

DID COVID-19 INCREASE THE RISK OF INTERNAL AUDITING?Hans-Ulrich Westhausen* 

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Abstract

For about three years now, the COVID-19 pandemic has kept the global economy on tenterhooks. Although the pandemic has now been declared "over", the consequences of this mega-example of disruptive developments are still being felt everywhere, also regarding the work of Internal Audit. In particular, the spatial and personnel distance from operational activities due to lockdown and home office raise the question of whether these serious changes in the audit environment have possibly also changed the audit risk. This paper attempts to address this question using the Audit Risk Model (ARM) and a survey of audit experts to operationalize a comparison of audit risk before and after COVID-19. The results suggest that the pandemic has significantly changed the audit environment and, moreover, is expected to increase audit risk. As a result, Internal Audit needs to react promptly to adapt its effectiveness to the increased requirements and thus be able to fulfill its responsibility as a "third line" of corporate governance in the future.

Keywords: Audit Risk, Internal Audit, COVID-19

JEL: G32, M40, M41, M42

1. Introduction

Now that the COVID-19 pandemic has been declared "over" (Drosten 2022) in medical terms as the "greatest challenge since the World War II" (Merkel 2020), the consequences of the pandemic in economic terms cannot yet be accurately predicted. In economic terms, a historic record inflation of around 10%, an enormous backlog of insolvencies and a pessimistic growth forecast for 2023 (Bundesbank 2022) – at least for Germany – are now having an impact. Staff shortages are worsening almost everywhere, from industry to commerce, local government to catering and air

travel. Added to this are new permanent crises such as the war in Ukraine, several potential military confrontations (including Turkey-Syria, PRC-Taiwan) and the accompanying energy shortages. The assumption inevitably arises that this perceived permanent crisis mode could become the "new normality" to which Internal Auditing will also have to adapt in the future. Particularly because these more exogenous factors have been joined by several endogenous, there are more internal aspects that pose major challenges for many companies. These include aspects such as the digitalization of the working world, which had already begun before COVID-19 and was strongly driven forward by the pandemic, a legal obligation to home office from 27 January 2021 to 30 June 2021 as a result of COVID-19, which has since continued to be implemented voluntarily by many companies, often at 60% home office and 40% office presence, as well as a resulting removal or possibly even alienation from the usual working environment.

From an Internal Auditor's point of view, the effectiveness of practiced control steps in the business and administrative processes can suffer because of this spatial and, in some cases, mental distance from the workplace. Management controls are lost in video conferences. Processes were and are often simply digitized without adapting control steps accordingly. Operational error risks increase. The fact that the adaptation of the ICS (Internal Control System) is also neglected because of this increasing digitalization cannot be dismissed out of hand as a possible consequence (but is not necessarily the case). In addition, the audit function has also "suffered" under the pandemic, namely through lockdown, audit freeze and up to 100% remote auditing. And above all, i.e., across companies and industries, the complexity of processes is increasing, it is becoming apparent that digitalization can also lead to intransparency and

vulnerability, and fraud patterns are increasingly shifting into the digital world (cybercrime), with the less protected environment of the home office becoming the focus of attackers. All these developments can directly or indirectly affect the audit risk in which Internal Audit finds itself in every audit. The audit risk (also referred to as second type error or beta error) is understood to mean that an auditor erroneously assesses a deficient matter as proper due to a changed risk situation.

This paper aims to answer the research question of whether the COVID-19 period has resulted in a higher audit risk for Internal Auditors, which will continue to determine the post-COVID-19 period. If this question were to be answered in the affirmative, corresponding measures should also be discussed which Internal Audit would have to take promptly to take account of any increased audit risk.

2. Background and Hypothesis

2.1 Literature Review

In recent years, research on audit risk seems to have been rather restrained. As shown in Figure 1 (cf. Appendix), keyword hits for "audit risk" in English scientific publications increased from 1,090 (2012) to 2,000 (2022), but the combinations with Internal Audit (2022: 600) and COVID-19 (2022: 175) remained on rather low levels.

The restraint of the research about the research question was also evident in the review of the content of the selected sources. Basically, it can be stated that only two out of the 14 relevant sources displayed in Table 1 (cf. Appendix) specifically addressed audit risk in general or the Audit Risk Model (ARM) before and after COVID-19 (ref. to no. 7 and 10). Rather, the other sources (apart from no. 7 and 10) dealt with the general role of Internal Auditing in crisis management, which is still ongoing (using COVID-19 as an example), or as a stabilizing anchor in future crises, as well as the advantages and disadvantages of remote auditing.

