Audit Risk Factors in Certification: How can risk-oriented audits improve the quality of certification standards?

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Abstract. Over the past few years, certification standards have become increasingly relevant for the agribusiness sector. Substantial parts of the value chain are already certified by standards such as QS, IFS or EurepGap. It is not known, however, whether these approaches can actually ensure a high quality control. This article is based on the analysis of the data base of the QS-system with more than 72,000 companies involved. It tries to deduce some first empirically rich hypotheses about the connection between auditing quality and the institutional framing of the certification.

Keywords: certification, quality assurance, risk oriented auditing approach

1. Introduction

Over the past few years, certification procedures have gained great importance in the agribusiness sector as an instrument of quality assurance. The QS-system in Germany alone has already conducted more than 100,000 audits, mainly in the meat industry, covering, for example, about 30 % of all pork producers. The animal feed industry and all the important German slaughterhouses have also been covered as well. Additionally, about 5,300 retail stores have been audited since 2001. Besides QS, the International Food Standard (IFS) and EurepGap are also widely-used. Currently, more than 3,340 food producers are certified according to the IFS (approx. 60 % of these in Germany). EurepGap has a strong international angle: More than 30,000 certificates have been issued in the fruit and vegetable sector in more than 60 countries, covering an area of more than 2 million acres (830,000 hectares) [1].

In contrast to this rapid diffusion, the debate about the question of whether this type of quality assurance can reliably perform its tasks has so far been neglected. As is known, there have been quality scandals even after the set-up of the QS-system (spoiled meat, dioxin in animal feed). Although QS-audited firms were only marginally involved in these cases, a few carefully critical voices have risen. Kiefer [2] stated that companies in the poultry sector perceived the control pressure after the initial ISO 9000 certification to be rather low and thus calmly looked forward to the follow-up audits. In conversations with farmers, it is repeatedly pointed out that the certification is more a formal inspection than a valid examination of the quality standards. In personal conversations we

learned that in some firms there have even been „audits“ by phone. A further hint for the weaknesses of the auditing practice is the comical rephrasing of GMP-audits from “Good Manufacturing Practice” in „Give Me Papers“. Altogether, given the high costs and expectations linked to the set-up of the quality certification, it seems reasonable to critically review the validity and reliability of audits.

Thus, in this paper we will focus on the effectiveness of certification structures and analyse these for the agribusiness on a broad quantitative basis. Considering the manifold resources that currently go into the development of quality assurance systems as EurepGap, QS or IFS, the question of whether these are more than just a superficial veneer of legitimation becomes essential.

2. Trust in agricultural marketing

According to the traditional economic model, the market is the meeting point of supply and demand with the aim of exchanging homogeneous products. The (neo-) classic model implies that both suppliers and buyers are fully informed about all commodities concerned. In fact, neither are all traded goods homogeneous, nor are all participants equally well informed. Market activities are often characterized by far-reaching information deficits that impede the smooth functioning of markets [3]. Depending on the degree of information asymmetry between supplier and customer, different types of goods can be identified according to the dominant quality attributes (cf. Figure 1)[4].

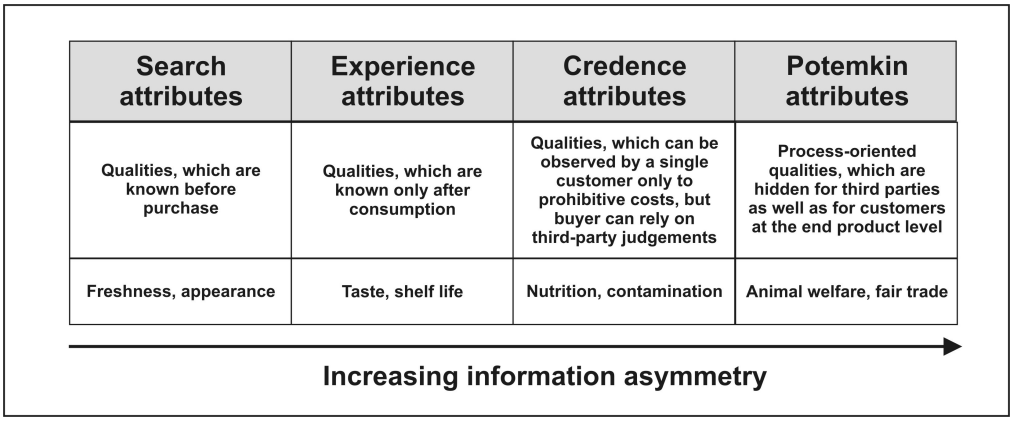

Figure 1. Typology of goods based on information economics (Jahn et al. 2005)

In Figure 1, another quality dimension is added to the classical information economics typology of search, experience, and credence attributes. “Potemkin” attributes [5] are characterized by the fact that neither the buyer nor external institutions are able to carry out controls through laboratory analyses at the end-product level. This holds true for nearly all process-oriented attributes (e.g., organic production, animal welfare, kosher foods, dolphin-safe tuna, fair trade). In the case of credence attributes, in contrast, fraud and mislabelling can be revealed by

inspections carried out by external organizations, public authorities, or competitors [6]. Test results are spread among the customers via the mass media. The likelihood of detecting firms falsely claiming specific credence qualities depends on (a) the amount of monitoring in the respective product category and (b) whether the company is famous enough for newspaper reports. Assuming a strict third-party monitoring and a high disclosure rate, credence goods could theoretically be treated as experience goods [7]. Third parties supplying customers with information about credence goods result in reliable quality signals. As a consequence, specific marketing investments (advertising, branding) bind manufacturers although high information asymmetries create strong incentives for cheating [8].

