

**Charles University in Prague**

Faculty of Social Sciences  
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MASTER'S THESIS

**Response by Czech Auditors and Audit  
Regulators to the Financial Crisis**

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## Declaration of Authorship

The author hereby declares that she compiled this thesis independently; using only the listed resources and literature, and the thesis has not been used to obtain a different or the same degree.

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Prague, May 11, 2016

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Signature

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## Abstract

Auditors play an important role in the reliability of financial statements. Many investors and other financial information users rely on their opinion. During the financial crisis, auditors were criticised since they did not warn the markets about financially distressed companies. In our thesis, we examine whether auditors change their behaviour during a financial crisis. Using our collected data for joint stock companies in the Czech Republic, we focus on frequency of modified and going concern opinions, amount of audit and non-audit fees charged by auditors, and audit reporting lag. Our audit fees model showed that there were significantly lower audit fees after the crisis than during the crisis years. The results also suggest that both Big 4 and non-Big 4 auditors increased their frequency of issuing modified opinions (most of which were going concern opinions) during the crisis period. In our logit going concern models for the individual years we observed change of the auditors' behaviour during the crisis years 2008-2010. We have also found out that Big 4 auditors increased their audit reporting lag in 2008 but our overall results suggest that the audit reporting lag was shorter during the crisis.

**JEL Classification**

M42

**Keywords**

Audit in the Czech Republic, auditor behaviour, financial crisis, going concern opinion, audit fees, audit reporting lag

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## Abstrakt

Audítori sa významne podieľajú na spoľahlivosti finančných výkazov. Investori a ďalší užívatelia finančných informácií sa spoliehajú na ich výrok. Počas finančnej krízy boli audítori kritizovaní, pretože nevarovali finančné trhy pred firmami s veľkými finančnými problémami. V našej práci skúmame, či audítori zmenili svoje správanie počas finančnej krízy. Používame naše zozbierané data pre akciové spoločnosti v Českej republike a zameriavame sa na modifikované výroky audítorov (hlavne na výroky, ktoré spochybňujú nepretržité trvanie spoločnosti), na poplatky audítorov za audítorské i neaudítorské služby a počet dní od konca finančného roku po dátum vydania správy audítora. Naš model na audítorské poplatky ukázal, že po finančnej kríze boli výrazne nižšie audítorské poplatky ako počas finančnej krízy. Výsledky tiež ukazujú, že firmy Veľkej Štvorky aj ostatní audítori zvýšili frekvenciu vydávania modifikovaných výrokov (z ktorých väčšina boli výroky spochybňujúce nepretržité trvanie spoločnosti) počas finančnej krízy. Naše logitové modely na audítorské výroky pre jednotlivé roky ukázali zmenu správania audítorov v rokoch finančnej krízy 2008-2010. Zistili sme tiež, že audítori Veľkej Štvorky zvýšili počet dní od konca finančného roku spoločnosti po vydanie ich audítorského výroku v roku 2008, avšak celkové výsledky skôr naznačujú, že audítori znížili počet dní do vydania výroku počas finančnej krízy.

**Klasifikácia**

M42

**Kľúčové slová**

Audit v Českej republike, správanie audítorov, finančná kríza, modifikovaná správa audítora, poplatky za audit, doba trvania auditu

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# Acronyms

CR Czech Republic

EoM Emphasis of Matter

GC Going Concern

GFC Global Financial Crisis

IAASB International Auditing and Assurance Standard Board

ISA International Standards on Auditing

PIE Public Interest Entity

# Master's Thesis Proposal

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<b>Defense Planned:</b>	June 2016

## Proposed Topic:

Response by Czech Auditors and Audit Regulators to the Financial Crisis

## Motivation:

Auditors play a crucial role in reliability of financial statements. They cannot provide an absolute assurance that the financial statements are without a material misstatement but they should perform audit with certain level of professional scepticism. As it was seen in the Lehman case, auditors neglected their duty of scepticism, therefore no correct financial situation of the institution could have been determined. During the crisis, auditors were criticised mainly because of their failure to warn the markets about financially distressed institutions.

