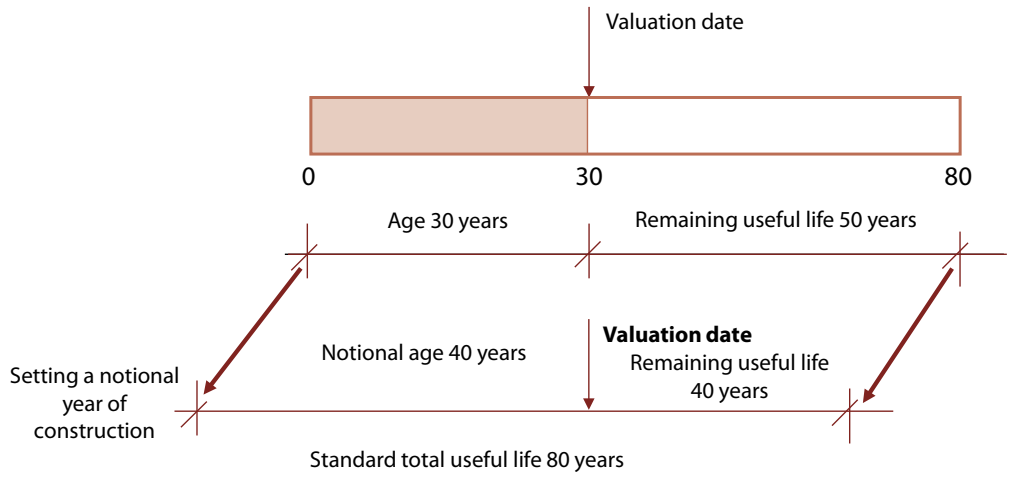
EXAMPLE

A property has a total useful life of 80 years. The valuation property was built in 1989. The valuation date is 2019. The property is therefore 30 years old. Subtracting the age of the property from its total useful life produces a remaining useful life of 50 years.

It is assumed that the property has not been properly maintained. Consequently, the building ages more quickly and the remaining useful life is shortened. This is calculated into the cost approach by assigning the property a notional year of construction earlier than the year in which it was actually built (see Fig. 29). In our example, the building is classed as 10 years older than it actually is.

In terms of its state of repair, the building is considered to be equivalent to a property built in 1979. 1979 is in turn treated as the notional year of construction. The total useful life of 80 years remains unchanged despite the reduction of 10 years in the remaining useful life.

Fig. 29 | Shortening the remaining useful life



Source: Simon, J., 2010

Estimate as source of uncertainty

It is difficult to estimate properly just what effect refurbishment work or neglected maintenance may have. Ultimately this is just another appraisal which must be undertaken by the valuer. Many aspects play an important role in facilitating changes in the use of a property over time, in the sense of both prolonging or shortening the useful life. The technical factors may be largely determined by way of their impact over time. Nonetheless, estimating the economic useful life of a property after the use it is put to has changed continues to be fraught with uncertainty. A proper estimate which takes account of individual technical, legal and economic dimensions must be made in each case.

3.4.5 Calculating age-related depreciation

Variants of age-related depreciation

Simon and Kleiber (2004, p 413, marginal no. 5.90 et seq.) divide the depreciation methods used for valuation when using the cost approach into two groups, namely:

- theoretical mathematical depreciation methods; and
- empirical depreciation methods.

Age-related depreciation takes account of the loss in value which a building experiences as a result of the usual deterioration, wear and tear and the obsolescence of building materials, undertaking construction work and its economic functionality despite regular maintenance.

Linear depreciation and depreciation according to Ross, both of which can be classed as theoretical mathematical methods, were predominantly used in valuation practice in the past. Total useful life, remaining useful life and age are considered as decisive factors in determining age-related depreciation. This results in a reduction in the construction costs of the building due to aging and wear and tear.

Linear depreciation

With the introduction of ImmoWertV, age-related depreciation is usually applied to the building value on a linear basis:

> *"The deduction from building value due to age is calculated according to the ratio which the remaining useful life of the improvements (§6 (6), 1st sentence) bears to their total useful life. In most cases, the value of a property is assumed to depreciate at an equal rate."* (ImmoWertV §23)

Other methods may also be applied.

Linear depreciation in building value due to age (linear age-related depreciation) assumes that the value of a property is reduced by reason of age at a constant rate. Accordingly, the annual depreciation rates remain the same:

$$\text{Linear age-related depreciation (in \%)} = \left(\frac{\text{Age}}{\text{TUL}}\right) \times 100$$

(Age = total useful life (TUL) – remaining useful life (RUL))

Alternative calculation:

$$\text{Linear age-related depreciation (in \%)} = [1 - (\text{RUL} / \text{TUL})] \times 100$$

Depreciation according to Ross

Depreciation according to Ross assumes that, as a property gets older, the rate of depreciation increases. The depreciation curve is progressive in this case, as it is assumed that, in the first two thirds, the building is continuously maintained and modernised and that its proper upkeep is neglected only in the last third of its useful life (see Fig. 30). Wear and tear of building components and building fabric are accepted as a matter of course.

$$\text{Depreciation according to Ross} = 0{,}5 \times \left(\frac{\text{Age}^2}{\text{TUL}^2} + \frac{\text{Age}}{\text{TUL}}\right)$$

Fig. 30 | Comparison of age-related depreciation

Source: Own presentation

Practice

Depreciation tables can be found in professional literature in this field and in all commercially available software programmes.

Market adjustment as key factor

Concern that switching from Ross's method of depreciation to the linear model (ImmoWertV) could lead to drastic changes in current value are not warranted, given that the calculated cost value before market adjustment (based on ImmoWertV) is merely an input value used to derive the market value. The latter is only produced after an appropriate market adjustment has been made which, when linear depreciation is applied, must consequently be on a completely different scale than is the case for Ross's method of depreciation. Therefore, when using market adjustment factors (in this case, cost value factors), the valuer must always know the valuation model used by the provider of such factors and check whether the model corresponds to his or her own valuation model in terms of model conformity. Professional appraisal is therefore essential.

CASE STUDY (continued)

Age-related depreciation is to be calculated as part of the process of determining market value. The valuation date is 1st February 2019. The property was built in 1984 and, based on an average total useful life of 70 years, in effect it is 35 years old. Refurbishment works carried out over the past few years have been taken into account by prolonging the remaining useful life by 6 years to 41 years.

The standard costs of constructing the improvements and outdoor installations on the valuation date is €424,320.

Solution

Remainingusefullife:		41 years
Total useful life:		70 years
Linear age-related depreciation:	1 – (41 / 70) =	41.4%
Standard costs of constructing the improvements:		€424,320
Linear depreciation:	€424,320 × 0.414	– €175,668
Cost value of improvements and outdoor installations:		**€248,652**

3.5 General market adjustment (ImmoWertV §8 (2), point 1)

The situation on the property market

ImmoWertV §8 (1) stipulates that the market value must be determined with regard to the situation on the property market using the best, or the best available valuation approach:

> *"The value of a property must be determined using the comparison approach (§15) including the method for determining land value (§16), the income approach (§§17 – 20), the cost approach (§§21 – 23) or a combination thereof. The approaches chosen must be appropriate for the type of valuation property, taking account of customary business practice and any other special circumstances which apply in the specific case, particularly the available data; reasons must be given for the approach selected. Market value must be determined on the basis of the results delivered by the approaches applied, appraising the informative value of each."*

Consideration of circumstances in the property market is referred to as a general market adjustment in valuation terminology. This must be considered under ImmoWertV §7 (2), 1st and 2nd sentences, regardless of the valuation approach applied before considering any other special property-specific characteristics.

So far, the cost value has been primarily determined by cost components. ImmoWertV §21 (1) defines the cost value of a property as the sum of the land value and the value of the usable improvements and other appurtenances. However, a number of market factors are relevant to the formation of the price. This is why the cost value as provisionally calculated is not generally the same as a property's market value. As is the case with all transactions on open markets, the purchase price reflects the interplay of supply and demand.

Determining the cost value factor

In general, market adjustments are undertaken with the aid of percentage upward or downward market adjustments. The SW-RL Guidelines introduced a change towards the use of a decimal factor (multiplier), which is referred to in BauGB §193 (5), 2nd sentence, point 2, as the *cost value factor*.

Cost value factors are derived empirically from the purchase price data collected by land valuation boards. Market adjustment factors of this kind are calculated by comparing the preliminary cost values determined for certain properties with the actual purchase prices. A

mean cost value factor can be calculated if a sufficient number of property transactions are available.

Application

Cost value factors are applied when determining a specific market value by multiplying the preliminary cost value of a valuation property (= preliminary cost value or cost value before market adjustment) by a corresponding cost value factor. In this way, the market adjustment constitutes a conversion of the cost-oriented base value into the market-oriented market value (see also Schmeck, J. 2005, p 339 et seq.).

Working with market adjustment factors is widespread in practice, although the methodological approach must be questioned. In particular, the conformity of the calculation rules used in determining market value for areas or building volumes, depreciation procedures and other procedures must be examined critically. The SW-RL Guidelines therefore state as follows:

> *"When applying cost value factors, the method of derivation used and the underlying data must be taken into account to ensure conformity with the model. In particular, care should be taken to ensure that cost value factors may be applied only to those components of the value which correspond sufficiently to the basis on which they are calculated. The components of the value not covered by the cost value factor applied must be considered after market adjustment, as special property-specific site characteristics."* (SW-RL §5 (3))

When there is no cost factor

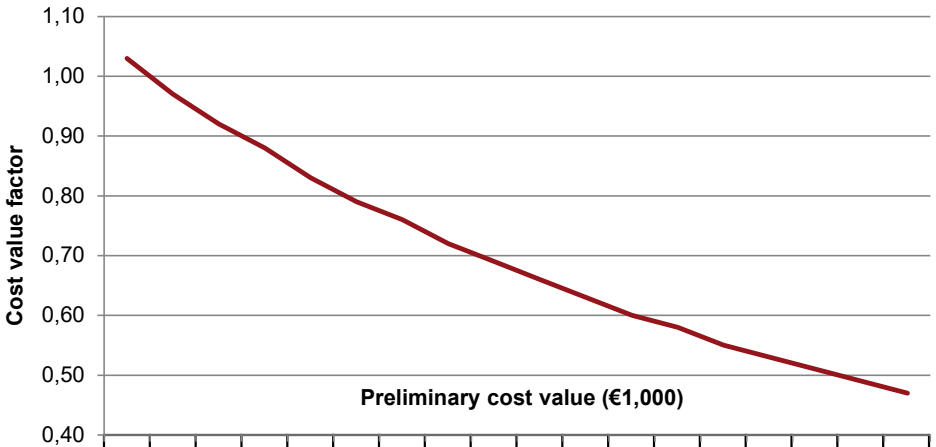
Owing to a lack of transactions, land valuation boards for smaller local authorities cannot usually provide their own cost value factors. In these cases, the SW-RL Guidelines offer the following advice:

> *"If the land valuation board is unable to provide an appropriate cost value factor, alternative cost value factors from comparable areas may be used or, exceptionally, the valuer may estimate the market adjustment taking account of regional market conditions; in such cases, the market adjustment must be specifically justified."* (SW-RL §5 (1))

If no comparable areas can be found, the valuer is required to assess the market situation on the basis of his or her own investigations. Information can be found in the professional literature and in publications by research or brokerage firms. These provide valuers with a wealth of information on the market situation. Although they contain no cost value factors, it is possible to draw conclusions about the cost value factor by applying area parameters (for example, purchase price per square metre GFA/residential area). However, in such cases, it is better to consider switching to another valuation approach.

The table in Fig. 31 below shows an example of cost value factors taken from a sample of 395 transactions. The land valuation board uses the following calculation rule, amongst others: GFA (DIN 277 2005), standard costs of construction NHK 2010, including incidental building costs, linear age-related depreciation based on a 70-year total useful life (across all quality categories). Building Cost Index from the Federal Statistical Office.

Fig. 31 | Cost value factors for detached and semi-detached dwellings



	100	120	140	160	180	200	220	240	260	280	300	320	340	360	380	400	420	440
Cost value factor	1.03	0.97	0.92	0.88	0.83	0.79	0.76	0.72	0.69	0.66	0.63	0.60	0.58	0.55	0.53	0.51	0.49	0.47

The cost value factors shown in the chart were compared with the following other parameters:

Locational values:	a) Guideline land value:	€120 /m²
	b) Area:	3 (other areas in the region)
Modified remaining useful life:		40 years
Standard of interior fit-out:		average fit-out specification

Source: 2013 Property Market Report Hannover, published by the Land Valuation Board, p 120

In the property market report, the cost value factors were standardised for presentation purposes to an average modified remaining useful life of 40 years, an average fit-out specification and a guideline land value of €120 /m² for locations outside the city of Hannover and outside central/good locations.