The information asymmetry related to Potemkin attributes can, however, not easily be by-passed by classical quality signals such as advertising, branding, and guarantees. Quality characteristics are closely connected with the production process that is hidden to the out-side observer. The only way to detect fraud is the direct monitoring of the company's internal production process. For most third parties, for example, consumer agencies or other stakeholders, this is not feasible, as only public authorities have the right to conduct investigations within a company. Additionally, these rights are restricted to cases of suspected contravention (e.g., threats to food safety, environmental harm). Furthermore, for a comprehensive control to be exerted, sufficient public manpower and budgetary means must be available. In the case of private standards there is no legal basis at all for public or private control of the production process.

Finally, in the case of Potemkin attributes quality statements can be made with hardly any risk of disclosure, as consumer agencies, NGO's, and public authorities are usually not able to verify marketing claims or discover opportunistic behaviour. What is needed to circumvent these fundamental problems is an investigation scheme that covers the whole supply chain and ensures on-site inspections throughout the production process.

Certifying systems are able to guarantee these inspections, which is why they are gaining popularity on all levels of the agrifood chain [9]. Especially in the field of process attributes, quality labels have become the most popular consumer marketing tool [10]. By means of regular control and – where necessary – additional sampling, neutral inspection institutions monitor the entire supply chain. Once having been awarded the requisite certificate, companies are entitled to make use of the quality label for marketing purposes. Some examples of recent certification systems are the various labels for Organic Farming, Fairtrade, Protected Designation of Origin (PDO), and GM-free. New legal standards such as EC regulation No. 178/2002 on traceability will surely fuel the discussion on those forms of quality assurance which encompass all stages of production [11].

However, certification systems and labelling imply multifaceted problems to which the parties involved have so far paid little attention. The central task of certification, the reduction of information asymmetry within the market, can be fulfilled only if the institutions in charge succeed in assuring certification quality and, thus, the validity of the audit signal. Only if the underlying organizations succeed in establishing a quality reputation in markets will the corresponding labels be accepted as a quality surrogate. They need to demonstrate a credible commitment towards the principles and specific regulations of the certification system in question.

A priori it cannot be taken for granted that the certifiers or the companies to be audited will conform to the established regulations. The thoroughness of the audit process often varies considerably as control procedures and occupational qualifications have not been yet sufficiently well defined.

All in all, the aforementioned factors indicate existing problems in the certification processes. Given the rapid growth and the still poorly developed structures of the comparably young certification market as well as the lack of experience on the part of the protagonists, fraud is likely to occur. In the following the institutional structure of certification systems is analysed in detail. The analysis is mainly based on analogies in financial auditing.

3. Institutions and structures of certification

1.1. Institutional framework

“Certification is the (voluntary) assessment and approval by an (accredited) party on an (accredited) standard” [12]. A key feature of a certification system is that inspections are carried out by independent bodies (third party audit) beholden to standards laid down by external organisations [13]. Basically, all systems have a similar structure, as shown in Figure 2.

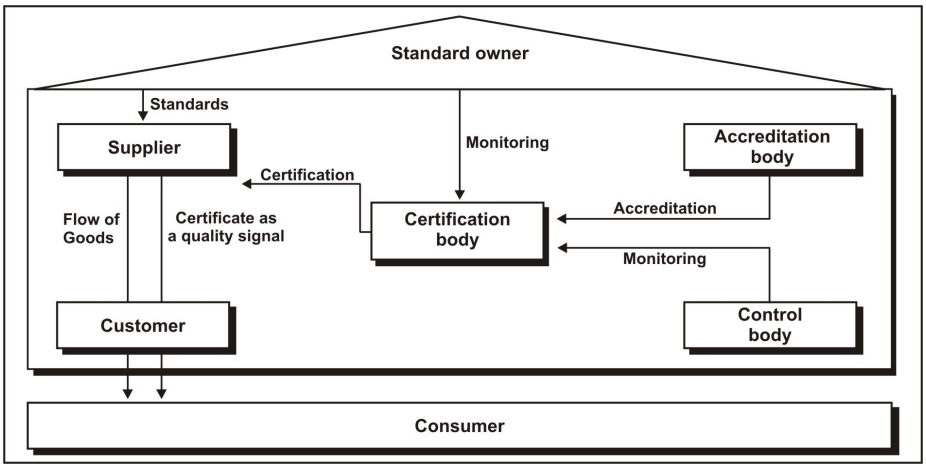

Figure 2. Basic structure of certification (Jahn et al. 2005)

