ZEITSCHRIFT FÜR JAPANISCHES RECHT
JOURNAL OF JAPANESE LAW

SONDERHEFT / SPECIAL ISSUE 11 (2018)

Information Duties

Japanese and German Private Law

Edited by
Marc Dernauer / Harald Baum / Moritz Bälz

Carl Heymanns Verlag

ZEITSCHRIFT FÜR JAPANISCHES RECHT
JOURNAL OF JAPANESE LAW

SONDERHEFT 11 / SPECIAL ISSUE 11 (2018)

Verlag / Publisher: Carl Heymanns Verlag – a brand of Wolters Kluwer Germany, Luxemburger Straße 449, D-50939 Köln, phone: +49 221-943 73-7000; Internet: www.heymanns.com; Customer Service: phone: +49 2631-801-2222, e-mail: info-wkd@wolterskluwer.de

Bezugspreis: Das Sonderheft kann über den Verlag zum Preis von 69,– € zzgl. Versandkosten bezogen werden. Mitglieder der Deutsch-Japanischen Juristenvereinigung e.V. können das Sonderheft zum Vorzugspreis von 59,– € zzgl. Versandkosten beziehen.

Subscription price: The special issue can be purchased from the publishers for € 69 plus postage. Members of the German-Japanese Association of Jurists may buy the special issue for the preferential price of € 59 plus postage.

Anzeigenverkauf / Advertisement Sales: Janosch Kleibrink, Phone: +49 221-943 73-7797, e-mail: janosch.kleibrink@wolterskluwer.com

Anzeigendisposition / Advertisement Disposition: Wolters Kluwer Germany, Advertisements, Karin Odening, Luxemburger Str. 449, D-50939 Köln, phone: +49 221-943 73-7760, e-mail: anzeigen@wolterskluwer.com. Price list No. 11, 1 January 2018.

Druckerei / Printed by: rewi Druckhaus, Reiner Winters GmbH, Wissen

ISBN 978-3-452-29117-2

www.ZJapanR.de

Table of Contents

III. Capital Markets Law

IV. Insurance Law

Information and Disclosure Duties from a Law-and-Economics Perspective

A Primer

Klaus Ulrich Schmolke[*]

I. Introduction

Information and disclosure duties are a means for overcoming information asymmetries between a party who holds a certain piece of private information and one who does not. The imposition of such information duties or, in short, "mandated disclosure" has been one of the favorite regulatory tools of social planners in the western world. Some authors even speak of mandated disclosure as being "ubiquitous" by now.[1] Indeed, for a long time information and disclosure duties appeared to be the proverbial "silver

* Prof. Dr. Klaus Ulrich Schmolke, LL.M. (NYU), Professor of Private Law, Commercial, Company and Business Law, Friedrich-Alexander-University, Erlangen-Nuremberg.

1 O. Ben-Shahar/C.E. Schneider, The Failure of Mandated Disclosure, in: University of Pennsylvania Law Review 159 (2011) 647, 650.

bullet" in the arsenal of lawmakers and regulators.[2] However, nowadays legal scholars and regulators have come to realize that ever more information does not necessarily lead to ever better decision making. In contrast, constantly growing evidence provided by behavioral economists and cognitive psychologists shows that human actors often struggle with the correct absorption and processing of relevant information due to their limited cognitive capacities. Even worse, more information may sometimes do more harm than good.[3] Thus, today the traditional regulatory technique of mandated disclosure is experiencing a crisis. Many scholars suggest major modifications of the current disclosure regimes.[4] Some even think of mandated disclosure as a complete failure.[5]

Against this background, lawyers and legal scholars are confronted with a crucial question: When is the imposition of information and disclosure duties warranted and when do such duties do more harm than good? In economics, the (overlapping) subdisciplines of contract theory, game theory and information economics deal with this very question when analyzing how information (and the lack of it) affects economic decisions. Those strands of economic research provide certain general concepts and insights which are applicable to diverse scenarios such as consumer contracts or capital market and securities transactions.[6] These concepts and insights can also help lawyers who tackle the question whether information duties are or should be mandated by the law in a specific context.[7] Drawing on the economic logic of a legal arrangement is a "functional" approach to law which is independent of the idiosyncrasies and path dependencies of a specific

2 See, again, BEN-SHAHAR/SCHNEIDER, *supra* note 1, with numerous references and examples; as to the "disclosure paradigm" in EU private and business law, see W. SCHÖN, Zwingendes Recht oder informierte Entscheidung – zu einer (neuen) Grundlage unserer Zivilrechtsordnung [Mandatory Law and Informed Decision], in: Heldrich/Grigoleit et al. (eds.), Festschrift für Claus-Wilhelm Canaris [Liber Amicorum Claus-Wilhelm Canaris] (Munich 2007) 1191, 1194, with further references.

3 For further details, see *infra* sub V.

4 See, e.g., BEN-SHAHAR/SCHNEIDER, *supra* note 1, 742–749; O. BAR-GILL/O. BOARD, Product-Use Information and the Limits of Voluntary Dislcosure, in: American Law and Economics Review, 14 (2012) 235; from the German literature, e.g., SCHÖN, *supra* note 2, 1211; K.U. SCHMOLKE, Grenzen der Selbstbindung im Privatrecht [The Limits of Self-Commitment in Private Law] (Tübingen 2014) 849–856, 904–905.

5 BEN-SHAHAR/SCHNEIDER, *supra* note 1, passim.

6 Cf. P. MILGROM, What the Seller Won't Tell You: Persuasion and Disclosure in Markets, Journal of Economic Perspectives 22 (2008) 115.

7 For an introduction to contract theory especially for lawyers cf., e.g., K.U. SCHMOLKE, Contract theory and the economics of contract law, in: Towfigh/Petersen et al., Economic Methods for Lawyers (Cheltenham 2015) 96.

jurisdiction. Rather, law and economics provides an analytical toolbox that can be applied universally across jurisdictions. It can, therefore, be most fruitfully combined with a functional comparative analysis of the laws of different jurisdictions.[8] Having said that, the following analysis intends to point out and highlight that the issues relating to information duties which will be dealt with in the subsequent articles of this anniversary issue of the Journal of Japanese Law are functionally identical even where German and Japanese law come up with different solutions.

From an economic perspective the fundamental questions at issue are the following: (1) Do information asymmetries cause a welfare loss? (2) If so, can this loss be mitigated by imposing disclosure duties? (3) Are there other remedies besides information duties which are preferable from an efficiency perspective, whether because they are more effective or because they come at lower costs? This article addresses these questions by showing why and when information asymmetries lead to welfare losses (II.). Subsequently, it will be pointed out under which circumstances information duties may mitigate this problem and produce welfare gains (III.). However, information duties also come at a cost which may sometimes be higher than the gains to be had from mandatory disclosure (IV.). Furthermore, mandated disclosure has its limits where the disclosee is not capable of (correctly) absorbing and processing the disclosed information (V.). Against the background of the lessons learned, the article ends with a conclusion (VI.).