CASE STUDY (continued)

A plot has a site area of 1,400 m², of which only a part (700 m²) lying alongside the street can be developed. The guideline land value is quoted as €150/m² for a fully serviced plot with a typical size of 700 m². This largely corresponds with the factual characteristics of the subject plot, and so it is adopted in the valuation unchanged. The part of the plot to the rear is not income-generating and is considered as garden land at 10% of the price of the building land.

From the property market report, a cost value factor of 0.9 can be applied for properties that are comparable with the valuation property in terms of their value-determining characteristics, other than the plot size. This information is in line with the experience of the valuer, who has observed a downward trend on the property market in recent years. The valuer is also of the opinion that this trend will not change in the short term. He/she therefore regards a market adjustment (cost value) factor of 0.9 as justified in this case.

The land value of the income-generating component of the plot is 700 m² × €150 = €105,000.

Solution

Cost value of the improvements and other appurtenances		€204,772
plus land value of the income-generating component of the plot		€105,000
Cost value before general market adjustment		€309,772
Market adjustment using a cost value factor of 0.90	€309,772 × (1 – 0.90)	– €30,977
Cost value after general market adjustment		**€278,795**

3.6 Treatment of special property-specific characteristics (ImmoWertV §8 (2), point 2)

Definition

Special characteristics of the valuation property which have not been included in the process so far must, according to ImmoWertV §8 (2), point 2, usually be taken into account after the general market adjustment (point 1). §3 provides a non-exclusive list of circumstances affecting value:

> *"Special characteristics which are specific to the property, such as economic obsolescence, an above-average state of repair, building defects or structural damage, as well as yields which differ substantially from achievable market yields may, to the extent that this corresponds with customary business practice, be taken into account by making fair upward or downward market adjustments or in any other way appropriate."*

The regulation states that these characteristics should be considered only if this is customary business practice.

Function

As a rule, deviations in characteristics which are specific to the property are taken into account by making appropriate upward or downward adjustments to the determined cost value, after making a general market adjustment. It is important to ensure here that the level of adjustments reflects actual market practice and not any actual cost structures. The valuer must therefore make upward or downward adjustments which lead directly to a property value which complies with market pricing mechanisms.

3.6.1 Reductions in value due to building defects and structural damage

Building defects

A building defect is a flaw which arises in the construction of a building as a result of faulty design or workmanship, including the use of defective construction materials. These are defects which arise prior to or during construction. Examples of building defects include lack of thermal insulation, incorrect structural engineering calculations and defects in the building's lighting. Building defects can be classified according to generally recognised rules of technology. The contractually warranted characteristics are another key indicator of whether or not a building is affected by building defects.

Structural damage

Structural damage exists whenever a completed building is found to have technical shortcomings which are not the result of building defects. Structural damage is usually caused by external forces such as storms, rain or fire. Neglect of maintenance can also lead to structural damage, for example, where render has not been repaired, allowing water to penetrate leading to large cracks and consequent damage to the masonry itself. Other structural damage includes situations in which wood has been damaged by insects, rot, leaky guttering, changes in the shape of building components, etc. If structural damage is the result of building defects, for example, as a result of poor workmanship when the building was constructed, this is referred to as "consequential damage".

Inclusion in valuation reports

The regulation refers explicitly to both terms in ImmoWertV §8 (3); the wording is used as a generic term which covers all defects in a property regardless of whether they occurred or were caused before, during or after construction of the building. There is no need to list building defects and structural damage separately.

Warranty

Some building defects or structural damage may give rise to claims for remediation or compensation against the builder (based, for example, on warranty claims) or third parties (especially insurance companies). If these claims pass to a potential buyer, building defects and structural damage are not included as such in the determination of cost value. Reference to the existence of building defects or structural damage and to the availability of warranty claims should be included in the valuation report. If the claims cannot be transferred, building defects and structural damage must be factored into the valuation.

Determining reductions in value

According to ImmoWertV §8 (3), building defects and structural damage should be recorded *"by making fair upward or downward market adjustments or in any other way appropriate"*. However, ImmoWertV does not actually say how this is to be done. According to SW-RL §6.2, building defects or structural damage can be taken into account by applying downward adjustments based on empirical values, by using building component tables or on the basis of remediation costs.

Proportion of costs of construction

Percentages of the construction cost of the improvements, for example, form the basis of the determination. This procedure is contingent on the application of building component values. These are percentages which express the value of sections of the building as a proportion of the total costs of construction. The proportion of damaged parts of buildings or components of building fabric, fixtures and fittings must be multiplied by their share in the value of the overall building structure. This gives the proportion of the value represented by the building defects or structural damage, by which the costs of construction must be reduced. This method is rarely used in practice.

Remediation costs

Instead, the costs of building defects and structural damage are primarily determined on the basis of estimated remediation costs. Sufficient and up-to-date information on the potential cost of remedying defects is available in the professional literature. If the costs of remedying damage relate to a particular year, they must normally be indexed using the Building Cost Index for maintenance costs. In most cases, the obtainable values are national averages. An evaluation of the cost estimates submitted by local building firms or traders provides a better basis on which to consider the cost of remedying defects in particular regions.

Consideration of the property market

These are cost items which must be adjusted according to customary market practice following a general market adjustment before they are deducted from the cost value. In practice, there are two main views on this. The first is that the full cost of remedying building defects and structural damage must be fully deducted from the cost value, and the second is that the cost of remedying building defects and structural damage must be reduced by the age-related depreciation. There are arguments for both approaches. At first glance, and on purely economic grounds, it would appear sensible to concur with the first opinion, given that costs actually incurred for the remediation of building defects and structural damage reduce the financial resources available to a potential buyer and would therefore have to be fully deducted from the cost value. On the other hand, deductions to reflect age-related depreciation are already made when determining the cost value such that, for example, at an age-related depreciation rate of 50%, only half the costs of constructing a rendered façade would be included in the cost value.

If the render is defective, deducting the full cost of remedying the damage might even produce a negative cost. The result would be not only that the buyer would not pay the seller for the façade, but that it would even make a deduction from the remaining parts of the building. This would not seem particularly fair, given that a façade that has been renovated after the purchase by the owner would actually have a "new" remaining useful life and – compared with the façade which is typical for its age and which had already been depreciated in value by 50% – would only need to be renovated at a later point in time. The valuation of the overall property would therefore be based on a lower age-related depreciation (for example, by setting a notional year of construction) if the costs of remedying building defects and structural damage are to be deducted in full.

Inclusion of costs depreciated for age

As a result, some valuers call for the amount included for the costs of remedying building defects and structural damage to be reduced to take account of age-related depreciation. In the long run, however, this approach does not necessarily lead to the desired result as corrections are still made only at cost level.

According to §8 (3), the deciding factor must be *"customary business practice"*, i.e. how the property market appraises the damage and agrees the (fair market) replacement value.

CASE STUDY (continued)

It is assumed that 240 m^2 of render needs to be replaced on the property referred to above. According to cost estimates provided by several local painting and decorating firms, the average price is €100 per m^2 including materials and VAT.

On the property market it is not possible to pass on all the costs to the seller and therefore the depreciated costs are taken into account, as in this case they are regarded as customary in the market.

Solution

Cost value after general market adjustment	€278,795
Consideration of special property-specific circumstances ImmoWertV §8 (2), point 1	
Reductions in value due to building defects and structural damage less age-related depreciation (41.4%)	
€100/m² × 240 m² = €24,000	
−€24,000 × (1 − 0.414) =	−€14,064
Subtotal	**€264,731**
(The surplus garden land still has to be considered.)	

3.6.2 Other special property-specific characteristics

Economic obsolescence

A property may be economically obsolescent if, for example, its floor plans no longer meet modern requirements and living standards. Values can also be negatively affected by above-average floor-to-ceiling heights, building materials that no longer comply with ecological requirements for healthy living or requirements imposed by historic monument authorities. The value of a property may also be impaired if its design does not reflect current market demand and major changes are required to the building's internal layout.

Above-average level of upkeep

In contrast, a building which has been maintained to a higher standard than usual may be easier to sell, leading to a higher cost value. Although it is not unusual to make a flat rate increase in the determined value to reflect these circumstances (for example, by adding 5% to the cost value), this is not in fact correct given that the (entirely justifiable) increase affects the value of both the land and building to the same degree. This problem can be circumvented by assuming a prolonged remaining useful life (for example, by setting a notional year of construction) which would therefore lead to a reduction in the depreciation of the building's value due to age and thus in the deduction for wear and tear to the building's constituent parts.

Discrepancies between actual and permissible use

The value of land may be affected if it has been developed in a way which does not take full advantage of the legally permitted use.

According to ImmoWertV §16 (3) and (4), this may in some circumstances need to be considered when determining the land value:

Site clearance costs

> *"(3) If improvements are expected to be demolished in the near future, the value of the land must be reduced by the usual site clearance costs to the extent that these are taken into account in customary business practice. The site may be expected to be cleared in the near future if:*
>
> 1. *the improvements can no longer be used; or*
> 2. *the undiscounted value of the land excluding the site clearance costs is equal to or greater than the income value determined using the income approach (§§17 to 20).*

(4) A substantial discrepancy between actual use and primary use under §6 (1), such as a substantial impairment of the usability of existing improvements on the land, must be considered when determining the value of the land to the extent that this corresponds with customary business practice."

No further account is usually taken of it.

Deviations in income

Further upward adjustments to the cost value may result from other sources of income. These include, for example, upward adjustments to reflect the receipt by the owner of regular advertising income. Such income is usually taken into account by calculating a positive special value. The explanations in the section on the income approach also apply in this case.

3.7 Determining market value

Several approaches and appraisal of the informative value

According to ImmoWertV §8 (1), the comparison approach, the cost approach, the income approach or a combination thereof must be used to determine the market value. In this context, account must be taken of customary business practice. The regulation also stipulates that the approaches used must be appraised in terms of their informative value. When doubt exists, the approach to be used is that for which the best and most informative data is available.

Suitability of the cost approach

The cost approach is only suitable for land which is primarily intended for owner-occupation (see judgment of Federal Supreme Court (BGH) 13th July 1970 – V ZR 189/68 – NJW1970, p 2018). However, this does not mean that land which is generally used for owner-occupation must be valued using the cost approach. The cost approach must be used if the corresponding type of use is usually considered on the property market from a net asset value perspective. This is primarily the case for single-family dwellings. The owner of the land on which a single-family dwelling is built does not usually expect a high yield on the capital invested in the purchase of the property: such an owner does not regard the land as an interest-producing capital investment. On the contrary, the owner is more likely to have personal motives for making the purchase. The same applies to land on which two-family dwellings are built primarily for owner-occupation (see judgment of the Federal Supreme Court (BGH) dated 13th July 1970, ibid.).

Practice

As both the general market adjustment (ImmoWertV §8 (2), point 1) and special property-specific characteristics (ImmoWertV §8 (2), point 2) have been taken into account, the market value is derived primarily from a critical appraisal of the valuation results and from the use of the cost value as the market value.

CASE STUDY (continued)

Cost value of the property	€275,000
If required, consideration of the results of other approaches Justification for the selection of the valuation approach	
Market value on the valuation date	€275,000

Solution to the "Initial case study"

The Immo AG employee discovers that the cost approach has been used to value the single-family dwelling which is to be purchased. This means that the correct valuation approach has been chosen. The cost approach is an asset-oriented valuation approach, and as such the valuation takes account of all of a property's physical components. The cost value is made up of the value of the land, improvements and other appurtenances.

The value of the improvements includes the value of the buildings (residential house, garages), the value of the outdoor installations (supply and disposal pipes in the ground, walls, stairs, fences etc.) and the value of the operating facilities (alarm systems, tank systems etc.).

The value of the buildings is established by determining the costs of construction. This is usually done with the aid of the standard costs of construction. The current standard is NHK 2010. The costs of construction thus determined must be multiplied by the gross floor area of the valuation property. The NHK 2010 must be indexed using the Building Cost Index on the valuation date and adjusted using correction factors, primarily using those available from the local land valuation boards or alternatively the relevant federal state or for the size of town/city and, where applicable, using the correction factors for multiple-dwelling units. In addition, the values of the outdoor installations, special operating facilities and other appurtenances must also be determined. A deduction is then made from the value of the improvements to account for age. The value of the income-generating land is then added.

As this is simply a cost-oriented base value, an adjustment must now be made for general economic factors, creating a link between cost and market-oriented perspectives.

Finally, where necessary and/or to the extent not already included in the approach used so far, special property-specific characteristics must also be considered. The particular problem when using the SW-RL Guidelines is that corrections to characteristics of relevance to value, which are also covered by the cost value factors and are therefore considered customary in the market, are made *before* the general market adjustment. If the analysis of the valuation property shows that the special characteristics cannot be classified as customary in the market, corresponding adjustments must be made to the special property-specific site characteristics pursuant to ImmoWertV §8 (2), point 2 – *after* the general market adjustment.