The starting point is the relationship between the producer and the customer (consumer or institutional buyer). The supplier provides a certificate serving as quality signal, which is issued by a neutral certifier based on the quality and certification standards laid down by the standard owner. Certifiers, in turn, have to prove their ability to carry out inspections according to these rules through an accreditation. This accreditation is usually given on the basis of the ISO 65/EN 45011 standard (http://www.iso.org) which includes general requirements for assessment and accreditation of certification bodies. Accreditation is largely a formal act and does not include supervision of the real working process. This explains why some of the certification systems intend to introduce a monitoring function ("control-of-the-control") by involving either private institutions or public authorities.

Given the basic elements stated above, different certification systems can be described according to the standard owner, responsible for developing standards and control procedures. Firstly, there are public (state-run) and private initiatives: Governmental certification systems serve consumer protection purposes by providing quality labels to improve market transparency. In recent years, operative inspection tasks have been delegated predominantly to private certifiers monitored by public authorities (e.g., Organic Farming or PDO labelling). Public standards make it possible to prevent mislabelling through laws and fines enforced by public authorities. As McCluskey [14] argues, the main disadvantages are a loss of flexibility and innovation, lock-in-effects, and few incentives for overcompliance.

Nowadays, most certification schemes are privately organized. Certification procedures tend to be significantly different depending on whether the certification is to be used for consumer marketing purposes or should meet the demands of institutional buyers. The ISO 9000, for example, is predominantly a business-to-business (B-to-B) marketing tool. Other well-known examples are the EurepGap standard, covering agricultural producers, and the BRC (British Retail Consortium) or its German and French equivalent IFS, which are directed towards the

manufacturers of private labels. Most of the B-to-B certifications are based on the retailers' efforts to control the suppliers. Nevertheless, as a countervailing power there are also certification systems initiated by suppliers such as the Assured Farm Standard (AFS) in British agriculture.

While the above-mentioned certifications mainly focus on the supply chain, recent times have seen a shift towards certification labels directed at the consumer. Among these, the meat industry approaches comprising the whole value chain (e.g., the Dutch IKB-system or the German QS-system) have become the most important. Furthermore, club concepts such as the labels of specific associations (e.g., organic producer associations, such as the British Soil Association) refer to one homogeneous segment of an industrial sector only. The MSC (Marine Stewardship Council) label aiming at sustainable fishing practices and its equivalent in forestry, the Forest Stewardship Council label (FSC), are basically supported by stakeholders coming from different NGOs (environmental, consumer or development policy). Transfair or Max Havelaar are further examples of this type of labelling. Finally, some individual certifying organizations such as EFSIS or the German Technical Inspection Agency (TÜV) have developed standards of their own. Figure 3 provides a typology of these different private certification systems according to their importance for consumer marketing.

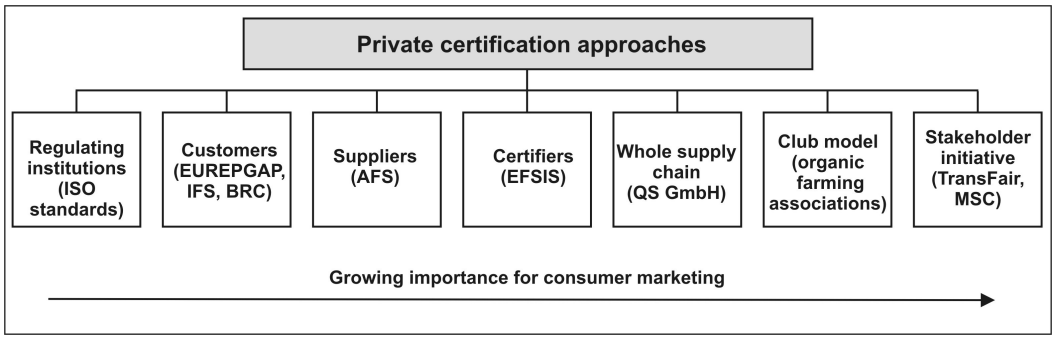

Figure 3. Typology of private certification systems (Jahn et al. 2005)

1.2. Reliability of the quality signal

Figure 2 described the parties involved in a certification system. In practice, this simplified outline is however blurred, as all parties act as economic players. Since the intended de lege structure of certification systems can deviate from the de facto form, an analysis of certification systems aiming at improving the functioning of certification systems must include tendencies towards opportunistic behaviour. Considering the great number of customers demanding a special certificate from their suppliers, manufacturers are increasingly under (economic) pressure to become certified. Several studies have revealed that suppliers view certifications as externally imposed obligations rather than as intrinsically motivated quality management systems [15]. Hence, it can be assumed that suppliers are not interested in the highest possible standard of inspection. As strict inspections lower the probability of

successful certification, suppliers have an incentive to select auditors known to employ low inspection standards [16].