II. Imperfect Information as a Source of Welfare Loss

In order to illustrate the (potentially) harmful effects of information asymmetries from an efficiency perspective, the following analysis begins by showing that the well-known Coase theorem predicting allocative efficiency as a result of market transactions rests on the assumption of complete information (1.). In a second step, the harmful effects of information asymmetries on social welfare will be described (2.).

1. The Coase Theorem, Allocative Efficiency and the Assumption of Complete Information

As is well known, the Coase theorem presented by Ronald Coase in his seminal article "The Problem of Social Cost"[9] comprises two hypotheses,

8 For an outstanding example of such a combination see R. Kraakman et al., The Anatomy of Corporate Law (Oxford et al., 2nd ed. 2009); from German literature cf. the groundbreaking reference work on information asymmetries in contract law H. Fleischer, Informationsasymmetrie im Vertragsrecht [Information Asymmetry in Contract Law] (Munich 2001).

one of which is the so-called *efficiency hypothesis*. This hypothesis has been formulated by GUIDO CALABRESI as follows: "If people are rational, bargains are costless, and there are no legal impediments to bargains, transactions will […] occur to the point, in short, of optimal resource allocation."[10] However, this ideal "Coasean world" bringing forth allocative efficiency and, thereby, welfare maximization, rests on the assumption that the transactions taking place are Pareto-efficient for the parties involved. This assumption, in turn, is only warranted where the parties to the transaction act voluntarily and are *both fully informed*.[11] Thus, where information is imperfect because one or all of the (potential) parties are not fully informed with regard to the relevant characteristics and specifications of the respective transaction, Pareto-efficient bargains are not warranted. This leaves room for state intervention, most notably the imposition of information and disclosure duties.[12]

2. *Information Asymmetries as a Source of Welfare Loss*

a) *The problem of adverse selection*

To show the detrimental effects information asymmetries may have on welfare, economists typically point to the problem of adverse selection. In his seminal article on the market for "lemons", GEORGE A. AKERLOF illustrated this deleterious dynamic by referring to the market for used cars:[13] Assume that there are only two types of used cars on the market, namely cars of good quality and cars of bad quality (so-called "lemons"). The sellers know the type of the cars they offer for sale, but the buyers do not. The buyers only know that there are good and bad cars on the market. Since they do not know more, they attach a probability of 0.5 to the car at hand being a good car and – correspondingly – an equal probability of 0.5 to the

9 R. H. COASE, The Problem of Social Cost, in: Journal of Law & Economics 3 (1969) 1.

10 G. CALABRESI, Transaction Costs, Resource Allocation, and Liability Rules: A Comment, in: Journal of Law & Economics 11 (1968) 67, 68. The second hypothesis (so-called *invariance hypothesis*) states that this optimal resource allocation is independent of the initial allocation of legal entitlements.

11 See M. TREBILCOCK, The Limits of Freedom of Contract (Cambridge 1993) 102, referred to by M. EISENBERG, Disclosure in Contract Law, in: California Law Review 91 (2003) 1645, 1654.

12 However, there are further conditions to be met to make an argument in favor of information duties for reasons of efficiency (see *infra* sub III.–V.).

13 G. A. AKERLOF, The Market for 'Lemons': Quality Uncertainty and the Market Mechanism, in: Quarterly Journal of Economics 84 (1970) 488; the following summary of AKERLOF'S statements and conclusions has already been presented in SCHMOLKE, *supra* note 7, 101–102.

car being a bad one.[14] If we now assume that the good cars are worth ¥ 600,000 whereas the bad ones have a value of only ¥ 300,000, the expected value of each car being sold is ¥ 450,000.[15] In this scenario, the potential buyer is not willing to pay more than ¥ 450,000 for a used car. The seller of good cars is, however, not willing to sell for less than ¥ 600,000. As a consequence, the sellers of good cars are driven out of the market and only sellers of bad cars remain. Thus, even though there is a demand for good cars their supply dries up.

It only needs a slight change in our assumptions to show that this result is only the beginning of a deleterious "race to the bottom": Suppose that the cars remaining in the market are not of a single bad quality, but that their quality is equally distributed within a range of ¥ 200,000 (worst cars) to ¥ 400,000 (best of the bad cars). To put it differently, not the *actual,* but the *expected* value of the remaining cars is ¥ 300,000. After the good cars being worth more than ¥ 400,000 have dropped out of the market, the potential buyers adjust their expectations with regard to the value of the remaining cars for sale, accordingly. Since the potential buyers are, therefore, not willing to pay more than ¥ 300,000 for a car, also sellers of cars worth less than ¥ 400,000 but more than ¥ 300,000 drop out of the market. This game will repeat itself until there are only cars of the worst quality left for sale.

The bottom line of this "finger exercise"[16] is that the welfare-maximizing sale of used cars does not take place because the crucial information of the used cars' quality stays hidden from the potential buyers.[17] However, the dynamic of adverse selection is not an inevitable consequence whenever information asymmetries arise. It only occurs if certain conditions are met which go beyond the mere fact that information is distributed asymmetrically. We will come back to that when addressing the question of under which conditions there may be a case for imposing information duties on the knowing party.[18]

b) Wasteful costs of searching for information

In the market-for-lemons scenario we assumed that the potential buyers were not able to overcome their ignorance as to the quality of the used cars

---

14 The latter follows from $pb = 1 - pg$, where pb is the probability of the car being a bad one and pg is the probability of the car being a good one.

15 0.5 x ¥ 600,000 + 0.5 x ¥ 300,000 = ¥ 450,000.

16 That is how AKERLOF himself characterized the example just given, see AKERLOF, *supra* note 13, 489.

17 Cf. already SCHMOLKE, *supra* note 7, 102.

18 See *infra* III.1.a)aa).

offered for sale.[19] But even if they (1) can overcome their ignorance and (2) have sufficient incentives to invest in the acquisition of the necessary information, a welfare loss in terms of wasteful transaction costs may occur.[20] With regard to our used-car scenario one might think of a "succession of prospective buyers hiring mechanics to inspect cars before purchase or, in the event of purchase in the absence of accurate information, further transactions that might be entailed in moving the goods to their socially most valuable uses, given the now fully revealed condition of the goods."[21]

III. Welfare Gains by Information Duties

We have seen that imperfect information, in particular asymmetrically distributed information, can result in welfare losses. Thus, the imposition of information and disclosure duties that intends to supply the ignorant actor(s) with the lacking information promises to result in corresponding welfare gains. However, this kind of intervention is only warranted where the parties themselves ("the market") do not come up with a solution that is more favorable.[22]

1. Addressing the Problem of Adverse Selection

It, therefore, goes without saying that the problem of adverse selection illustrated above[23] does not justify mandated disclosure wherever information asymmetries occur. Akerlof himself pointed to possible market solutions for this problem.[24]

a) Voluntary information

Information and disclosure duties do not lead to a welfare gain and are, therefore, at best unnecessary where the informed party has sufficient incentives to voluntarily reveal his or her private information to the uninformed party and is able to do so credibly.