The Green Paper on Audit Policy was published by the Commission after the global financial crisis with the aim to restore the market's stability. The audit together with a corporate governance and supervision is believed to play a key role in establishing market confidence and ensuring financial stability. In November 2011, the Commission issued a new audit directive proposal in which they focus mainly on the role of the auditor, the independence of audit firms, the supervision of auditors or international co-operation for the supervision of global audit networks.

In my thesis, I would like to examine the impact of the global financial crisis (GFC) on auditors' behaviour in the Czech Republic similarly to what Xu et al. (2013) did for Australia. Using a sample of about 600 Czech joint stock companies, I will examine whether the GFC increased the effort of auditors which should be reflected in the audit fees and audit reporting lag. Moreover, I will test whether the GFC had impact on a propensity of the auditors to issue going concern opinions. Auditors issue a going concern opinion when the financial situation of the firm reaches a situation where there is a doubt about its ability to continue as a going concern.

## Hypotheses:

1. Hypothesis #1: Auditors are more likely to issue going concern opinions during the GFC period compared to the non-crisis period.
2. Hypothesis #2: Auditors obtain higher audit fees during the GFC period compared to the non-crisis period.
3. Hypothesis #3: The audit reporting lag is longer during the GFC period compared to the non-crisis period.

## Methodology:

Auditors have two options how to manage higher audit risk in a short time. Either

they can issue modified reports or they can increase their audit effort. I will test both these approaches in my research.

H1: To test this hypothesis I will use a probit model similarly to Xu et al. (2013) in which the dependent variable will be a potential going concern opinion. I will examine which variables including financial ratios of the firm are significant for issuing a going concern opinion by auditors. I suppose that variables of interest (crisis years 2008 and 2009) will have positive and significant effect on the dependent variable. I will also provide a statistics of modified opinions in the years 2006 – 2014 to support (or reject) my hypothesis that there is higher percentage of going concern opinions during the crisis than in the non-crisis period.

H2: Auditors are expected to increase their level of professional scepticism when there is a period of higher risk. During the crisis there is also a greater risk of audit failure and a higher potential of reputational damage. Therefore, I suppose that audit companies want to review the financial statements of the companies more rigorously and ask for higher audit fees for their services. I will adopt a model used by Ferguson et al. (2003) or Xu et al. (2013) based mainly on the financial ratios of the companies. To support the hypothesis, variables of interest 2008 and 2009 should be again positive and significant.

H3: Audit reporting lag is measured as the number of days between the financial year end and the date when auditor signs an audit opinion. Similarly, as in previous hypothesis, I assume that auditors perform more profound analysis of the financial statements during the GFC which implies that they should spend more time on the client. To test this hypothesis, I will use the audit reporting lag model similar to the one used in Xu et al. (2013). If auditors postpone the date of issuing an opinion, we expect the variables 2008 and 2009 to be significantly positive.

I will prepare my own data set for this analysis which will be composed of:

- financial characteristics of selected companies during the period 2006 – 2014,
- audit statistics of the companies; I will assign a name of the auditor, audit fees and a type of auditor's report to companies according to the information from companies' annual reports

I will use several sources to gain this information:

- MagnusWeb database
- website of Ministry of Justice [www.justice.cz](http://www.justice.cz)
- companies' websites

#### **Expected Contribution:**

The aim of my research is to find out how the auditors in the Czech Republic change their behaviour with the increased audit risk. The recent global financial crisis is an appropriate period for this research. There have been several similar studies on this topic for other countries but this would be the first one for the Czech Republic. In the previous research by Xu et al. (2013) or Chen and Zhang (2012) we can see that auditors change their behaviour during the crisis. In both these studies, the results suggest that auditor fees are higher during the financial crisis. However, there are quite different results in probability of issuing modified opinions in these studies. Chen and Zhang (2012) reject their hypothesis that auditors are more likely to issue going concern opinions during the crisis. They conclude that risky clients are less likely to be accepted by auditors or if the acceptable audit risk level cannot be reached, auditors leave their clients voluntarily. Their results suggest that loss firms

have significantly higher auditor turnover. On the other hand, Australian auditors respond conservatively to protect themselves from a higher risk because regulatory requirements make it difficult for auditors to resign from their clients in the short term. Due to different results in these studies, I wonder how it works in the Czech Republic and I would like to contribute to the debate about how auditors in different countries respond to the crisis period.