Correspondingly, certifiers can act in the same way assuming a given inspection fee, i.e., will seek to minimise their audit costs. In addition, they can become dependent on their clients through a special form of setting the fee, known in auditing theory as "low-balling" [17]. In order to win the contract, auditors set the fee for the first inspection far below their calculated real costs. As profits tend to be realized only in an ongoing business relationship, the annual returns from subsequent inspections represent a quasi-rent since they depend on customer loyalty. Low-balling makes the inspector undesirably dependent on his client [18].

Furthermore as each individual inspector is an agent of a larger certification company, it cannot be assumed that every certifier (agent) pursues the same objectives as the certification company (respective principal) [19]. In fact, an agent can maximise his or her own profit. In practice, this includes bribery by the company he or she has been ordered to inspect (i.e., side contracts) [20].

4. Reliability of the audit procedure: from checklists to risk oriented auditing

With the growing importance of certification as a quality signal in the agribusiness, the reliability of the schemes is a crucial factor for trust in the institutions and credibility of consumer and business-to-business marketing. Our theoretical considerations allow some initial suggestions that weak auditing and in some cases even cheating are relevant food safety risks. To our best knowledge, there are no broader empirical analyses on the reliability and validity of audits in quality certification. However, there are a number of case studies on the quality of social auditing [21].

For example, an article in the Financial Times that unveiled the fraud practices used by Chinese firms drew considerable attention. International auditing firms which certify textile suppliers in China with standards such as the SA 8000, presumably are systematically fooled (e.g. by use of computer-faked pay slips) [22]. A recent in-depth report analyses the practices of auditors during the execution of social audits in developing countries [23]. The authors describe the certification as a cat-and-mouse game between naïve and badly trained auditors and unscrupulous managers, in which the auditors presently lack the possibilities for effective monitoring. Thus, it can be concluded that the certification practices have already suffered considerable credibility losses, at least regarding the working conditions in developing and threshold countries. It, therefore, seems reasonable to preventively think about the weak points in agribusiness, before a comparable loss of credibility also occurs here.

In the following sections, we will refer to an auditing procedure that is incapable of unveiling substantial material deficiencies but primarily evaluates formal factors as checklist governance. A second connotation of this term which has been used over the last few years in the context of developments in US-American auditing [24] refers to the procedure of the audit. Checklist Governance is an auditing procedure where the certifiers use a checklist to – somewhat schematically – control the existence of certain quality performance elements. For companies on the same production stage, typically similar, mostly even equal requirements are made in the criteria catalogues of the system owners. Usually, no attention is paid to special characteristics and conditions of the industrial sectors during the audit. Instead, the audit of the company is carried out based on a formal checklist, which is executed point by point by the auditor without any economic incentives to unveil material shortcomings. In sum, checklist governance is, in our eyes, a hypothesis about reliability problems of auditing, which might be due to an insufficient auditing model.

In this contribution, we oppose this model based on standardization and uniformity of the auditing process with the concept of risk oriented auditing. We, therefore, revert to concepts from auditing theory. Since the 1970s and increasingly after the recent scandals, auditing theory has developed approaches that are geared to the risk potential of the audited company. The same basic parameters that led to the development of the risk oriented auditing concept similarly apply to today's certification systems. Certifiers in agribusiness are in severe competition for contracts, which are commissioned by the companies that are to be audited. Here the risk of false incentives and adverse selection is high [25]. Furthermore the fast growth of the certification systems could lead to the suspicion that auditing procedures and staff qualifications have not yet been sufficiently developed.

5. Empirical results on the auditing quality of certification audits

1.3. Data base

Previous surveys which dealt with the empirical funding of audit quality referred to single case studies and undercover observations of the auditing practice [21]. The downsides of this approach lie in the complex possibilities to generalise the results and in the lacking verifiability of the reports. The following analysis, therefore, uses a different approach based on data of the QS GmbH, comprising all previous examination results (2002- 2005). Of the 102,648 audits, 98.8 % where carried out in Germany and 85,218 in the agricultural sector, on which the following considerations are focused.

The subsequent study was conducted with support of the German QS-system. Their data base contains data entry forms filled out by the

certifiers on the structural characteristics of the audited companies and the results of the audits. The following information is collected: name and registered office of the certification company, name of the auditor, name and registered office of the client, type of business, product category, date of the audit, overall result of the audit, score per criterion, duration of the audit, type of audit (regular or sample). The certifier awards a differentiated auditing judgment with the four nuances „QS-status 1“ (at least 90 out of 100 possible points), „QS-status 2“ (< 90-80 %), „QS-status 3“ (< 80-70 %) and „failed“. The latter can either be the result of insufficient performance (< 70 %) or of a single, particularly severe flaw (K.O.-criteria).