19 See *supra* sub 2.a).

20 Cf. Eisenberg, *supra* note 11, 1654, citing Trebilcock, *supra* note 11, 108.

21 Trebilcock, *supra* note 11, 108, quoted by Eisenberg, *supra* note 11, 1654.

22 This is, however, only a necessary but not a sufficient condition for state/legal intervention. Intervention by law or otherwise also requires that the costs of intervention do not wholly consume (or even exceed) the welfare gain accomplished by the intervention; cf. already Schmolke, *supra* note 7, 99, and *infra* sub IV.

23 See *supra* II.2.a).

24 Cf. Akerlof, *supra* note 13, 499.

aa) Signaling and the "unraveling" of information asymmetries through competition

The problem of adverse selection will not occur where (1) the informed party has sufficient incentives to reveal his or her private information and (2) the information is *verifiable,* i.e. can be easily checked once it is revealed,[25] by the addressees of the information.[26] If these conditions are met, the person holding the private information will reveal it. This results in a positive dynamic known as *unraveling,* which leads to the same results as mandatory disclosure.[27] A standard illustration of this principle is as follows:[28] Imagine there is a seller with a box of apples that can hold as many as 100 apples. The seller knows how many apples are inside the box, the buyer does not. What the buyer knows, however, is that the seller knows the number of the apples inside the box. After the sale the buyer can open the box and count the apples. If the seller lied about the number of apples, the buyer can claim damages. However, if the seller remained silent, the buyer has no remedy against him or her, regardless of the number of apples in the crate. Under these assumptions all sellers will voluntarily and truthfully disclose the number of apples in their crates. Why is that? Because the sellers having 100 apples in their crates want the buyers to know this fact in order to be able to charge an adequate price for 100 apples. Since the sellers of crates holding 100 apples have disclosed this information, sellers of crates containing only 99 apples are forced to do the same. Were they to remain silent, the buyers would share the belief that their crates contain 99 apples or less, since the sellers with 100 apples per crate have disclosed this information. Thus, also the seller offering crates which hold 99 apples disclose this information in order to be able to charge the best price. The same mechanism applies to sellers of crates holding 98 apples and so on. As a result, all sellers disclose their private information *(unraveling result).*

Let us come back to our used-car scenario described above:[29] The sellers of high quality cars have the same incentives to reveal their private information

25 "Verifiability" of information can, however, not only stem from the fact that "buyers can directly check its accuracy", but may also be achieved by putting "institutions in place that effectively deter false claims by sellers"; see MILGROM, *supra* note 6, 116.

26 See D.G. BAIRD/R.H. GERTNER/R.C. PICKER, Game Theory and the Law (Cambridge/London 1994, 4th printing 2000) 89; also MILGROM, *supra* note 6, 121.

27 Cf. U. SCHWEIZER, Incentives to Acquire Information under Mandatory versus Voluntary Disclosure, in: Journal of Law, Economics, and Organization 33 (2017) 173, 174 in n. 1: "Unraveling means that voluntary disclosure will lead to the same result as mandatory disclosure."

28 See BAIRD et al., *supra* note 26, 89–90 for the following; also EISENBERG, *supra* note 11, 1678, refers to this example.

about the quality of their cars as the sellers of crates holding 100 apples. However, at least on the retail market the seller of used cars has a much harder time directly disclosing to the potential buyers her private information regarding the cars' quality in a credible way. In other words, the quality of the used cars is not as readily verifiable for potential buyers as the number of apples in the crate. Sellers may, though, get around this problem by otherwise *signaling* the quality of their cars. By applying such a strategy the holder of private information sends a signal which credibly reveals the quality of her product put up for sale so that the potential buyers, after the revelation, are capable of determining whether the product is of a good or bad quality. With regard to the used-car scenario the issuance of a warranty would be a signal with such properties. Since such a warranty is evidently much cheaper for sellers of good cars than for those selling bad cars because of the much lower probability of a defect occurring, the sellers of good cars can afford to send this signal, while it may be too expensive for sellers of bad cars.[30]

However, such a signal also comes at a cost for sellers of good cars. If the costs of viable signals are considerably high or, even worse, too high to be worth the effort, the imposition of disclosure duties enforced by sanctions may be a cheaper alternative to achieve (more) efficient results.

bb) Limits of information competition and selective disclosure

The (efficient) unraveling result[31] will not be achieved when the potential buyer is uncertain whether the seller actually possesses verifiable information or is at least able to produce such information by which she can distinguish herself from sellers of low-quality goods. Thus, the seller's silence does not necessarily mean that her goods are of low-quality but may instead only show that the seller does not possess the relevant information.[32] Knowing that the buyers cannot infer bad quality from silence, sellers "always withhold […] very bad news and report […] only relatively good news."[33] Even worse, this selective disclosure may lead to welfare losses due to exces-

29 See *supra* II.2.a).

30 Cf. already SCHMOLKE, *supra* note 7, 102. AKERLOF, *supra* note 13, 499, himself pointed to this solution: "Numerous institutions arise to counteract the effects of quality uncertainty. One obvious institution is guarantees. Most consumer durables carry guarantees to ensure the buyer of some normal expected quality."

31 See *supra* sub I.1.a).

32 MILGROM, *supra* note 6, 121–123, who also points out the ensuing welfare loss; EISENBERG, *supra* note 11, 1678. One reason for the seller not possessing the relevant information about the quality of the good may be that testing is too costly to be worthwhile, cf. MILGROM, *supra* note 6, 117. As to the design of disclosure duties addressing the problem, see *infra* sub I.2.