If the cost approach can be identified as the valuation method with the best available data and market players primarily assess the type of land involved from an intrinsic asset perspective and pay for it accordingly, the market value can be derived from the determined cost value.

3.8 Chapter 3 activities

Activity 1 What are the key components of the cost value of a plot of land?

a) The value of the outdoor installations and the value of other operating facilities plus the value of the land
b) The value of the improvements and of the land
c) The value of the improvements and the value of other appurtenances plus the value of the land
d) The value of the other appurtenances and of the outdoor installations plus the value of the improvements

Activity 2 What do you understand by standard costs of construction?

a) The actual costs of constructing a new building
b) Standard costs of constructing a new building after making deductions for age-related depreciation
c) Average costs of construction, particularly for residential buildings
d) Standard costs of constructing a new building

Activity 3 Describe the approach used to determine cost value.

a) Standard costs of construction minus incidental building costs and age-related depreciation, as well as reductions in value due to building defects and structural damage, corrected by other property-specific characteristics
b) Standard costs of construction minus age-related depreciation plus the value of the land, market adjustments and any reductions in value due to building defects and structural damage, as well as any other property-specific characteristics
c) Standard costs of construction minus depreciation plus reductions in value due to building defects and structural damage corrected for any other special property-specific site characteristics
d) Standard costs of construction minus the annual return on land value and age-related depreciation, market adjustments and any reductions in value due to building defects and structural damage, corrected for any other special property-specific site characteristics

e) Standard costs of construction minus age-related depreciation plus the value of the land, reductions in value due to building defects and structural damage, corrected for other special property-specific site characteristics
f) Standard costs of construction plus age-related depreciation, market adjustments and any reductions in value due to building defects and structural damage, as well as any other property-specific site characteristics

Activity 4 Name different types of age-related depreciation applied in practice.

a) Exponential age-related depreciation
b) Progressive age-related depreciation
c) Precise age-related depreciation
d) Linear age-related depreciation
e) Arithmetic-degressive age-related depreciation
f) Parabolic age-related depreciation

Activity 5 What factors may lead to a change in the remaining useful life?

a) Market structure
b) Capitalisation rate
c) Location of the property
d) State of repair of the improvements
e) Other circumstances which must be considered in the cost approach

Activity 6 How do a property's plants and trees affect its value?

a) As additional circumstances affecting value
b) This value is already covered by the land value
c) As a component part of the other appurtenances
d) Park like gardens are included in the value of the land
e) Unusually opulent plants add 10% to the value

Activity 7 What is model conformity?

a) The use of the same cost value model that was used by the land valuation board in deriving cost value factors
b) Conformity with the opinion that the cost value model used by the land valuation board has unlimited validity and is to be used in any case
c) The principle that each valuation must be based on the same calculation model
d) An independent valuer is generally prohibited from deviating from the SW-RL Guidelines

Activity 8

What is the cost value factor used for?

a) It is derived by the land valuation boards from the regional land market to convert the federal average NHK 2010 values to regional construction cost levels.
b) It represents the relationship between the cost value and the income value.
c) It serves to adapt the preliminary cost value, initially determined on the basis of costs, to the regional land market.
d) It describes the relationship between the value of the land and the value of the improvements.

4 Income Approach

Initial case study

Immo AG plans to buy a residential block for rent in the centre of Frankfurt am Main. Architectural drawings, the most recent tenancy agreements and a statement of the operating expenses for the property are available. The company wants to know the market value of the property. The data needed to determine the property's value must first be obtained.

LEARNING OUTCOMES

By the end of this chapter you should be able to

- describe the dual structure of the income approach;
- explain and correctly use the components of the approach;
- understand the significance of the remaining useful life and integrate it in the approach;
- interpret the term market practice in relation to gross income and operating expenses;
- understand the significance of the capitalisation rate for the income approach;
- understand the multiplier and its components; and
- understand and determine the market value of simple investment properties using the income approach.

4.1 Fields of application for the income approach

Fields of application

The income approach is primarily used to determine the market value of properties for which normal market income plays the key role in establishing prices in the real estate investment market. This is the case, for example, with office and retail property. While the value of these properties may in principle be determined using the cost approach, this method does not reflect the way market players think. The method is addressed in the third chapter of ImmoWertV, in §§17 to 20 and in the guidelines on the Determination of Income Value (EW-RL dated 12th November 2015). The application of ImmoWertV and EW-RL is not mandatory for determining market value in the credit industry. Nevertheless, it must be remembered that ImmoWertV and its guidelines and their predecessors have established themselves as the standard for determining market value in Germany.

Income value is based exclusively on future expected income streams, in contrast to cost value, which includes a cost-oriented perspective. There are exceptions for properties with short remaining useful lives and when the liquidation value method is used. However, the land value is determined in the same way in all approaches.

Future orientation

This future-oriented perspective appears to contradict the definition of market value in BauGB §194 and ImmoWertV §3. According to these provisions, the market value of the property is determined at a particular point in time, i.e. on the valuation date. Circumstances affecting value may only be considered if they are clearly foreseeable on the valuation date. Therefore, no account may be taken of speculative elements. But the valuation date must not be interpreted in a static way: rather, the valuation is based on the economic development of the property assumed by market players on the valuation date, especially changes in rents and yields.

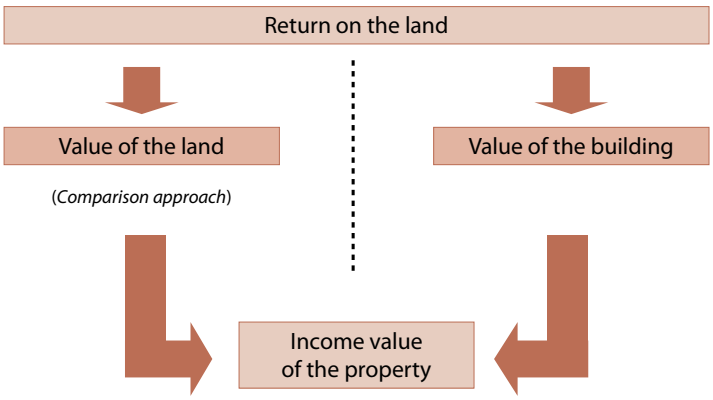
The market value is therefore determined using the income approach on the basis of the expected, usual future income streams achievable in the market. Both these and the capitalisation rate are used to project future use (or potential use). The income obtained in the past may prove helpful as an indicator of income which can be achieved in the future, but only to the extent that it can be projected on to future use. This future-oriented view of the income approach has consequences for the intrinsic calculation methods. Some knowledge of financial arithmetic is needed to determine income value.

4.2 Duality of land and building value

Dual structure

The income approach has a dual structure. The income from developed land is divided up into the notional return on the land and the notional return on the building (see Fig. 32). This reflects the reality that land must be acquired in order to realise the income value of a building, which means that the anticipated return on capital is generated not only from the income value of a building but also from the capital invested in the land itself.

Fig. 32 | Dual structure of the income approach



Annuity and perpetuity

The income generated by the improvements is usually limited by the economic remaining useful life and is consequently capitalised in the form of an annual temporary annuity payable in arrear. Conversely, the land itself is capitalised in perpetuity reflecting its status as a permanently usable asset. While this is correct in principle, the income approach nonetheless takes account of this perpetual yield only up to the end of the remaining useful life (see

Section 4.4.4 Annual return on land value), and usually only for that part of the land itself which is necessary for the purpose of generating income from the building (ImmoWertV §17 (2), point 1). Parts of the site which can be used separately must be treated separately.

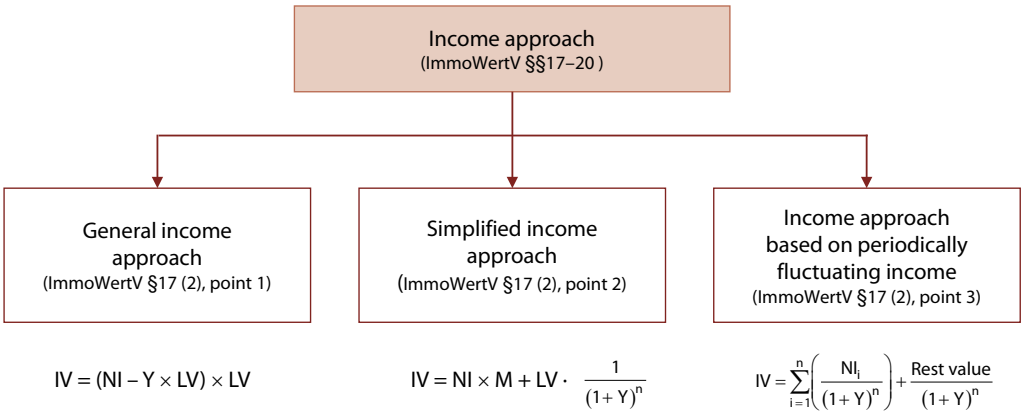
At the end of the remaining useful life, the income approach ceases to have any informative value and the property's economic future then lies in the discretion of the site owner. Land on its own is not a source of income.

4.3 Versions of the income approach

Three models

ImmoWertV issued on 1st July 2010 includes three different calculation models, which have also been updated in EW-RL. The "General Income Approach" previously governed by WertV §§15 to 20 has now been joined by a "Simplified Income Approach" which no longer separates the amount for the annual return on land value from the net annual income, but integrates the discounted land value in the calculation using the remaining useful life of the improvements. In the case of properties for which several different income streams must be valued, owing perhaps to existing tenancy agreements, an income approach based on "periodically fluctuating income" may be used. This approach has not been given a designation of its own in the applicable regulations. Whilst the stated intention of ImmoWertV is to standardise the discounted cash flow method for the purpose of determining market value, the term "DCF method" is used for a number of different approaches which are adopted in practice, and usually refers to models which work with projected values and rates of return, geared to developments on both the capital and property markets. To avoid confusion, this module book uses the term "Detailed Income Approach".

Fig. 33 | Variants of the income approach



The formulae do not include market adjustments pursuant to ImmoWertV §8 (2), points 1 and 2.

IV = Income Value (*Ertragswert* = EW)
NI = Net Income (*Reinertrag* = RE)
Y = Capitalisation rate (*Liegenschaftszins* = LZS)
LV = Land Value (*Bodenwert* = BW)
M = Multiplier (*Vervielfältiger* = V)
n = Remaining useful life (*Nutzungsdauer (Jahre)* = n)
t = Period (*Periode* = t)
i = Interest rate (*Zinssatz*)

Source: Simon, T., 2010

All three variants are directly comparable methods with discounted income streams, and are essentially identical to the extent that the same input data is used and the specific requirements for determining the residual value in the detailed income approach are adhered to, leading to the same income values (see Fig. 33).

The various valuation parameters are introduced in the following sections and illustrated using the following valuation example.

EXAMPLE

The following initial data is available for 2018: the valuation property is an apartment block in Frankfurt am Main. The building has a basement with 6 car parking spaces, a ground floor and 6 upper floors. The property has 16 dwelling units with a total residential area of 1,250 m^2. The property was built in 1970 and covers an area of 1,500 m^2. It is located in a mixed-use area. Overall, the location is an average quality residential area. The valuation date is 1st July 2018. The economic total useful life is 80 years. The guideline land value is €1,350 per m^2. The gross annual income excluding recoverable service charges is €13,750 per month. The recoverable service charges equate to €1.05 per m^2 of residential area p.m. Parking spaces are charged at €30 (excluding service charges). The property management costs amount to €292 per residential unit p.a. and €39 per parking space p.a.. The maintenance costs amount to €11.00 per m^2 residential area p.a. and €87/parking space p.a. for the parking spaces. The allowance for risk of rental loss is estimated at 5% of the gross annual income for the property. The capitalisation rate is 2.5%. The painting and decorating in the entrance area must be renovated, parts of the roof need to be replaced and several windowpanes need to be replaced. The total backlog of repairs is costed at €100,000.