Table 1. QS-status of the agricultural sectors in Germany: comparison

	QS status 1 (100-90%)		QS status 2 (<90-80%)		QS status 3 (<80-70%)		Certification refused (<70%)		Total
AGR	quantity	rows %	quantity	rows %	quantity	rows %	quantity	rows %	quantity
Pork	33,686	89.7	2,627	7.0	286	0.8	943	2.5	37,542
Beef	40,919	89.4	3,293	7.2	385	0.8	1,196	2.6	45,793
Poultry	1,836	97.5	32	1.7	2	0.1	13	0.7	1,883
Total	76,441	89.7	5,952	7.0	673	0.8	2,152	2.5	85,218

Source data: QS Qualität und Sicherheit GmbH

The audit results of the three sectors certified by QS in agriculture (AGR) are depicted in Table 1. It can be seen that altogether auditors awarded very good evaluations. Most firms (89.7 %) received the certificate „QS-status 1“. On average, only 2.5 % of the firms failed the audit.[1] The performance of the poultry producers was significantly higher than that of the pork and beef producers.

The results indicate that the probability of failing the audit is relatively low. The QS-system at its core is an approach for securing minimum legal standards. It can thus be expected that the vast majority of the audited companies will successfully pass the audit. It also seems plausible that the vertically integrated poultry fattening, which is also monitored by large-scale poultry processors shows fewer weak points than the red meat market. Nevertheless, there is also the risk that the low failure rates conceal deficiencies of the auditing process – checklist governance?

1.4. Differences in the auditing quality of different certification organisations

Starting point of the next step of analysis is the hypothesis that the certifiers – whether due to deficiencies in competence or economic pressure – do not all conduct their audits with the same diligence. If this is the case, there should be significant variations in the auditing results of the different firms or certifiers. To eliminate the influence of the different business sectors, the following calculations are delimited to pork

[1] Of these, 929 firms (43.2 %) failed by K.O.-judgment.

production. In addition, it seems necessary to focus the analysis on one German state to avoid regional effects, which are reported in Table 2.

Table 2. QS-status of pork producers in regional comparison [2]

	QS status 1 (100-90%)		QS status 2 (<90-80%)		QS status 3 (<80-70%)		Certification refused (<70%)		Total
region	quantity	rows %	quantity	rows %	quantity	rows %	quantity	rows %	quantity
BB	241	92.0	14	5.3	4	1.5	3	1.1	262
BW	2,420	89.4	206	7.6	12	0.4	68	2.5	2,706
BV	6,328	88.6	456	6.4	17	0.2	341	4.8	7,142
HE	377	83.2	37	8.2	12	2.6	27	6.0	453
MWP	186	94.4	7	3.6	3	1.5	1	0.5	197
LS	10,519	93.5	565	5.0	57	0.5	114	1.0	11,255
NRW	10,216	86.4	1,124	9.5	168	1.4	320	2.7	11,828
RP	329	95.9	11	3.2	0	0.0	3	0.9	343
SA	256	90.8	22	7.8	1	0.4	3	1.1	282
SH	1,387	92.7	87	5.8	5	0.3	18	1.2	1,497
SN	209	92.1	15	6.6	1	0.4	2	0.9	227
TH	203	91.0	9	4.0	1	0.4	10	4.5	223
G	33,686	89.7	2,627	7.0	286	0.76	943	2.5	37,542
NL	475	82.9	6	1.0	3	0.52	89	15.5	573

BB = Brandenburg; BW = Baden-Wuerttemberg; BV = Bavaria; HE = Hesse; MWP = Mecklenburg-Western Pomerania; LS = Lower Saxony; NRW = North Rhine-Westphalia; RP = Rhineland-Palatinate; SA = Saxony-Anhalt; SH = Schleswig-Holstein; SN = Saxony; TH = Thuringia;
G= Germany; NL = Netherlands

Source data: QS Qualität und Sicherheit GmbH

Figure 4 shows that the audit outcomes also differ regarding some main criteria in pork production. Farmers from Lower Saxony have a better internal control than the average farmer in Germany and the Netherlands.

[2] The table only shows states where more than 100 audits carried out. Line „G“ (Germany), however, includes all German states.