33 MILGROM, *supra* note 6, 121, who also presents a model which captures this scenario.

sive quality testing by sellers.[34] The welfare losses ensuing from selective disclosure leave room for potentially welfare increasing state intervention aiming at the improvement of buyers' decisions.[35]

Information competition among sellers or, more generally, informed offerors of goods or services may also fail due to an even more fundamental and bothersome problem: The uninformed buyer (or offeree) may not know which characteristics of the offered object are of relevance or how to interpret information reported by the seller because he lacks the product-specific knowledge or general understanding. In this case the seller's voluntary revelation of private information comes to nothing.[36]

b) Disclosure duties

When analyzing disclosure duties from an efficiency perspective the question immediately arises whether these problems of selective disclosure and lack of understanding[37] can be solved by imposing disclosure duties on the seller/offeror. The answer is mixed. Let us first turn to the problem of selective disclosure. A seller's/offeror's duty to disclose what he or she *actually knows* does not solve this problem as long as the buyer or the courts are not able to verify ex post whether the seller has revealed all material information about the object sold which he knew about at the time of sale. Furthermore, even if the information is verifiable such a rule may provide the wrong incentives insofar as the seller may refrain from investigating the details of potentially negative events in order not to become cognizant of them.[38] These problems can be remedied by a rule that holds the seller liable for any undisclosed information he or she *should have known*.[39] Func-

---

34 For details, see MILGROM, *supra* note 6, 123–126; cf. also S. SHAVELL, Acquisition and disclosure of information prior to sale, in: RAND Journal of Economics 25 (1994) 20, 25, 28: "amount spent by sellers acquiring information is socially excessive". We will come back to this issue *infra* sub IV.1.c).

35 MILGROM, *supra* note 6, 122.

36 MILGROM, *supra* note 6, 126. The described lack of understanding may not only frustrate the goals of voluntary disclosure, but also of conventional mandatory disclosure rules. For further details, see *infra* sub 1.b and V.

37 See *supra* I.1.b.

38 MILGROM, *supra* note 6, 117 who refers to the example of a firm publicly offering its stock which is aware of disgruntled employees who could file an employment discrimination lawsuit. Cf. also EISENBERG, *supra* note 11, 1679: "A duty to disclose usually applies only to facts that an actor knows, and therefore does not provide the actor with an incentive to investigate."

39 MILGROM, *supra* note 6, 118, 127. As MILGROM himself points out, such a rule, however, only works properly if it is possible to establish ex post what the seller should have known and when. Cf. also SHAVELL, *supra* note 34, 35: "Enforcement

tionally, such a rule resembles a warranty.[40] From an efficiency perspective the seller should know all the relevant information which adds value that is greater than the costs of acquiring the information (search costs).[41] A prominent example for such a rule is the duty to draw up a prospectus when securities are offered to the public or admitted to trading and the attached liability of the persons responsible for the prospectus. Art. 6 of the new EU prospectus regulation[42] states, for example, that a prospectus "shall contain the necessary information which is material to an investor for making an informed assessment of: […] the assets and liabilities, profits and losses, financial position, and prospects of the issuer […]". And the German statutory basis for a liability claim (Sec. 21 et seqq. Securities Prospectus Act[43]) does not require actual knowledge of the incorrectness or incompleteness of the information given in the prospectus, instead considering it to be sufficient if the responsible person is ignorant thereof due to gross negligence.[44]

With regard to the lack-of-understanding problem, i.e. where the ignorant party does not even know which product specifications or other pieces of information are relevant in the case at hand, mandated disclosure may help. The problem may, for example, be mitigated where lawmakers or a regulator with sufficient sophistication specifies the relevant pieces of information to be disclosed.[45] Lawmakers may, however, content themselves with simply mandating the disclosure of "all material information". The aforementioned Art. 6 of the new EU prospectus directive is a mixture of both regulatory strategies. The problem with demanding the disclosure of "all necessary information" or "all material information" is that such rules may lead to the reporting of too much information and, thus, lead to information overload.[46] As a consequence, the unsophisticated addressee who

---

requires discovery of concealment of information, and one suspects that our ability to uncover instances of this behavior is not great."

40 Cf. EISENBERG, *supra* note 11, 1679.

41 Cf. MILGROM, *supra* note 6, 124.

42 Regulation (EU) 2017/1129 of 14 June 2017, OJ L 168, 30.6.2017, p. 12.

43 *Wertpapierprospektgesetz (WpPG).*

44 Sec. 23 para. 1 German Securities Prospectus Act.

45 Cf. MILGROM, *supra* note 6, 118, 127: "The second problem, in which consumers don't know enough about the relevant product even to ask the most relevant questions, has different potential remedies. The simplest solution, in principle, is for an industry regulator who is an expert in the subject matter to mandate the relevant material disclosures. […] These kinds of required testing will also be complemented by various kinds of after-the-sale regulation, like laws against fraud, and implied warranties of merchantability or product fitness, all of which can sometimes mitigate problems in reporting and adverse selection issues more generally."

46 For further details on the problem of information overload, see *infra* sub V.1.

searches for the most important pieces of information may feel like he or she is looking for the proverbial needle in the haystack.[47]

2. *Beyond Adverse Selection: Disclosure Duties as a Means to Protect the Naïve*

The dynamic of adverse selection assumes skepticism of potential buyers that, in turn, is a consequence of the assumption of full rationality and high sophistication.[48] If we relax the assumption of rationality and sophistication and, therefore, assume less skepticism in potential buyers, sellers may strike deals with such buyers at a price that is not warranted by the information actually available to the buyer.[49] Under such assumptions, which are not unrealistic in the context of consumer decisions, mandated disclosure may reveal information to the potential buyer which helps him to make decisions which are closer to his actual preferences. This, again, leads to better results in terms of allocative efficiency.[50] This is what BEN-SHAHAR and SCHNEIDER allude to when they state that "[m]andated disclosure aspires to improve decisions people make in their economic and social relationships and particularly to protect the naïve from the sophisticated."[51] However, this result rests, again, on the crucial assumption that the addressee of the disclosed information really benefits from the disclosure because he is capable of absorbing and (correctly) assessing the information.[52]

3. *Saving Wasteful Costs of Searching for Information*

Disclosure duties may also help to save wasteful costs of searching for information. Recall the used-car example given above.[53] Whereas the seller who holds the private information regarding the car's quality can reveal this piece of information to the potential buyers at negligible cost, each and every potential buyer would have to incur search costs, e.g. by hiring a mechanic to inspect the car, in order to get the desired information about the car's quality. A duty to disclose the car's quality imposed on the seller would save the potential buyers the effort.[54]

---

47 Cf. MILGROM, *supra* note 6, 118, 128.

48 Cf. MILGROM, *supra* note 6, 116 et passim: "[S]ophisticated buyers are consistently skeptical."

49 With regard to the used-car scenario (*supra* II.2.a) one might think of buyers purchasing a used car for ¥ 550,000.

50 Cf. *supra* sub II.1; and, e.g., TREBILCOCK, *supra* note 11, 112.

51 BEN-SHAHAR/SCHNEIDER, *supra* note 1, 649.

52 This point will be elaborated on *infra* sub V.

53 See *supra* sub II.2.b.

IV. The Costs of Information and Disclosure Duties

Information and disclosure duties may not only produce welfare gains, but may also involve considerable costs. From an efficiency perspective, the imposition of such duties is, therefore, only warranted where these costs are lower than the welfare gains achieved.[55]

