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A Proposal for the Calculation of Damages in Post-M&A Disputes over Deceptions and Breaches of Guaranties

More clarity in the calculation of damages in post-M&A disputes will simplify the tasks of tribunals and courts, make the results of disputes more foreseeable and re-affirm their being governed by the rule of law. It requires well-defined legal and valuation principles and that they properly work together at their interface. For this purpose the negative and positive interest are distinguished as damages for two different kinds of wrongs, deception and breach of guaranties, and production in kind and value compensation are distinguished as two modi or methods of awarding damages; the main legal issues are discussed for each of them. Awarding damages is an application of the law and valuation for this purpose must be a "legally bound valuation". The valuation principles for post-M&A damages awards must, hence, be derived from the law of damages and evidence as the valuation principles for balances sheets from balance sheets laws. Based thereon the main valuation issues, the format of two business plans, the explicit-planning-and-discounting method vs. multiplier methods, subject-related business values, markets values, the informational cut-off-date, the valuation date and discount rate questions are discussed in a systematic

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order. Some aspects of the merits-phase are included. The difference between statements on past or present external facts and on internal facts, such as future uncertainties, is emphasized.

Mehr Klarheit bei der Berechnung von Schäden in Post-M&A-Streitigkeiten erleichtert die Aufgabe von Schiedsgerichten und Gerichten, macht die Ergebnisse vorhersehbarer und bekräftigt ihre Rechtsstaatlichkeit. Dies setzt wohldefinierte rechtliche und Bewertungsprinzipien und ihr korrektes Zusammenspielen an der Schnittstelle voraus. Hierzu werden das positive und negative Interesse als Schadensersatz für zwei Pflichtverletzungen, Täuschung oder Garantieverletzung, und Naturalherstellung und Wertentschädigung als zwei Modi oder Methoden des Schadensersatzes unterschieden; die wesentlichen Rechtsfragen werden behandelt. Die Gewährung von Schadensersatz ist Rechtsanwendung und Bewertungen zu diesem Zweck sind „rechtsgebundene Bewertungen". Die Bewertungsprinzipien für Schadensersatz post-M&A sind daher aus dem Schadensersatzrecht und Beweisrecht herzuleiten wie die Bewertungsprinzipien für Bilanzen aus dem Bilanzrecht. Ausgehend davon werden die wesentlichen Bewertungsfragen wie das Format zweier Unternehmensplanungen, der Gegensatz von expliziten Unternehmensplanungen mit Abzinsung der zukünftigen Periodenergebnisse und Multiplikator-Methoden, subjekt-bezogene Unternehmenswerte, Marktwerte, der Informationsstichtag, der Bewertungsstichtag und Diskontierungsfragen systematisch erörtert. Einzelne Aspekte zum Bestehen von Ansprüchen werden einbezogen. Der Unterschied zwischen Aussagen über vergangene und gegenwärtige externe Tatsachen und innere Tatsachen, wie Ungewissheiten in der Zukunft, wird hervorgehoben.

I. Introduction

Together with disputes resulting from purchase price adjustment clauses, including earnouts, claims resulting from alleged violations of guaranties and deception dominate post-M&A arbitration and litigation cases. The authors have worked and lectured on M&A issues, partly together, for almost 25 years. Following a recent post-M&A arbitration case, they have condensed some of their joint views here to give an integrated legal and economic conceptual framework for the calculation of damages in post-M&A disputes.[1] Although post M&A-disputes often bring together top business managers, lawyers and accountants, their joint overall performance is not impressive.

The reasons are: first, the law of damages, under which valuation results are considered, is a "moving target" and does not provide clear legal and dogmatic guidance. While the intellectual tradition of European Natural Law arising out of the Salamca School[2] had almost succeeded to elevate the law of damages to eye level with the law of contracts in terms of dogmatic clarity,[3] much of this clarity has since been lost. Today, the law of damages offers an overabundance of topoi, which are "somehow" relevant, but there are no clear principles and there is no distinct order of well-defined legal notions. Second, the law of damages suffers from having been mainly applied to and developed on *consumer goods* cases. In such cases, though, the difference, between the *costs of an investment* (replacement costs, reconstruction costs, "sunk costs" incurred in the past[4]) and the *value of an investment* (based on future profits[5]), which is crucial in post-M&A damages cases, simply does not exist. For only if investment goods are damaged, does a discrepancy between "production in kind" (repair or substitution of a state) and "value compensation" (bringing the victim into an undamaged wealth position) "open up".[6] Hence, the law of damages is handicapped by case law of too little complexity. Third, because of this lack of guidance by clear principles and notions and fitting case law, arbitral tribunals and state courts, when they decided cases, felt free (and were forced) to develop compensation principles for the individual case, which cemented an overall opportunistic situation. Fourth, valuations required in post-M&A disputes involve non-trivial economic issues, where error is possible. Fifth, the deficits of the law of damages renders tribunals and courts mostly incapable of adequately controlling the *interface* between the law and valuation/economics. While valuation theory recognizes that valuation is always "purpose oriented" and "legally bound" and hence renders valuers receptive to valuation guidance,[7] absent such guidance being given by tribunals and courts in the case at hand, valuers will take their valuation principles from everywhere and nowhere, possibly misguided by the parties or by case law in unsuitable contexts. Accordingly, courts will receive valuation results distorted by the insufficiency of their own original legal input. Rather than steering valuations, the law of damages becomes just another ingredient in a "melting pot".[8] This is particularly unsatisfactory in

1) The contribution is based on German law. However, the issues are so general and the law of damages of different jurisdictions is so similar that many considerations should be applicable beyond German law. The economic and valuation issues are identical anyhow. Details of German law could be avoided.

2) See *Jansen* in Schmoeckel/Rückert/Zimmermann, Historisch-kritischer Kommentar zum BGB II, §§ 249-253 (255 rec. 16, 17, 21 f.).

3) In the German tradition, the great work of *Friedrich Mommsen* must be mentioned, Beiträge zum Obligationenrecht, Abt. 2: Zur Lehre von dem Interesse, 1855. As an extended reflection the law of damages and post M&A disputes, see *Wächter*, M&A Litigation, 3 ed. 2017, rec. 537-699. See also *Brand*, Die Dogmatik der § 249 ff. BGB bei der Verletzung von Bilanzgarantien, in Drygala/Wächter, Bilanzgarantien bei M&A-Transaktionen, 2015, 297 et seq.

4) With a metaphor from agriculture this could be called "seed".

5) With a metaphor from agriculture this could be called "harvest".

6) Only as long as an impairment can be completely undone by a repair or a substitution of the damaged object, is there no difference between consumer and investment goods.

7) E.g. valuers will readily accept that valuations needed to set up balance sheets, for taxation or for family, heritage, corporate or expropriation law purposes have to follow different rules because they are "legally bound" by different laws and purposes.

8) The book by *Mark Kantor*, Valuation for Arbitration. Compensation Standards Valuation Methods and Expert Evidence, 2008, probably the leading international book on the subject, seems to feel comfortable with that and makes no effort to separate the tasks. *Silke Noa Elrifai*, JOIA 2017, 835-888, takes a critical view at "equity based discretion" of arbitrators in international investment arbitration. According to *Elrifai* the phase of determining the standard for compensation and of determining the valuation method, which should be distinguished, are mostly blurred and equitable considerations influence either of them (at 850). From this point of view our views concerning post-M&A damages disputes could be expressed as follows: the standard for compensation in post-M&A damages disputes is the law of damages and the valuation method must calculate the value which is to be awarded according to the law of damages.

the adversarial and often belligerent post-M&A disputes considered in this article, where the parties are eager to create, feed, nurture or exploit misunderstandings and throw fog, so long as it helps their case. This article is based on the conviction that post-M&A disputes deserve more "rule of law" and more foreseeability of the outcome. Progress is possible in all pertaining fields, in the law of damages, with respect to relevant valuation issues and at the interface between the two. Time is ripe for efforts towards an integrated legal and economic conceptual framework for the calculation of damages in post-M&A disputes.

II. Merits Phase: Establishing a Claim for Damages Based on Deception[9] or Breach of Guaranty

The focus of this contribution is on quantum. However, before we can consider damages we must carefully interpret the meaning of a statement, whose falseness or deviation from reality – whether a simple deceptive statement or a guaranteed statement – only opens the door to damages. The falseness' core is not only the core of the breach or violation in the merits phase, but as damages are in substance the *negatio of the effects of the violation*, it is also the core of the damages phase. Hence, quantum issues cannot be properly considered without a prior concise exegesis and determination of where exactly the deception or guaranteed statement was incorrect.

1. Deceptions

We shall first deal with some problems to establish whether a statement was deceptive at all and whether it was imputable (or attributable) to the seller;[10] both issues which regularly emerge in post-M&A disputes.

a) Difficulty to establish statements of the seller (implied statements, statements by omission, imputation of statements of third persons)

There can be no deception without a statement because if there is no statement, nothing can be compared to reality and no judgment that a statement was false is possible. If the statement was explicit, e. g. in writing, whether part of a contract or not, there should normally not be much dispute about a statement having been made and its contents. The same will hold true for many explicit oral statements.[11] But very often buyers claim to have been deceived by implied statements. In this case, the tribunal or court will have, somewhere it its ruling, to say something like:

> *"The seller made the statement x not by saying it explicitly, but by saying or doing y. The statement or doing of y implied the statement of x for the following reasons…".*

In other cases, buyers claim to have been deceived by *statements by omission* to make a due disclosure. In its ruling, the tribunal or court will then have to say two things:

> *"The seller made the statement x not by saying it explicitly, but by not saying anything between m-date and n-date. This silence of the seller has to be regarded as a statement because the seller, who remained silent,* ***was obliged***[12] *to speak up and make a disclosure and because his omission to do so implied the statement of x for the following reasons…".*

Further, buyers often claim that *other persons* than the seller (or legal organs of the seller) made explicit or implicit statements or have deceived by omission to make a due disclosure. The tribunal or court will then have to say why the explicit or implicit statement or statement by silence of such *third persons* as immediate authors is to be imputed to the seller:

> *"The seller did not make the statement x himself. But P made the statement (explicitly, implicitly or by silence… to be explained as above), but this statement is to be imputed to the seller because of…".*

We will only deal with two of the above merits issues in more depth.

b) Two difficulties in defining the content of a statement (to determine its incorrectness)

If a tribunal or court has determined that there was a statement and that it is to be imputed to the seller, the tribunal must progress to define its precise contents. This is necessary, first, to determine its falseness as a matter of merits. Second, the determination of where the statement was incorrect will also guide the assessment of damages in the quantum phase (as damages are to be measured by putting a deceived buyer in the position he would have been in had the deception or breach of guaranty not occurred). Hence, it must have a bearing whether, absent the deception, the buyer could have relied on (different) *external* past or present facts or on *only* on different *internal expectations* of the seller. Accordingly, we need to distinguish two classes of statements, which require a different use of the truth criterion: we have

- deceptions about past or present external facts, and
- deceptions about past or present internal facts, including expectations of the future.

In the first class, the statement is to be compared with past or present external facts, in the second class the statement, including volitions (wishes), can only be

9) The reader may mostly silently read the word "deception" as "misrepresentation". However, as (i) the scope of claims for damages because of breaches of information obligations dealt with in this contribution is significantly wider than statements that are preceded by "*Seller represents …*", as (ii) "representations" and "misrepresentations" are notions of the Anglo-Saxon legal tradition, which are not relevant for our discussion of legal prerequisites of the claims we deal with and not subject to our exegesis and as (iii) we want to exclude possible confusions with the German concept of *Gewährleistung*, we have chosen to use the very open and internationally known term of "deception". Its disadvantage, that it is mostly used in criminal law, can be cured by saying that deception in this contribution means incorrect information even if not punishable by criminal law.

10) We only consider defects in the flow of information from the seller to the buyer as these lead to the typical post-M&A disputes. Yet, there are cases where buyers may have superior knowledge and violate information obligations as well. See for case examples: *Wächter*, M&A Litigation, 3 ed. 2017, rec. 14.43 et seq.

11) As every lawyer knows, even written or explicit oral statements may give rise to different interpretations and disputes. But these general questions are not treated in this article.