Three studies expressed a potentially increased risk situation of Internal Auditing after the pandemic as follows:

- it is urgently necessary to quickly build up know how in the direction of the changed risk situation (ECIIA 2022),
- 69% of Canadian audit departments will increase the frequency of their Internal Audit Risk Assessments (IIA / Canada 2020) and
- 228 Internal Auditors from Germany see a limited verifiability of information due to a lack of on-site witnessing, informal communication, and missing walk-through-presence (DIIR 2020).

As a conclusion of the literature review, it can be stated that the experts agree that in the time before, during and after the COVID-19 pandemic, the working environment of Internal Auditing has become significantly more digital and more remote, with the consequence of completely new challenges for Internal Auditing. The risks associated with this development (especially fraud) and possible new working methods for Internal Auditing are often highlighted. What seems to be missing, however, is the transfer of these analytical strands to the development of the audit risk of Internal Auditing and the central question of whether the entire COVID-19 development has now led to a change (possibly an increase) in the audit risk of Internal Auditing. In the source with current no. 10 (cf. Table 1), there is talk of a high risk of an incorrect audit opinion being issued because of a lack of audit evidence due to the pandemic, but there is generally no systematic, quantitative approach to the audit risk as a central parameter of the work of Internal Auditing (in analogy to the work in External Auditing). Source no. 7 (cf. Table 1) introduces the ARM and gives factual reasons for the presumed increase in audit risk in Internal Auditing but lacks the empirical-statistical data basis to operationalize the expressed presumption quantitatively.

2.2 The Audit Risk Model (ARM)

In any audit or consulting project, the Internal or External Auditor is exposed to the risk of making an error in the assessment of a matter to be audited, especially if the risk situation changes. The Auditor could erroneously arrive at a positive assessment and document this in the results report, even though the facts

reviewed contradicted this, i.e., that they were erroneous or incomplete, not proper or, in the worst case, even fraudulent. For example, it would certainly be unpleasant for the Audit department if, a few days after its audit report, which attested to proper cash management, a case of cash fraud that had already been going on for months was discovered.

Based on statistics, the audit risk, which is usually accepted up to 10%, is also referred to as a beta error or second type error, i.e., it comes to an erroneous positive evaluation of an otherwise negative fact. The consequences of such a beta error can be serious for the company, but also for the Auditor. For example, an overlooked cash difference that has been going on for several years, or various pieces of information about "acceleration payments" to dodgy sales promoters that were erroneously classified as non-critical, can pose significant potential dangers and damage to a company's finances, the position of its management board, or its share price. However, Internal and External Auditors themselves are also threatened by a continuum of inconveniences because of the occurrence of audit risk, which can range from loss of reputation and consequences under labor law to claims for damages.

To better operationalize the relationship, the so-called "Audit Risk Model" was developed about 50 years ago (Joyce 1976), which is still relevant for audit theory and practice today. In this model, the dependent variable audit risk (AR) is divided into the three sub-risks or independent variables Inherent Risk (IR), Control Risk (CR) and Detection Risk (DR), which are multiplicatively linked as a function as follows:

$$AR = IR \times CR \times DR$$

In the meantime, research has identified numerous other factors that can influence audit risk and thus expand the scope for assessing audit risk (Chang *et al.* 2008). However, the original, generic ARM still holds true today. The basic principles of the ARM are anchored in national and international standards of external auditing (including German IDW Standard 261, international IAASB ISA-Standards 200 and 315) as well as in professional guidelines for Internal Auditing

(including Standard 2120 and Implementation Guideline, the content of the world's leading auditing examination for Certified Internal Auditors of the global Institute of Internal Auditors [IIA] and relevant basic literature). It can be seen from the given national and international standards that they, and thus also the ARM, are applied both in the External Auditing environment and in Internal Auditing. This can be explained, among other things, by the fact that the approach of both professional groups is homogeneous, as it is risk-oriented, even though the auditing focus (i.e., statutory audit of annual financial statements versus internal assessment of a matter) is different, but can also be the same (e.g., audit of inventories or consulting on process optimization). In this respect, there is nothing to be said against, but on the contrary, much to be said in favor of adapting the ARM to Internal Auditing.

2.3 Adaption of the ARM to Internal Auditing

In the ARM, the auditor, or in this case the Internal Auditor, can only influence the audit risk to a limited extent (cf. Table 2 in the Appendix). The most likely way to influence the audit risk with appropriate audit quality (e.g., personnel capacity, training budget, technical equipment, support of top management) is to directly determine the Detection Risk and to ensure, at least indirectly, an effective ICS and thus a low control risk by Internal Audit as the "third line" of corporate governance. Typically, in the "Three Lines Model" (previously "Three Lines of Defense Model"), Internal Audit is responsible for the third line or pillar in corporate governance (IIA 2020). Unfortunately, the Inherent Risk can only be estimated by Internal Audit, but cannot be influenced, since this risk depends either on the company level (e.g., industry, macroeconomic conditions) or on the audit level (e.g., complexity and error-proneness of a process). Practically, the construction industry and project management have normally a higher IR as the highly regulated financial industry.