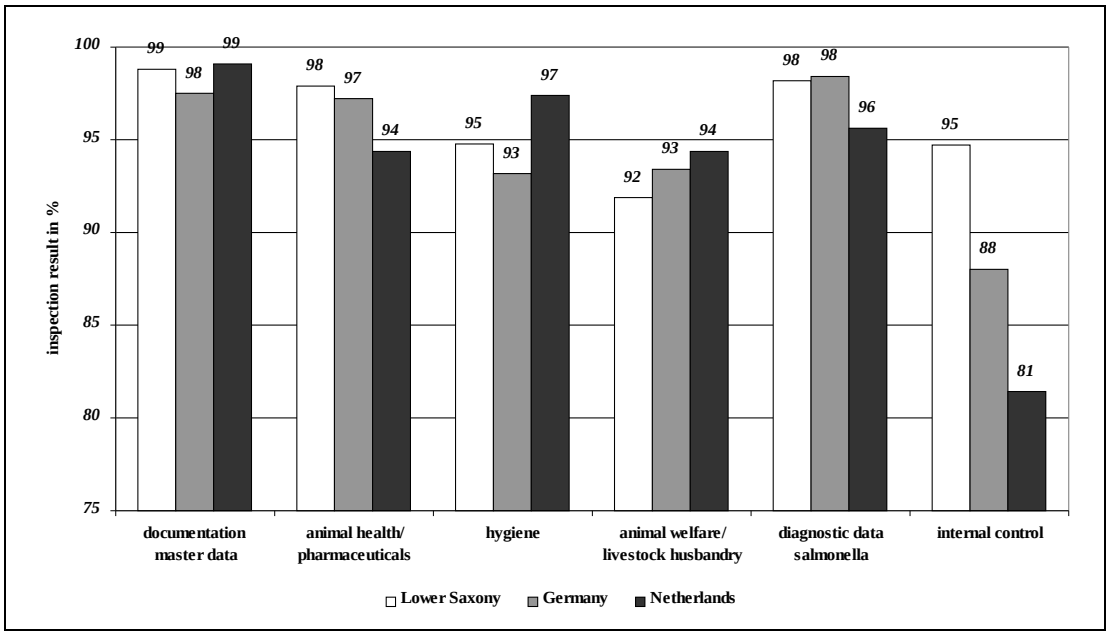

Figure 4. Audit results for pork production: comparison of Germany, Netherlands and Lower Saxony[3] (Source data: QS Qualität und Sicherheit GmbH)

The above-mentioned variations can be due either to regional sector characteristics as, for example, the difference in farm size, or to differently „strict" certifiers who have their focal point in one state. For the following, we, therefore, will focus on the state of Lower Saxony as an example. Table 3 shows a central finding of the analysis.

Table 3. Auditing results of certification bodies (Lower Saxony; pork)[4]

	QS status 1 (100-90%)	QS status 2 (<90-80%)	QS status 3 (<80-70%)	Certification refused (<70%)
CB	**rows %**	**rows %**	**rows %**	**rows %**
A	98.6	1.4	0.0	0.0
B	98.3	1.2	0.1	0.3
C	95.3	3.9	0.2	0.6
D	93.7	3.6	0.0	2.8
E	92.9	2.9	0.0	4.3
F	92.7	5.4	0.2	1.7
G	90.4	7.4	1.1	1.2
H	86.3	1.4	0.0	12.3
Ø	93.5	5.0	0.5	1.0

Source data: QS Qualität und Sicherheit GmbH (CB=Certification Body)

There are highly significant differences between the auditing judgments of certification bodies who have audited pork producers in Lower Saxony.

[3] Means; N = 37,542 for Germany; Lower Saxony N = 11,255 and Netherlands N = 573.

[4] The auditing companies are made anonymous by letters. For a more convenient presentation, only auditing companies are listed that performed more than 33 audits. Thus, eight companies with a total of 103 audits are not listed. The line "Total" includes these eight auditing companies.

The spread ranges from 86.3 % of companies in „QS-status 1“ by certification body H to 98.6 % by certification body A.

Given the large sample, the limitation to one state and one sector, it is difficult to find other comprehensible reasons for the reported variations than weaknesses of the auditing process. The failure rate for certification body H, for example, is over 12 %, while at body A, only 1,4 % were rated below „status 1“ and none failed the audit. Auditing body G rated many companies in „QS-status 2“, while the failure rate was average. Quite obviously, these differences, which can also be demonstrated in other states and sectors, point to deviations in the auditing practice.

Table 4. Comparison of auditing results dependent on the auditors (Lower Saxony; pork)[5]

	QS status 1 (100- 90%)	**QS status 2 (<90- 80%)**	**QS status 3 (<80- 70%)**	**Certification refused (<70%)**	**Duration hh:mm**
Auditor	rows %	rows %	rows %	rows %	Ø
A1	98.3	1.7	0.0	0.0	01:32
B1	100.0	0.0	0.0	0.0	01:27
C1	98.1	1.3	0.2	0.4	01:24
D1	93.2	3.8	0.0	3.0	01:35
E1	91.1	3.6	0.0	5.4	01:44
F1	96.0	2.0	0.0	2.0	01:27
G1	74.9	18.2	3.7	3.2	01:29
H1	86.3	1.4	0.0	12.3	01:56
Ø	93.5	5.0	0.5	1.0	01:38

Source data: QS Qualität und Sicherheit GmbH

These findings are supported by comparable variations in the analysis of the single auditors (see Table 4). In Lower Saxony, 110 auditors have been active in the certification of pig holdings since 2002. The auditors were either employees of a certification body or individual auditors. Of the 110 auditors, 44 conducted less than 10 audits and 32 conducted more than 100 (84.0 % of all audits). Five auditors even issued more than 500 certificates each, and thus account for 35.9 % of all audits in the pork sector. This high concentration might lead to competence deficiencies of the less involved auditors. However, it could also indicate stress of competition (low-cost strategy) and a strongly varying duration/intensity of the audits. Auditor H1, for example, on average inspected 30 minutes longer than auditor C1, who conducted a particularly large number of audits.