12) The existence of an obligation to make a disclosure is mostly the most interesting and crucial prerequisite for a liability because of an omission to make a disclosure. See *Wächter*, M&A Litigation, 3 ed. 2017, rec. 6.36 et seq.

compared with an internal image of the speaker (who made the statement).[13]

aa) Correctness of statements about past or present external facts (including probabilities)

Most statements, which tribunals and courts consider, are statements about past or present external facts as they can be perceived by humans. Some are easily recognizable as such, e. g. if an asset is missing or legally not owned by the target or if the target does not have a right or position under public law or if an asset consists of a lower quantity (size, volume, weight etc.) than stated or a different quality (i. e. it is defective), it is quite clear that the statement was about a present external fact. Often such statement will also imply a statement about past facts and the history, which led to the present state. Sometimes the character of such statements may be concealed, e. g. balance sheet guaranties must often be "decoded" (with balance sheet laws being the code[14]) into statements that certain external facts (sometimes also internal expectations or volitions) existed or not, which required or allowed entries in the balance sheet.[15]

Properties of systems are also external facts. This is valid for characteristics too, which are relevant to future expectation, including characteristics which are the basis of mathematical probabilities. For example, consider the following: as a coin has two sides, flipping a coin gives you a mathematical probability of 1/2, as a dice has six sides, throwing a dice gives you a probability of 1/6 or playing *Roulette* with full numbers gives you a probability of 1/37.[16] If somebody were to state that if you flip a coin, you have a chance to win of 0,75 or if you throw a dice a chance of 0,5 or if you play *Roulette* with full numbers a chance of 1/15, such statement would be a false and deceptive statement about present external facts. For a more drastic example, if there are 4 bullets in 8 chambers of a revolver and somebody seduces a simple mind to "play" a round of *Russian Roulette* either by saying that there would only be one bullet in the chambers or by declaring the probability to (fatally) lose would only be 1/8, he would also deceive about a probability as a present external fact.[17] It should also be possible to consider probabilities as a present fact with regard to several other less technical events. For example, giving birth to a child may be said to entail a probability of 1/2 for either gender. Or insurance mathematics may show certain average cancer or death rates for 60 years old men. If so, stating a different rate in an actuarial report (or in a similar exceptional case) might be a deception about a present fact.

bb) Correctness of statements about expectations of the future as inner facts (uncertainties)

However, nowhere in the world will we be able to find a present objective fact as to who will become the next US President, who will win the next Olympic marathon, whether the Euro will succeed, to what age a specific individual will live. In the presence, such *future facts* can only exist as *inner* facts (expectations, assessments, opinions, visions etc.) about future occurrences.This holds true even if the future is closely related to past or present external facts. If a machine has not properly been maintained or a pilot suffers from a mental illness or an employee is a drug addict, whether the machine will be able to deliver the planned output in the next two years or whether the pilot will cause an accident or the employee will embezzle money in this period still remains an *uncertainty* (not probability!) and a matter of mere internal expectation – even if the odds are worse. By thinking about or imagining the future, humans resort to their capacity to think of and to describe, by language or otherwise, *still non-existing things, events and situations*. If this capacity is applied, it is obvious that what is thought of or otherwise represented, does not yet exist.[18] Thus, if predictions turn out to be wrong, they thereby do not retroactively become lies. They were only lies or deceptions if the speaker misstated his present internal fact – what he *really* believed about the future when he made the statement. For example, he, who enters into a contract and knows he will not be able to fulfil, lies.[19] A meteorologist, who lets a boat, an alpine expedition or an airplane take off for a weather-sensitive mission, deceives, not because his forecast later turns out wrong, but if he hid his true inner awareness that a storm was coming up. In M&A, if a seller includes expectations or prognosis in a business plan,[20] in which he himself does not belief, he deceives. To establish deception in statements about the future, the buyer must, hence, not establish a contradiction between the statement and what later actually

13) In all brevity a point should be addressed to avoid irritations of the particularly critical reader: Philosophically speaking, human beings have no access to external facts at all, but only to internal facts, their respective individual observations and reflections based on sensual experiences and intellectual concepts (e. g. time, space, the color of an object etc.). In a radical constructivist sense, the whole reality humans can experience, think, speak and deceive about, thus, consists of their inner reality and of inner facts. Starting from here, in a more elaborate sense, the two proposed classes of statements would only be two subsets of an even higher category of inner or internal facts. As a second philosophical point it should be mentioned that the law has always taken the liberty to simply *assume* the presence of such structures in the human mind and such functioning of it, which are required for the operation of the law, in particular, to be able to impute legal consequences.

14) Setting up a balance sheet means "encoding" certain facts, interpreting balance sheets, e. g. in the context of guaranties, means "decoding". *Wächter*, M&A Litigation, 3 ed. 2017, rec. 5.121 et seq., 12.350 et seq.

15) Even if the management has some discretion as how to assess a situation, this discretion is bound by the law and within limits only. An entry in a balance sheet always implies the factual statement that these limits are not exceeded.

16) In each case for a single outcome on which you bet. These probabilities are based on certain structures of the system, which, *while erratic deviations continue forever (!)*, make the average of the outcomes approach the expectation value of the respective system in the very long run.

17) Trickster on the road who induce people to bet under which one of three small caps a little ball will appear, deceive on probabilities, as while everybody believes the probability to be 1/3 it is 0/3 – because the ball remains always in the trickster's fingers until a cap is lifted.

18) Since its very origins, law, supported by monotheistic religion and philosophy, fought a merciless battle against all kinds of foretelling of the future (e. g. astrology) and against all techniques to influence the future (e. g. magic). It, therefore, cut through all bonds between the signifier and the signified. Present thinking and feeling about the future was reconstructed as images which could or could not materialize in the future, but which had certainly no impact on it. What we find interesting in self-fulfilling-prophecies is exactly that they appear to be exceptions.

19) A restaurant guest who orders a meal may deceive on his expectation to be able to settle the bill (as his purse is presently empty) or on the present fact of his purse being empty and his having no other access to money or on both.

20) Business plans almost always also contain statements on past and present facts. E. g. if no lease or license fees are shown for land, equipment or rights used, this implies that they are owned by the business. If no maintenance, repair or substitution costs are shown for machinery, this implies that there are no defects etc.

happened in the external world, but a *contradiction between the statement and the contemporaneous mental image* of the seller.[21]

Most future circumstances that matter in M&A are *not* governed by random selections between a limited number of well defined outcomes based on stable characteristics of a system, the selection being repeatable, path independent and impervious to the influence of the players to which probability calculation is applicable. The well-being of a business in the future and its value for the buyer depends much more on *will, contests, competitions and fights* (e. g. for customers or suppliers) and a great number of independent and often *reflective*, *dynamic, non-linear* or chaotic technical, social, economic, political or cultural developments, i. e. ion uncertainty. The words of *John Maynard Keynes* apply: "*About these matters there is no scientific basis on which to form any calculable probability whatever. We simply don't know*".[22] Or as *Frank Knight* said, the defining feature of uncertainty, in distinction to risk, is that uncertain events cannot "*by any method be [represented ex ante] with an objective, quantitatively determined probability*".[23] This difference between statements on past and present facts, including probabilities, and on uncertain (or unpredictable) future facts, which are only possible as statements on present inner facts, must be kept in mind when establishing the incorrectness of a statement in the merits phase as well, as we shall see, in establishing damages in the quantum phase.

2. Breaches of Guaranties

Guaranties in M&A, as simple statements, even if guaranties are mostly written and explicit, may refer to the two classes of statements and falseness distinguished in the preceding paragraphs. Tribunals and courts must treat guaranties about past or present external facts and guaranties about internal facts or uncertainties differently. Guaranties about business plans and balance sheet guaranties often entail both kinds of statements, which must be separated. This again applies while arguing and proving a deception during the merits phase as well as in assessing damages in the quantum phase.

III. Propaedeutic to the Quantum Phase

We start with a propaedeutic to the quantum phase.

1. The Prevalence of Legal Criteria in the Calculation of Damages

If a private investor assesses his chances and risks from a prospective investment, he is completely free to apply a method deserving the word "valuation" at all or to rely on his "guts". Of course, if he "values", he remains completely free to choose his methodology – from astrology to multiplier methods or to following recommendations of appraiser organizations. If he asks experts to value his investment (although normally an investor will hardly consult a valuation expert), such experts remain free to plan his investment conservatively (risk averse) or more optimistically (risk friendly) – and it would only be a matter the expert's good taste to tell his client at least whether the plan is conservative, risk friendly or risk neutral. This freedom for valuers fades away, though, when we enter the realm of "legally bound valuations",[24] i. e. if values become legal prerequisites of laws or are needed to quantify and calculate amounts to be awarded in consequence of laws. For example, if a CFO sets up a balance sheet or a CPA is asked to audit it, they must obey the balance sheet laws and GAAP and their professional discretion is sacrificed in favor of the rules or case law derived from balance sheet laws and GAAP.[25] If valuation is needed to determine compensations for shareholders of stock corporations, limited liability companies or partnerships, e. g. in squeeze-out-cases, the valuation principles of corporate law or partnership law are applicable. In divorce or heritage cases, the possible different rules of family law or heritage law bind the valuer's professional discretion. Where a valuation is needed for tax purposes, e. g. wealth tax, property tax, corporate or income tax, the tax laws, administrative ordinances of the tax authorities and the jurisprudence of higher tax courts take precedence.

We believe it is crucial to understand that valuation for post-M&A damage disputes is no less "legally bound" than in the prior examples – but this time the law of damages and the law of evidence provide the pertinent legal instructions.[26] Not only must evidentiary rules decide whether a statement can be proven to constitute a deception or a guaranty to not having been fulfilled, but the same evidentiary rules (what else?) must decide whether a buyer sufficiently proved allegedly incurred damages (whether as "negative" or "positive interest"). As to the latter, faithful reliance on the law of damages and evidentiary rules must *extent to every single entry in business plan spreadsheets.* It is the prerogative of law to determine *whether*, *when* and *what kind of* damages are to be awarded; this includes determining *how they are to be calculated*[27] and what *kind of economic reasoning* is acceptable for this purpose. Before courts of laws *legal criteria take precedence over* the rules and judgments economists might otherwise have autonomously applied.[28] For example, if a building is damaged by fire,

21) To be able to do this, arbitrators and judges cannot but look at circumstantial or indirect evidence concerning what a person uttered to third persons, how he behaved, what information he knew, what he admits etc.. The rules on the burden of proof will largely function as "phantasy-blockers" in this context, and rightly so.

22) *Keynes*, Quarterly Journal of Economics Vol. 51/2, 214.

23) *Knight*, Risk, Uncertainty and Profit, 1921, 321.

24) In German *rechstgebundene Bewertung*, see *Hüttemann* in Fleischer/Hüttemann, Rechtshandbuch Unternehmensbewertung, 2015, § 1 rec. 5 et seq.

25) In Germany, e. g. IDW S1 is overruled by the Commercial Code (HGB), the Income Tax Act (EStG) and Corporation Tax Act (KStG). These norms, not the free professional judgment or IDW S1, determine when and by how a depreciation has to take place or as to whether a risk had to be provided for or is allowed to be provided for (for tax purposes).

26) If we assume that the law of damages would be completely derogated with regard to breaches of guaranties in an M&A-Agreement, the valuation to calculate the legal consequences would still be legally bound – by the alternative contractual provisions – and valuers would have to apply its wording or spirit.

27) There has been discussion in jurisprudence whether a "natural", "pre-legal" notion of damage should be acknowledged. Today, most scholars agree that the notion of "damage" or of "damages" relevant for damage assessment under the law is always a legal notion determined by the law. See. e. g. *Oetker* in MüKoBGB, 7. ed., § 249 rec. 23.

28) There is, thus, in case of conflict of opinion, no point in arguing whether economics or law is "right". If a (further) valuation theorist were to be considered for a Nobel Price, economics has the say, but if the purpose of the operation is to calculate damages, the law has.

tribunals and courts will not leave it to the builder alone whether certain repairs or substitutions were necessary as such (as their need was caused by the fire) and whether the fees agreed with the builder were excessive or appropriate. Tribunals and courts will also reduce damages by amounts suffered because of *contributory negligence* by the injured party (in German law Section 254 of the German Civil Code).[29] There can be no difference in principle for higher value or post-M&A cases, if, e. g. losses of profits or a reduction of business must be calculated based on expected future profits over decades. The only significant difference lies in evidentiary rules, e. g. Section 252 sentence 2 of the German Civil Code and Section 287 of the German Civil Procedure Code, which grant relief in assessing and proving damages. While we believe that they should deserve a more prominent and crucial rule in damages disputes, we cannot further discuss them in this article.[30] With the proviso of such reliefs possibly being applicable, however, *every single entry* in a spreadsheet, which is an element of a business plan, must be regarded as a *factual proposition*, each of which the claimant must sufficiently prove. Accordingly, tribunals and courts must, we believe, aggressively examine whether such entries are justified by the pertaining circumstances.

The range between completely "free" valuations to valuations bound by the law of damages and rules of evidence in adversarial damages disputes may be illustrated as follows:

	Private valuations by investors or speculators	**Professional valuations by experts instructed to help private investment decisions**	**Valuations for balance sheet assessment and taxation purposes**	**Valuations for purposes of family, heritage, partnership and corporate law**	**Valuations in post-M&A damages cases**
Determination of present, past and future uncertain circumstances and causal relations	Completely free. May apply all degrees of optimism or conservativism. May apply all risk risk premiums. No rules of evidence	Valuers and experts remain free in principle. Professional valuers often apply recommendations of appraiser organizations[31] or take instructtions of their clients (and should disclose the applied degrees of optimism or conservativism to their clients). No rules of evidence.	Committed by balance sheet laws to conservative view for balance sheet purposes (precaution principle (*Vorsichtsprinzip*))[32] and to less conservative views by tax laws for taxations purposes. Significant discretion as to determination of facts. Rules of evidence and burden of proof only issue in in exceptional cases.	Committed by family, heritage, partnership and corporate law to "fair" and "neutral" views. Not bound by (precaution principle (*Vorsichtsprinzip*)).[33] Burden of proof may become an issue. Partly special rules of evidence (e. g. in squeeze out cases).	Committed by the law of damages "to put into position as if". Legal prerequisites must be proven, but often relief granted in favour of creditors of damages (e. g. by Section 252 of the German Civil Code and Section 287 of the German Civil Procedure Code).
Impact of claimant behavior	Not applicable.				Contributory negligence (Section 254 of the German Civil Code.)
Situation	Not "dominated" situations and "legally not bound" valuations.		"Dominated" situations and "legally bound valuations".		

29) E.g. if a buyer of a factory realizes that machines are, contrary to a guaranty, not well maintained and, e. g. out of oil, he must immediately stop production, refill the oil and may not continue to run the machines. Tribunals and courts will reduce the costs of repair and lost profits to the amounts, which the buyer would have suffered without his *contributory negligence*. Professional judgment or standards or guidance of organizations of CPAs etc. may or not contain similar principles or recommendations, but only the principles of the law are binding.

30) See, however, the instructive commentaries by *Laumen/Prütting* on Section 287 of the German Civil Procedure Code and by *Prütting* on Section 252 sentence 2 of the German Civil Code in Baumgärtel/Laumen/Prütting, Handbuch der Beweislast, 3 ed. 2016, 272 et seq. and 290 et seq.

31) E.g. in Germany IDW S1 (2008)

32) We refer to the German Commercial Code and German Tax Law here only.