Despite various limitations of the ARM (cf. Marten *et al.* 2015), it should be noted that the model is fundamentally suitable for making reliable trend statements regarding the strength of different audit risks. The

combination and aggregation of the three sub-risk categories, each with its own risk characteristics, inevitably leads to a higher or lower audit risk, as the case distinction in Figure 2 (cf. Appendix) shows by way of example. Even without mathematical precision, it is obvious that company A has a significantly lower audit risk than company B because:

- Inherent Risk is lower at company A (e.g., a bank institute instead of a retail company, stable and documented processes instead of a few process specifications),
- Control Risk is lower at company A (e.g., strongly implemented management controls instead of sporadic controls) and
- Detection Risk is lower at company A (e.g., well qualified, experienced audit team instead of a single unexperienced "lonely" auditor with no audit plan).

Thus, the Internal Audit function in company A is qualitatively better and more effectively positioned as a "third line" than the young auditor lone auditor in company B. The audit function in company B is more effective as a "third line".

2.4 Hypothesis about the change in audit risk before and after COVID-19

Recently, it was reported about a large nationwide passenger and freight transportation company in Germany that the following was found: prior to the pandemic, passengers received cab and hotel vouchers in the event of delays. The vouchers were always issued in the service center on a four-eyes principle. Surprisingly, the number of vouchers increased dramatically during the pandemic period, even though passenger traffic and the associated risk of delays were declining sharply. Why? Checks revealed the reason for this. During the pandemic period, staffing levels in the service centers had been reduced to cut costs, so that the vouchers could now only be issued by one person, i.e., on a two-eye principle. Cab companies, for example, received blank vouchers that they could then fill in as they wished and bill accordingly. This is a practical example of an increased control risk with fraudulent exploitation. If processes are changed without promptly adapting the existing effective internal controls, this

inevitably leads to a weakening of the ICS and thus to an increase in fraud-favoring "opportunity" (in addition to personal justification and individual pressure, basic components of the so-called "Fraud Triangle"). Table 3 (cf. Appendix) describes the presumed COVID-19-related changes in audit risk within the framework of the ARM and evaluates their tendency. Each sub-risk has an increasing "COVID-19 impact", which is why the audit risk is likely to have risen sharply in a holistic view. The main drivers of the higher audit risk are the decentralization and digitalization of workplaces because of home offices and short time working, the thinning out of the ICS due to declining operational management controls, the weakening of the audit function because of the shutdown of audit operations in connection with remote auditing and less audit evidence due to less firsthand information. Experience has shown that audit evidence obtained by the Auditor himself ("direct inspection and observation") has the highest probative value (ECA 2021). The contents of Table 3 were developed within the framework of the ARM based on literature sources and a series of discussions between the author and audit colleagues and experts from the financial sector. With reference to the ARM ($AR = IR \times CR \times DR$), audit risk (AR) increases when one or more sub-risks increase while no sub-risk decreases. This is derived as a model in Table 3 about the audit risk of Internal Auditing for the period before and after COVID-19. In this respect, the following hypothesis can be formulated because of the ARM:

H: The audit risk of Internal Auditing is higher after COVID-19 than before.

The validity of this hypothesis was afterwards examined empirically by means of a survey of audit experts (cf. chapter 3).

3. Methodology

Let us now turn to answering the research question posed at the outset from an empirical perspective. As part of the present work, around 50 audit experts from two long-established working groups were surveyed in July 2022 on their assessment of the audit risk before and after COVID-19. A standardized questionnaire with five questions was used (cf.

Appendix), which was sent to the experts by e-mail after oral presentation in the working groups.

The two survey panels were the Rhine-Ruhr area CIA working group of the German Association of Internal Auditors DIIR e.V. ("CIA-Arbeitsgruppe Rhein-Ruhrgebiet des DIIR") and the Düsseldorf IT auditors' and auditors' regulars' table ("IT-Revisoren- und Prüferstammtisch").

Based on seven responses, all of which were usable, the response rate was 14%. Even if this response rate seems low at first, the rate is still within the general average of comparable written surveys of "mostly between 10 - 20%" (paulusresult 2022). Moreover, the descriptive data of the survey show a balance of important parameters such as industry, company size, internationality, etc. Furthermore, according to Bischoff (1995), the response problem becomes less important the more homogeneous the groups surveyed (e.g., special cross-sections by occupational groups). Therefore, the high professional homogeneity of the two panel groups surveyed (i.e., Internal Auditors and Audit experts) also compensates for the rather small response rate in absolute terms, so that the survey results can be regarded as valid, representative, and thus generalizable.