Table 5. Results of the system and sample check in comparison (pork)

	QS status 1 (100- 90%)		**QS status 2 (<90- 80%)**		**QS status 3 (<80- 70%)**		**Certification refused (<70%)**		**Total**
	N	r	N	rows	N	rows	N	rows	quantit

[5] The line “average” (Ø) includes all auditors.

		ows %		%		%		%	y
Lower Saxony:									
System audit	10,519	93.5	565	5.0	57	0.5	114	1.0	11,255
Sample	102	85.0	12	10.0	5	4.2	1	0.8	120
Germany:									
System audit	33,686	89.7	2,627	7.0	286	0.8	943	2.5	37,542
Sample	327	83.8	30	7.7	13	3.3	20	5.1	390

Source data: QS Qualität und Sicherheit GmbH

Further hints of deficiencies of the auditing process are given by the newly introduced spot checks in the QS-system in which the QS GmbH randomly chooses companies to undergo additional testing without announcements. There are highly significant differences between the results of the spot checks and those of the system audit (regular audit) in Germany as well as in Lower Saxony (see Table 5). Quite obviously, stricter standards are applied in the spot checks.

1.5. Reasons for the audit differences

The variations in the auditing results we have outlined above first of all document varying assessment standards between the different certification bodies and auditors. However, several interpretations of these variations are possible. One the one hand, know-how differences of the auditors and varying auditing intensities could be the reason for the variations. On the other hand, economic dependences could cause an auditor to issue „courtesy certificates“.

Differences in the auditing quality are likely because all certification concepts in agribusiness are still in the stage of implementation and only few re-audits have been carried out so far. Thus, it can be assumed that single auditors might still lack appropriate training and knowledge. As yet, there is no specific training in agribusiness for the newly developed occupation of the certifier. Competence deficiencies have already been detected by the system owners (e.g. QS GmbH), whereupon training efforts and auditing guidelines have been substantiated and expanded.

Table 6. Summary of the number of certification bodies and concentration ratio

Certification body	Number of companies	Ø Number of audits	Max. number of audits	Min. number of audits	CR 2	CR 5
in Germany, total	43	2347.1	33,374	1	21.6	7 7.2
in G, only agriculture	28	3061.9	32,979	3	59.0	8 1.8
in G, agr., only pork	28	1354.7	10,178	3	50.3	7 5.9
Only Lower Saxony and agr.	25	946.1	7,947	1	77.3	9 3.7
Only Lower Saxony, agr. and pork	23	710.9	4,699	1	77.6	9 6.5

Source data: QS Qualität und Sicherheit GmbH

The second potential cause of the varying auditing results are economic dependences. In our certification scheme, the client can choose the certification body. The pronounced stress of competition and the low prices that certifiers report in personal conversations can lead some auditors to deliberately audit inattentively in order to minimise their costs and at the same time increase the chances for re-contracting and recommendation. This is based on the interest of the audited companies (that is, the customers) to certainly pass the audit. They will avoid very strict auditors and exert pressure. This effect can be especially strong when individual clients have powerful positions. This is the case, for example, in the QS-system, because here, so-called "Buendler" (slaughterhouse companies, co-operatives marketing associations) choose the auditor for all connected companies (in many cases several hundred farmers). A very similar situation can be found for further certification standards such as IFS or EurepGap. Table 6 indicates the resulting concentration (concentration ratio/CR) in the certification market.

6. Risk oriented auditing in the agribusiness

The above mentioned problem can cause manifest safety risks. The system operators (QS, IFS, EurepGap etc.) can react in different ways to the problems presented as examples. For one thing, they try to assure the uniformity of the tests by a standardisation of the audits. A trend towards this procedure can be found by analysing, for example, the development of the certification process for securing organic production (EU-regulation no. 2092/91). While this process started out with a thin booklet of obligations, these days the auditor has to follow a checklist where even details of the tests are specified in an audit handbook with hundreds of pages.

From our point of view, another approach seems to be more promising. Although it might seem counter-intuitive at first glance, it can be

plausibly argued that a detailed specification of the auditing procedures will, in the long run, result in a lower auditing quality. Such a regulation of the actions relieves the auditor of the effort to individually improve the auditing quality. He will be able to prove the duly conducted audit by a technically correct „checking off“ of his checklists, even if, at the same time, the crucial quality risks remain unnoticed because they are not provided by the checklist.

Thus, we conclude by suggesting a stronger concentration on risk oriented auditing approaches. These focus more strongly on the personal responsibility of the auditor by providing him with more leeway in the auditing process. First of all, it is important to develop incentive structures within the system that economically foster the auditor's interest in a high auditing quality – controlling results instead of actions. The literature [25] provides three basic starting points for a risk oriented strategy. The crucial influencing factors are:

1. Extending the liabilities of the certifier,
2. Strengthening the reputational impact on the certification market and
3. Reducing the dependence of the certifier on the companies to be audited.