4.4 General income approach

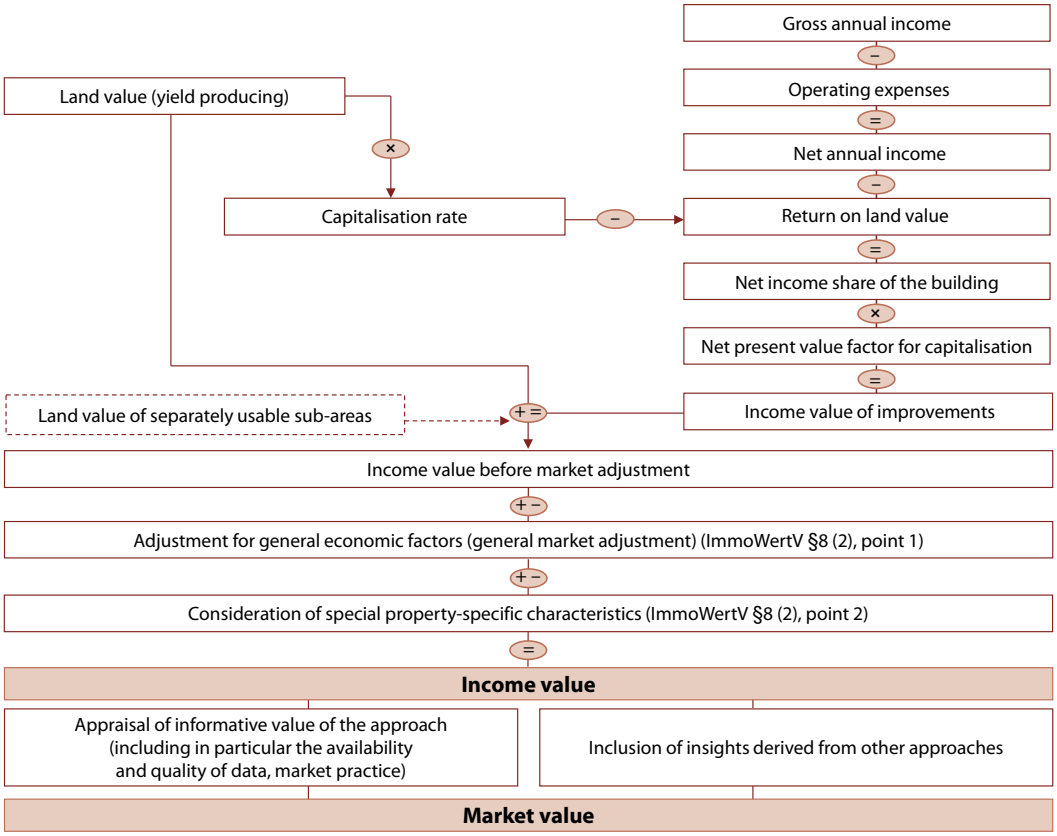
Components

The starting point for the two-tier income approach is the achievable market gross annual income. The net annual income is determined by subtracting the operating expenses from the gross annual income. The operating expenses are made up of the non-recoverable management, maintenance and service charges plus the loss of income risk. In calculating the net income, it is assumed that the achievable market income determined on the valuation date will continue to be achieved over the entire remaining useful life. Potential rental increases are included in the capitalisation rate. The capitalisation rate therefore reflects both the expected inflation rate and rental growth potential above the inflation rate. If market participants take the view that emerging rental trends are more negative (for example, due to changes in general market conditions, the specific type of property or the location parameters), but no specific data is yet available from comparative rents, this probable future development is expressed as a risk premium on the property yield.

Contractually agreed changes in rental income (rent-free periods, stepped rents etc.) are usually determined separately and then added/subtracted in the calculation of the income value.

The next step is to separate off the income generated by the land itself (annual return on land value), ensuring that consideration is only given to that part of the land which is required to generate the building income (yield-producing land value). Areas of the site which can be used separately are not considered when calculating the annual return on land value (ImmoWertV §17 (2), point 1, 3rd sentence), but are treated as separate land values when determining market value. The capitalisation rate is used to determine the annual return on land value (ImmoWertV §17 (2), point 1, 2nd sentence). The reference value is the land value derived from comparative purchase prices or guideline land values (ImmoWertV §16). Deducting the annual return on land value determined in this way from the net annual income produces the net income share of the improvements. This is then capitalised using the factor for the annual annuity in arrear of a temporary annuity (net present value factor for capitalisation, previously referred to as the multiplier). This capitalisation factor is determined according to ImmoWertV §20 by *"considering the remaining useful life (§6 (6), 1st sentence) and the relevant capitalisation rate (§14 (3))"*. The structure and procedures involved in the general income approach are shown in Fig. 34.

Fig. 34 | General income approach – structure and procedure



Source: Simon, T., 2010

General market adjustment

Income value determined thus far is then adjusted to reflect the general conditions on the property market (ImmoWertV §8 (2), point 1). Appropriate account of this general market adjustment is usually taken in the selection of the valuation parameters themselves (including in particular achievable market rents and the capitalisation rate), so that no further consideration is required.

Treatment of property-specific characteristics

The next step is to consider special property-specific characteristics such as actual rents which do correspond to achievable market rents (referred to in English speaking countries as over- or underrents), or vacancies, building defects or structural damage or similar items which, in accordance with market practice, affect the value of a property (ImmoWertV §8 (2), point 2).

Determining market value

The market value is calculated in this way unless otherwise indicated by a final appraisal of the informative value and quality of the available data and the calculation, and provided that the valuation approach or the means of determining market value is appropriate to the type of property being assessed. In some circumstances, it may be necessary to apply other approaches.

4.4.1 Gross income

Definition

Besides the capitalisation rate, the gross income is the decisive component for determining the income value. It is therefore crucial for the income approach that the gross income be derived as precisely as possible. Pursuant to ImmoWertV and the EW-RL Guidelines, gross income is derived from the gross income that can be achieved in the market, assuming proper management and permissible use. Rents derived from garages, parking spaces, the use of a garden or from fixtures and furnishings must also be included to the extent that this is customary in the market. Achievable market rents are assumed for owner-occupied land. The same applies to properties which are used at no charge or at costs which deviate substantially from prevailing rates. Whilst tenancy agreements usually include provisions for rent to be paid one month in advance, methods of determining market value usually assume that rent is received annually in arrear. This is not a problem in practice, given that the capitalisation rate is derived from the market by retrospectively applying the income approach in arrear (see 4.4.6.2 Determining the capitalisation rate). Other payment dates which a buyer may consider when determining the purchase price are therefore included in this yield factor.

Recoverability of service charges

According to ImmoWertV §19 (1), no account is taken of VAT payable on commercial lease agreements or additional cost allocations made to cover the service charges. In practice, this means that achievable market net rents and market gross income tend to be identical. The (partial) vacancy of essentially lettable properties at the time of valuation must also be stated with the achievable market gross income. A distinction must be made between types of vacancy (short-term, fluctuation-related vacancy, longer-term and structural vacancy). In addition to the loss of gross income, the operating expenses to be borne by the landlord must also be considered.

Customary in the market = sustainability?

ImmoWertV §17 (1) and EW-RL §5 (3) refer to the achievable market income from a property. This term is based on average income, sustainable over the longer term, such as rent or lease income for comparable properties. The phrase "sustainable income" used in the 1998 version of WertV has been dropped and replaced by "achievable market income". Nonetheless, the notes to ImmoWertV §17 underline that: *"Usual market income is sustainably achievable".* This redefinition is intended to place greater emphasis on the market nature of the return on real estate. However, sustainability is not assured in the case of actual rents which significantly exceed the market rent (especially for residential properties), some of which are illegal and excessive, for example if they are above the local rental level, but which nevertheless correspond to local market practice. The same applies to illegal buildings in the outskirts. Nevertheless, the rents are contractually agreed, they are being paid and must be considered as an income component. The income risk arising from this is usually shown by a risk premium on the capitalisation rate or by an increased allowance for the risk of rental loss, the application of caps or by a temporary over-/underrent. It is important to distinguish between individual rents and average rents.

Data for standard market factors is sourced internally and externally. Property valuers use their own internally-sourced information about achievable rents. The available data must always be comparable. External data sources for rents include real estate consultants, banks, local authorities, land valuation boards and property research companies, but mainly only for larger towns and cities.

As the market rent is a future-oriented variable, it should not be confused with local comparable rents. The latter represent historical variables and the usual asking rent for comparable properties over the past few years (see BGB §558). Market practice always excludes commercial lets which are temporarily overrented from the calculation of market rents. Another controversial issue is the extent to which caps are to be applied in the valuation. If there is a rental price brake, this should be taken into account in the valuation, and must always considered when determining the mortgage lending value.

However, local market practices must be considered when determining the income value (market value), particularly in markets in which purchase prices are charged that are calculated on the basis of rents actually agreed (i.e. for example without taking into account possible restrictions). It remains to be seen how much of an effect the intensification of the rental price brake currently under discussion will have on market activity.

Variants of rental agreements

The terms and contents of tenancy agreements must be evaluated whenever the market value is determined. This is true of both residential housing and commercial tenancy arrangements. There is a great deal of room for manoeuvre as far as the provisions of commercial lease agreements are concerned. This is particularly true of the potential for recovering operating expenses. Contract arrangements can also take different forms, such as inclusive or exclusive rents. Service charges which are included in the rent are not considered in the gross income.

Actual rent

The market rent must also be assessed in relation to the actual rent. The income stated in lease agreements may not be accepted and used as the market rent without verification. In some cases, for example, in the case of existing long-term leases, the rental payments agreed in the lease agreement will not correspond to the rent that can be achieved on the open market. When determining market value, an expert is regularly confronted with the task of considering all the circumstances which may have a long-term effect on the amount of income generated. If the actual income diverges from the market rental value, the general income approach must be initially based on the achievable market gross income. In the case of commercial properties with fixed term leases, any deviations from the achievable market gross income are considered through additions or deductions in the appraisal of other circumstances affecting value (ImmoWertV §8 (2), point 2 in conjunction with §8 (3)).

The difference between the contractual rent and the achievable market gross income is determined by calculating the net present value of the over- or underrents over the remaining term of the lease agreement. If the agreed contractual rent is higher than the achievable market gross income (overrent), the net present value may be added as a value-enhancing component, depending on the creditworthiness of the tenant and the quality of the lease agreement. If the agreed contractual rent is lower than the achievable market gross income (underrent), the determined net present value is deducted as a value-reducing component. When determining the net present value, the question arises as to which interest rate is to be used. Simply adopting the capitalisation rate without further consideration is not advisable. Where there is an overrent, account must be taken of the risk, for example, that the tenant will not pay the inflated rent over the entire remaining term of the lease (for example, in the case of insolvency). This can be overcome by applying a risk premium to the interest rate. Conversely, it has been argued that the interest rate can be reduced in the case of an underrent, because the cash flow is more secure over the unexpired term of the lease agreement. As a rule, however, the capitalisation rate can be applied.

EXCURSUS

No account may be taken of temporary overrents when determining mortgage lending value. If the contractually agreed rent is lower than the achievable market rent, the lower rent must usually be taken for the remaining useful life, regardless of the remaining term of the lease agreement.

⇨ See also the "Mortgage Lending Value" module book.

Factors affecting value

Besides the various options available, including the treatment of service charges and the recoverability of service charges, other factors affecting value must be considered. These include lettable area, the duration of lease agreements, any lease renewal, extension or break options and rent review clauses (for example, applying changes in the Consumer Price Index (CPI)), incentives, rent-free periods, the tenant's creditworthiness, obligations to restore the rental premises to their original condition, tenant improvement contributions, consideration of investments made by the landlord into the rental premises and termina-

tion provisions. Account must be taken in this context of different definitions of lettable areas, including in the commercial field (gross floor area or usable area pursuant to DIN 277, MFG Standard for calculating the rental area of commercial premises (RA-C – *Gesellschaft für Immobilienwirtschaftliche Forschung e. V.* (Society of Property Researchers) (gif), 2017, WoFlVO – previously II. BV). A standard reference area is required to make a meaningful comparison of gross income. Every time value is determined, existing calculations must be verified; if new calculations are made, the new calculation method must be stated.

Solution

Total (Gross income from apartments):
€13,750 × 12 months = €165,000

Total (Gross income from parking spaces):
€30 × 6 × 12 months = €2,160

Total (Gross income from apartments and parking spaces):
€165,000 + €2,160 = €167,160

In simple terms, it is assumed that the actual income can be used because it is achievable in the market.

4.4.2 Operating expenses

Definition

Operating expenses are usual market costs which are regularly incurred by the owner and which are necessary to guarantee that a property can be properly managed. They are defined in the Services Charges Ordinance (BetrKV), which has been in force since 1st January 2004 – previously II. BV §24 to §29 – and in ImmoWertV §19, as well as under EW-RL 6.1 to 6.4. Operating expenses include the usual annual expenses incurred in the market for property management (management costs), maintenance (maintenance costs) and rental shortfalls (allowance for the risk of rental loss), as well as for the ownership of the property and its intended use (service charges).

Standard market practice

Similar to the gross income, ImmoWertV §19 also requires that the expenditure incurred be usual in the market. In EW-RL §6 (1), reference is made to the concept of "proper management and permissible use", as well as the regularity of the expenditure. This means the amount of the costs which are likely to be incurred now and in the future are to be considered. The usual market costs are usually determined on the basis of actual costs. These must not, however, be adopted as usual market costs without verification. Instead, they must be checked in each case to determine whether the costs will be continuously incurred and to ensure that they are not influenced by extraordinary circumstances (for example, personal relationships between the contracting parties, emergency situations etc.). If the actual operating expenses cannot be determined because, for example, there are no records available, empirical values must be used. Reference is made to these in ImmoWertV §19 (2).