1. Curbing Incentives for the Production of Socially Useful Information

Firstly, mandatory disclosure may distort the incentives to acquire socially useful information. An actor has an incentive to search for such valuable information if she can expect to use this information to her advantage and the expected advantage exceeds the (expected) costs of searching. However, if the actor knows that the acquired information has to be disclosed before it can be used to reap a profit, she will not exert the effort in the first place because it is not worth the while. This problem can be illustrated by presenting the (simplified) facts of the famous US insider trading case *SEC v. Texas Gulf Sulphur Co.*:[56] Texas Gulf Sulphur (TGS), a mining company, conducts aerial geophysical surveys on over more than 15,000 square miles on the Canadian Shield in Eastern Canada in order to discover new mining grounds. These operations reveal numerous promising anomalies on certain segments of land, one of which is located near Timmins, Ontario. On this particular piece of land TGS conducts, in the next stage of its exploratory activities, a ground geophysical survey which confirms the anomaly. Subsequently, TGS carries out a diamond core drilling for further evaluation. The final findings are exceptionally promising. Therefore, TGS wants to purchase the land from the farmer owning it. Should TGS be compelled to disclose its findings on the mineral deposits under the farmer's land before the purchase is concluded?[57] If so, the farmer would adjust the price for his land accordingly. TGS would lose the possibility to reap a profitable return

54 Trebilcock, *supra* note 11, 108, 112; Eisenberg, *supra* note 11, 1654, who gives another example in n. 10.

55 See already *supra* note 22.

56 401 F.2d 833 (2d Cir. 1968) *en banc*; for the popularity of this case as an example to illustrate the effects of mandated disclosure on the socially beneficial search for (and use of) information, cf. Eisenberg, *supra* note 11, 1652–1653, 1684–1685; also Trebilcock, *supra* note 11, 108–109, 112–113 ("the prospector case"); as to the latter, see, for further detail, *infra* sub 2.

57 According to Trebilcock, *supra* note 11, 117–118, one might perceive the knowing, but silent buyer (here: TGS) as perpetrating a "deliberate exploitation" of the ignorant seller who makes a less than fully autonomous choice since he is not fully informed.

on its considerable investment in acquiring the information.[58] In the end, this may prompt TGS to stop conducting this kind of costly exploration altogether.[59] In that case, mandated disclosure would leave "the farmer no better off, and the prospector and society at large worse off".[60]

a) Adventitiously acquired information

Against this background, economists as well as legal scholars distinguish between information that has been acquired adventitiously or otherwise effortlessly and information that has been acquired intentionally and by exerting costly effort.[61] As SHAVELL points out:

"[I]nformation may come to a party by accident (as I pass by a secondhand bookstore, for example, and notice a rare book worth thousands of dollars marked for $5) or as a concomitant of ownership (by virtue of living in my house, I learn whether the basement leaks after a heavy rain). To the degree that this is the case, the issue of incentives to acquire information is moot; thus the freedom to keep information secret is not needed to spur its acquisition, and mandatory disclosure becomes attractive."[62]

The duty to disclose adventitiously or otherwise effortlessly acquired information may, in turn, strengthen the *incentives of third parties* to invest in the production of socially beneficial information. Take, for example, the issuer's duty to publicly disclose inside information which directly concerns the issuer as laid down in Art. 17 of the EU Market Abuse Regulation (MAR).[63] This provision is deemed to have a twofold purpose, one of which is the prevention of insider trading.[64] Insider trading is, in turn, prohibited in order to protect information traders' incentives to produce socially useful information.[65]

---

58 EISENBERG, *supra* note 11, 1655, rightly points out that, while the mining company may reap a huge return on its investment in land with extensive deposits of minerals, the return is much more modest if one takes into account all the investments undertaken where the exploration activities did not reveal exploitable mineral deposits.

59 EISENBERG, *supra* note 11, 1655, but also 1690–1691.

60 TREBILCOCK, *supra* note 11, 112.

61 SHAVELL, *supra* note 34, 35; R. B. COOTER / T. ULEN, Law and Economics (Harlow, 6th ed. 2014) 349–350; A. T. KRONMAN, Mistake, Disclosure, Information, and the Law of Contracts, in: Journal of Legal Studies 7 (1978) 1, 9, 13 et passim; EISENBERG, *supra* note 11, 1656 ff., 1661 ff.

62 SHAVELL, *supra* note 34, 35 referring to KRONMAN, *supra* note 61. However, the freedom to keep information secret may be efficient on other grounds, cf. *infra* sub 2.

63 Regulation (EU) No. 596/2014 of 16 April 2014 on market abuse (market abuse regulation), OJ L 173, 12.6.2014, p. 1.

64 See, e.g., N. MOLONEY, EU Securities and Financial Markets Regulation (3rd ed., Oxford 2014) 730–731, with further references.

b) *Intentionally acquired information: Productive vs. redistributive information*

In contrast to adventitiously acquired information,[66] the protection of incentives to acquire information is a real issue with regard to intentionally acquired information, i.e. information that is acquired by a deliberate investment. However, from a social welfare perspective such incentives are only worth protecting where the acquired information adds value. COOTER and ULEN call this kind of information *productive information*. They contrast it with *redistributive information* that creates a bargaining advantage which can be used by the informed party to merely redistribute wealth in its favor without creating additional wealth.[67] Mere *foreknowledge,* i.e. information that will, in due time, be evident to all, is solely distributive in nature.[68] A famous example is the following case devised by CICERO: A seller ships crops from Alexandria to Rhodes, where the people are suffering from a famine. The seller knows that other ships loaded with crops are under way, while the suffering Rhodians – for the time being – do not.[69]

The freedom to keep merely distributive information secret provides misguided incentives to invest in the acquisition of such information. Since they produce no welfare gains, such investments are socially wasteful.[70] Even worse, further resources may be wasted by defensive measures taken to prevent losing wealth to a better-informed actor.[71] Therefore, economists widely agree that investment in the acquisition of redistributive information should be discouraged by mandated disclosure.[72]

---

65 Cf., e.g., Z. GOSHEN/G. PARCHOMOVSKY, The Essential Role of Securities Regulation, in: Duke Law Journal 55 (2006) 711, 781: "The ban on insider trading shields information traders from competition by insiders and hence allows them to recoup their investment in information. Mandatory disclosure rules reduce information gathering costs."