33) This only means that certain positive circumstances may not be capitalized and that certain negative circumstances must be provided for in balance sheets while a valuer, including in cases of objectivized valuations, enjoys greater freedom concerning their treatment. Yet, of course, the precaution principle continues to affect business plans and valuations in other regards. To the extent balance sheets influence cash flows, which enter into plans, e. g. dividend distributions, it indirectly continues to influence valuations. See *Wollny*, DStR 2016, 2415 et. seq.

2. Legal Propaedeutic

a) First distinction: two different breaches and two different positions, in which the wronged party is to be put – positive interest and negative interest

Laymen, when realizing that they will not be able to fulfil a contract, sometimes believe they could just walk away from it. Yet, this is precisely what the law does not want debtors to do. To quote *Nietzsche*, the law respects man as "*an animal that **may** make promises* [emphasis added]"[34] and, hence, insists – since long before *Nietzsche* of course – that *pacta sunt servanda*. Accordingly, the law either allows to sue for specific performance or awards the positive interest.[35] In many jurisdictions this follows from the stipulation that the creditor is to be "*put in the position in which it would have been without the violation leading to the claim for damages*".[36] If the violation is the *non-performance of a promise*, e. g. of a guaranty, the formula will give you the positive interest: this means putting the creditor in the position *as if the promise had been fulfilled* (e. g. the guaranteed statement had been correct).[37] If the violation is a *deception*, the instruction is to put the victim in the position in which it would have been *without the impact of the deception* (had the deceived been told the truth). Putting the wronged party into the position as if it had negotiated the purchase with these better insights is called the "negative interest".[38] This comes close to allowing the *wronged party* (not the wrongdoer!) to undo or to "walk away" from the contract. The deceived party can either completely walk away (in effect a withdrawal or rescission) *or* partially with the effect of getting rid of a premium accepted as part of the purchase price presumably under the impression of the deception – with all this being legally rooted in the law of damages.[39] The main legal distinction in the quantum phase of damages disputes is whether the positive or negative interest is to be awarded.

b) Second distinction: two different modi or methods of granting damages – production in kind and value compensation

The German law of damages applies a second major distinction between production in kind and value compensation.[40] If the roof of a factory is defective and it rains in (i) the roof will need to be repaired and machines or raw materials, affected by the rain may have to be repaired or substituted as well. This is called "production in kind". Furthermore, (ii) while the roof was defective some raw materials or machines may have been damaged and output and profits may have been lower as the production was reduced, slowed down or stopped, including during the time of repair or substitution.[41] Typically, the total of the firm's losses is the sum of (higher or lower) repair or substitution costs and (higher or lower) loss of profit. The quicker the repair and/or substitution is carried out (and the higher probably the costs for it – contractors charge extra for their expedited efforts), the more material the production-in-kind-share of the awarded damages. Still, almost always some output, revenue and profit will have been lost in the meantime, which can only be recouped by value compensation.

Normally, in post-M&A damage cases we find a combination of the two types of damages suffered and of both ways to award damages. The determination of damages as costs of repair or substitution is a simple addition of amounts on offers, quotations or invoices only, yet the calculation of loss of profit depends on prognosis of the future which lead into the complicated problems of damages assessment, which earmark most post-M&A disputes. Depending on what mix[42] of production in kind and value compensation is chosen, the wrongdoer will have to pay *different cash amounts*. Still, both methods of granting damages aim at putting the victim or creditor *fully* into the *same wealth position*. How does this miracle work? It works as the production-in-kind-share of the payment is actually an *investment* (repair of the roof) which *generates surplus value or profits itself*. These profits avoid further losses which the debtor would otherwise have had to compensate for each day the factory remains inoperative and these (recuperated) profits need not increase damages.

3. Economic propaedeutic

a) Damages as missing flows (loss of profits) or the difference between two stocks (two business values) – direct or indirect method of damages calculation

As bookkeeping allows to calculate profits as inflows (in the profit and loss statement) or as difference

34) "*Ein Tier …, das versprechen darf*" (Genealogie der Moral, 2. Abhandlung Sect. 1).We could quote many more well known citations of philosophers, e. g. by *Immanuel Kant*, expressing the "legal rigorism", on which *pacta sunt servanda* and the award of damages as the positive interest are based.

35) In the Anglo-Saxon context also called the "positive interest" or "benefit of the bargain".

36) E.g. this is basically also the content of Section 249 of the German Civil Code, the governing paragraph of the German Civil Code.

37) E.g. by simulating every day until perpetuity that a business would have owned a piece of real estate which had been guaranteed.

38) In the Anglo-Saxon context also called the "reliance interest". With positive and negative interest, we refer to notions widely used in German law. Yet the distinction as such is immanent in most legal systems. German jurisprudence has also further words for negative and positive interest, namely *Vertrauensschaden* (like "reliance interest") or *Erfüllungsinteresse* or *Leistungsinteresse* (comparable to "expectation interest").

39) For the sake of clarity: The negative interest does not beam the deceived party back into a historic real situation it had been in at some stage before signing (a *real status quo ante*), but it beams it back into a *merely hypothetical* or *virtual status quo ante* (which never really existed).

40) The German words are *Naturalherstellung* and *Wertentschädigung*. Production in kind is like a secondary remedy that somewhat resembles specific performance if a contract is broken. However, it encompasses more than specific performance as e.g. some negative consequences from breaking the contract have arisen and must physically be undone. See *Wächter*, M&A Litigation, 3 ed. 2017, rec.12.42 et seq., 12.113 et seq., 12.223 et seq.

41) First output and revenues were reduced. Management may also have decided to temporarily move the production elsewhere, hence, while less output may have been lost, additional costs of moving, rent, engineering, removing etc. will have occurred. A temporary incapacity of the firm to supply may have also led to cancellations of orders or a lasting loss of customers.

42) If management had complete information, an ideal mix could be conceived which would minimize total damages. Even if the costs of an expedited repair or substitution (emergency service) are rather high, it may still be advisable to accept them to avoid larger loss of profits. The law does not demand the victim, if it executes the repair or substitution itself, to make an "optimal choice", but grants a certain time for consideration, takes financial capabilities of the wronged party into account etc. But if the wronged party negligently increases the total costs, his claims for damages may be reduced below the damages actually suffered by contributory negligence considerations, e. g. Section 254 of the German Civil Code.

between stocks (the equity in two consecutive balance sheets),[43] damages can be calculated accordingly, as missing flows of wealth or as the difference between a real and a hypothetical stock of wealth. The calculation of damages by addition of lost flows (cash flows) may be called "direct method", their calculation by means of two business valuations derived as present values of flows (cash flows) "indirect method".[44]

b) Production in kind – no valuation problems

Production in kind, e. g. the reimbursement of the costs of repair or substitution of the roof, machinery and inventory in the factory-roof-example, does not require a business valuation; as stated it only requires adding up amounts from offer letters, quotations or invoices by the direct method.

c) Value compensation via direct method: no valuation problems

In simple cases, not much understanding of economics is required to calculate lacking cash flows (lost profits). For example, if a dentist has a bicycle accident and foregoes income or if the number of sellable finished products in the inventory of a store is lower than the seller had said or guaranteed, it is often not necessary to compare two business plans for a real and a hypothetical business. It may suffice to multiply the daily fees of the dentist or the missing number of sellable products in inventory with their expected sale prices (and to deduct avoided costs in each case) to calculate damages.[45]

d) Value compensation via indirect method: valuation at center stage

Yet, as cases become more difficult, e. g. in larger post-M&A disputes, it becomes impossible to oversee and control all effects from a deception or breach by the direct method as several interdependent parameters, different relevant points in time or feedback comes into play. Then tribunals and courts are unavoidably drawn into the depths of planning, economic thinking and valuation. Two complete business plans and valuations are required, one for the real case with the simple or guaranteed statement being false and one for the hypothetical case with the statement being correct.[46] While a difference in result is plainly visible in the final amount of business value, the maze of numbers often somewhat *hides how the difference was brought about*. Everything is now intermingled. Additional costs and reduced revenues are no longer shown as one figure but split up over several years. Cost of production in kind (e. g. for repair of the roof) are mixed with depreciation costs (for damaged raw materials), with possible costs for the temporary rent of substitution equipment and with increased finance costs (interest). Lower revenues shown over several years may be partly due to output reduction during "wet days", output reduction during "repair days" and output reductions because clients were lost or because the business, due to its need to refinance damaged equipment, lacked cash to purchase raw materials.

aa) Subjective theory of value

While the *Physiocrats* believed that all value comes from agricultural production and *Ricardo* and *Marx* believed that it comes from the endowment of a commodity with human labour, certainly since the Marginalist Revolution[47] economic theory conceives "value" as result of a *comparison by a subject* of objects based on the subject's specific needs and utilities. This applies to both qualitative comparisons (where to spend the next vacation?), in which case only ordinal numbers may be used to express the result, as well as to quantifiable comparisons (where to invest?), in which case the results of a comparison can be expressed in absolute cardinal numbers.[48] Each valuation, including for purposes of damages assessment, must start with a valuation subject, the seller or the buyer.[49]

bb) Two players with different concepts, synergies and investment alternatives and four relevant business values: value of seller, value of buyer, market value and objectivized value

Sellers and buyers are different persons in different situations and have different needs and utilities. They may also have different *concepts* and *synergies*, e. g. different ideas concerning the business, its financing, technology, production, marketing or distribution. And they may have unequally easy or costly access to raw materials, finance, labour, machinery, sales-boosting brands or distributions systems.[50] Seller and buyer may, furthermore, have different *alternative investment opportunities* with deviating profitability (against which they benchmark their investment in businesses in the form of discount rates). These particularities influence the utility functions of seller and buyer and are the "transmission belts" through which subjectivity

43) Here we take the notion "stock" in its general meaning, i. e. as opposite notion to flow, and not in its specific meaning as inventory, e. g. of raw materials.

44) See *Wächter*, M&A Litigation, 2 ed. 2014, rec.1574 et seq. (3 ed. 2017 rec. 12.272 et seq.). *Demuth*, Direktes und indirektes Verfahren der Schadensberechnung, in Drygala/Wächter, Bilanzgarantien und M&A-Transaktionen, 2015, 165 et seq. One should, though, be aware that the stock compared by the indirect method are, contrary to balance sheets, themselves present values generated by discounting future cash flows.

45) The dentist is to be awarded the lost revenues minus the costs actually avoided in the *individual case* (not minus the average, fix or all variable costs etc.). The missing number of finished goods in the second example is to be multiplied with the expected sales prices and, again, the costs actually avoided in the *individual case* (costs of sales, commissions etc.), but not the costs of purchasing or manufacturing the goods etc. must be deducted. Loss of profits in the sense of damage calculation is often *lost sales or revenues minus specifically avoided costs*. Because this is so, the ratio of lost profits to lost revenues in awards of tribunals and courts will often be *higher* than the average ratio of profits to revenues of a business. See on mistakes committed by a German court in this regard and its correction by the Federal Court of Justice (BGH), *Wächter*, M&A Litigation, 3 ed. 2017, rec.12.104.

46) You could also speak of two scenarios, but we prefer to reserve the expression "scenario" for different plans to calculate the business values in each case via scenario-techniques.

47) See *Jevons, Walras and Menger*. There were earlier forerunners who understood value from a subjective perspective, e. g. the school of the catholic natural law thinkers in Salamanca, Hobbes, Malthus and others.

48) Even the so-called "objectivized valuation", which is used in squeeze out-cases, is subject-related by nature. It is the valuation considered from the perspective of a kind of "standardized subject". See *Wollny*, Der objektivierte Unternehmenswert, 2 ed., 97 et seq.

49) *Wollny* DStR 2013, 2135 et seq.

50) These three – different concepts, different synergies, different investment alternatives – will be used to explain different business values between valuation subjects in this article. Often different concepts go along with different synergies. If you own an effective brand or distribution system, that may invite you to make a conceptual change. But sometimes different concepts are only based on better ideas or better product or market knowledge.

(or even better, see below, "subject-relatedness") enters valuation and damage assessment in post-M&A disputes. A seller's valuation will have to look at the business as it is now governed by the seller's concepts and as it can be developed with the seller's resources,[51] while a subjective valuation of the buyer may and must take into account possible conceptual changes and synergies accessible to the buyer.[52] This basic fact – each party assessing its business value according to its specific situation and utilities – explains *why deals are possible* and explainable at all without one party putting the other at a disadvantage – *why both parties may be happy with the same deal* and why both may be economic winners.

Aside a "seller's business value" and a "buyer's business value", there can be as many business values as there are possible valuation subjects. In particular, sellers and buyers will, during their negotiations, observe what unknown or known *third parties,* e. g. *competing bidders*, offer or what bystanders might offer. We call "market value"[53] what such buyers or bystanders without compulsion to buy and with reasonable knowledge of the facts were actually or foreseeably ready to offer. As all other business values, market values are subject-related as they depend on specific utilities, concepts, synergies and alternative investment opportunities of specific subjects. The existence of this third category of market values is, in our view, not only an economic and socio-psychological fact, with likely impact on the historic price negotiations, but market values may also bear relevance on valuations and the calculation of damages post-M&A. Assuming that there is a market value of *x,* means that there is a great enough number of third parties whose utilities, concepts and synergies would attribute such value to the offered business that after some back-and-forth or some *tâtonnement*, at least one party would probably pay *x*. Market value in this sense functions as lower boundary in valuation if the negative interest is awarded. *Objectivized business values* are also subject-related business values, but for a *hypothetical* subject, which is endowed with certain *standardized properties*. This forth category is used to allow valuations relevant to a greater number of subjects with differing utilities, which the law chooses to disregard, e. g. in squeeze out, expropriation cases, taxation cases. As the law of damages aims at putting the wronged party into the position, it *specifically* would hypothetically have been in (and *not* assuming the wronged party would have been in if it had had the standardized properties), objectivized values should, in principle, not play a role in valuation for the award of damages. However, if the negative interest is to be awarded, and if no market values as minimum value can be determined, the techniques known from determining objectivized values may be used with proper adjustments.

cc) Two questions concerning valuations by the indirect method

We have seen that the law allows assessment of damages as missing cash inflow of wealth in a period (direct method) or as gap between two wealth stocks at a point in time (through the indirect method) and that in more complex cases the indirect method is usually preferable. Two aspects concerning the use of the indirect method bear particular relevance. The first aspect concerns the *format of two valuations*, which is applicable in deception and breach of guaranty cases alike. The second aspect concerns *how* the two business values are to be calculated as present values of future surpluses, by either separately discounting the surpluses of an explicit long-term business planning, what we call the "explicit-planning-and-discounting-method" or by a much simpler method, the multiplier method.