4. Research results

The individual evaluations of all five survey questions can be found in the "Aggregated results of the expert survey on audit risk" (cf. Appendix). The following survey findings can be summarized as main results:

1. The majority of experts are of the opinion that the audit risk of Internal Auditing has increased in the COVID-19 period (57.1%) and will increase further by 2025 (55.6%).
2. The successive increase is mainly due to the rise in various developments that increase the Inherent Risk, such as decentralization through home offices and a distance from work (20.8%) and increasingly specific, complex, and confusing industries (12.5%). But the risk of detection is also increasing due to a presumed decline in the audit efficiency of Internal Auditing (20.8%). The Control Risk could also increase if the internal controls are not

sufficiently adapted to the digital processes, which would reduce the effectiveness of the ICS (16.7%).

3. In the view of the experts, Internal Auditing must respond promptly to the sub-risks that it can influence indirectly or directly, including reducing the Control Risk with more awareness of ICS among all staff (44.4%) and with a critical inventory of all internal controls (33.3%), as well as reducing the Detection Risk with more qualification and more on-the-job training (37.4%) and more budget for Internal Auditing (18.7%).

The present findings point predominantly in one direction, even if this cannot be quantitatively substantiated at present. However, especially the opinions of the Internal Auditing experts surveyed suggest an increased post-pandemic audit risk with a tendency to further increase by 2025 and with that a confirmation of the working hypothesis posed.

The literature review (cf. chapter 2.1) does not provide a clear picture of the experts' opinions on audit risk, as changes in the audit risk of Internal Auditing have not yet been included in the scope of the research, neither qualitatively nor quantitatively. But even here, the study results suggest that an increase in audit risk is being considered when, for example, according to a study by the Canadian IIA chapter, 69% of the audit experts surveyed said that they wanted to increase the frequency of risk assessments of the audit environment because of the developments of COVID-19 (IIA / Canada 2020).

5. Discussion

What must Internal Auditors do now to take account of the increased audit risk? Since it can only influence the Control and Detection Risk to a limited extent, the following selected measures are recommended for further discussion:

- Control Risk can be reduced by strengthening the ICS, including through:
 - supporting operational departments in post-pandemic risk adjustment of management controls and in the implementation of ICS structures (e.g., according to COSO),

- increasing the frequency of ICS audits,
 - focusing on operational IT security in the home office environment preventing cybercrime and
 - pushing again for more personal presence in business operations (in the office, presence meetings and trainings, etc.).
- Detection Risk can be reduced by strengthening the audit function, including through:
- reorienting Internal Audit to the "post-COVID-19" risk landscape ("post-COVID-19 Audit Universe"),
 - professionalizing remote auditing, both in terms of communicative efficiency and in terms of obtaining evidence (more corroborative evidence),
 - providing qualification of all Internal Auditors with professional certificates such as CIA, CISA, CFE with more focus on digitalization and IT topics,
 - increasing the effectiveness of the auditing function through appropriate quality assessments and systematic peer reviewing and
 - increasing professional and personal requirements for Internal Auditors: communication, cybersecurity, data analysis, health and safety, innovation and change, and risk management (IIA / Canada 2020).

Even if only various risk-reducing measures can be presented here, the fundamental orientation of Internal Auditing after COVID-19 should become apparent. Accordingly, the current and, above all, the future audit function should become even more risk-sensitive and technically better than in pre-pandemic times. In addition, it should become faster – analogous to the precision of a seismograph – in its ability to recognize changing risk situations at an early stage to be able to react to them immediately. The Internal Audit function is an essential component of corporate governance. Its positioning as the "third line" expresses the specific importance of Internal Auditing, as it is the last (and thus most important) of the three governance lines responsible for the effectiveness of individual control steps and entire ICSs. However, auditing responsibility also includes preventing fraudulent attacks as well as providing expert support in crisis

situations. By adopting its own risk-oriented approach, Internal Audit can respond quickly, flexibly, and agilely to changing business environments, including crises and unforeseeable events such as the COVID-19 pandemic.

Internal Auditing, which can certainly not be a control technology panacea and not a "self-sustaining ICS lollipop", has hardly any influence on this general development, apart from the appropriate organizational design of its own auditing function and the implementation of an ICS that is as effective as possible in the respective company. In this respect, Internal Auditing can only act as a "preferably seismographic flexible adaptor" about future corporate governance and the risks inherent in it, but also the external risks. This permanent readiness to adapt on the part of Internal Audit also includes permanent observation and assessment of audit risk and the three sub-risks, both at the level of the Audit Universe and of the individual audit. The better Internal Audit can fulfill this role as a "risk seismograph" in the future, the more effective and successful it will be.

In this context, it would certainly be very welcome if the topic of changing audit risk could be brought more into the focus of science and research. A "methodically clean" quantification of the three sub-risks in the ARM (i.e., IR, CR, DR), a survey of Internal Audit experts about audit risk that is as comprehensive as possible, and the development of an appropriate package of measures for Internal Auditing would be of particular interest in this regard.