Adoption of flat rate or variable amounts

There are two ways of calculating operating expenses in the income approach. One is to deduct the operating expenses as a percentage from the net income. The other is to take a differentiated or individual approach. The latter approach is preferred as it enables each cost item to be checked to determine whether it is appropriate and corresponds with market practice. However, mixed forms are also used, for example, the management costs and the allowance for the risk of rental loss are included as percentages, and maintenance costs and non-recoverable service charges on a case-by-case basis.

4.4.2.1 Management costs

Definition

Management costs include the following in particular

- the cost of staff and resources needed to manage the property;
- the cost of supervision and security;
- the value of administrative work undertaken by the owners themselves;
- the costs of corporate management.

Character and amount

In the case of residential tenancies, management costs are treated as non-recoverable costs; however, in commercial leases it is perfectly legitimate, and in fact customary, to pass on the management costs in whole or part to the tenant. The recovery of management costs from the tenant must be expressly agreed. Examples of such costs include letting costs, the costs of service charge reconciliation, budget and on-site inspections. The type of use, size of the city, town or village, the size of the property and the social structure of the tenants are key factors in determining the level of management costs. It must be noted that the level of these costs can vary depending on local factors. The usual market costs for the external commercial management of the property may be taken as a yardstick. Annex 1 to the EW-RL Guidelines shows model values for operating expenses. For example, 3% of market gross income is quoted as a model value for management costs for commercial real estate. In the case of residential use, management costs may vary depending on the valuation date and the legal form of the apartments. For residential units, flat rates of between €280 and €350 are quoted. It also governs the annual adjustment based on the Consumer Price Index.

Flat rate amounts under II. BV

Alternatively, the flat rate amounts in II. BV §26 may be used as a guideline, as shown in Fig. 35.

Value adjustment clause

II. BV §26 (4) refers to the adjustment of this value to reflect general price trends.

Fig. 35 | Flat rate maintenance cost amounts under the EW-RL Guidelines for residential use

Flat rate management cost amounts under II. BV, in € p. a.	From 01.01.2011	From 01.01.2014	From 01.01.2015	From 01.01.2017	From 01.01.2018
Per dwelling unit; for owner-occupied homes, properties built for resale and small housing estates, per residential building	264.31	279.35	280.00	283.00	288.00
Per garage or parking space	34.47	36.43	37.00	37.00	38.00

Solution (continued)

	Value		Calculation	Amount
Management costs	€292	of dwelling unit and year	€292 × 16	€4,672
	€39	per garage and year	€39 × 6	€234
Total				**€4,906**

4.4.2.2 Maintenance costs

Definition

ImmoWertV §19 (2), point 2 and EW-RL §6.2 (1) define maintenance costs as including:

> *"the costs that must be incurred as a result of wear and tear in order to preserve the levels of revenue from the structure on which the valuation is based for the remainder of its remaining useful life".*

II. BV §28 expands further:

> *"Maintenance costs are costs which must be expended during the useful life for the purpose of sustaining the intended use of the property and of properly remedying the structural or other defects resulting from wear and tear as well as the impact of weather. The level of maintenance costs applied must also cover the cost of repairs, but not the cost of building works involving modernisation or the creation of new living space or other permanently usable space. The amount applied is not intended to cover the cost of renovating structures and facilities for which special depreciation is permissible under §25 (3)."*

The costs arise as a result of the regular maintenance and replacement of individual structural components and are therefore to be taken into account in an amount corresponding to their long-term average. They are intended to guarantee the security of income and return from a property over its entire remaining useful life. Maintenance costs are not the same as modernisation costs. A building is modernised when the measures adopted result in an improvement in the current condition of the building as well as a higher standard (of quality). EW-RL states:

> *"Maintenance costs do not include refurbishment costs and those costs that arise, for example, as a consequence of failure to maintain* [...]. *Refurbishment includes, inter alia, structural measures which substantially increase the utility value of the improvements, substantially improve general living and/or working conditions or cause a substantial saving of energy or water."* (ImmoWertV §6 (6), 2nd sentence)

DIN 31051 describes which measures constitute maintenance, with a comparison of before and after 2003 (see Fig. 36).

Fig. 36 | Definition of maintenance under DIN 31051

DIN 31051	Old (DIN standard until 5/2003)	New (DIN standard from 6/2003)
Maintenance	Measures designed to preserve the intended condition	Measures to delay the deterioration of the existing useful life
Inspection	Measures to determine and assess the current status	Measures to determine and assess functional status Determining the reasons for wear and tear Identification of the required measures
Repair	Measures designed to restore the intended condition	Measures to return the asset to a functioning condition
Improvement		Measures to increase functional reliability without changing the defined function

Source: Own presentation, Simon, T.

Obligations to bear costs

Under BGB §535 (1), 2nd sentence in conjunction with §538, the landlord is obliged to maintain or repair the property. Under residential tenancy law, the cost of minor repair jobs can be passed on to the tenant by contract if the total cost of individual repairs is limited (for example, as a percentage of the gross annual income or a specific sum per annum per individual repair). However, the extent to which this allocation to the individual tenant is still legally permissible is disputed. Commercial tenancy law basically allows any terms to be agreed. There are often provisions which oblige the commercial tenant to bear the full cost of all maintenance work up to but not including structural work.

If the tenant agrees under a lease agreement to bear the management costs and all operating expenses, this is referred to as a "triple-net contract".

Maintenance costs levels

As the property ages, the maintenance costs rise. It would not be appropriate for the actual amount determined in the year of the valuation to be stated as the maintenance costs, as this would distort the picture; long-term mean maintenance costs are stated instead. Empirical values vary between 6% and 19% of gross income depending on the type of use, the size of the city, town or village and the year of construction.

In recent years, the lettable area is frequently used as the reference value instead of the gross income. This is more practical as the actual maintenance costs are largely independent of the gross income. ImmoWertV only discusses maintenance costs and explicitly dispenses with benchmarks for maintenance costs.

The EW-RL Guidelines quote maintenance cost factors in the housing sector for 2015 of €11.00/m² of residential area per annum (garages: €83.00/space per annum), subject to annual adjustment in the same way as management costs. In the commercial sector, maintenance costs are quoted in percentages of empirical figures for residential properties, depending on whether the property is of high value (offices or retail space) or of a lower value

(logistics, warehouses or production halls); the landlord normally bears the costs in relation to the structure and fabric.

Flat rate cost factors for maintenance costs are listed in II. BV §28 (see Fig. 37).

Fig. 37 | Flat rate maintenance cost amounts under II. BV

Flat rate maintenance cost amounts under II. BV	Up to 31.12.2004	From 01.01.2005	From 01.01.2008	From 01.01.2011	From 01.01.2014	From 01.01.2017
Ready for occupation at the end of the calendar year 32 years or more ago	€11.50/m²	€12.02/m²	€12.74/m²	€13.22/m²	€13.97/m²	€14.23/m²
At least 22–31 years	€9.00/m²	€9.41/m²	€9.97/m²	€10.34/m²	€10.93/m²	€11.14/m²
Less than 22 years	€7.10/m²	€7.42/m²	€7.87/m²	€8.16/m²	€8.62/m²	€8.78/m²
Deduction for separate commercial supply of own heating	€0.20/m²	€0.21/m²	€0.21/m²	€0.23/m²	€0.24/m²	€0.24/m²
Increase for lift	€1.00/m²	€1.05/m²	€1.11/m²	€1.15/m²	€1.22/m²	€1.24/m²
Figure to be included for costs of decorative repairs when borne by the landlord	€8.50/m²	€8.88/m²	€9.41/m²	€9.76/m²	€10.32/m²	€10.51/m²
Deduction for minor maintenance	€1.05/m²	€1.10/m²	€1.17/m²	€1.21/m²	€1.28/m²	€1.30/m²
For garages	€68.00/ space	€71.07/ space	€75.33/ space	€78.15/ space	€82.60/ space	€84.16/ space

Indexation

With regard to changes in value over time, II. BV §28 (5a) refers to the adjustments under II. BV §26 (4).

Decorative repairs

Maintenance costs include decorative repairs. These include papering walls, painting or whitewashing walls and ceilings, painting floors, radiators and heating pipes, internal doors and windows and the inside of external doors. In standard residential tenancies, the tenant is required to undertake decorative repairs. However, they must be included as repair costs if the landlord has accepted the obligation to carry out the work (see also EW-RL §6.2 (1)).

Regular decorative repairs are not included in the II. BV rates. If the tenancy agreement requires the landlord to carry out these repairs, they must not exceed €8.50 per m². If the tenant is responsible for the cost of decorative repairs, no change is made to the rates for maintenance costs are not modified (see II. BV §28 (4)).

Small maintenance jobs

If the tenancy agreement provides that the cost of minor maintenance work must be paid by the tenant, the rates in II. BV are reduced by €1.05 (II. BV §28 (3)). In this context, II. BV §28 states that:

"Minor maintenance work includes only remedying minor damage to installations for electricity, water and gas, heating and cooking, window and door latches, and the closing mechanisms for window shutters." (see *Fig. 37*)

Solution (continued)

	Value in €/unit		Calculation	Amount in €
Maintenance costs	€11/m²	of residential area p.a.	€11 × 1,250	13,750
	€87	per parking space p.a.	€87 × 6	522
Total				**14,272**

4.4.2.3 Allowance for the risk of rental loss

Definition

According to ImmoWertV §19 (2), point 3 and EW-RL §6.3 (1), the allowance for the risk of rental loss includes:

"the risk of a reduction in income due to irrecoverable rent or lease arrears, or other income owing to temporary vacancies of space intended for rent, leasing or other purposes; it also includes the risk of irretrievable costs of legal proceedings for payment, for the termination of a lease agreement or for an eviction".

EW-RL §6.3 (2) also states:

"Permanent, structural vacancy is not covered by the allowance for the risk of rental loss. It is to be considered as a special property-specific site characteristic."

Amount

The level of the allowance for the risk of rental loss depends critically on the state of repair of the improvements, the type of land and building(s) concerned, the market conditions and the regional location. Particular consideration must be taken of the remaining useful life. II. BV §29, 4th sentence excludes the allowance for the risk of rental loss from the calculation as soon as a claim may be covered, for example, by a claim for reimbursement by a third party. This would have to be guaranteed over the entire remaining useful life, which is, however, rather unlikely.

Residential property

The location of residential property is a key factor when determining the allowance for the risk of rental loss. Homes in good or very good residential areas are less likely to remain vacant than homes in less good residential areas. Regional market data can be used to determine the allowance for the risk of rental loss. A 2% allowance for the risk of rental loss means that a consistent 2% loss in rental income is to be expected over the entire lease term. The current situation in several sectors of the property market in Germany, as well as the demographically-driven trend towards more vacant properties (population loss), suggests that higher percentage deductions may be appropriate in individual cases in the future. For residential uses, the EW-RL Guidelines look to II. BV §29, and in Annexes 1, 1c and 2c they quote a figure of 2% of the achievable market gross income or, in the case of commercial properties or mixed-use properties, 4% of the achievable market gross income as model values.

Office and retail property

In contrast to residential tenancies, the allowance for the risk of rental loss in commercial tenancies is heavily dependent upon the tenant's creditworthiness, the general economic situation and structural changes in the market (for example, increase in online retail). Once parts of a commercial property fall vacant, it may become increasingly difficult to rent out the other parts of the building or buildings. The allowance for the risk of rental loss is stated for the entire economic remaining useful life, which in many cases is longer than the remaining term of commercial tenancies. The allowance for the risk of rental loss will need to apply over the long term. It should be pointed out that structural vacancies must also be considered as part of the special circumstances affecting value.

Solution (continued)

	Value	Calculation	Amount in €
Allowance for the risk of rental loss	Assumption: 5 % of gross annual income	0,05 × €167,160 =	8,358
Summary overview of operating expenses:			
Management costs		€292 × 16 +€39 × 6 =	4,906
Service charges			–
Maintenance costs		€11 × 1,250 m² + €87 × 6 =	14,272
Allowance for the risk of rental loss			8,358
Total operating expenses			**27,536**

4.4.2.4 Service charges

Definition

Although ImmoWertV §19 (2), point 4 and EW-RL §6.4 refer to service charges, they do not provide a definition of their own. The notes to the Ordinance refer to II. BV §27, which is now covered by BetrKV §1 (see Fig. 38), state:

> *"Service charges are those costs incurred by the owner or long leaseholder (Erbbauberechtigter) on an ongoing basis as a function of ownership or long leasehold of the building, or the proper intended use of the building, annex, structure, facilities and land. Contributions in kind or work performed by the owner or long leaseholder may be valued at the same rate as could be obtained for equivalent performance by a third party, including but not limited to that provided by a registered business; the value added tax charged by the third party may not be included."*

The provisions of BetrKV allow most of these costs to recovered from residential tenants. Such costs are charged and paid for in advance in monthly instalments and, in most cases, fall payable the year following the previous reconciliation period.