This study can be used by audit regulators in the Czech Republic when amending the law about auditors, it might help in transposing the European Union audit directives into the Czech law, or together with the results of other countries it could be useful for the European Commission when issuing new audit directives. It is important to recover auditors' reputation, to enhance the effectiveness of audit as well as to ensure that the auditors will manage risky periods with adequate level of professional scepticism.

#### Outline:

1. Motivation – why are the auditors' reports important?
2. Literature review
3. Role of auditors in the financial crisis
4. Changes in audit regulation after the crisis
5. Methodology and data
6. Testing hypotheses and their results
7. Comparing the results with other countries
8. Conclusion

#### Core Bibliography:

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# 1 Introduction

Statutory auditors play an important role in the economy. They control the companies' financial statements and provide information to investors and shareholders whether the companies' accounts are accurate and reliable. Many individuals and institutions rely on the results of such an audit, therefore it contributes to the systematic functioning of the markets. There is a legal requirement for certain types of companies to have their accounts audited and only registered and approved auditors can carry out the statutory audit.

Auditors cannot give absolute assurance that financial statements are without material misstatement but they should perform audit with certain level of professional scepticism. During the financial crisis, the auditors were under pressure because of a higher business risk and potential bankruptcy of many large companies. In a lot of cases, the auditors did not predict the financial problems of their clients who bankrupted or had to be bailed out within a few months after obtaining an unmodified opinion. The auditors were criticised mainly because of their failure to warn the markets about financially distressed institutions.

Therefore, there have been efforts to enhance the quality and effectiveness of audit work since the financial crisis. The European Union issued several recommendations, regulations and green papers so that the situation from the financial crisis would not happen again. The most recent Directive (2014/56/EU) of the European Parliament and of the Council aims at restoring investor confidence in financial information and audit opinion. It increases the informational value of the audit report for investors and shareholders and improves the auditors' independence. It is important for the stable financial markets to recover the auditors' reputation, to enhance the effectiveness of an audit, and to ensure that the auditors will manage risky periods with an adequate level of professional scepticism.

The objective of this thesis is to find out how the auditors in the Czech Republic change their behaviour with the increased audit risk. The recent global financial crisis is an appropriate period for this research. There have been several similar studies on this topic for other countries but this would be the first one for the Czech Republic. In the previous research by Xu et al. (2013) or Chen and Zhang (2012), we can see that auditors change their behaviour during the crisis. In both these studies, the results suggest that audit fees are higher during the financial crisis. However, there are quite

different results of probability of issuing modified opinions in these studies. Chen and Zhang (2012) reject their hypothesis that the auditors are more likely to issue going concern opinions during the crisis. On the other hand, Xu et al. (2013) observe that Australian auditors behave more conservatively to protect themselves from a higher business risk because regulatory requirements make it difficult for them to resign from the clients in the short term. Due to different results in these studies, we want to find out how the auditors in the Czech Republic respond to the crisis and thus contribute to the debates about the auditors' behaviour in the period of a higher risk.

The thesis provides a unique analysis of the Czech audit market and Czech auditors' behaviour. To our knowledge, there has not been such a research performed before in the Czech Republic. It can be used by audit regulators in the Czech Republic when amending the law about auditors, it might help in transposing the European Union audit directives into the Czech law or together with the results of other countries it could be useful for the European Commission when issuing new audit directives.