While these aspects aim at improving the auditing quality by optimising the influencing factors in the certification environment, risk orientation is the central approach to improving the auditing technology. The purpose of the discussed concept is the alignment of the audits with the risk situation and risk potential of the individual client [26]. In traditional auditing, where this approach has been widely discussed, the auditor relies on the so- called audit risk. This risk constitutes a false estimation of the annual accounts where the audit certificate is unwittingly not restricted or rejected, even though the annual accounts contain significant flaws [27]. The risk is composed of several subcomponents. Firstly, the risk of error occurring specifies the probability that errors fundamentally occur in the population. Secondly, the detection risk renders the risk that the flaws occurring in the company are not detected by the auditor concrete [28]. This risk originates in the choice of improper procedures and in personal deficiencies of the auditor [29]. The influencing factors of the error risk include an inherent risk as well as a control risk [30]. While the inherent risk refers to the probability that errors generally occur in the absence of a monitoring system which lead to an improper audit entirety [31], the control risk shows the probability that important errors are not detected by the monitoring system and reach the annual accounts [32].

If this approach is applied to the certification systems of agriculture and food economy, the differences and peculiarities of the quality assurance systems have to be accommodated in a modified model. Figure 5 shows the described concept in enhanced form.

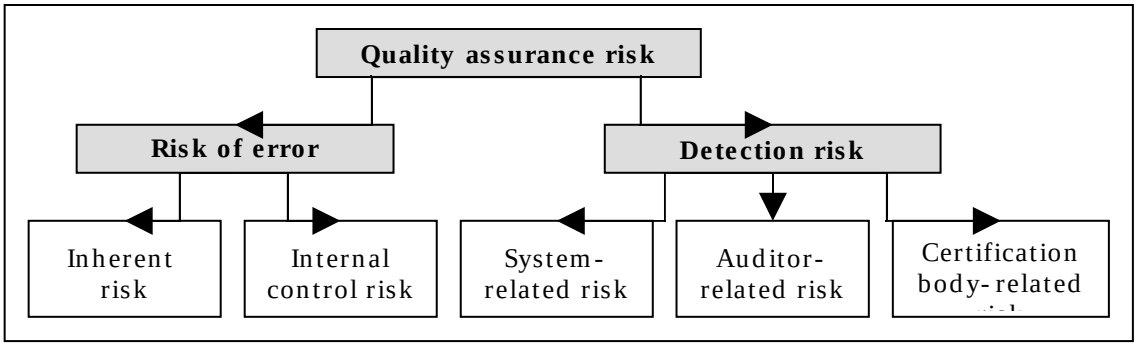

Figure 5. The quality assurance risk and its subcomponents (personal illustration)

Substantial differences between financial auditing and the quality certification arise not only for the risk of error occurring due to the number of different stages in the supply chain and the heterogeneous auditing object. Basic institutional conditions that are set by the system and that influence the detection risk are also of importance. Firstly, in this case a greater number of institutions are directly or indirectly involved in the auditing process. Furthermore, the private-sector base of the system results in a radically different perspective towards the auditing, it's significance and objective. These factors make up the external conditions for the audits and influence the possibilities to detect mistakes. Different from traditional auditing, the detection risk, thus, is not only dependent on the quality and personality of the auditor, but also on the conditions that the system owner and the certification body provide for him. Not only the individual auditor, but also the system owners should use a risk oriented approach when auditing the auditors.

The differences between lines of business, regions and added value levels that only briefly highlighted in the above analysis of the audit data base can be analysed in more detail in further contributions, focussing on the respective weak spots to be able to quantitatively assess at least some of the risk areas included in Figure 5. This could lead to clues for auditing intervals, auditing depth, unannounced spot checks and differentiated auditing focuses – questions that should all be subject to coming research.

7. Conclusion

The study reveals initial empirical data which underline the threat of weak auditing procedures in quality certification systems. Beyond single case studies, anecdotic information or rumours, statistical analysis clearly indicates differences between various certification bodies (auditors).

The study was conducted with support of the German QS GmbH which demonstrates their willingness to improve the scheme. The system owner is interested in enhancing the audit quality and preventing possible structural deficits. First objectives, which were developed after a presentation of our results to the QS GmbH, are more random spot

checks and training for certification bodies with deviant audit results. Furthermore, a systematic data warehouse will be implemented to allow automatically conducted quality control routines.

The risk oriented approach contrast sharply to some expectations in the agribusiness that auditing should be more standardised and equal. Certification systems which try to introduce risk classifications have to convince clients and certification bodies of the advantages of risk oriented approaches. At first sight, different auditing intervals, auditing depth, unannounced spot checks and differentiated auditing focuses seems to be unfair for some clients. However, in the long run, a certification system can only survive if it is able to guarantee the unobservable credence qualities which lie in the foreground of consumer interest (food safety, animal welfare, social standards etc.). The use of checklists is a necessary tool for auditing, but risk oriented means are much more useful to safeguard against opportunistic behaviour.

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