Fig. 38 | Service charges pursuant to BetrKV

Service charges pursuant to BetrKV

Services provided by the landlord
Property management costs
Maintenance costs

Ongoing municipal charges on the property
Costs

- of water supply
- of drainage
- of heating, incl.
  - operating the central heating system, including ventilation system
  - commercial deliveries of central fuel supply system
  - maintenance of floor-by-floor heating systems and individual gas heaters
- of the hot water supply, incl.
  - associated heating and hot water installations
- of operating the passenger or goods lift
- of street cleaning and refuse collection
- of cleaning the building and pest control
- of garden maintenance
- of lighting
- of sweeping chimneys and flues
- of property and liability insurance
- of the caretaker/janitor
- of antennae and cable connections
- of the operation of laundry services and equipment
- of other service charges

Special features of commercial leases

The parties to commercial lease contracts are largely free to agree whatever arrangements they wish concerning who should pay for service charges. For this reason, in a commercial lease situation the service charges can be passed on to the tenant in full. The principle here is that none of the service charges which are recoverable from and paid by the tenant are considered when determining the gross annual income in the income approach.

The service charges which a tenant pays directly as a result of a contractual relationship with an external service provider (utility etc.) rather than with the letting enterprise are also not included. BetrKV is not generally applicable in the commercial field, and if the parties wish it to apply this to their service charges they must make explicit reference to the Ordinance in their lease agreement.

Even with full recovery of operating expenses under a lease agreement, in the commercial sector a small percentage is applied to account for risk. This is an expression of the uncertainty that, during the whole of the remaining useful life a lease agreement which differs from the present tenancy agreement favouring the landlord is conceivable, and there may also be legal uncertainties, especially in the case of new costs (for example, terrorism insurance and similar), as to whether full recovery from the tenant is possible.

Problems

The variety of different contractual arrangements on the acceptance or recovery of service charges poses a number of difficulties when determining market value. As not all recoverable service charges are always recharged, this generally gives rise to partially inclusive rents rather than net rents. One example in the commercial field is an agreement that costs of

real estate tax and building insurance should be borne by the landlord. In principle, only service charges which cannot be passed on to the tenant or user can be considered when determining income value. This tends to be the exception in the rented housing sector. Only very few cost factors remain as service charges borne by the landlord. To determine the net income, the valuer must inspect the lease agreements as precisely as possible. Where relevant, the actual service charges or additional safety margins should be used to ensure that the correct net income can then be determined. It is also important that the actual service charges are incurred as part of proper management and are usual in the market. Empirical figures must be used if the service charges are not available.

Service charge levels

Many institutions have launched initiatives designed to achieve greater transparency regarding the quantitative and qualitative aspects of building management. In the commercial housing sector, the National Association of German Housing and Real Estate Companies (GdW) has been running a benchmark project for several years in which many member businesses participate (see www.gdw.de). It is important in this context to note that a large number of the properties included in the study are linked to specific social purposes. In the commercial sector, benchmark initiatives have been launched by the International Facility Management Association (IFMA), Jones Lang LaSalle, the Investment Property Databank (IPD), and BNP Paribas. An increasing number of real estate companies are posting their service charge data on web-based benchmark platforms such as www.wohncom.de or www.immobench.de. In 2018, Jones Lang LaSalle published a study on average service charges for office space (see Fig. 39) which shows that service charges vary greatly between different cost groups such as insurance, heating or cleaning.

Fig. 39 | OSCAR Study by Jones Lang LaSalle

	Air-conditioned						Not air-conditioned					
	2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
Municipal charges	0.53	0.55	0.55	0.56	0.57	0.57	0.51	0.51	0.52	0.52	0.53	0.53
Insurance	0.13	0.13	0.13	0.14	0.14	0.14	0.10	0.10	0.10	0.11	0.11	0.11
Maintenance/servicing	0.51	0.57	0.59	0.59	0.59	0.56	0.43	0.45	0.46	0.46	0.45	0.44
Electricity	0.41	0.45	0.47	0.47	0.48	0.46	0.32	0.33	0.35	0.36	0.37	0.37
Heating	0.60	0.59	0.58	0.56	0.54	0.51	0.58	0.57	0.57	0.54	0.52	0.48
Water, drainage	0.13	0.12	0.12	0.12	0.13	0.13	0.12	0.12	0.12	0.12	0.12	0.12
Cleaning	0.32	0.36	0.37	0.37	0.37	0.36	0.29	0.29	0.30	0.31	0.30	0.30
Security	0.33	0.31	0.31	0.32	0.32	0.32	0.29	0.26	0.27	0.27	0.28	0.29
Management	0.32	0.35	0.36	0.36	0.37	0.36	0.29	0.30	0.31	0.32	0.32	0.32
Caretaker	0.28	0.30	0.31	0.31	0.30	0.31	0.28	0.26	0.26	0.27	0.27	0.27
Other	0.19	0.17	0.17	0.19	0.19	0.18	0.12	0.08	0.08	0.11	0.11	0.12
Total	**3.75**	**3.90**	**3.96**	**3.99**	**4.00**	**3.90**	**3.33**	**3.27**	**3.34**	**3.39**	**3.38**	**3.35**

Source: Jones Lang LaSalle, OSCAR 2018 (see press release dated 28th September 2018)

Service charges for vacant space

It is important not to underestimate service charges which are usually recoverable where space in a valuation property which been vacant for some time. The inability to recover these costs means that they continue to be borne by the owner of the property for as long as it remains vacant (for example, pro rata real estate taxes, street cleaning, minimal heating of the vacant space in winter). In practice, costs of between €1.00 and €3.00/m² p.m. are calculated and deducted as special property-specific characteristics (ImmoWertV §8 (2), point 2) in addition to the associated shortfall in rental income.

Solution (continued)

The recoverable service charges of €1.05 per m² of residential area are not taken into account when determining gross income. This means that the gross income is identical to the net income of €167,160. There are no non-recoverable operating expenses.

4.4.3 Net income

The net income is obtained by deducting operating expenses from the gross income.

Solution (Continued)

		Amount in €
Gross income from rents		165,000
Gross income from garages		2,160
Non-recoverable operating expenses:		
Management costs	4,096	
Maintenance costs	14,272	
Allowance for the risk of rental loss	8,358	
Service charges for vacant space	–	
Total operating expenses	27,536	27,536
(as percentage of gross income: 16.5%)		
Net income		139,624

Showing the operating expenses as a share of gross annual income enables a simple check to be made on whether the calculated costs constitute a typical share of rental income.

4.4.4 Annual return on land value

Proportion of the land value in the gross income

So far, only the net income has been calculated, on the basis of gross income minus operating expenses. However, this includes that part of total income derived from the value of the income-generating land. The proportion of the income which can be ascribed to the land is determined separately and is referred to as the annual return on land value. This should ensure that a reasonable return is earned on the capital invested in the land itself.

Calculation

This is calculated by multiplying the land value by the capitalisation rate and deducting the result from the net income. According to ImmoWertV §17 (2), point 1, the net income must be reduced by an amount equal to an appropriate return on the land. The capitalisation rate is specified for this purpose.

Areas of land which can be used separately

At the same time, however, ImmoWertV §17 (2), point 1 introduces one restriction: *"Areas of land which can be used separately must not be included when determining the annual return on land value."* This issue is addressed under EW-RL §8 (3), whereby separately usable areas of land may not be included in the annual return on land value, as the income from the buildings can be obtained without them. Including these areas in the calculation would unjustifiably extend the capital tie-up to areas of land for which this is not necessary (for example, because they can be disposed of separately or built on profitably by the owner) and would in this way reduce the overall return.

Annual return on land value = land value × capitalisation rate

Solution (continued)

Determination of the annual return on land value:

Values:	Guideline land value:	€1,350/m²
	Site area:	1,500 m²
	Capitalisation rate:	2.5 %

€1,350/m² × 1,500 m² × 0.055 = €50,625

4.4.5 Net income share of the building

The net income share of the building is determined by deducting the annual return on land value from the net income.

Solution (continued)

	Amount in €
Net income from the property	139,624
Annual return on land value	– 50,625
Net income share of the building	**88,999**

4.4.6 Capitalisation rate

Definition

Capitalisation rates are defined in ImmoWertV and in EW-RL §7. In ImmoWertV §14 (3), capitalisation rates are defined as follows:

> *"Capitalisation rates (BauGB §193 (5), 2nd sentence, point 1) refer to the average achievable market return on the market value of properties depending on the type of property."*

The 2nd sentence continues:

> *"They should be established on the basis of appropriate sale prices and the corresponding net income for sites which are developed and used similarly, taking into account the remaining useful life of the building in accordance with the principles of the income approach (§§17 to 20)."*

The intention of the first sentence is to provide a conceptualisation of the capitalisation rate; the second contains a derivation rule. In principle, EW-RL §7 (1) stipulates:

> *"The expectations of market participants with regard to change in the general income and value conditions in the property market are reflected in the capitalisation rate. Applying the appropriate capitalisation rate typical for the use in question (ImmoWertV §14 (1) and (3)) serves to adjust the value to market conditions."*

This expresses the orientation of the capitalisation rate towards the future.

Capitalisation rate level

An exact, numerical indication of the capitalisation rate is not to be found in any of the rules and regulations for determining market value. However, EW-RL Annex 2 contains descriptions of the model parameters for determining the capitalisation rate, which should ensure that the determination conforms to the model. Here, too, no specific figures are given.

This is quite logical. It is fundamentally impossible to state capitalisation rates for all properties, i.e. real estate within the geographical scope of ImmoWertV and/or EW-RL, at all points in time. A generally binding definition of the capitalisation rate is prevented by the large number of influencing factors and interdependences; the regional and property-specific differences are just too great.

For this reason, land valuation boards are responsible for determining and publishing capitalisation rates at the regional level. Often, capitalisation rates are published only for residential properties. Usable capitalisation rates are seldom available for commercial properties, as the number of comparable sales transactions is just too low. Occasionally, capital values (market values per m^2 of usable area) are also used as comparative values from which capitalisation rates can be retroactively calculated. If property market reports published by local land valuation boards are available, they also provide indicators for determining the capitalisation rate.

In addition, real estate research institutes or real estate magazines, and also real estate consultants (usually only for a few major cities and the most common types of real estate), provide yield indicators (gross or net initial yields) which in turn can serve as indicators for determining the capitalisation rate.

Characteristics

In principle, the characteristics of the property are reflected in the capitalisation rate. The capitalisation rate empirically derived from the market also expresses the future expectations of the market over the whole of the remaining useful life of the property. Sale prices reflect real and inflationary increases in income and value, the tax and legal situation, changes in operating expenses, subsidies, etc. The capitalisation rate and the gross income are the key components determined as part of the income value.

Minor changes in these input factors can lead to large deviations in the income value determined. Determining an achievable market capitalisation rate is therefore of significant importance when using the income approach to determine the market value (see Kleiber, J., 2017, p 1251 et seq.). These factors are discussed below.

According to ImmoWertV §14 and EW-RL §7, the capitalisation rate is not the same as the capitalisation rate referred to in BelWertV §12 (4).

⇨ See the "Mortgage Lending Value" module book.

4.4.6.1 Determinants of the capitalisation rate

The influencing factors can be divided into four groups:

- Economic and economic policy related factors
- Market factors, including factors relating to supply and demand in a property market segment
- Location (macro and micro location)
- Characteristics of the property

The economy and economic policy

Economic and economic policy related factors determine the fundamental conditions in property markets. Key factors determining the capitalisation rate are the expectations of potential investors regarding future economic trends and the profitability of the property. State housing policies can result in housing shortages or surpluses. Markets then respond with rising or falling prices. Government tax policy can make real estate more or less attractive to investors, depending on its impact on profits. The primary instruments are depreciation options for income tax purposes. Financing conditions, including for mortgage loans, can have a significant influence on the capitalisation rate by making building finance either cheaper or more expensive. The availability, terms and yields of alternative investment products which have to be taken into even greater account in increasingly transparent property markets also influence the capitalisation rate.

Capitalisation rates generally respond considerably more slowly to changes in the general economy or economic policy than, by way of comparison, capital market interest rates. This is the result of a number of factors which impact the capitalisation rate. The capitalisation rate should not be regarded as the return on a real estate investment. The profitability or return, for example, is measured as the internal rate of interest, i.e. the rate of interest at which the capital value of an investment assumes the value zero or using a full financial plan method to calculate the return on equity.