(i) The format of two valuations

In order to determine discrepancies between two business values, each in deception or in breach of guaranty-cases two different business plans and valuations must be set up. One will be for the real case (with the simple or guaranteed statement incorrect, a lower valuation for the real sad world) and one for the hypothetical case (with the simple or guaranteed value-enhancing statement hypothetically correct, a higher valuation for a fictive better world). There will be, as we will see later, differences as to how damages in the form of the negative or positive interest are derived from these valuations, but these differences do not matter yet at the stage of valuation.

(ii) Determining discrepancies between a hypothetical and a real business value by the indirect method

(1) Determining discrepancies between business values by the explicit-planning-and-discounting-method

Valuation of assets, including businesses, always works by discounting future surpluses.[54] Otherwise its result will not be what the market treats as the value of the asset or of a business. If a rather detailed plan is set up for a detail-plan-phase (normally three to five years) and a perpetuity is added to represent the results outside of the detail-plan-phase, often to infinity, this general approach is made evident. We will call this method to calculate business values, which is most recommended by the organizations of auditors,[55] the explicit-planning-and-discounting-method. Starting with assumptions on cash in-flow or revenues in the top lines and cash out-flows or costs in the middle lines of columns representing calendar years or the perpetuity, the bottom lines will show the respective period's results which are then, each separately, discounted into present values[56] and added up to give the total present

51) The expression "stand-alone valuation" for the valuation of a business from a seller perspective is widespread though misleading. A business never stands alone. It is always *with a specific owner* and cannot but enjoy this owner's synergies and concepts or suffer from the lack of it or even from dis-synergies or from wrong concepts.

52) Not so seldom synergies from the seller will be lost after a business changed hands.

53) See, e. g. the similar definition in *Mark Kantor*, Valuation for Arbitration. Compensation Standards Valuation Methods and Expert Evidence, 2008, 30 et seq. As businesses are very distinct, though, as mentioned, reservations may be raised against the expression "market value" (see *Ruthard/Hachmeister* NZG 2014, 885.)

54) These surpluses (or deficits) or cash flows may be calculated in accordance with the DCF-method or the earnings value – method (*Ertragswertverfahren*). For the considerations of this contribution this important difference in valuation methodology is not relevant.

55) E.g. IDW S1 in Germany.

56) If the result of the t^{th} year is CF_t and if the applied initial discount rate is i, the present value of the result of the t^{th} year is $CF_t*(1+ i)^{-t}$. E. g. the discount factor for the second period is $(1 + i)^{-2}$ and for the fifth period it is $(1 + i)^{-5}$. In consequence, further away results matter less for the present value of the series than nearer results.

value of the business. If this method is applied to derive damages from discrepancies between two business values, as mentioned, two valuations must be set up, for a real case (simple or guaranteed statement false) and a hypothetical case (simple or guaranteed statement correct).

We believe the explicit-planning-and-discounting-method carries particularly advantages in damage assessments. These advantages are:

- The business plans for the two cases and their comparison necessitates consideration whether a disadvantageous event has a one-time, recurring, long term or infinite effect. For example, if a disadvantageous event hits, a plan may show a sudden or slow build-up of its effects (higher cash-outs or costs, lower cash-ins or revenues) and a longer or shorter phase of their continuation until they slowly flatten out or abruptly disappear. Or the effects may be short and one time or they may only build up over years. An explicit long-term planning tells the time-story clearly and transparently.
- The business plans for the two cases and their comparison will, by showing planned revenues and planned costs broken down into their components, necessitate exploration of the inter-dependence between them. For example, capacity limits of spaces, machinery, employees etc. must be observed. If the disadvantageous event is on the revenue side, normally, the lost revenue should lead to lower variable and step-fixed costs, e. g. energy, personnel and rents, even if sometimes only after an adjustment period. A proper plan would also allow verification whether management has duly used best effort to reduce the effects of the event upon the business. E. g. a business will be expected to free resources, e. g. personnel, if temporarily not needed.[57]
- The business plans or their comparison will permit checking whether a taken-away opportunity to increase output or a reduction of revenues or an increase of costs, transforms into a loss of profits and reduction of business value at all. A business might not have been able to realize a taken-away opportunity to increase output due to capacity limits, as further revenues might not have been profitable. Or costs increased in one period might been compensated by lower costs in other periods.

The explicit-planning-and-discounting-method, by requiring the valuer to transparently stretch out his quantified plan over many separate lines for cash inflows and cash out-flows or revenue and costs and many columns for the years[58] and a perpetuity forces him into a *strict planning discipline*. It exposes everything that matters to plain daylight and to critique,[59] which is ideal to help tribunals and courts to critically examine valuation propositions of the parties in the adversarial context of arbitration or litigation.

(2) Determining discrepancies between business values by multiplier methods?

In business, there are many successful and wealthy people, who are not attracted to complex theoretical concepts. They nevertheless call the shots very often very well. This may induce consultants to simplify their advice more than appropriate, which is one reason for the popularity of so-called "multiplier-methods". Initially it must be mentioned in their favor, though, that they share the correct starting point of the explicit-planning-and-discounting-method: the value of an asset consists of the present value of its surpluses. However, the constituent properties of multiplier methods include a severe deficit, which renders them, in our opinion, generally inappropriate for post-M&A damages disputes. Instead of a series of columns reflecting the expected results for several years and, via a perpetuity, to infinity – and thereby rendering the business value depending on the future results transparently stretched out over these columns –, they start with *one single number* only, into which they condense the whole future surpluses or deficits and which operates as perpetuity right away. While this simplification does not by necessity lead into wrong results, wrong results are much facilitated and almost always triggered by the lack of transparency this simplification allows. Multiplier methods *could* arrive at their one and single perpetuity *r* by (i) first planning the future of the business until infinity as the explicit-planning-and-discounting-method would suggest, and (ii) then *turning the* different *annual inflows* achieved this way *into a normalized eternal year-result*, their single perpetuity.[60] *If* they did that (and if they did it correctly), the difference between multiplier methods and the explicit-planning-and-discounting-method would disappear and multiplier methods would be nothing else but a little more complicated versions of the explicit-planning-and-discounting-method, which add an unnecessary calculation step, in which inflows from different periods are transformed into one single perpetuity or one eternal rent.[61] But multiplier methods are popular exactly because they allow to avoid the efforts, mental discipline and the consistency corset required by planning. Adherents of multiplier methods love simplifications and hate complications (not to say they wish to avoid transparency). Hence, multiplier methods never do what they would need to

57) So-called "contributory negligence" or, better, co-responsibility.

58) The longer the detail-plan-phase, the better. It should, if possible, stretch a reinvestment cycle of the business.

59) A planning covering many lines and columns helps, e. g. to avoid pitfalls by overseeing re-investment cycles or increasing output and revenues without regard to capacity limits or reducing output and revenues without lowering costs.

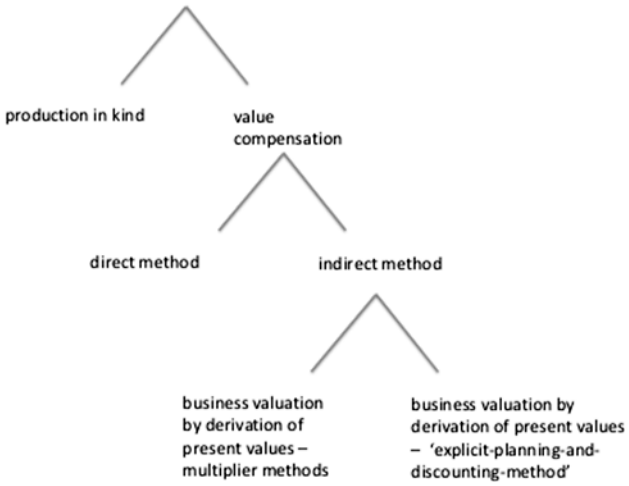
60) *Wollny*, Der objektivierte Unternehmenswert, 2 ed., 212.

61) The most obvious way to (correctly) "remix" discontinuous future cash flows into a single perpetuity would be via first completing the calculation of a present value or business value of the unequal cash flows: Discount the unequal future cash flows, as done by the explicit-planning-and-discounting-method, to a present value, then apply the formula for a perpetuity ($PV = r/i$, with PV being the present value, r the amount of each payment flowing until infinity and i the discount rate) in the opposite direction to derive a perpetuity out of a present value ($r = PV*i$). Thereafter it is possible to arrive at the correct present value or business value by again multiplying the perpetuity r with the inverse of the discount rate i. Hence, *if* multiplier methods are used correctly, they first have to go through the complete process of the explicit-planning-and-discounting-method but only thereafter add unnecessary math! In practice, they mostly actually derive their perpetuity from one or a few period cash flows adjusted by unsystematic considerations without much methodological reflection. Sometimes the discounting effect which results from the varying levels of "remoteness" of results is even ignored by averaging results of different periods or other logical or mathematical mistakes are made.

do to be at equal footing with explicit-planning-and-discounting-methods.

The second main feature or multiplier methods is somewhat less critical. While the explicit planning-and-discounting-method, as seen, discounts each year-result separately with a different power of its discount rate, multiplier methods, not only apply a mere single number as normalized period-result, but also just *one single multiplier* as well. They, thereby, do not assume that the business has a life span limited to the number of years used as multiplier or that results after lapse of this number of years would no longer affect the business value. Rather their multiplier has a legitimate mathematical basis as it actually hides a *discounting or division*. Multiplier methods, in fact, discount a perpetuity by a single division or multiply the perpetuity by the inverse of the discount rate. As they work with one normalized single number, a perpetuity *r* right away, they may calculate their present value by the formula $PV = r/I$, which is the mathematical formula to calculate the present value of a perpetuity.[62] Yet, multiplier methods typically still lose information when they derive the amount of their multiplier as they tend to be less systematic with regard to base interest rate, beta factor, market risk premium and growth factor than the explicit-planning-and-discounting method.[63]

The main weakness of multiplier methods remains in the fact that they condense all future surpluses in only one single perpetuity *r,* the lack of transparency in *how* they do it and in the lack of control over *what they lose* on their way to this single normalized period result. In the opinion of the authors, while such shortcuts, and simplifications may be helpful in a talk between an investment banker or real estate agent and his client on the golf course, they are already no longer acceptable in an expert valuation for squeeze-out compensation. Multiplier methods become certainly completely inadequate in a court room or before a tribunal where damages are to be awarded. Here, furthermore, arbitrators and judges may *not* leave the choice of method to economists ("*If the experts do it that way* …"), but they must insist on strict rationality and transparency required by the law concerning the production and proof of the factual basis (even if they are mere planned results) of the case. Only such transparency, inviting questions and critique by the arbitrators and judges and allowing them to develop their own views, may justify the exercise of state power in awarding damages and the relief granted in assessing damages, e. g. by Section 252 of the German Civil Code and Section 287 of the German Civil Procedure Code, in cases with mostly very significant amounts in dispute. We, thus, strongly suggest to claimants to underpin every damages claim for loss of profits/a reduction in business value by two *transparent, consistent and detailed long term business plans* with all future expected trends, waves, peaks and lows, investments cycles, irregularities and one-time effects. We also suggest that arbitrators and judges should make it clear to claimants that they are bound to fail if they deliver anything less. Accordingly, valuations based on multiplier methods should, as a rule, be *rejected* in post-M&A disputes as not sufficiently substantiated factual propositions or evidence. The following picture shows where we are in our systematic approach:



e) Subject-relatedness and bad subjectivity in valuation

A misconception about subjectivity in valuation often leads to mistakes. Valuation is, firstly, as seen, subjective because value depends on a valuation *subject*. Valuation, may, secondly, be called "subjective" because the valuation depends on the *future, to which humans have only access through* their subjective minds. The first subjectivity (which should better be called "subject-relatedness") is an inherent element of valuation and does not constitute a deficiency. Its determining factors (size, people, physical equipment, know how, products, market position and synergies of the business and the valuation subject and alternative investment opportunities valuation subject) are actually rather fix. The second subjectivity, which results from the limited access of human to the future, is a deficiency and its effects must, as they cannot be overcome, at least be controlled and minimized. This must be done by methodological consistency and precision. For example, all existing (physical, technical, economic etc.) facts must be taken into account properly and intellectual misconceptions and violations of the rules of logic or math must be avoided. Plans must be as rational, as inter-subjectively verifiable and, accordingly, as "objective" in this sense as possible. And, finally, everything must be transparent to allow readers to identify the silent assumptions made as part of the business planning. If valuation experts try to make tribunals or courts believe, they should accept what the expert somehow generates from his subjectivity (as

62) In $PV = r/i$ PV is the present value, r the amount of each payment flowing until infinity and i the discount rate. The problem of multiplier methods is not that they are named after multiplication while it might be more correct to call them "division methods". What is called "multiplier" is only the inverse of a discount rate used as divisor.