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Appendix

Aggregated results of the experts' survey on audit risk

Descriptive Data

Survey period:	July 2022
Population:	approx. 50 Internal Audit Experts
Usable response rate:	7
Questionnaire responses by:	Internal Audit Management (4)
	Internal Auditor (2)
	Other / Consulting (1)

Company Sample	Key Figures (n = 7)										
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Staffing level of Internal Audit department	<table> <tr> <td>1-3:</td> <td>2</td> </tr> <tr> <td>4-9:</td> <td>2</td> </tr> <tr> <td>10-20:</td> <td>1</td> </tr> <tr> <td>>20:</td> <td>1</td> </tr> <tr> <td>not specified:</td> <td>1</td> </tr> </table>	1-3:	2	4-9:	2	10-20:	1	>20:	1	not specified:	1
1-3:	2										
4-9:	2										
10-20:	1										
>20:	1										
not specified:	1										

Question 1: Has the respective sub-risk of the audit risk changed since pre-COVID-19 (pre-2020)? (n = 7)

Change	Inherent Risk (IR)	Control Risk (CR)	Detection Risk (DR)	Sum of Mentions absolute	Share (n from 7)
smaller than pre-COVID-19	0	0	0	0	0.0%
equal to pre-COVID-19	3	3	3	9	42.9%
greater than pre-COVID-19	4	4	4	12	57.1%
Summe	7	7	7	21	100.0%

Question 2: What could be the reasons for this change in risk? (n = 7, multiple answers possible)

Change	Mentions	Share
corruption has increased	2	8.3%
industries are becoming more specific, complex, and confusing	3	12.5%
decentralization / home office and distance from work (processes, functions)	5	20.8%
digitalization and automation of processes	2	8.3%
Internal Auditing is less motivated	1	4.2%
Internal Auditing is more motivated	0	0.0%
training level of Internal Auditors has increased	0	0.0%
training level of internal auditors has decreased	0	0.0%
internal controls are well adapted to digital processes	0	0.0%
internal controls are not sufficiently adapted to digital processes	4	16.7%
Audit efficiency of Internal Auditing decreases (e.g., fewer audits, longer audits)	5	20.8%
disruptive emergence of new risk areas not previously "on the radar screen" (e.g., almost universal lockdown, increasing disruption of supply chains, zero-covid strategy in China, etc.)	1	4.2%
globalization / outsourcing of the administrative function abroad and thus increased inefficiencies and risks in the implementation of the new processes	1	4.2%
Total	24	100.0%

Question 3: Will the respective sub-risk of the audit risk after COVID-19 (2022) change by 2025? (n = 6; one respondent was unable to give an estimate)

Change	Inherent Risk (IR)	Control Risk (CR)	Detection Risk (DR)	Sum of Mentions absolute	Share (n from 7)
smaller than post-COVID-19	1	1	2	4	22.2%
equal to post-COVID-19	1	2	1	4	22.2%
greater than post-COVID-19	4	3	3	10	55.6%
Total	6	6	6	18	100.0%

Question 4: Does Internal Auditing need to respond to the current situation in any way? (n = 7)

yes / no	Inherent Risk (IR)	Control Risk (CR)	Detection Risk (DR)
yes	not influenceable by Internal Auditing	5	7
no	not influenceable by Internal Auditing	2	0
Total		7	7

Question 5: If the 4th question was answered in the affirmative, how must Internal Auditing respond to the current situation? (n = 7, multiple answers possible)

Control Risk	Mentions	Percentage
critical inventory of all internal controls	3	33.3%
more ICS audits	1	11.1%
more sensitization of the entire staff for ICS	4	44.4%
due to new risk areas, those responsible for operations must conduct a fundamentally new risk analysis of the entire ICS and sharpen the ICS and controls accordingly	1	11.1%
Total	9	100.0%

Detection Risk	Mentions	Percentage
more qualification and on-the-job training on the Job	6	37.4%
more budget for Internal Auditing	3	18.7%
more quality assessment (possibly mandatory)	2	12.4%
return to on-site audits, possibly supplemented by pre-remote audits	1	6.3%
Internal Auditing must carry out the entire risk assessment again, specifically searching for new risk areas ("mine search") to then contribute actively to sharpening the ICS accordingly	1	6.3%

more on-site audits	1	6.3%
show presence	1	6.3%
expand IT skills (digitalization)	1	6.3%
Total	16	100.0%