66 See *supra* sub 1.1.

67 COOTER/ULEN, *supra* note 61, 349–350.

68 Cf. J. HIRSHLEIFER, The Private and Social Value of Information and the Reward to Inventive Activity, in: American Economic Review 61 (1971) 561, 562, who coined the term "foreknowledge" and contrasted it with "discovery", which is the "correct recognition of something that possibly already exists, though hidden from view."

69 M. T. CICERO, De officiis, Liber tertius, section 50 (English translation CICERO, On Duties, ed. by M. T. Griffin/E. M. Atkins (Cambridge 1991) 118–119). In the context at hand, the example is referred to by SCHWEIZER, *supra* note 27, 173, 188. Another example, given by COOTER/ULEN, *supra* note 61, 349, would be knowing before anyone else where the state will locate a new highway, which amounts to a crucial bargaining advantage in real-estate markets.

70 COOTER/ULEN, *supra* note 61, 349; SHAVELL, *supra* note 34, 21.

71 COOTER/ULEN, *supra* note 61, 349.

c) Sellers' incentives to acquire information and mandatory disclosure

The TGS case illustrates why the incentives of potential buyers' to acquire productive information should be protected.[73] But what about the sellers? As has already been mentioned with regard to the problem of selective disclosure,[74] sellers have excessive incentives to acquire information in the absence of a disclosure obligation because they can profit from revealing favorable information whereas they can keep silent about unfavorable information.[75] Mandated disclosure discourages such wasteful investments in the acquisition of information. At the same time, mandated disclosure leaves intact the sellers' incentives to acquire socially valuable information. That is at least true as long as the sellers are able to capture the value added by the information, e.g., to get a higher price for a product of better quality.[76]

Further considerations have been put forth to take a comparatively tougher stance on sellers than on buyers regarding the duty to disclose private information.[77] One argument in favor of buyers' freedom to keep information secret is to preserve their incentives to utilize this information.[78] Furthermore, it is suggested that the utility loss suffered by the seller due to forgone profits when compelled to disclose is smaller than the utility loss suffered by the buyer due to real out-of-pocket losses when left ignorant.[79]

2. Curbing Incentives for the Efficient Utilization of Information

Where the information is gained adventitiously, "the issue of incentives to acquire information is moot".[80] Does this mean that adventitiously acquired

---

72 SHAVELL, *supra* note 34, 21; COOTER/ULEN, *supra* note 61, 349–350 who present a matrix with the two dimensions "Method by Which the Information Was Acquired" (= adventitiously vs. intentionally) and "Nature of Information" (= productive vs. distributive). Cf. also EISENBERG, *supra* note 11, 1666. CICERO, De officiis, Liber tertius, section 57, also claims with regard to his Rhodes hypothetical that the crop seller has a duty to disclose the fact that more ships are coming to Rhodes.

73 See *supra* sub 1.

74 See already *supra* sub III.1.a)bb) with n. 34.

75 SHAVELL, *supra* note 34, 21.

76 SHAVELL, *supra* note 34, 21; see also EISENBERG, *supra* note 11, 1674.

77 Cf., e.g., EISENBERG, *supra* note 11, 1674: "Given [the…] characteristics [of sellers as a class], a seller should always be required to disclose material facts concerning the property that she is selling."

78 TREBILCOCK, *supra* note 11, 113–114; see, for further detail, *infra* sub 2.

79 TREBILCOCK, *supra* note 11, 114; EISENBERG, *supra* note 11, 1674. This argument alludes to the so-called "endowment effect" and to "loss aversion"; for further details, see D. KAHNEMAN/J. L. KNETSCH/R. H. THALER, Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias, in: Journal of Economic Perspectives 5 (1991) 193.

information should always be disclosed?[81] TREBILCOCK answers this question in the negative and points to the discouraging effect of mandated disclosure on the efficient *utilization* of information.[82] TREBILCOCK'S argument can be illustrated by referring to SHAVELL'S example of the rare book offered in a second hand bookstore for a mere $5.[83] If the potential buyer of the book has to disclose the fact that the book in question is rare and valuable, the bookseller will adjust the price. As a consequence, the purchase of the book ceases to be a real bargain for the potential buyer. This would naturally dampen her incentive to buy the book, i.e. to utilize the information. Thus, a disclosure duty would make it much more likely that the book would stay in the store, its value unknown to a later buyer who might use the book as a paperweight. To put it in more general terms: In the event of mandated disclosure "the movement of resources from lower-valued to higher-valued uses" would be retarded.[84]

This consideration seems to work against mandated disclosure. However, EISENBERG regards TREBILCOCK'S argument as flawed. He himself claims that even under a duty of disclosure, the potential buyer would be allowed to sell the information to the bookseller.[85] Thus, incentives to utilize the socially valuable information remain under a mandate disclosure regime.

3. Further Costs of Mandatory Disclosure

The social planner who considers imposing duties of disclosure has to take into account further costs of this regulatory strategy. One cost factor which should not be underestimated is the implementation and administration of the disclosure requirements by the discloser.[86] That these costs can be considerable reveals itself when looking at the manifold disclosure obligations issuers of securities are under.[87] As BEN-SHAHAR and SCHNEIDER point out,

---

80 SHAVELL, *supra* note 34, 35.

81 This seems to be the position of COOTER/ULEN, *supra* note 61, 350–351.

82 As to the following see TREBILCOCK, *supra* note 11, 113–114.

83 See *supra* sub 1.1. This is, actually, what TREBILCOCK does when referring to his *The Wealth of Nations* hypothetical, cf. TREBILCOCK, *supra* note 11, 113–114.

84 TREBILCOCK, *supra* note 11, 113.

85 EISENBERG, *supra* note 11, 1660: "Even if A was under a duty to either disclose her information to B or abstain from contracting with B to purchase *The Wealth of Nations,* A would be free to sell the information to B, by making the following offer: 'You own something whose value is much greater than you realize. I will tell you what it is, if you agree to split the profit with me.'"