Market

Alongside economic and economic policy-related components, market-related factors must be considered. The market is primarily shaped by the supply of and demand for property in a specific segment. The investment risk increases when there is a surplus supply of real estate because it may become more difficult in some cases for an investor to sell or rent out properties. Investors will take on this risk only if the return on the high-risk real estate investment is also higher than on a comparable low-risk investment. As far as the capitalisa-

tion rate is concerned, this means that the lower the demand for real estate, the higher the capitalisation rate. The capitalisation rate is also influenced by general price levels. Investors will only risk their money in real estate if the investment generates a market return on the amount invested. In any case, the influencing factors must be analysed precisely for each property and adjusted to the valuation property by increasing or decreasing the capitalisation rate.

Type of property and use

As well as economic and economic policy-related components, many other property-related factors also influence the capitalisation rate. The type of use to which a property is put is the key factor. The return on a property tends to increase in line with increasingly commercial building use. This reflects different assessments of risk. Rented housing property is regarded by potential investors as a relatively low risk and secure long-term capital investment, and the capitalisation rate is lower as a result. In contrast, purely commercial properties or properties with a large commercial element are regarded as higher risk investments, given that they are heavily dependent on the creditworthiness of the tenant and on general economic trends. Investors will therefore accept this higher risk only if the investment also offers a higher return. The remaining useful life of a property will also have an impact on the capitalisation rate. The capitalisation rate tends to be lower on newer buildings with a long remaining useful life (lower risk) than on properties with a shorter remaining useful life (higher risk). However, here it is also necessary to check whether older buildings may have the potential to increase in value as a result of their location and market conditions, which in turn can lead to a choice of a lower capitalisation rate.

These empirical factors apply generally, but in the case of high-quality commercial real estate in major cities, there is often a contrary trend. The scarcity of supply and continued strong demand from high equity investors have led to a stronger compression of yields. In the case of older buildings in good locations with a short remaining useful life, the potential for restructuring will often play a decisive role in the future, and therefore impact on the capitalisation rate.

The location of a property also plays an important role. Commercial properties in city centre areas tend to be exposed to much lower risk than properties in suburban locations.

In recent years, investment volumes in both commercial and residential real estate have been high, and so the increasing scarcity of suitable investment properties has also influenced the capitalisation rate: properties in second or third tier locations have experienced significant uplifts in value. Even properties that were previously considered high-risk, such as logistics properties, are often calculated with capitalisation rates previously applied to good quality office properties. Here, monetary policy, and the zero-interest-rate policy maintained for many years has had a significant influence because, outside the real estate sector, profitable and (assumed) stable investment opportunities have been much less available than in previous years.

4.4.6.2 Determining the capitalisation rate

As discussed above, the capitalisation rate is influenced by many different factors that are impossible to quantify in many cases. In practice, the terms of the lease agreements, their durations, the level of the rent, the rental growth potential, the remaining useful life, over- and underrent and much more must be considered. Any deviations from the published capitalisation rates must therefore be justified.

The capitalisation rate can therefore derived by, for example, reversing the income approach on the basis of purchase price data collected by regional land valuation boards (BauGB §193 (3)). This is done by comparing the net income from properties, depending on the remaining useful life of the improvements built on the land, with the income value (more precisely the purchase price of the property).

By reversing the income approach, the capitalisation rate is calculated using the formula below. The first step is to determine an approximated capitalisation rate (Y), for example, from the ratio of the net income (NI) to purchase price (PP)

$$Y = \frac{NI \times 100}{PP}$$

and to use this in the formula below. Multiplication provides the first approximation of the capitalisation rate. This can then be input as the capitalisation rate. The capitalisation rate is then calculated iteratively in this way in several steps.

$$\underbrace{Y = \frac{NI \times 100}{PP}}_{\text{1. Approximation}} \underbrace{- \frac{q - 1}{q^n - 1} \times \frac{PP - LV}{PP} \times 100}_{\text{2. Correction}}$$

Y = Capitalisation rate
NI = Net income
PP = Purchase price
q = 1 + capitalisation rate / 100
LV = Land value
n = Remaining useful life

This calculation is performed on all the available purchase prices. By calculating an arithmetical mean, it is then possible to determine an average capitalisation rate for the category of property being studied.

Application

The capitalisation rate is applied in two different ways as part of the income approach: firstly, it is used to determine the annual return on land value and, secondly, in the capitalisation of the net income from the building.

EXAMPLE (continued)

The example assumes a capitalisation rate of 2.5 %.

4.4.7 Remaining useful life

Definition

At this point, the reader is referred to the explanation of the determination of the remaining useful life in Section 4.4.2 and to the "Mortgage Lending Value" module book. According to EW-RL §9 (1) and (2):

> *(1) "The economic remaining useful life is to be determined according to the model used to derive the capitalisation rate."*
> *(2) "In the case of land with several buildings of different remaining useful lives but which form an economic unit, and in the case of buildings with components of significantly different remaining useful lives, the relevant economic remaining useful life is not necessarily determined by the building with the shortest remaining useful life. It must be determined from an economic perspective, taking into account the possibility of refurbishing economically obsolete buildings and structures."*

EXAMPLE (continued)

The remaining useful life is 32 years (year of construction 1970, total useful life 80 years, valuation date is in 2018).

4.4.8 Net present value factor for capitalisation

According to ImmoWertV §20 and the EW-RL Guidelines, the capitalisation rate and remaining useful life determine the net present value factor which is multiplied by the net annual income from the improvements:

> *"Capitalisation and discounting must be based on the net present value factor. The net present value factor must be determined in the manner described in Annex 1 or Annex 2, or according to the calculation rules stated therein, taking account of the remaining useful life (§6 (6), 1st sentence and the applicable capitalisation rate (§14 (3))."*

In financial arithmetic terms, the capitalisation factor represents the net present value of an annuity payable in arrear which is limited in time by the remaining useful life of the building. This factor represents the net present value of a temporary annuity.

The question concerning the net present value of the temporary annuity is:

What is the net present value (capital value) (NPV) of a series of (n) equal payments (P) at a rate of interest of (i), if the payments and the interest premiums are payable at the end of the year?

The formula for calculating the present value of the annuity factor is:

$$NPV = P \times \frac{(1+i)^n - 1}{(1+i)^n \times i}$$

The net present value is then multiplied by this factor to obtain the present value of a series of equal payments (P).

$$NPV = NPVF \times P \qquad \text{(NPVF = Net present value factor)}$$

The annuity value P is then "multiplied" by the net present value factor. This explains why the term "multiplier" was introduced to the determination of value on 1st July 2010.

EXAMPLE

You have rented office space to a company for €30,000 per annum, payable at the end of the year. What capital value does this lease agreement have at an interest rate of 6% and a remaining term of a) 10 years and b) 30 years?

Solution

$$NPV = P \times \frac{(1+i)^n - 1}{i(1+i)^n} \qquad \text{ImmoWertV Annex 1}$$

a) Remaining term 10 years

$$NPV = 30,000 \times \frac{(1+0.06)^{10} - 1}{0.06(1+0.06)^{10}} = 30,000 \times 7.36009 = €220,802.61$$

b) Remaining term 30 years

$$NPV = 30,000 \times \frac{(1+0.06)^{30} - 1}{0.06(1+0.06)^{30}} = 30,000 \times 13.764831 = €412,944.93$$

Annual capitalisation

The phrase "annually in arrear" does not refer to the calendar year. This would only be the case if the valuation date was 1st January. In the case of all other valuation dates within the same calendar year, the income receivable from the valuation date up to the day before the next valuation date must be considered in the following year.

Empirical foundations

In the context of property valuations, the capitalisation factor is made up of the empirical values for the capitalisation rate as well as the remaining useful life, and it therefore establishes the link to the market. In its financial arithmetic function, the capitalisation factor can be taken from the literature on financial arithmetic or calculated using a formula created specifically for the purpose. Excel's *PV function (interest rate; life; –1)* also provides a quick way to calculate it. Capitalisation factors are also printed for certain interest rates in Annex 1 to ImmoWertV.

Interpolation

If a capitalisation factor is determined using tables for which the required interest rate has not been printed, it is important not to interpolate between adjacent interest rates as the formula for the annuity value is not a linear function.

In principle, in the case of such intermediate values which are usually based on levels of basis points in the single-digit range, one needs to ask to what extent this level of accuracy may be misleading. Ultimately, the determination of the capitalisation rate is concerned with transforming qualitative factors relating to the individual valuation property (location, market, property type, property characteristics etc.) into a quantitative calculated value.

Therefore, many land valuation boards also tend to publish capitalisation rates in ranges or have given up publishing them for commercial real estate altogether.

Solution (continued – valuation date 2018)

	Amount in €
Income value of improvements	88,999
Capitalisation over a remaining useful life of 32 years, applying a capitalisation rate of 2.5%: 21.85	
Income value of improvements 21.85 × €88,999	1,944,628

4.4.9 Income value and general market adjustment

The total of land value plus the income value of the improvements initially corresponds to the income value before market adjustment. According to ImmoWertV §8 (2), point 1, a general market adjustment is not usually required because this has already been considered appropriately by way of the achievable market valuation parameters (income, operating expenses, capitalisation rate and remaining useful life). The income value following market adjustment then corresponds to the income value before market adjustment.

Solution (Continued)

	Amount in €
Income value of improvements	1,944,628
plus land value	
€1,350/m² × €1,500/m²	2,025,000
Income value before market adjustment	3,969,628
Market adjustment, ImmoWertV §8 (2), point 1: does not apply	–
Income value after general market adjustment	
less outstanding repairs amounting to €100,000	3,869,628

4.4.10 Treatment of special property-specific characteristics

Definition

The provisions for special property-specific characteristics are contained in ImmoWertV §8 (2), point 2 and EW-RL §11, 11 (1) to (7). The guidelines point out that *"special property-specific characteristics of real estate deviate considerably from the usual characteristics of the individual property being valued"* and therefore must be considered separately if they have an independent influence on value in the market.

According to ImmoWertV §8 (2), point 2, such special characteristics of the valuation property which have not been included in valuation procedures so far must normally be considered in the light of general market adjustments (point 1). §3 provides a non-exclusive list of circumstances affecting value:

> *"Particular characteristics which are specific to the property, such as economic obsolescence, an above-average standard of upkeep, building defects or structural damage, as well as yields which differ substantially from achievable market yields may, to the extent that this corresponds with ordinary business practices, are to be taken into account by applying market-oriented upward or downward adjustments or in any other way appropriate."*

The regulation provides that these characteristics should be considered only if this is customary business practice (see also Fig. 40).

Fig. 40 | Upward and downward adjustments arising from special property-specific characteristics

Downward adjustments	Upward adjustments
Housing and tenancy law restrictions, such as price controls in the social housing sector (underrent)	Overrents, or additional consideration of an attenuating factor relating to tenants' creditworthiness
Economic obsolescence – limited marketability (poor fit-out specification, inefficient floor plans or poor positioning of the building on the site	Use of the land for advertising purposes, mobile phone transmission station
Listed building protection (maintenance)	Unusually good state of repair
Contamination	Architectural design, listed building protection
Abnormal building condition (building defects and structural damage, deferred maintenance, temporary vacancy, structural vacancy (including operating expenses), expenditure for site clearance, partial demolition and site safety works, poor energy efficiency, deleterious site contamination, shortfalls between current and market incomes)	Extensive vegetation, good energy efficiency, property-specific rights, positive difference between current and market incomes

4

No double counting

Any deviations from the normal situation are accounted for by making an appropriate market correction to the initial values (see explanations in Chapter 3). However, it is important to ensure that no factors are accounted for twice. Economic obsolescence, for example, is often included by applying a lower achievable market rent or a shorter remaining useful life, and therefore a further downward adjustment is not usually required.

▸ Solution (continued)

One characteristic specific to the property included in this example is outstanding repairs costed at €100,000.

	Amount in €
Income value after general market adjustment	3,969,628
Outstanding repairs	– 100,000
Income value	3,869,628
	Rounded up to 3,900,000

4.4.11 Determining market value

It may be necessary to draw on and use results derived from other approaches (ImmoWertV §8 (1) and EW-RL §12 (1) and (2)) to obtain the income value from the market value. As is the case with all the valuation approaches in ImmoWertV, it is important to ensure that the data used is sufficiently informative and that the method is appropriate for the valuation property.

Solution (continued)

The income value is adequately determined as the market value at €3,900,000.