63) It is less relevant in the present context, where multiplier methods derive their multiplier from. They derive it either as market-multipliers from observed recent market valuations or transactions or as inverse of discount rates derived from individual investment alternatives or based on capital market based CAPM-models. The debt and non-operative assets must twice be neutralized, concerning the business, *from which* the multiplier is derived, e. g. a market capitalization or recently paid price, and concerning the business *to which* the multiplier is applied. Such multiplier will, of course, if more indirectly, reflect present interest rates, a risk premium etc.

some kind of oracle), tribunals or courts should be very skeptical!

IV. Quantum Phase: A Framework for the Calculation of Damages

The legal propaedeutic has led to two distinctions. One distinction must be drawn between *two breaches and the damages resulting from them*, the first breach having caused the present wealth position of the buyer to differ from his fictitious wealth position, which would have *evolved without the deception* because without the deception he would have paid less (negative interest). The second violation having caused the present factual or wealth position of the buyer to differ from his fictitious factual or wealth position, which would have *evolved* if the business had been as guaranteed (positive interest). In this regard we have *two different wrongs* done to the victim. Secondly, a distinction must be drawn between two *methods* to remedy the breaches: production in kind and value compensation. If the positive interest is awarded, depending on what method is chosen, the wrongdoer will have to pay two different amounts to the wronged party. Still, in the end, the wronged party must be brought into the *same wealth position under both methods*. As we already stated, this can be achieved because the production in kind restores the victim's "investment apparatus" (money making machine) at an *earlier point in time*, so that the victim can generate more profits himself,[64] which, together with the damages paid by the wrongdoer, make him whole.[65] The two distinctions of the legal propaedeutic can be shown in a matrix:[66]

	Negative interest	**Positive interest**
Production in kind	Negative interest through production in kind	Positive interest through production in kind
Value compensation	Negative interest through value compensation	Positive interest through value compensation

In economic propaedeutic we have shown that all value is subject-related. We developed the difference between the value of the seller, the value of the buyer, the value of third parties, e. g. competing bidders or bystanders, which we called "market value", and an objectivized business value of a fictitious subject with standardized properties. We emphasized that all such subject-related business values must still be determined in a way that they are inter-subjectively verifiable and objective in another sense. The remainder of this article will mainly consist in suggestions on how to fill the above four boxes from the legal propaedeutic with damages figures derived in accordance with the economic propaedeutic.

1. Probability and uncertainty reconsidered in the quantum phase for damages valuation

In connection with the merits phase of proceedings, we pointed out that in order to verify the correctness of a statement about an external fact, including probability, or internal facts, including expectations of future uncertain events and intentions, *different comparisons* are required. In the first case, the statement must be compared with the external reality, in the second case, irrespective of whether we only have a simple deception or guaranty, the statement must be compared with the inner world of the speaker.[67] This difference also matters in damage assessment in the quantum phase. First, if the statement was "*x exists*" (as an external fact), in order to determine repair or substitution costs or differences in business value, tribunals and courts can compare the situation with x with the situation without x.[68] Hence, if the statement was "*We have won the tender!*", this situation can be compared with the business without the tender. Since statements on objective mathematical probabilities can be considered statements about present external facts, if a result has been stated to have an *objective mathematical probability* of 5/10 while the true objective mathematical probability was only 3/10, tribunals and courts, may conclude that the seller *misrepresented* the expectation value by 2/10 (of the value at stake). This does not yet mean tribunals and courts may simply award the difference between the expectation values as damages. This depends on the applicable laws and their interpretation with national law makers being free to deal differently with the issue and case law and scholars being free to change their views etc.[69]

If the statement was not a statement about a present external fact, including on an objective mathematical probability, but a statement about future events *out-*

64) If, e. g. machinery or equipment is defective, when a repair takes place will lead two different factual positions during an interim period. Yet, for the victim's wealth position it does not matter, whether the repair is effected early (and the compensation for loss of profits caused by the defect is low) or whether the repair is effected later (and the compensation for loss of profits caused by the defect is higher). In each case the wronged will be put into the same position as if the item had not been broken, even if at typically different costs for the debtor.

65) In the special case where the damaged object is no financial asset (e. g. a personal souvenir) or where the repair or substitution costs are higher than the present value they generate (and the repair is a bad investment), the damages payable for the production in kind may be higher than the amount of value compensation would be. The same situation arises, if replacement or substitution costs for an investment asset are higher than the value generated thereby and if, accordingly, the repair of the investment apparatus or its substitution is an unprofitable and poor investment.

66) See already *Wächter* NJW 2013, 1270 et seq., 1272; *Wächter*, M&A Litigation, 3 ed. 2017, rec. 12.19.

67) E.g. "*To the best of his knowledge, Seller expects [follows statement of future events]*". This statement is not wrong already because the foretold event does not materialize, but only if the Seller did not expect the event to the best of his knowledge. If a future event as such is guaranteed (e. g. a seller guaranties sales to a connected entity), the issues of the present section do, of course, not arise.

68) The same applies if a guaranty concerning a future event is given (as distinguished from a present belief that a future event will materialize).

69) While thinking in terms of "expectation values" has become more widespread in legal contexts recently, e. g. the majority opinion in German law of damages does not award damages if only chances were lower or risks higher than stated or guaranteed. See *Brand*, Schadensersatzrecht, 2 ed., § 5 rec. 43 f. with further references. *Brand* points out, with a view to *Harding v. United States Figure Skating Association*, that under the German law of damages it would not be possible to, e. g. award damages to a figure skater because of her lost chance to compete in the Olympic games (her knee had been battered with an iron bar by another US-competitor!) in e. g. the amount of "probability" to win a medal multiplied by likely resulting gains. However, in the award of the ICC Case 9078, 2001, published as extract in Dispute Resolution Library, Special Supplement 2005, UNIDROIT PRINCIPLES, New Developments and Applications, 73 f. [8.5.5], the tribunal seems to have taken another view. We do not opine on this question in this article.

side of the rules of objective mathematical probability, which we therefore call *uncertain*,[70] additional intricate issues arise. The statement could then only be incorrect because a *present inner fact* or belief was misrepresented. If the statement was "*I believe x will happen*", e. g. "*I believe we will win the tender*", in the quantum phase the basis for the measurement of the damages cannot be simply derived from the difference between an *external world* in which x *had* happened for sure (the tender was awarded) and an external world where x did not happen (it was not awarded). It may rather only be derived from the *difference between two internal worlds* of the seller concerning uncertain future events, the seller's true historic internal expectation and his incorrectly described inner expectation. Tribunals and courts must, hence, interpret the seller's statement on his internal world and establish his true internal world.

On the side of the statement made, the reliability or confidence expressed or implied ("*I am a hundred percent sure!*") or resulting from the circumstances matter. For example, the *kind* of event, (more uncertain vs. less uncertain), the *state of science, the seller's individual knowledge,* the *seller's position,* the *data available* to him (each as legitimately perceived by the buyer), the *time distance* to the expected event and so forth influence the trustworthiness of a prognosis and will determine how the business plan for the hypothetical case will be.[71]

On the side of the true inner belief of the seller, it will matter what degree of confidence or reliance he truly had concerning the future materialization of his statement. For example, if the statement on his internal world "I expect we will win the tender" was wrong as, in the end, the seller did not believe in success, it will make a difference whether the seller at least believed in a very good or good opportunity (but no more than that), whether he only saw a small chance to win the tender or whether he already knew that the tender had been awarded to a competitor. The statement "*I expect we will win …*" was always false, but the "lie" was "smaller" in the first than in the latter case.

The degree of stated reliance and confidence must be compared with the true degree of reliance and confidence – and this difference must be reflected in the two business plans, but, to repeat this important point, it will normally not be possible to simply include an uncertain advantageous fact in a business plan for the hypothetical case and to simply not include it in the business plan for the real case.

If the applicable legal system at all allows to award damages derived from incorrect or guaranteed statements on future uncertainties, a tribunal or court is faced with the task of how to transform different degree in reliance or confidence into two business plans. Although this reasoning is clearly outside of the realm where the math of probability applies,[72] tribunals and courts, when assessing the effects of an incorrect statement on the value of the business, e. g. based on Section 252 sentence 2 of the German Civil Code or Section 287 of the German Civil Procedure Code, will in the end have to attribute numbers to the different degrees of reliability and confidence the seller pretended to have or really had concerning the future circumstance in question. Depending on this, they may, e. g. attribute to a statement about a circumstance as a future uncertainty a value of less than 100 % of the value of the statement concerning the same circumstance as a past or present fact, e. g. between 90 %[73] and 30 %, in the business plan for the hypothetical case. And they may attribute, in the business plan for the real case, to the statement that should have been made as it reflected properly the seller's true belief, a value of, e. g. between 60 % and 0 % of the value of the statement concerning the same circumstance as a past or present fact.[74]

The reader may note that our suggestions tend to restrict the possibility to award damages for deception and false guaranties based on present internal assessments of the future.[75] If tribunals and courts apply our suggestions, this might lead to claims based on deceptions about future uncertain events and guaranties on present views of the future, e. g. connected with busi-

70) Humans often try to express their expectations about future uncertain events materializing in percentages as so-called "subjective probabilities". While it is understandable that speakers wish to distinguish between degrees of their reliance about an expectation of a future uncertain event and sometimes even wish to give quantitative "reliance-values" about their "subjective reliance concerning a future uncertainty", the expression of a "subjective probability of x %" remains misleading. It might be better to use qualitative metaphors such as "cold-warm-hot-very hot" etc.

71) E.g. long term sales forecasts of an owner who is remote from day-to-day operations will command less reliability than short term forecasts based on close-by sales force reporting. If a seller pretended that a prognosis is based on recent sales force reporting, but there was no or adverse sales force reporting, in addition an incorrect statement about past external facts may be implied.

72) Percentage probabilities are very often applied to occurrences *far out of the realm of probabilities* (e. g. "chances for the German soccer team to win against the US soccer team are 75 %", "the likelihood for Germany to lose WWII was 80 %", "our business will win that order with a likelihood of 50 %", "*Hilary Clinton*'s chances to win the presidential' elections were 60 %", "BREXIT to occur was 40 %", "*Donald Trump*'s chances were below 40 %" etc.). One has always to keep in mind that these are all statements about subjective assessments of uncertain outcomes, not objective mathematical probabilities. No physical or other systems logic governs the results, the average of which, in the very long run, approaches an expectation value. Here the use of percentages has nothing to do with calculable probabilities, but is merely metaphorical or, as is said euphemistically, based on subjective probabilities.

73) Even an utmost honest "for-sure-expectation" of a future uncertain fact by a competent and well-informed person is always less than a statement about a present or past fact.

74) However, tribunals and courts will again investigate whether the laws of the applicable jurisdiction allow tribunals or courts to award damages based on differences in degrees of reliability of statements about uncertain future events. Under German law, it may potentially be easier in this regard to convince tribunals or judges to grant the negative interest than the positive interest. It is very plausible that less value would have appeared to be there and that a buyer would have paid less if the seller himself had scaled back his forecasts or expressed less confidence; this may already be sufficient under Section 252 sentence 2 of the German Civil Code and Section 287 of the German Civil Procedure Code to grant the negative interest by a purchase price adjustment. But if the award of the positive interest is at stake, as, e. g. a seller guaranteed that a business plan was set up carefully and according to his best knowledge, while it was not, a tribunal or court may be more reluctant to grant the positive interest. How should a tribunal or court "put the buyer into the position as if a plan had been set up more carefully and according to better knowledge of the seller by *adjusting the real outside world?*" (The plan would have remained a plan whose materialization was uncertain!). Furthermore, a skeptical or negative attitude of a legal system *vis-à-vis* damages for lost opportunities, which can (even!) be expressed as mathematical probabilities, will tend to reduce readiness to grant damages for lost opportunities, which are less than mathematical probabilities but rather only uncertainties.

75) If a seller takes responsibility by way of guaranty for an event to occur or not to occur in the future by an objective guaranty (similar to an indemnification), the present considerations do not apply. In such case we don't have a guaranty about a present expectation of the future but of the future itself, a bet.

ness plans, to lose some relevance in post-M&A disputes.