86 This point is stressed by BEN-SHAHAR/SCHNEIDER, *supra* note 1, 735–737.

87 Cf., e.g., MOLONEY, *supra* note 64, 736. The EU legislature acknowledged that these costs are a considerable burden for issuers. The new Prospectus Regulation, *supra* note 42, therefore, aims at a "reduction of administrative burdens" for issuers,

extensive disclosure duties carrying considerable implementation and administration costs also have anti-competitive effects insofar as they make it more costly for new market entrants to join the fray. This is, of course, just an exemplary, non-exhaustive enumeration of cost factors. More kinds of (unintended) costs can be thought of that move the scales towards abstaining from mandated disclosure.[88]

V. The Limits of Information and Disclosure Duties

Information and disclosure duties rest on the assumption that the information thereby revealed to the until then ignorant party adds to a more informed decision of that party which is, as a consequence, more in line with her actual preferences. This, in turn, leads to better results in terms of allocative efficiency.[89] In a world where this assumption is invariably correct, every piece of information is absorbed by the parties and correctly assessed with a view to its impact on the utility calculus of the decision at hand. The more information, the better the decisions that are made.[90]

1. Bounded Rationality and Information Overload

Unfortunately, this world is not ours. Rather, it is well-established knowledge that human actors only have a limited capacity to search for, absorb, and compute information. According to this insight, man is not an "optimizer" or "maximizer", but rather a "satisficer" who does not aim for the optimal choice, since it takes too much effort, but instead contents himself with a satisfactory option.[91] The severe limits of the human cognitive apparatus are illustrated by the fact that the item capacity limit of the human working memory is as low as seven information chunks (plus or minus two).[92] Due to the considerable limits on absorbing and computing information, the assumption that more information is better does not hold true. Rather, information quantity and complexity may be "too much" in the sense that it exceeds the processing capacity of the decision-maker. As a consequence of

---

especially SMEs, who seek access to financing on capital markets in the EU (cf. Recital 6 and 51 of the Regulation).

88 See, e.g., Ben-Shahar/Schneider, *supra* note 1, 737–742.

89 Cf. *supra* sub III.2.

90 Cf. also Ben-Shahar/Schneider, *supra* note 1, 650.

91 The concept of satisficing was invented by Herbert Simon; see, e.g. H. Simon, Theories of Decision-Making in Economics and Behavioral Science, in: American Economic Review 49 (1959) 253, 262–264.

92 See G. A. Miller, The Magical Number Seven, plus or minus Two: Some Limits on our Capacity for Processing Information, in: Psychological Review 63 (1956) 81.

such an *information overload,* decision quality will deteriorate.[93] Or to put it differently: From a certain point on the marginal utility of an additional piece of information becomes negative.[94] This may, for example, be due to the simple fact that the scarce attention of the recipient is diverted from the most relevant information to rather minor and ancillary pieces of information.[95]

2. *Lack of Understanding due to Deficient Prior Knowledge*

Furthermore, some information that is material to the contract requires a certain level of prior knowledge to be understood properly. If, for example, the bank communicates the annual percentage rate of charge attaching to a loan offered to a credit seeking consumer, this is meaningful information for the consumer only insofar as she has an idea of what the annual percentage rate of charge is. Numerous surveys show, however, that especially consumers often lack the knowledge and (basic) skills to make financial decisions that are in accord with their own preferences.[96] As a consequence of this *financial illiteracy,* the disclosure of certain features of a financial product may fall short of its aim.[97] To put it in the words of the business economists REISCH and OEHLER: "'If 50% do not know what 50% is,' then a lot of the established disclosure and information tools aimed at helping consumers are inadequate for a large part of the intended addressees."[98]

3. *Critique of the Conventional Disclosure Strategy and the Legislatures' Response*

The aforementioned findings lead many economists and legal scholars alike to the conclusion that it is not sufficient to exclusively rely on the (regulatory) strategy of providing especially consumers with ever more and better

93 Cf., e.g., J. JACOBY/D. E. SPELLER/C. A.KOHN, Brand Choice Behavior as a Function of Information Load, in: Journal of Marketing Research, 11 (1974) 63; for a detailed account, BEN-SHAHAR/SCHNEIDER, *supra* note 1, 720–723.

94 For a summary in the context of credit agreements for consumers SCHMOLKE, *supra* note 4, 813–815 with further references.

95 See, e.g., MILGROM, *supra* note 6, 128: "Reporting too much information in this situation leads to information overload, in which the buyer may fail to notice the most relevant information."

96 For an overview, see, e.g. O. BAR-GILL AND E. WARREN, Making Credit Safer, University of Pennsylvania Law Review, 157 (2008) 1, 26–56.

97 See, e.g., BEN-SHAHAR/SCHNEIDER, *supra* note 1, 711–716.

98 A. OEHLER/L. A. REISCH, *Behavioral Economics: Eine Grundlage für die Verbraucherpolitik?, Vierteljahreshefte der Wirtschaftsforschung* [Behavioral Economics: A Basis for Consumer Policy?], 78 (2009) 30, 35: "Wenn aber 'fünfzig Prozent nicht wissen, was fünfzig Prozent sind', dann sind viele der bislang entwickelten Informationsangebote für Verbraucher für einen großen Teil der Zielgruppe nicht geeignet."

information.[99] Against this background, the "baroque abundance" of disclosure duties has been heavily criticized.[100] Some have even proclaimed "the failure of mandated disclosure".[101]

Despite this fundamental criticism, no one makes a case for discarding mandated disclosure as a regulatory strategy. Rather, economists and lawyers push for information disclosure that is "*very* brief, simple, and easy" to understand. They emphasize, furthermore, the importance of the format the information is presented in.[102] However, even such an improved disclosure regime has its limits. Therefore, modern economists and lawyers alike are convinced that additional regulatory measures are necessary to cope with the deficiencies of human decision makers. They propose, for example, the implementation of "sticky" default rules or point to expert advice.[103]

Modern legislatures have begun to react to the criticism of conventional disclosure rules and the suggested alternatives and are trying to take account of the (rather) new insights provided by behavioral economics. The EU legislature, for example, is trying to improve the digestibility and comparability of information by providing for relatively short documents that supply the disclosees (consumers, retail investors) with the core characteristics of a contract in a standardized form.[104] Furthermore, Art. 6 of the EU

99 OEHLER/REISCH, *supra* note 98, 34: "Eine der wichtigsten Lehren aus der Behavioral Economics ist, dass der informationsökonomische Ansatz – man biete den Konsumenten mehr und bessere Information an – keineswegs ausreichend ist."; for further discussion, compare e.g., BEN-SHAHAR/SCHNEIDER, *supra* note 1, 742 ff.

100 See, for example, J. SCHÜRNBRAND, *Die Richtlinie über Wohnimmobilienkreditverträge für Verbraucher* [The Credit Mortage Directive], Journal of Banking Law and Banking, 26 (2014) 168, 170–171 ("barocke Fülle"), with regard to the creditor's duties of disclosure and transparency laid down in the EU Consumer Credit Directive, Directive 2008/48/EC of 23 April 2008, OJ L 133, 22.5.2008, p. 66, as amended by Regulation (EU) No. 2016/1011 of 8 June 2016, L 171, 29.6.2016, p. 1; more generally and with a view to mandated disclosure in the U.S., BEN-SHAHAR/SCHNEIDER, *supra* note 1, 686–687 et passim: "quantity problem".