4.5 Simplified income approach pursuant to ImmoWertV and EW-RL

Definition

The simplified income approach differs from the general income approach only in terms of the way it treats the value of land (see Fig. 41). According to ImmoWertV §17 (2) and the EW-RL Guidelines, the income value is determined using the simplified approach on the basis of achievable market yields:

> *"from the capitalised net income under §20 (§18 (1)) and the land value determined under §16 which, with the exception of the value of areas of the site which can be used separately, must be discounted on the valuation date pursuant to §20".*

Equivalent methods

In other words, instead of deducting an annual return on land value from the net income and adding the full land value at the end of the calculation, only the land value as discounted for the remaining useful life is now added:

$$IV = (NI - Y \times LV) \times M + LV \Leftrightarrow IV = NI \times M + LV \frac{1}{(1+Y)^n}$$

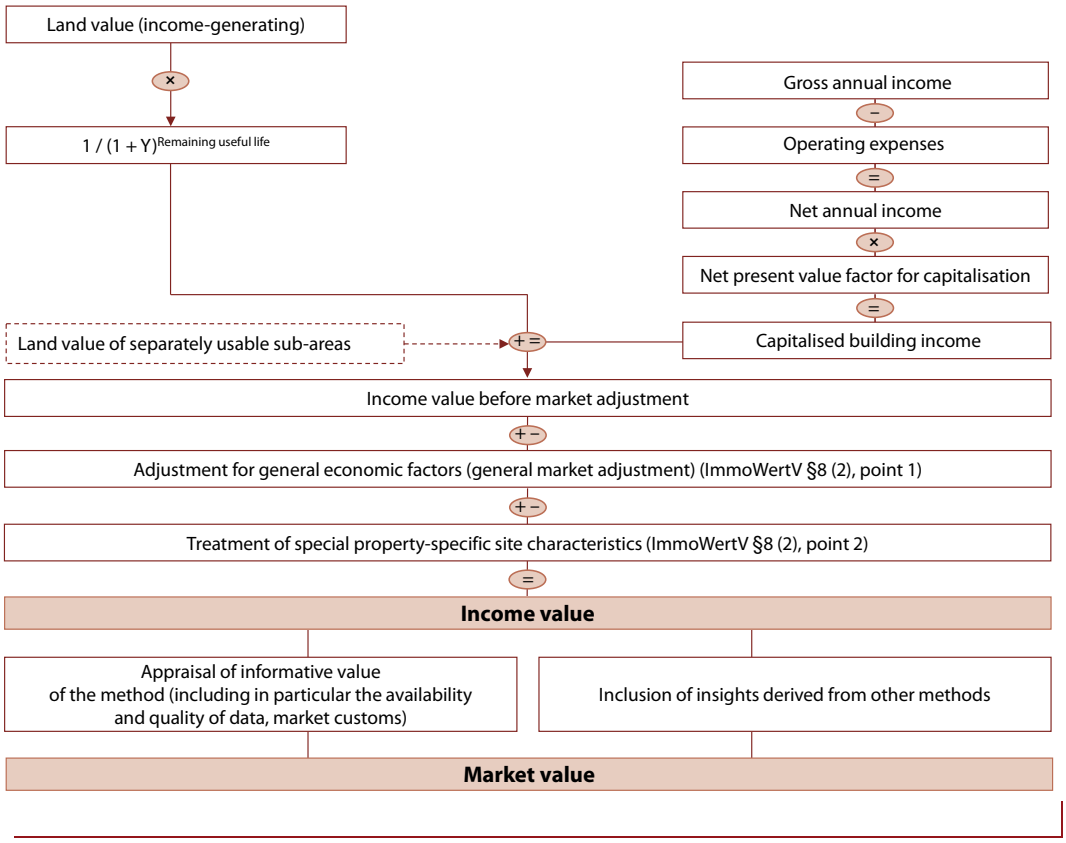
M = Multiplier/capitalisation rate; $(1 + y)^2$ = Discount rate/AF = DR

Both methods are arithmetically equivalent and, apart from rounding differences, produce the same final result.

Solution (continued)

		Amount in €
Net income		139,624
Capitalisation over a remaining useful life of 32 years, applying a capitalisation rate of 2.5 % : 21.85		
Capitalised building income	21.85 × 139,624	3,050,784
plus discounted land value	€1,350/m² × €1,500/m² = 2,025,000	
Discount rate (NPVF) over a remaining useful life of 32 years, applying a capitalisation rate of 2.5% : 0.4538	2,025,000 × 0.4538	**918,945**
Income value before market adjustment (disregarding deferred maintenance)		**3,969,729**
	Rounded to	**3,970,000**

Fig. 41 | Simplified income approach – structure and procedure



Source: Simon, T., 2010

4.6 Income value based on periodically fluctuating income

Definition

The third type of income approach is defined in ImmoWertV §17 (3) and EW-RL §4 (3) and is based on periodically fluctuating income:

> *"In the income approach based on periodically fluctuating income, the income value is determined from reliable data on sustainable periodic net income (§18 (1)) during a period of observation and the residual value of the land at the end of the observation period. The periodic net income and residual value of the building must both be discounted on the valuation date under §20."*

Similarity to DCF

The structure of this two-phase model appears to be related to the classic discounted cash flow models. However, the capitalisation rate must be applied (see above) as stipulated by ImmoWertV §20 and it cannot therefore be used as a forecast model. Further limitations are imposed by ImmoWertV §17 (1), i.e. the conditions which must be met for its application. Where:

- fundamental changes in income streams are predictable, or
- income is likely to deviate significantly from achievable market yields

the income value may be determined on the basis of periodically fluctuating income. The starting point in this case is the actual income. The variant offered here is therefore simply an adjustment of the general income approach.

Determining residual value

The rules in ImmoWertV describe only how account should be taken of future income for the detailed period. There are no instructions about how to determine the residual value. It is a good idea to draw on the general or simplified income approach for this purpose. However, the capitalisation in perpetuity method is not explicitly excluded.

In EW-RL §4.3 (3) it is stated that:

> *"As a rule, the residual value of the property can be determined from the net present value of the net income for the remaining period plus the land value, which has been discounted over the remaining period. The remaining period is the economic remaining useful life reduced by the period under review* [...] *When determining the net income for the remaining period, for example using the simplified income approach, the achievable gross income on the valuation date must be assumed. The same also applies to the operating expenses factors. Capitalisation is applied to the remaining period. Capitalisation and discounting are each based on the same capitalisation rate* [...]*."*

Land value

According to ImmoWertV §17 (3), the land value must not be deducted from the periodic net income during the period of observation. As no specific way of determining the residual value is stipulated, whether the land value is considered at all largely depends on which approach is selected. If the general or simplified income approach under ImmoWertV §17 (1) or (2) is used to determine the residual value, the land value must be determined and applied; in contrast, land value is not used when applying the capitalisation in perpetuity method.

Advantages

The periodically fluctuating income method is particularly advantageous for properties with many tenants and different income structures. Whilst in the general and simplified approaches special characteristics of particular tenancy agreements (which are one form of property-specific characteristic) are taken into account only after determining achievable market income value, by increasing or reducing it, when the direct method is used, they are captured in a direct statement of income. The annual change in total income can therefore be seen very clearly.

Disadvantages

Although initially it appears more informative, all the tenancy agreements need to be listed separately if the expert report is to be easily understood by the reader; otherwise it will be impossible to verify the resulting summary findings which appear in the form of a discounted cash flow method.

Solution to the "Initial case study"

The income approach should be used to determine the market value of the rental housing in Frankfurt am Main, as the primary purpose of this property is to obtain a return on the capital invested. The basic structure of the income approach is dualistic – the land is valued separately from the improvements built on it. The input data which is needed, such as the achievable market gross income, capitalisation rates and guideline land values, must be carefully researched. Current market reports, such as those published annually by regional land valuation boards, should be used for this purpose. Other sources include comparative and transaction databases (for example, IPD, the IVD rental and price tables, IZ residential market analyses, Real Capital Analytics, OSCAR) and the relevant specialist literature.

Differentiating between elements of value derived from the land and elements of value derived from the improvements gives the income approach specific features in terms of remaining useful life. Where the remaining useful life is shorter, the land value usually has considerable impact on the income value determined. The market value of improvements which no longer have any economic useful life can be determined only from the land value less the costs of demolition. In contrast, the land value has little impact on the market value of properties with a remaining useful life of over 50 years and a capitalisation rate of over 5%, and in some circumstances, it may be possible to disregard the land value entirely.

This eventuality is not covered by ImmoWertV. The estimation of the remaining useful life is therefore extremely important. A short remaining useful life has a greater impact on the capitalisation factor than a long remaining useful life. This means that the income approach is susceptible to error where the remaining useful live is short.

Bearing in mind the table of net present value factors, it is apparent that it is very important to be able to determine the capitalisation rate exactly. Even small deviations of 0.5% from the capitalisation rate result in a considerable change in the income value, and thus market value.

4.7 Chapter 4 activities

Activity 1 What particular structure characterises the income approach?

a) The income value of the property is determined from the combined land value and income value of the improvements.
b) The land value is determined separately from the income value of the improvements.
c) The land value does not play any role at all when determining the income value of a property.

Activity 2 What is the arithmetic formula for the income approach?

a) $IV = (GI + OpE + Y \times LV) \times \frac{q^n - 1}{q^n \times (q - 1)} + LV$

b) $IV = (GI / OpE + Y \times LV) \times \frac{q^n - 1}{q^n \times (q - 1)} - LV$

c) $IV = (GI - OpE - Y \times LV) \times \frac{q^n - 1}{q^n \times (q - 1)} + LV$

where IV = Income value of the property
GI = Gross annual income
OpE = Operating expenses
Y = Capitalisation rate in decimal format
q = 1 + Y
LV = Land value
n = Remaining useful life

Activity 3 How do recoverable service charges relate to gross income?

a) The service charges recoverable in addition are ignored in the gross income.
b) The service charges recoverable in addition are added to the gross income.
c) The service charges recoverable in addition are deducted from the gross income.
d) The service charges recoverable in addition are deducted from the gross income as operating expenses.

Activity 4 In the income approach, how are differences between contractual and sustainable rents treated?

a) If the contractual rent is higher than the long-term sustainable rent, the determined net present value is added; if the contractual rent is lower than the sustainable gross income, the determined net present value is deducted from the difference as a value-reducing factor.
b) Differences between contractual and sustainable rents are ignored.
c) The differences are considered in the form of an upward or downward adjustment to reflect other circumstances affecting value.

Activity 5 What elements of the operating expenses of a property are stated in ImmoWertV?

a) Refurbishment costs
b) Management costs
c) Depreciation
d) Appreciation
e) Allowance for the risk of rental loss
f) Maintenance costs
g) Service charges
h) Capital costs

Activity 6 What do you understand by capitalisation rate?

a) The capitalisation rate is the average achievable market rate of interest on the current value of properties.
b) The capitalisation rate is the opportunity cost rate of interest for investments in real estate.
c) The capitalisation rate is a rate of interest especially developed for fixed-interest mortgage loans.
d) The capitalisation rate is the rate of interest at which the land is leased.

Activity 7 How is the capitalisation rate determined?

a) The capitalisation rate is published in WertR and does not need to be determined.
b) The capitalisation rate is derived by land valuation boards from appropriate purchase prices by reversing the income approach.
c) The income approach formula is broken down according to the capitalisation rate.
d) The capitalisation rate is determined by selecting 10 properties and working out the average borrowing costs.

Activity 8 What is the capitalisation factor/net present value factor?

a) The capitalisation factor is the accumulated annuity factor.
b) The capitalisation factor is the interest factor.
c) The capitalisation factor is the present value of an annuity factor.
d) The capitalisation factor is the present value.
e) The capitalisation factor is the compound interest factor.

Activity 9 What factors determine the capitalisation factor?

a) Depreciation of the improvements
b) Capitalisation rate
c) Economic total useful life
d) Remaining useful life of the improvements
e) Operating expenses

5 Solutions to the Activities

Solutions for Chapter 1 activities

Activity 1 Under urban planning law (such as BauGB), market value is always determined according to the Valuation Ordinance (ImmoWertV). WertR is ministerial guidance issued at the federal level which is binding only where this is explicitly stipulated as such (as in the case of the regional financial construction agencies). Both standards have, however, been applied successfully in valuation practice in recent years, including by independent valuers.

Activity 2 c)

Activity 3 b); d); e)

Activity 4 c); d)

Activity 5 c); f)

Activity 6 a); d); e)

Activity 7 d); e)

Activity 8 b); d)

Activity 9 a); b); e)

Activity 10 c)

Solutions for Chapter 2 activities

Activity 1 b); d)

Activity 2 a); c)

Activity 3 c)

Activity 4 c)

Solutions for Chapter 3 activities

Activity 1	c)
Activity 2	d)
Activity 3	e)
Activity 4	b); d)
Activity 5	a); d)
Activity 6	b)
Activity 7	a)
Activity 8	c)

Solutions for Chapter 4 activities

Activity 1	b)
Activity 2	c)
Activity 3	a)
Activity 4	a); c)
Activity 5	b); c); e); f); g)
Activity 6	a)
Activity 7	b); c)
Activity 8	c)
Activity 9	b); d)

Table of Figures

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