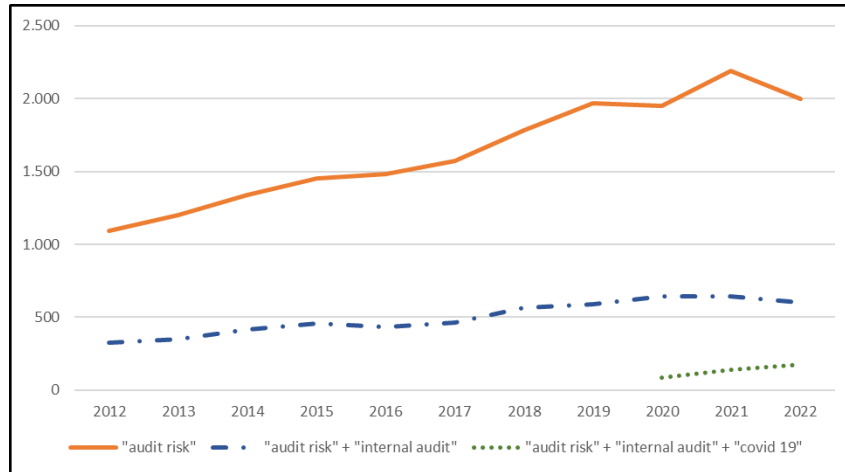


Figure 1. Hits in Google Scholar 2012 - 2022
 Source: Author's research (data as per 3 January 2023)