2. Deception and awarding the negative interest

If a buyer walks away from a purchase of a business because of deception, we would have a rescission or withdrawal, which is outside the scope of this article.[76] Instead, we do deal with the situation where the buyer seeks damages for the negative interest. The calculation of his damages resulting in a *de facto* reduction of the purchase price[77] involve higher legal and economic intricacies than cases, in which the positive interest is to be awarded.

a) Award of negative interest by production in kind

Whether the award of the negative interest in deception cases is construed as production in kind or as value compensation is not of much practical relevance. It depends on a more or less narrow or wide definition of production in kind, e. g. of Sections 249, 250 of the German Civil Code in comparison with Section 251 of the German Civil Code, or of possible similar notions in other legal systems. We have decided to treat the award of the negative interest as production in kind as this appears to be most consistent with the present legal reasoning on production in kind in German law. However, if somebody were to take the opposite view, that would only mean a switch from the upper left to the lower left box in the matrix without much further effect. We, therefore, skip the pros and cons of the discussion in this article.[78]

b) Difficulties of the put-into-the-position-as-if-rule in deception cases

As we have seen, the instruction to put the creditor into the position the creditor would have been in without the breach is the general and all-encompassing instruction with the purpose of automatically adjusting all kinds of damages to the breach. As damages are accordingly "steered" by the breach, if the breach was a deception, the instruction requires tribunals or courts to retroactively *simulate a hypothetical deception-free negotiation situation,* which is not distorted by incorrect beliefs of the buyer, which beautified, euphemized or whitewashed the sales object and made it appear more valuable than it was. This involves the assumption that for the business, which was stripped of the deceptive veil (which we will call deception-stripped business), a *different (lower) price* would have been agreed, taking away from the seller the "deception premium" he gained in the amount of the difference between two prices. It does not mean, though, that the buyer is to be put into the position as if the deception had been true, nor is a specifically favourable price-value-relationship that may have appeared to exist due to the deception to be upheld and transferred to the deception-stripped business. The question is what principles and techniques are applicable to determine the hypothetical lower purchase price or the amount of the deception premium. In particular, problems arise from the fact that the put-into-position-as-if-rule cannot be interpreted in a purely naturalistic way, but requires some brinkmanship between a naturalistic and a normative application. We found it helpful to divide the process of determining damages as the negative interest (amount by which the buyer "overpaid") in two stages. At the first stage the most important parameter of all negotiations – the *two relevant values* of the sales object – with and without deception – must be established. The first stage includes deciding whether the buyer's business value, the seller's business value or whatever other business value is to be used, as well as determining the valuation date and the informational cut-off-date. At the second stage, it has to be decided how the found lower business value is to be transformed into a reduced price.

c) Stage 1: Valuation issues

aa) Business value(s) as go-between

The two-stages-approach presented in the preceding section is opposed to the view that the buyer can simply say "*If I had known, I had paid x less*" and support this by whatever plausible reasoning. It implies that the award of a negative interest by a purchase price reduction requires two valuations as a *go-between* or intermediate step, one valuation of the real business with the deception stripped off and one valuation for the hypothetical deception-enhanced business (as if the deception were true). There are legal and economic reasons for this. The first legal reason is that awarding the negative interest is no purely naturalistic endeavor. Not only can the question whether, absent the deception, the sale would have been concluded at all and at what price not be answered by anybody as a factual question, but the law of damages also does not even aim at that; rather normative aspects must be involved. Second, we will normally not find out whether a certain purchase price formula was used by the parties or the buyer to arrive at the agreed purchase price. This is so as formulas, if disclosed in trial at all, were typically used as arguments for negotiations purposes, but do not necessarily unveil the real decision-making process. Third, even if we somehow get to a formula, which was used to calculate the deception-enhanced price, we *cannot conclude* that the seller would have accepted the *same formula* for the deception-stripped business. Maybe he would have applied a different one. Fourth, the economic reason for the intermediate step of a valuation is that a business, as all investment goods, is a machine to make more money and that its money-making potential, represented by its business value, is the main reason to pay a higher or lower purchase price. Considering the size of the discrepancy to the true lower value concealed by the deception is, thus, the sole rational and economically sound way to simulate a different outcome of the price negotiations. Accordingly, a buyer must make a substantiated factual proposition on how much the

76) If the buyer rescinds the contract or withdraws from it, the seller will obviously have to return the purchase price plus interest. In addition, he may have to compensate the buyer for foregoing the opportunity to profitably invest the purchase price elsewhere. The existence and profitability of a foregone alternative investment opportunity (and whether the buyer would have used it) will often be difficult and sometimes impossible to prove, but it cannot be denied that the buyer might have profited from an alternative use of the purchase price.

77) The German Federal Court of Justice (BGH) avoids speaking of a purchase price reduction and rather talks about the award of the "remaining reliance damages" (*Restvertrauensschaden*), e. g. BGH 19.5. 2006 – V ZR 264/05, NJW 2006, 3139. If we speak more liberally of purchase price reductions etc., this is only for abbreviation reasons.

78) See however *Wächter*, M&A Litigation, 3 ed. 2017, rec. 12.116.

sales object would have been worth if the deception had been true and how much it really was worth. Without valuation, the presentation is inconclusive.

bb) Comparison start date, informational cut-off-date and valuation date

Time renders human life possible but also complicated. In M&A many different dates come into play, e. g. when a share purchase agreement (SPA) was *signed*, when *conditions* were fulfilled, when the deal was *closed* (which may be identical with the date when conditions were fulfilled or not), when the *legal* and/or *physical transfer* of assets took place (which may differ from the closing, e. g. if a register entry is required). Often, there is also an "economic transfer date". However, damages calculation and business valuation are not bound by these dates; the choice of dates they work with depends on the law of damages and its purposes and on the logic of valuation.

Three dates are relevant. First, to determine the discrepancy between two result lines requires that all differences of the compared cash flows, which are spread over time, are captured. Hence, the comparison start date must lie before the two result lines diverge depending on the truth or falsity of the statement. For example, if a simple or guaranteed statement was made that the business has complied with all environmental laws for the past five years, the comparison start date, though it does not have to be set five years ago, must at least be set shortly before the first fine for breach of environmental laws became or becomes payable. This date will appear at the left edge of the first column of the spreadsheet used; it has no necessary relation to the signing, closing or economic transfer date, but may correspond to any or neither of them in the individual case.[79]

Second, as part of valuation attempts to predict future events, it is crucial to determine *what information may be used to look into the future*.[80] This is determined by the informational cut-off date; information, which emerges after such date is excluded and may not affect the business plan and the valuation.[81] For example, it may matter very much for damages whether a war, a political or macro-economic crisis, export restrictions, prohibitions of trade, a collapse of markets, cost increase, or a reduction of sales prices, which hit after the sale, may be taken into account in the valuation or not.[82] The authors have come to believe that in the context of a deception and an award of negative interest the *date of signing* of the sales contract must be the *informational cut-off-date*.[83] The put-into-as-if-instruction in the context of a deception requires simulating a fictitious mental situation in the buyer's head without the effects of the *specific* incorrect information. It takes away the deception-premium gained by the seller because of this *specific* deception. However, it does not take away more. Tribunals and courts may not, as some kind of side effect or collateral gain, give the buyer the benefit of *other* information, which he could have learned after he signed the deal and which may have led to lowering the price. Accordingly, if circumstances become known after signing, which reduce the value of the business, but which are unrelated to the seller's deception (e. g. the seller said nothing and was not obliged to make a disclosure or even if an incorrect statement was made, but was not imputable to the seller), those information will not further reduce the value of the business. Similarly, positive information emerging after this moment will not work in the seller's favor and not reduce or exclude a purchase price reduction awarded by the tribunal or court. Hence, if the negative interest is to be awarded, the informational cut-off-date must be the date of signing.[84] If unfavorable or favorable events occur or become known thereafter, they have to be ignored.[85] As we shall see, this is different if the positive interest is to be awarded.

Third, the setting of the valuation date determines as of when the present value of surpluses of a business is calculated or to what date the future surpluses are discounted down. It must depend on the purpose of awarding damages. As, if the negative interest is granted, the purpose of the valuation is to derive a new basis starting from which the parties would have adjusted the price, it is reasonable to choose a date close to when the price was agreed, e. g. signing again.[86]

cc) Buyer's business value, market value and objectivized value

Finally, the question is *whose* business value to use, the seller's or the buyer's or any other possible value.

79) The economic transfer date has specific functions assigned by the individual contract, e. g. to define as of when certain parameters are to be measured, e. g. by a pro-forma-balance sheet, for purchase price adjustments, e. g. by net-cash-net-debt-clauses, but breaches of guaranties before the economic transfer date may still influence the transferred business value. Of course, a "double dip" must be avoided anyhow.

80) See already *Wollny* DStR 2017, 953 and *Wächter*, M&A Litigation, 3 ed. 2017, Preface rec. 12.141 et seq., 12.150 based on the cooperation of the authors.

81) In balance sheet laws there is a clear distinction between valuation date (as of when the balance sheet is set up) and an informational cut-off-date (the date when the balance sheet is set up), which determines until when new incoming information may and must be used for the balance sheet. In German balance sheet law this is graphically called, the "value enlightening date" (*Werterhellungsstichtag*). The same distinction must apply analogously to business valuation. Here we have a "valuation date" (as of when the valuation takes place) and an informational cut-off-date (until when new information may be used). The two dates may be identical, but can also differ.

82) It is a further difficult question how "elaborate" or "clear" (etc.) the information must be at the informational cut-off-date to count. In German case law in squeeze-out and similar cases, if the objectivized business value is to be determined, this issue is often treated with the help of a so-called "Root Theory" (*Wurzeltheorie*; see *Stephan* in Schmidt/Lutter, AktG, 3 ed. 2015, § 305 AktG with further references). According to the Root Theory only such circumstances may enter the planning and the valuation, which could at least be detected "in their roots" at the valuation date (which is also the informational cut-off-date in this case) or which were already "grounded" (*angelegt*) at that date. While there are hardly court decisions on pertaining disputes where the Root Theory is not mentioned, it is obviously no more than an extremely under-complex biological (even botanical) metaphor. It has no direct application on valuation for post-M&A cases, but the problems, to which the Root Theory tries to answer, are similar.

83) However, if the buyer had unilateral rights to withdraw or to keep the contract from becoming valid etc. (e. g. conditions precedent depending on his will), it is appropriate to take the last logic second before lapse of his opportunity to unilaterally withdraw. In the following to avoid repetitions, we will mostly only refer to the date of signing.

84) See already *Wollny* DStR 2017, 953 and *Wächter*, M&A Litigation, 3 ed. 2017, Preface rec. 12.141 et seq., 12.150 based on the cooperation of the authors.

85) This applies to the two necessary valuations, the valuation of the real, deception-stripped business and of the deception-enhanced business.

86) The valuation date can, thus, be set freely in principle. For example, if we assume that all results of a business, which is limited in time, e. g. a merchandising monopoly for a football world cup over three years, would be known, the present value of these surpluses could be calculated as of any chosen date, e. g. much before the event, during the event or after the event, and all differences would be due only to the greater discounting and/or compounding effect.

Where German courts granted the negative interest in the past, they nowhere explicitly addressed this difficulty. They rather simply assumed that there is only *one* value, *the* value of the sales object, which was lower than it would have been without the deception.[87] Courts have acted this way outside of post-M&A disputes (e. g. concerning a missing elevator to an apartment[88] or concerning the reduced value of a building because of an undisclosed option in favour of a tenant to extent a lease[89]) but also when dealing with negative interest in post-M&A cases.[90] In these cases, the simplified approach (to assume the existence of one business value only) may have eventually been justified because the buyers may have failed to argue that due to their specific concepts and synergies, their business value had exceeded the seller's business value and that, accordingly, the effect of the deception onto their buyer's business value was negatively "leveraged".

However a scholarly article cannot sidestep the question what to do if the seller's and buyer's business values differ. We suggest the following: in M&A transactions buyers base their offer price on their own subject-related business value they expect to obtain out of the purchased business after concept changes and synergies. If they were misled they will want to undo the payment of the specific "deception premium" they paid for value they assumed to obtain as new owner, but which wasn't there. Very possibly, they may have only overbid the competition owing to the impact of the false properties on their business valuation. This speaks for using the *buyer's business value as basis* for all valuations if the negative interest is awarded in deception cases.

The buyer's business value is not the whole story though. In our opinion the position-as-if-rule requires taking into account valuations of the deception-stripped business by *other bidders or other prospective bidders*. Assume a profile of a buyer which hinders him to run the business as it had been run by the seller, but nevertheless allows him to significantly increase the business value through concept changes and synergies, which are exclusively available to this specific buyer due to certain assumed properties of the business. If the buyer had found out that the crucial properties were false, his business value would have collapsed disproportionally. However, the business values of competing bidder, which were less sensitive – in the positive and negative – to the fictive properties, might have remained largely unaffected. Say as the buyer's business value – "leveraged" by the fictitious properties – appeared to be 15,[91] he outbid the competition and bought at 12. After the deception is discovered, the "leverage" works downwards and lets his business value shrink to 5. However, other bidders, whose business values are less sensitive, may continue to value the business at 10. The question is what determines the deception-stripped business value? Should it be 5 as the deception-stripped business value of the buyer or 10 as the deception-stripped business value of competing bidders (or of "the market")? We believe that the put-into-position-as-if-rule has to be looked at "naturalistically" here. As the deception-stripped business could have been sold at 10, it is justified to assume that, even if the sales contract was concluded with the buyer, the seller would not have sold below 10. Accordingly, irrespective of how much the buyer's business value drops, values of third parties would have functioned as a lower boundary.[92] Even though it is often held that the notion "market value" is inappropriate for the valuation of businesses,[93] we shall use this notion for the lack of any better. Section 252 of the German Civil Code and Section 287 of the German Civil Procedure Code allow tribunals and courts to estimate market values in that sense. If no market value can be determined or in order to verify market values proposed by the parties, as stated above, the methods known from deriving objectivized values may be applied with proper adjustments.

Hence, our proposal can be expressed as follows: *the value of the deception-stripped business is to be reduced to its market value (or properly adjusted objectivized value), unless the buyer's individual business value is higher*.[94] This result is, we believe, required by the purpose of the award of the negative interest. The seller is to be put in the situation as if he had not been deceived, but he is not to be allowed to re-apply a particularly advantageous price-value-relation to the deception-stripped business, which, he might possibly have enjoyed with regard to the deception-stripped business. Only the award of the positive interest aims at that. The buyer is nevertheless sufficiently protected if the valuation of the deception-stripped business at the market value is still too high for him in light of his persona-specific business valuation. He can then exercise his alternative remedy and withdraw from or rescind the deal (which he can).

87) In the same sense Section 441 subsection 3 of the German Civil Code provides for a reduction of the purchase price in the amount of the discrepancy between "*the*" value of the object without defects and the real value.

88) BGH 8.12.2000 – V ZR 484/99 rec. 24 f., NJW-RR 2001, 842.

89) BGH 6.4.2001 – V ZR 394/99 rec. 22 f., WM 2001, 1302.

90) xml:lang="en"BGH 23.5.1977 – II ZR 44/76, NJW 1977, 1536 (1538) and OLG Düsseldorf 8.11.1991 – 16 U 112/90, NJW-RR 1993, 377. See *Wächter*, M&A Litigation, 3 ed. 2017, rec. 12.132 et seq.