101 BEN-SHAHAR/SCHNEIDER, *supra* note 1; see also BEN-SHAHAR/SCHNEIDER, More Than You Wanted to Know: The Failure of Mandated Disclosure (Princeton 2014).

102 BEN-SHAHAR/SCHEIDER, *supra* note 1, 743–745; OECD, Consumer Policy Toolkit (Paris 2010) 87–88; on the disclosure regime of the EU Consumer Credit Directive see also SCHMOLKE, *supra* note 4, 845–855.

103 See, e.g., BEN-SHAHAR/SCHEIDER, *supra* note 1, 746–749 with further references; for an evaluation of such (debiasing) strategies in the consumer credit context, see SCHMOLKE, *supra* note 4, 856–870.

104 For example, Art. 78 ff. of the UCITS Directive, Directive 2009/65/EC, OJ L 302, 17.11.2009, p. 32, as amended by Directive 2014/91/EU of 23 July 2014, OJ L 257, 28.8.2014, p. 186, provides for a Key Investor Information Document (KIID); similarly; Art. 14 with Annex II to the EU Mortgage Credit Directive, Directive 2014/17/EU of 4 February 2014, OJ L 60, 28.2.2014, p. 34, as amended by Regula-

Credit Mortgage Directive requires the member states to promote measures that support the financial education of consumers. And the new EU Prospectus Regulation[105] stresses that a "prospectus should not contain information which is not material or specific to the issuer and the securities concerned, as that could obscure the information relevant to the investment decision and thus undermine investor protection."[106] Furthermore, Recital 28 of the new regulation refers to the summary of the prospectus as

> "a useful source of information for investors, in particular retail investors", that should "focus on key information that investors need in order to be able to decide which offers […] they want to study further by reviewing the prospectus as a whole to take their decision".[107]

However, the attempts of lawmakers and regulators to reduce the load of information to be disclosed quite often appear rather half-hearted.[108] Many scholars suggest a more radical approach.[109]

VI. Conclusion

Information and disclosure duties are a powerful tool for overcoming information asymmetries and, as a consequence, improving efficiency. Some legal scholars even advocate a presumption in favor of disclosure.[110] How-

---

tion (EU) No. 2016/1011 of 8 June 2016, L 171, 29.6.2016, p. 1, provides for a European Standardised Information Sheet (ESIS). As to the reduction of reading costs by the standardization of (form) contracts, see A.L. Wickelgren, Standardization as a Solution to the Reading Costs of Form Contracts, Journal of Institutional and Theoretical Economics, 167 (2011) 30.

105 See *supra* note 42.

106 See Recital 27 of the Regulation. In this context, cf. also Milgrom, *supra* note 6, 128, who refers to a securities prospectus to illustrate the problem of information overload: "One example [for the problem of information overload] is an initial public offering in which the investor receives a long prospectus listing so many possible risks […] that the most important risks fall out of focus."

107 As to the prospectus summary, cf., e.g., P. Schamo, EU Prospectus Law: New perspectives on regulatory competition in securities markets (Cambridge 2011) 94.

108 Cf. the critique of the disclosure rules of the EU Mortgage Credit Directive, *supra* note 104, by Schürnbrand, *supra* note 100, 174–175; Schmolke, Neue Informations- und Beratungspflichten (einschließlich Kreditwürdigkeitsprüfung) durch das Wohnimmobilienkreditrichtlinie-Umsetzungsgesetz, in: Groß et al. (eds.) Bankrechtstag 2016 (Berlin/Boston 2016) 51–52.

109 Cf., e.g., Ben-Shahar/Schneider, *supra* note 1, 743; as the disclosure regime of the EU Consumer Credit Directive see also Schmolke, *supra* note 4, 851–853 (suggesting a "price tag" for credit contracts).

110 Eisenberg, *supra* note 11, 1655 et passim, who calls this "type of presumption" the "Disclosure Principle". As to the question whether such a presumption is warranted see Trebilcock, *supra* note 11, 112.

ever, mandated disclosure is not warranted where the market participants have the incentives and the means to voluntarily disclose the material information to the intended disclosee.[111] Furthermore, mandated disclosure comes at a cost. When this cost exceeds the benefit in terms of social welfare, abstention from mandated disclosure is the superior choice. The freedom not do disclose may, for example, be indicated to protect incentives for the production of socially valuable information.[112]

Even where mandated disclosure is the efficient regulatory strategy under the assumption of full rationality, the effectiveness of disclosure duties is constrained by the bounded and sometimes deficient rationality of human decision makers. Perhaps the most important insight of behavioral economics for lawyers is that more information does not necessarily improve the decisions of the disclosees, but may rather have the opposite effect.[113] Legislatures around the world are trying to take account of the cognitive limits of humans not only by modifying existing disclosure rules so as to reduce and standardize the information load, but also by turning towards additional regulatory tools. These other tools include rather intrusive measures intended to insulate the addressees from the harmful consequences of their (possibly) deficient choices.[114] Art. 18(5) of the EU Credit Mortgage Directive[115] provides, for example, that the Member States shall ensure that "the creditor only makes the credit available to the consumer where the result of the creditworthiness assessment indicates that the obligation resulting from the credit agreement are likely to be met in the manner required under that agreement."[116] Similarly, the German financial supervisory authority (BaFin) recently made first use of a new product intervention option by restricting trading on contracts for difference (CFDs), justifying the restriction as a "necessary step to protect retail investors" given the risks associated with such financial products.[117]

Despite these developments, information and disclosure duties remain a valuable regulatory tool. Mandated disclosure has an advantage over more invasive alternatives insofar as it leaves freedom of contract to a large ex-

111 As to the "unraveling result" see *supra* sub III.1.a)aa).

112 See *supra* sub IV.1.

113 See *supra* sub V.1.

114 As to this development from a regulatory paradigm of "informed freedom of contract" to a more intrusive approach intended to prohibit or correct "wrong" contractual decisions, see SCHÖN, *supra* note 2.

115 Directive 2014/17/EU, *supra* note 104.

116 As to this paternalist provision, see SCHMOLKE, *supra* note 7, 109–110.

117 BaFin, Press release: BaFin restricts CFD trading, 8 May 2017, online available under: *https://www.bafin.de/SharedDocs/Veroeffentlichungen/EN/Pressemitteilung/*2017*/pm*_170508_*cfd_en.html*.

tent unscathed. Against this background, it falls on the community of legal scholars to suggest mandated disclosure formats that limited rationality disclosees will find more understandable and readily digestible, this with the aim of rendering more intrusive measures dispensable. It can be hoped that the contributions to this issue of the Journal of Japanese Law will help to further this aim.