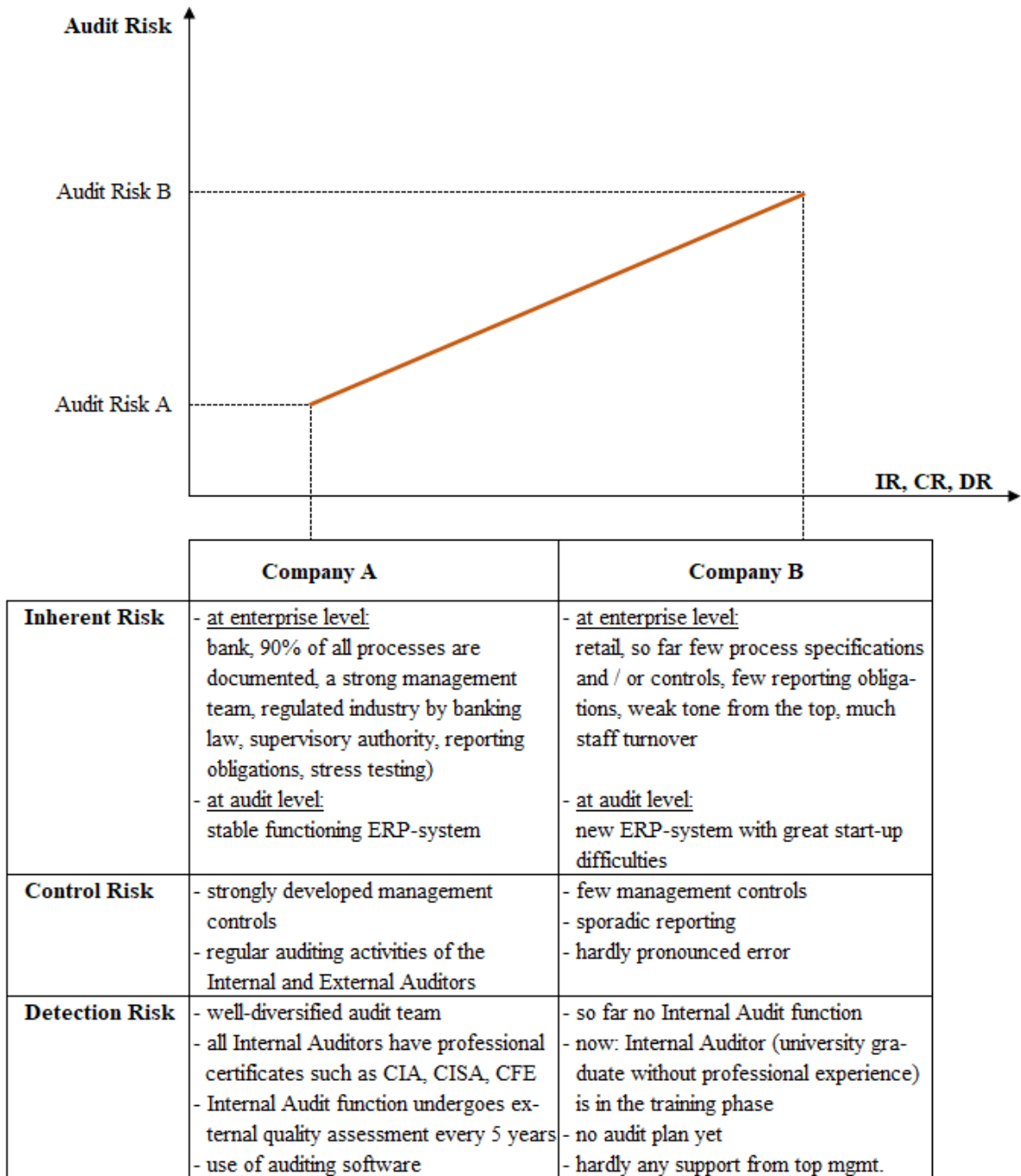


Figure 2. Exemplary audit risk constellations
 Source: Author's presentation

Table 1. Literature sources on the audit risk of Internal Audit while COVID-19

No.	Type of Source (extent n)	Title	Authors	Year	Essential Arguments
1	Study (n = 738 CAEs from 12 European IIA chapters).	Risk in Focus. Hot topics for Internal Auditors	ECIIA	2022	<ul style="list-style-type: none"> - it is important to evaluate current risks in order to avoid a gap between new risks and budgeted audit resources - it is urgently necessary to quickly build up know how in the direction of the changed risk situation
2	Conceptual Essay	Internal Audit in Times of Crisis: The Case of COVID-19	Çaglayan / Kiral	2022	<ul style="list-style-type: none"> - according to COVID-19, the audit function should support management in aligning corporate governance with risks and crises
3	Research paper (n = 237 Internal Auditors in Germany)	Evidence on Internal Audit Quality from Transitioning to Remote Audits because of COVID-19	Eulerich et al.	2022	<ul style="list-style-type: none"> - equal effectiveness of face-to-face and remote audits during the pandemic period - COVID-19-induced remote auditing has no negative impact on audit quality (audit risk) - increasing effectiveness of remote audits as Internal Auditors become more experienced in remote auditing
4	Research paper (n = 39 revision experts from Serbia)	Internal Audit in the COVID-19 Environment: Key Aspects and Perspectives of Remote Auditing	Kljajić et al.	2022	<ul style="list-style-type: none"> - 46.1% of the respondents estimated the quality of the audit work to be the same as before the pandemic, 38.5% estimated it to be higher and 15.4% estimated it to be lower than before the pandemic
5	Study (n = 631 Audit Experts from 24 countries)	Fraud and the Pandemic – Internal Audit stepping up to the challenge	Weitz / IAF / Kroll	2022	<ul style="list-style-type: none"> - since the start of COVID-19, fraud has increased in 71% of companies surveyed, including cybercrime (+54%) and property crime (+12%)
6	Study (n = 1.956 worldwide Experts from Finance profession, Internal and External Auditing)	Internal Control and the Transformation of Entities	ACCA / IAF / IMA	2022	<ul style="list-style-type: none"> - the pandemic has led to many challenges in companies - Phishing attacks have increased by 231% since COVID-19 began - 28% of respondents said hybrid working has made internal controls more challenging since COVID-19 began
7	Conceptual Essay	Die Interne Revision im Fraud Report 2022. Aktuelle empirische Befunde zur weltweiten Fraud-Situation legen eine steigende Anti-Fraud-Wirksamkeit der Internen Revision nahe	Westhausen	2022	<ul style="list-style-type: none"> - with reference to the anti-fraud function of Internal Auditing, the question is raised as to what extent the COVID-19-induced decentralization and digitalization of the world of work has increased the audit risk of Internal Auditing and may also increase it further, particularly regarding the inherent risk and the control risk in the audit risk model

8	Combination of different studies (different populations)	The Remote Auditor – Challenges, Opportunities, and new Ways of Working	<i>IAF / Audit Board</i>	2021	<ul style="list-style-type: none"> - the pandemic has led to many difficulties and challenges in companies - most respondents assume that Internal Auditing will predominantly continue "the hybrid experiment" as "normality" after COVID-19 (tendency towards more and more remote working)
9	Study (n = 30 CAEs from DAX 30-corporations)	Prüfen nach Covid-19. Ein Statusbericht aus der Prüfungspraxis der DAX 30 Unternehmen	<i>DIIR</i>	2021	<ul style="list-style-type: none"> - most DAX 30 auditors will in future perform hybrid audits, with as much digital and remote auditing as possible, supplemented by selective presence audits (= target operating model of Internal Auditing) - presence audits only selectively if they are necessary for reliable assurance
10	Research paper (n = six international External Audit companies of Jordan)	The Impact of the Coronavirus Pandemic on Auditing Quality in Jordan	<i>Abu Saleem</i>	2021	<ul style="list-style-type: none"> - regarding <u>Internal Auditing</u>, it is stated: - the lack of "face-to-face interaction" with the audited side and the resulting lack of direct access to audit information has [negative] effects on audit quality - regarding the process of <u>External Auditing</u>, it is stated: - Auditors are subject to the high risk of a faulty audit opinion due to limited or even missing audit evidence because of COVID-19
11	Study (n = 95 Audit Experts from science and practice from Egypt)	Remote Auditing: An alternative Approach to face the Internal Audit Challenges during the COVID-19 Pandemic	<i>Serag / Daoud</i>	2021	<ul style="list-style-type: none"> - There is a predominant opinion that remote auditing is the same as traditional auditing, only with electronic means.
12	Conceptual Essay	Remote auditing for Internal Auditors. Adjusting to the 'new normal'	<i>KPMG</i>	2020	<ul style="list-style-type: none"> - equal effectiveness of face-to-face and re-mote auditing during the COVID-19 period - presumption that remote auditing could possibly replace presence audits
13	Study (n = 486 CAEs from the U.S. and Canada)	COVID-19: Longer-term Impact on Internal Audit – Focus on Canada. Survey results about budgets, audit processes, and competencies	<i>IIA / Canada</i>	2020	<ul style="list-style-type: none"> - 69% of Canadian and 50% of U.S. audit departments will increase the frequency of their "Internal Audit Risk Assessments"
14	Study (n = 228 Internal Auditors from Germany, members of the German Institute of Internal Auditing DIIR)	Remote-Auditing: Chancen und Herausforderungen von Remote-Audits	<i>DIIR</i>	2020	<ul style="list-style-type: none"> - reduction of assurance or effectiveness of audit reviews - lack of on-site witnessing (e.g., informal communication, lack of walk-through, limited verifiability of information)