91) Obviously, the buyer's value for the deception-enhanced business will have to be established by means of the civil procedure with the parties fighting bitterly about it. The buyer will push his value up as high as possible, the seller will try to push it down. The tribunal or court will depend on the buyer's facts and data, but if the buyer does not cooperate and does not provide facts and data, e. g. for confidentiality reasons, this will work, as should be, to his disadvantage. If he provides substantiated argumentation, facts and data, evidence will have to be taken. The same applies to the value of the deception-stripped business, with now the buyer trying to argue the business value down and the seller trying to argue it up.

92) Actually, this is the same idea, which sets the stock exchange price as lower boundary for awards of compensation in squeeze out and similar cases, e. g. BGH 19.7.2010 – II ZB 18/09 – *Stollwerk*.

93) We are aware that the idea of market value becomes more difficult as the complexity and differentiation of objects, which render them more dependent on concept changes and synergies, increase. While stock in a traded company, commodities etc. can be said to have a clear market value, this becomes more difficult with regard to real estate (with large differences between different categories of real estate again) and even more so with operating businesses. Hence, the notion of "market value" is rarely used for businesses in business contexts (it may in economics). Still, if several bidders offer similar prices for a business, which seems to indicate that all of them have either no concept changes or synergies or only such concept changes or synergies in mind, which are accessible to all of them, this market reality may, at least for purposes of the law of damages, and using procedurally possible simplifications, as Section 287 of the German Civil Procedure Code, be captured as market value.

94) One might say that at this point we integrate the perspective taken by German courts in the above quoted cases, where they only applied the concept of *one* relevant value anyhow. However, this applies only to setting the lower bottom while a buyer's value above the market value remains decisive.

dd) Discount rate

To transform the series of surpluses or deficits resulting from the two business plans for a deception-enhanced and a deception-stripped business into two present values, a discount rate must be applied.[95] How must this rate be chosen to comply with the law of damages? In our opinion, the subjectivity of the law of damages requires usage of an alternative investment rate derived from characteristics of the specific buyer as valuation subject. If the buyer is capital market oriented, it should be possible to use his capital costs based on CAPM with the Beta-factor reflecting the specific risk profile of his industry. If the buyer is a small or medium sized business (SMB), his (true) target return rate would be the correct discount rate. The Total-Beta-approach may be helpful as a further approximation.[96] The issue of the "good" and "bad" subjectivity comes into play again. While the buyer was free to set "hurdle rates" for his investment decisions at his discretion ("*We will not make investments with a return of less than 15 %!*") and while he was also free to use this "hurdle rate" to discount future surpluses of the purchased business to derive his purchase price offer, these "hurdle rates" remain discretionary (and "bad subjectivity") and cannot be applied in damage calculations.[97]

The law grants a negative interest based on business values that exist and would have existed as the buyer's investment alternatives *really are,* but not as he under- or overrates them. This remains true even if, as the reader may already have observed, a conflict of interest in the buyer emerges: as the buyer is interested in arguing the price down during purchase price negotiations, he will, in addition to a sceptical planning, tend to apply a high discount rate (or a low multiple). In post-M&A damages litigation, his interest is the opposite: his aim is to show how wonderful the business would have been without the deception by applying the lowest possible discount rate (or highest multiple). If a tribunal or court would consider applying the discount rates used by the buyer for price argumentation purposes (e. g. derived as inverse of multipliers used in purchase price negotiations) it would tend to underrate the real damages suffered by the buyer as these discount rates were probably intentionally higher than the buyer's real capital costs. Accordingly, the door must remain open for the buyer to convince the court that his real investment alternatives were worse than the discount rate (inverse of multiple) the buyer used in purchase price negotiations.

d) Stage 2: Deriving a hypothetical price

aa) Naturalism and normative limits to naturalism in hypothetical pricing

The main problem in applying the put-into-the-position-as-if-instruction in deception cases lies in deciding to what extent it is relevant how the negotiaton might hypothetically naturalistically have progressed in in real life to what alternative price without the deception and where normative considerations will influence or "cut off" such reasoning. As the put-into-the-position-as-if-rule is a normative and artificial endeavor itself, normative considerations must steer this brinkmanship between naturalism and normativism. The following issues deal with different aspects this borderline-situation.

bb) "No deal" is off limits

Thinking naturalistically, in real life, if the seller had not deceived, the deal might not have been concluded at all as the buyer might have walked away or as the seller might not have accepted a lower price. However, it is an accepted consequence of the normative character of defining the situation "as-if" in German case law that the seller may not argue that he would not have accepted a lower price and not concluded the sale, if such price has been found appropriate by the tribunal or court.[98] The tribunal or court will, thus, not hear evidence in this regard. Only the deceived buyer has the option to rescind the deal and if he does not exercise this option (and he does not if he claims damages of negative interest), the tribunal or court must assume for the purposes of damages calculation that the sales contract remains intact. As already stated, in our opinion, this does not, exclude tribunals and courts to use the market value, which would have been paid by competing bidders, as lower boundary for the reduced price.[99]

cc) No loss-of-trust-effect

The hypothetical negotiation situation, which the tribunal or court will (normatively) assume as benchmark, is, furthermore, without the deception *from the very beginning*. Accordingly, it is not a situation, in which the seller made a deception first, then was found out (the buyer may have lost trust, have shouted at the seller, insulted him, raised a criminal charge against him, the seller may have apologized etc.) and only then the price is renegotiated. Rather the drama of disappointment, loss of trust, anger etc. has no place in the simulation, in which the hypothetical deception-stripped price is established, and no inferences can be drawn from what a detection of the deception would have naturalistically done to the buyer. The relevant situation is a situation in which the *true facts would have been there from the outset*.

dd) Good faith and rationality must reign

If the tribunal or court sets a reduced price, the seller may not argue, for normative reasons, that he would have found other means to deceive the buyer or use illegitimate threads etc. to still get him to accept the original higher price. Nor can, on the other hand, the buyer convince the tribunal or court to reduce the price more than is justified by reason of the true facts, be-

95) As already stated, the discount factor, by which each period result is multiplied before being added up is a negative power of the discount rate.

96) Deriving a discount-rate for SMBs directly via CAPM would typically result in granting *too high damages*. CAPM is based on the assumption of risk diversification (appropriate for large corporations as traded on stock markets), which allows the valuer to *reduce* the risk premium and, accordingly, to *lower* discount rates and *increase* business values and *increase* business value gaps, i. e. damages. If discount rates must be derived for damage calculation, it appears more appropriate to assume that there is no risk diversification, e. g. using the so-called "Total-Beta-approach" (See *Wollny*, Der objektivierte Unternehmenswert, 2 ed. 2013, 246 et seq.

97) Unless by chance they are identical with the discount rate derived according to the preceding proposal.

98) E.g. BGH 25.5.1977 – VIII ZR 186/75, BGHZ 69, 53 et seq., 58 et seq.; BGH 2.6.1980 – VIII ZR 64/79, NJW 1980, 2408 (2409).

99) See IV.2.(c)(cc) above.

cause he might have himself used improper means. As "setting" a hypothetical new price to calculate the negative interest is a normative endeavor, tribunals and courts will also assume that the parties would have been reasonable and rationally weighted up the effects of the information, which had been concealed or distorted by the deception. They will *impose* a reduced price upon the parties *as if* the parties had negotiated in a specific rational and fair way.

ee) Rule-of-three or deduction of value gap

We now address the question what methods tribunals and courts can use to transform a difference between two business values (the buyer's business value for the deception-enhanced business and the buyer's business value for the deception-stripped business, but at a minimum the market value) into an adjusted price. As the purchase price and the business values for the deception-stripped and deception-enhanced business are known, two basic possibilities of transformation are obvious. The new, adjusted price can be calculated according to the "rule-of-three"[100] as the original price multiplied by the lower, adjusted value divided by the old original value. For example, if the buyer's business value for the deception-enhanced business was 24 and if, the adjusted buyer's business value for the deception-stripped business is only 18,[101] this factor 18/24 could be applied to the old price of, e. g. 20 and the adjusted price could be set at 15 (20*18/24). Alternatively, the new adjusted price can be calculated by deducting the discrepancy between the two values from the original price. Tribunals and courts may decide, depending on the individual case, which of the two options better puts the buyer in the "as if" position. They may note that the rule-of-three leads to inappropriate results if the buyer had priced different "pieces of value" belonging to the business differently. For example, in the above example the buyer may have come to a valuation for the deception-enhanced business by attributing a value of 18 to its operations and a value of 6 to a remainder of cash and gold.[102] If now the business value without deception went down to 18 as the cash and gold was not there, the buyer might very likely have asked to deduct 6 from the old price of 20 (and the seller may have reasonably accepted that), resulting in a new price of 14. The alternative use of the proportional rule-of-three would only have led to a reduction to 15 (18/24*20).[103] Tribunals and courts must, accordingly, revert to the principles of the law of damages to decide on what new price the parties would have agreed based on an established reduction of business value.

ff) Interest

If the amount of purchase price adjustment is derived from a new valuation as of the signing, interest must be added as from such date to the actual payment, which may, until a tribunal or court has rendered an award, easily be several years later. The put-into-as-if-principle would, taken strictly, require awarding compound interest at a realistic reinvestment rate, but the laws of the applicable jurisdiction may derogate or restrict this in the sense that non-compound interest at some other rate is applicable.

3. Guaranties and awarding the positive interest

a) Award of the positive interest by production in kind: repair or replacement costs

Depending on the respective jurisdiction, if a guaranty as to the existence or ownership of a (physical or legal) object belonging to the sold business or as to the quality of such object is incorrect, the guarantor has first to create the promised (guaranteed) situation, e. g. by paying the replacement costs for the missing object or by having it repaired or substituted. The legal issues involved here include, for example, whether the payment is to be made to the buyer or, in case of a share deal, to the target company,[104] and, of course, what standards or qualities of the replacement, repair or substitution goods the seller must pay for.[105] But the principle is clear and does not create theoretical difficulties.[106] An award of the positive interest by production in kind may also consist of releasing the target or buyer from an obligation. This is normally, leaving consequential damages aside, not very complicated.

b) Award of positive interest by value compensation

aa) Award of damages based on future results

If the positive interest is to be granted by value compensation, a first question is whether the awarded damages may *at all* include not only *missing past results* from periods between the damaging event and the last oral hearing in the proceedings, but also *missing future results* after the oral hearing, where the biggest share of damages usually comes from, or even after the award/decision. A radical position could deny that proposition altogether. Even if valuation techniques require anticipating future cash flows, it could be contested that the law allows to already award damages on this basis. The formal argument could run that the put-into-the-position-as-if-instruction must be read as of the date of the award and that including present values of (even sufficiently certain) future cash flows would put the buyer in a better position than without the breach – he would be allowed to already pocket the present value of results, which he would only receive in the future. Another formal argument might be that the

100) This "rule-of-three" (*Dreisatz*) also governs Section 441 of the German Civil Code on how purchase price reductions are to be assessed by courts if sales objects have a defect. The rule is: calculate the ratio of the value of the object with defect and of the value of the object without defect and apply this ratio to the agreed price. But this is a rule for sales contracts, while we are in the law of damages and, furthermore, the rule-of-three has no connection with the put-into-position-as-if-instruction.

101) We assume the market value was lower.

102) Alternatively, assets not needed for the operation of the business can also be considered as having been immediately sold with the sale proceeds used to purchase necessary materials or make payments on existing debt like a pass-through-item. This renders it "intuitively" understandable that it would be inappropriate to apply a factor below 1 to their value.

103) The same calculation would take place if debt of 6 had been concealed. If the parties use net-debt-net-cash-clauses to determine the final purchase price, they also adjust by the full nominal amounts.

104) If an object of a business has to be repaired and if the business is owned by a company that is sold by a share deal, no doubt, physically the repair or substitution will touch assets of the target. Whether the target company acquires a direct claim for damages etc. and the triangle-structure of seller, buyer and the target in this context require special consideration. See *Wächter*, M&A Litigation, 3 ed. 2017, rec. 12.425-12.435.

105) The principles governing the standards or quality of repair or of substitution goods seem rather well-established resulting from many non-M&A damages cases, e. g. damage done to cars or houses.