Source: Author's research (data as per 3 January 2023)

Table 2. Comparison of the sub-risks of audit risk

Audit Risk			
Criteria	Inherent Risk (IR)	Control Risk (CR)	Detection Risk (DR)
Description	risk that material errors or damages occur under the assumption that there are no internal controls	risk that material errors are not prevented by existing internal controls (i.e., weak, or ineffective ICS)	risk that identifiable errors or ineffective controls are not detected by Internal Auditing due to its poor audit quality
Dependence of the Risk	depending either on the company level (e.g., industry, macroeconomic conditions) or on the audit level (e.g., complexity and error-proneness of a process)	depending on the degree of implementation of strong corporate governance (e.g., functioning "Three Lines," strong tone from the top)	dependent on the professional and personal level as well as on the framework conditions of Internal Auditing (e.g., personnel capacity, training budget, technical equipment, support of top management)
Practical Examples	construction industry and project management have a higher IR and the highly regulated financial industry has a lower IR	operational management controls all core processes via key performance indicators and controls, which are regularly reviewed, and the results reported on	audit personnel with one year of professional experience should audit highly complex financings
Influenceability by Internal Auditing	can only be estimated by Internal Auditing, but cannot be influenced by it	indirectly influenceable by Internal Auditing (e.g., through regular ICS audits, strong follow-up)	directly influenceable by Internal Auditing (e.g., through quality assessment, CIA exams)

Source: Author's presentation

Table 3. Presumed change in audit risk due to the "COVID-19 Impact"

Audit Risk	Inherent Risk (IR)	Control Risk (CR)	Detection Risk (DR)
<p>The audit risk is increasing because all sub-risks have risen.</p>	<p>The following selected factors are of a cross-industry, generic nature, which can influence both the enterprise level and the audit level:</p> <p>Lockdown, digitalization, home office, short-time work, etc. led, among other things, to</p> <ul style="list-style-type: none"> - digitized, partly automated work processes - spatial and mental distance from the workplace - anonymization - loss of trust - increasing risk of error - security gaps (e.g. IT-security in the home office) and cybercrime - an "internal blame allocation" to be disadvantaged by COVID-19 (= potential justification for fraudulent e.g., worktime fraud in the home office) 	<p>Due to the pandemic, numerous processes were changed without adjusting the corresponding ICS accordingly, which weakened the ICS effectiveness.</p> <p>In addition, there were selected developments such as:</p> <ul style="list-style-type: none"> - thinning of management controls, partly replaced by video conferences from the home office - predominantly or finally remotely managed audit operations - temporarily complete discontinuation of auditing operations - decrease in acceptance of governance functions ("Three Lines") with the argument that now "the machine must be kept running" and "controls must wait!" - no involvement of Internal Auditing in COVID-19 crisis teams 	<p>The conditions for qualitative auditing work deteriorated during the pandemic period.</p> <p>Factors included:</p> <ul style="list-style-type: none"> - shutdown and partial discontinuation of the auditing operations - lack of eyewitness of the auditor and thus less "audit evidence" due to the dominance of remote auditing with weaker evidence - less qualification for remote auditing and / or no exchange of specific auditing know-how (i.e., fewer team audits, less circles of professional experts to share working experiences, fewer seminars)
<p>Audit Risk increase medium to high</p>	<p>Risk increase high</p>	<p>Risk increase medium</p>	<p>Risk increase medium</p>

Source: Author's presentation