106) The violator could also be said to pay the reconstruction value.

law of damages compensates "lost profits" but not profits "to be lost" in the future. The authors, though, do not follow this line of argument, which would deprive the law of damages in post-M&A disputes of its force. While it is true that the wronged party, in the case of value compensation, receives present values of cash flows earlier than without the breach, it cannot be forgotten that the wronged party's business *is* already worth less *at present*. It is a worse "profit generating machine" than it should be and this deficiency is onerous for the wronged party already at present, e. g. if it were to sell or pledge the business.

bb) Preponderance of the law

We have seen that valuation in post-M&A disputes is legally bound by the law of damages and evidentiary rules on substantiation and burden of proof. Accordingly, business planning assumptions of buyers or experts must be critically challenged by tribunals and courts. Hence, tribunals or courts, if they consider awarding damages based on uncertain future events (as planned profits), are *not even allowed to be "risk neutral"*. Rather, the law of damages and the burden of proof requires them in a way to be risk averse or *biased* against the creditor on the one side, while, on the other side this principle, may be softened again by specific relief (e. g. Section 252 sentence 2 of the German Civil Code and Section 287 of the German Civil Procedure Code). These rules of evidence take precedence of "risk neutrality" etc. and must be given more attention. One should expect the interpretation and application of such rules to play a significantly more prominent role in damages awards in the future as the awareness of the true problems increases.[107]

cc) Filling the discrepancy to the subjective business value of the buyer

Even in jurisdictions, which have a priority of production in kind, as Germany, such "production" is not always feasible[108] or not sufficient to fully compensate for all disadvantages arising out of the breach. The entire award of damages or a second part thereof, which has to complement the production-in-kind-part, must then take the form of value compensation. It is worthwhile repeating that even if the costs for the debtor and his nominal payments typically differ depending on how quickly and completely the production-in-kind-part can be delivered and what, accordingly, remains to be compensated by the value-compensation-part, the economic wealth position of the wronged party must eventually be the same.[109] In the end, whether the functioning of an apparatus is quickly restored or whether the lack of output due to continued malfunctioning is compensated, doesn't matter.

dd) Comparison start date, informational cut-off-date and valuation date

To put the buyer into the position he would have been if the *guaranty had been correct* – which is the goal if the positive interest is to be awarded – tribunals and courts must determine the comparison start date, informational cut-off-date and the valuation date. Their determination is unconstrained by the dates used in the sales agreement. The comparison start date must be before the result lines of the business diverge, this time depending on whether the guaranteed statement was true or false. This may theoretically be even before the date of signing. The law of damages must also determine, where tribunals or courts set the informational cut-off-date, which may have a particularly large impact on the business value. The put-in-as-if-rule requires taking into account all circumstances, which magnify or reduce the effects of the breach. Ideally, this could be achieved by making compensating rent payments, which would be calculated retrospectively, e. g. for each year, based on the information available after lapse of the year.[110] This would move the informational cut-off-date after the relevant period and, hence, cut off no information at all. However, the law of damages does not normally allow for rent payments but tries to catch all damaging effects resulting from the world not being as guaranteed in *one single payment*.[111] This technically requires to use a fixed final date, from which to *look into the future* without being able to later adjust the findings. Because the put-into-position-as-if-rule, as seen, materially requires taking into account all future circumstances and to inhale all new information available, this (fix) informational cut-off-date for the positive interest must be the *last date procedurally possible*. This is normally[112] the date of the final oral hearing.[113]

The reader may note that this is just opposite to the situation with the negative interest in deception cases, where the informational cut-off-date is at signing. We wish to elaborate on this. Assume first a simple *delivery contract* is broken as the good is not delivered and the positive interest is awarded by value compensation.[114] Assume further that an event occurs after the sale contract, which significantly increases or lowers the value of the sold good, e. g. due to political events, macro-events, growth or decay of markets, lower or

107) See again the extensive commentaries by *Laumen/Prütting* on Section 287 of the German Civil Procedure Code and by *Prütting* on Section 252 sentence 2 of the German Civil Code in Baumgärtel/Laumen/Prütting, Handbuch der Beweislast, 3 ed. 2016, 272 et seq. and 290 et seq.

108) In Germany see Section 251 of the German Civil Code.

109) Above we gave the example of the defective roof of a factory building. As another example assume that at a sale of a farm an incorrect guaranty is given that the seed is already on the fields. If it is still possible to seed, the damages are only the costs of the seed and the sowing, if not, the damages are the proceeds from the sale of the harvest minus avoided additional costs over the year and of the harvest. For the debtor (e. g. the seller), the latter method will mostly lead to a higher financial burden, while the wronged party (the buyer), in the end, should be in the same wealth position.

110) Similar to maintenance payments, certain pensions or payments to cover losses, e. g. which a dominating enterprise has to cover of a dependent enterprise in groups of enterprises

111) A declaratory award would also be no basis for rent payments, but only a base to claim, calculate and sue again for damages incurred in the future.

112) A tribunal or court may, if new relevant information appears after the closure of the last oral hearing, even have to reopen the oral hearing. Furthermore, as expert valuations unavoidably must use earlier informational cut-off-dates, a tribunal or court must always ask itself whether significant events occurred or became known between the (earlier) informational cut-off-date unavoidably used by the expert and the (latest possible) informational cut-off-date required by the law.

113) See *Wächter*, M&A Litigation, 3 ed. 2017, rec. 12.266 et seq. E. g. if China finally succeeds in prohibiting the English opium trade or if BREXIT happens between rendering of an expert opinion and the final oral hearing, this may not only affect the value of opium or other businesses but also claims for damages based on an incorrect guaranty given on the productivity of an opium farm or another business.

114) A non-delivery is a breach of a promise, which is comparable to a breach of a guaranty.

higher costs. If the value of the non-delivered good went up, the damages must be increased, if it dropped they must be reduced. Obviously, the same also applies if a *guaranty* about properties of a sold good has been broken. If events occur before the final award, which increase or reduce the profits the buyer might have drawn from the good, e. g. by resale, the put-into-position-as-if-rule requires adjusting the amount of damages. This must also apply if the adverse event affects the buyer's concepts or synergies because the damages suffered by the buyer due to non-delivery of goods or delivery of defective goods depend on the specific profits the individual knowhow, organization, image, and clientele of the buyer would have generated with the help of the good. Accordingly, it inevitably matters whether the wronged buyer runs a high concept, high synergies, high margins, high profits and high value business or a low concept, low synergies, low margins, low profit and low value business. All this, finally, cannot be different if the breach does not relate to a delivered single good but to the *sale of a complete business*. Again, the seller has to take the buyer "as he is" and as concept changes or synergies created by the buyer could have increased the value of the business, they may also increase damages. German law respects that damages to high value users are typically higher than damages to low value users. Even if this sounds irritating at first, it is in good order as the law of damages, "capitalistic" as it thinks, has to *uphold* the distribution of wealth, which would have come into being without the breach (and not to flatten it out).[115] The preceding argument leads to the conclusion that, if the positive interest is to be awarded, the informational cut-off-date for new information, including for information relevant for value created by buyer's concept changes and synergies, must be set at the latest point procedurally possible, which is normally the last oral hearing; the same should apply to new information relevant for the discount rate.

The valuation date is the date against which the cash flows of a business are discounted or, theoretically, compounded up. As seen, the valuation date for the negative interest must be close to the date when the purchase price is agreed upon; if the valuation date for the positive interest is close to the last oral hearing, the discrepancy between the hypothetical should-be value (assuming guaranteed statements were correct) and the real value (with guaranties incorrect) can simply be awarded as damages. If for example, the valuation date is already set at signing and the last oral hearing and the date when the damages become due is four years later, the payment of damages in the amount of the discrepancy between the hypothetical and the real value will not put the buyer into the position he would have been without the breach. The authors therefore suggest that the valuation date should, as the informational cut-off-date, be set at the last oral hearing.[116] If a valuation date is not close to the last oral hearing, but, for example, at close to signing, the amount determined as of such earlier date must be increased by interest.

We shall only briefly deal with interest here: from an economic point of view, added interest would have to be compound interest.[117] As to what interest rate should be used one might argue that this should be the rate used as discount rate in the business valuation. Accordingly, discounting backwards to the early valuation date would be partly undone by the inverse calculation, e. g. until the date of the last oral hearing. It can be argued, though, that this could overcompensate the buyer because the used discount rate included a premium for risks the buyer might not have been exposed to if he had reinvested distributed dividends *outside* of the (more risky) business. From this point of view, the dividends distributed before the valuation date[118] could only be compounded up with a lower reinvestment rate.[119] Finally, legal provisions often provide that interest is only due if the debtor had been served a reminder, or if other prerequisites had been met[120] and may exclude compounding or set mandatory rates. Depending on the applicable jurisdiction, such legal rules may have the effect to derogate or restrict the general principles of the law of damages.

ee) Discount rate

The series of different surpluses or deficits planned by the business plans must be transformed into two present values for the business as it should have been, with the guaranties fulfilled, and as it really is, with the guaranties incorrect. The subjectivity of the law of damages mandates using the buyer's alternative investment rate, because such rate reflects specific properties of his as valuation subject (rather than a discount rate derived solely from the general situation of capital markets). Again, if the buyer is capital market oriented, his capital costs may be determined and adjusted via CAPM, to his industry. If the buyer is a SMB, his (true) target return rate may be used, if known, or an approximation may be sought via the "Total Beta"-approach. Moreover, the buyer's conflict of interest mentioned earlier re-emerges. During purchase price negotiations, the buyer was interested in a high discount rate (or low multiple) to negotiate the price down but is interested in low discount rates in post-M&A damages disputes. However, whatever rates or multiples were used, they belong to the realm

115) To adversely interfere in fragile systems or systems with high earning power causes more damage than to interfere in robust systems or systems with low earning power. A moderate slap in the face of an older person may set into motion a chain reaction leading to death or a high medical bill, while a much harder slap in the face of a young men may hardly have consequences. To hurt the hand of a golf professional may be costlier than hurting the hand of a teacher etc.

116) Interest from the award to actual payment at the rate provided for by the law will accrue anyhow.

117) Note that business planning always includes "compounding effects". Money, whether it results from interest income or not, contributes to further profits (i. e. carries interest itself).

118) But only these, not the remaining business value accruing from the valuation date to infinity!

119) For an attempt to solve the problem with a two-phases-model, see *Wollny* DStR 2017, 949 (954 et seq.). First, the last oral hearing would be used as valuation date and the surpluses of the business in the hypothetical case and real case would be planned from thereon and discounted down to this date with the *discount rate for the business*. So far, losses before the date of the last oral hearing would not been taken into account. To remedy this, second, a plan would be set up to determine the dividends, which would have been distributed from the time when the breach of guaranty hat its first impact on the surpluses to the last oral hearing and they would be compounded (for the periods since the respective hypothetical dividend distribution) with a *risk-adjusted reinvestment interest rate* until the last oral hearing. Both values numbers would be added up.

120) See, e. g. Section 286, 287 of the German Civil Code.

of purchase price negotiation and are legally irrelevant – as the buyer is to be put into the position he would have been in if the guaranty had been correct and his alternative investment rate was as it was. He is not to be put into the position as if the guaranty had been correct and his alternative investment rate had been as he alleged, calculated or wished in order to push down the price.

ff) Only missing value of the sales object matters – purchase price paid or used purchase price formula irrelevant

During negotiations, buyers and seller may derive their prices as they wish. A buyer may say "*I value your business 7, 10 or 12 times EDITDA as I have calculated and adjusted it*". He may also say "*I value it 4 times the average sales of a certain period*". Or he may say "*I value your business as the water displacement volume of your fixtures and buildings multiplied by π divided by the sum of the digits of the birthday of my girlfriend*". And the seller may also use whatever valuation method he wishes. If damages are to be awarded because of a breach of guaranty, of course, *all this does not matter*. No tribunal or court must take interest in how the price (allegedly or in reality) was agreed upon and whether it was derived by the seller's or buyer's method (if this were at all recognizable through the smoke screen put up by the parties). No evidence whatsoever must be taken about the seller's or buyer's method, including who the girlfriend of the buyer was during the negotiation and on her birthday.[121] If the positive interest is to be awarded, damages are *not* calculated by *re-applying the purchase price formula* (which was used allegedly or as proven) *to the newly determined real facts*. Thus, tribunals and courts do not need to know what the purchase price was. Even if there was no purchase price at all, it would not matter – the damages would not be different if the business was a contribution in kind to a corporation's capital or a present. The law stipulates that the wronged party is put into the position *it would have been* without the breach, in other words: award the wronged party the losses it actually suffered. But the law, if the positive interest is awarded, does not instruct to re-apply historic purchase price considerations or formula of the buyer, the seller or even a joint formula of both parties. It certainly does not say "… *if the wronged party applied a purchase price increasing formula, award more damages to it*" or "*if the wronged party applied a purchase price reducing formula, award less damages to it*", or to take into account what the wronged party *fancied* when negotiating the price. Without a breach, a buyer gets what he gets. If there is a breach, the buyer is supposed to get what he *would have gotten* but not what *he fancied he might get*.

V. Summary

Awarding damages in post-M&A disputes requires clarity in applicable legal and valuation principles. Increased clarity will much simplify the difficult tasks of tribunals and courts and re-affirm that the award of damages is an application of the law rather than, in arbitration, a case-by-case deal struck between two party-appointed arbitrators with the help of the chairman. Increased quality will also provide greater justice concerning the post-award wealth distribution and attract cases to the respective place of arbitration or jurisdiction.

Our article tries to develop such principles as well as a proposal for the calculation of damages in post-M&A disputes. We have focused on the following aspects: In the merits-phase, deception by implied statements or statements by omission will often complicate determining whether a statement was made and what its contents were. Further, in cases of deception and breaches of guaranties, it is often difficult to impute a behavior of a third person to the seller. Statements about the future or future uncertainties are often made as simple statements in M&A negotiations or as guaranties. They are, even if called "subjective probabilities", only legally possible as statements about internal facts or volitions and must be strictly distinguished from statements about present or past facts, including present objective mathematical probabilities. They require precise treatment in the merits and quantum phase.

Concerning quantum, in the event of deception the negative interest is the amount by which the agreed purchase price exceeded the price, which would have been agreed without the deception. This amount is best derived in two stages. First the discrepancy between the business values for the deception-stripped and deception-enhanced business must be determined. The valuation date *and* the informational cut-off-date are the signing or the last point in time at which the buyer could have unilaterally withdrawn from the purchase. The relevant business values are the buyer's business values, however the business value for the deception-stripped business is at least the market value. In a second stage, the established value discrepancy, depending on the circumstances, can be transformed into a purchase price reduction by either the rule-of-three or by deducting the value gap from the old price. In the case of a breach of guaranty, if the respective jurisdiction allows production in kind, the defects of the business are to be remedied, e. g. by replacement, repair or substitution of missing or defective objects at the seller's cost. Notwithstanding these measures, to the extent, the actual position of the buyer still falls short of the position as if the guaranties had been fulfilled, his remaining loss of value must be compensated with the buyer's subjective business value as benchmark. The valuation date must be determined on a case by case basis, whereby the informational cut-off-date is the last point in time procedurally possible, e. g. the closing of the last oral hearing. This allows capturing all negative effects of the breach (and possibly positive and mitigating effects as well). Tribunals and courts need not fear losing control, e. g. against unreasonable demands of claimants, if they allow valuation in disputes to increase in complexity. The law remains decisive. A sound doctrine of the law of damages and evidentiary principles together with intelligent business valuation ensure foreseeable and adequate results.

121) Whether it was 31.12.1999 (sum of digits 71) or 1.1.2000 (sum of digits 4).