The thesis is structured as follows: Chapter 2 discusses the literature on auditors' behaviour both in the Czech Republic and in other countries. Chapter 3 describes the role of auditors in the recent financial crisis. Chapter 4 covers the development of audit regulation in the European Union before and after the global financial crisis. Chapter 5 presents a data set used in our research. It is a unique data set on joint stock companies in the Czech Republic composed of collected audit data from annual reports and financial data from MagnusWeb database. Chapter 6 describes the methodology for our computations and regression models. Chapter 7 statistically analyzes the data from audit reports. Chapter 8 provides the results of our models and their comparison to other countries. Chapter 9 summarizes the main conclusions of the thesis and gives recommendations for further research.

## 2 Literature Review

The literature review consists of two different areas of research. Firstly, we provide an overview of the world literature which examines the auditors' behaviour and the investors' reaction during and after various financial crises. Secondly, the next part covers a Czech audit research which was very active mainly in the end of the 20<sup>th</sup> century.

### 2.1 World Literature

After the financial crisis many researchers started to examine if the period of higher audit risk changed the behaviour of auditors. To start with, Xu et al. (2013) examine the effects of the global financial crisis on auditors' behaviour in Australia. The GFC formed a challenging environment for the companies when international events impacted Australia and resulted in the problems with liquidity and funding. Auditors should increase their level of professional scepticism in the crisis period. The authors study three strategies on how to manage audit risk. The first one is that auditors can resign from risky clients, however, this option is difficult for the Australian auditors because of the regulatory requirements. Therefore, the authors focus more on the remaining two strategies: propensity to issue modified audit reports and a higher audit effort. They find the evidence that auditors use both of these strategies in the GFC. There was an increase in the propensity to issue modified opinions during the crisis period 2008-2009 compared to the pre-crisis period 2005-2007, and Big 4 auditors responded to the crisis earlier than non-Big 4 auditors. Xu et al. also found the evidence of higher audit fees during the period of 2008-2009 which indicates a higher audit effort. However, they found no evidence of the increase in number of days between the financial year end and the date of auditor's opinion. Nevertheless, the findings from this study suggest that auditors take the impact of the financial crisis into consideration, and thus provide useful and timely information for financial statement users.

There is a similar study on the auditor's reaction during the financial crisis by American researchers Chen & Zhang (2012). They expect a significant improvement of the efforts made by auditors as well as a higher probability that auditors will issue modified opinions during the crisis. While the first hypothesis is confirmed with the higher audit fees during the crisis (similarly as in the study of Xu et al. 2013), the



second hypothesis is rejected. The authors find that during the financial crisis auditors are less likely to issue modified audit opinions. It might be caused by the fact that riskier clients are less likely to be accepted by auditors, and if the adequate audit risk level cannot be reached, auditors leave their clients voluntarily. The results of their auditor turnover model suggest that loss firms have a significantly higher auditor turnover. This is another option of how to manage higher audit risk in the short time which was not possible in the Australian case due to regulations. Therefore, Australian auditors respond more conservatively to protect themselves from a high risk exposure by increasing their propensity to issue going concern opinions, and by additional audit effort.

Despite the severity of the Asian financial crisis, there were only a few studies testing the role of the auditors in influencing the earnings management of firms. The study of Chia et al. (2007) focuses on impact of the Asian financial crisis in Singapore, South-East Asian country, which has a relatively high quality of accounting standards and its legal and institutional framework was influenced by Britons. The auditors are able to restrict the earnings management activities of firms, which might add to the credibility and increase the quality of reported earnings (Krishnan 2003). Chia et al. examine the impact of audit firms on the earnings management of listed companies in the service sector. They expect an increased monitoring by stakeholders in the crisis period which puts pressure on managers to report more credible earnings. They also predict the auditors behave more conservatively due to a higher uncertainty in the economy, and the Big N auditors recognize and constrain earnings management of their clients to protect their reputation against a litigation risk. The results of the research are consistent with the hypothesis that Big N firms adopt a more conservative approach than non-Big N firms. There is no sign of a significant change in the earnings management of the non-Big N firms during the crisis, which suggests they provide a greater flexibility to their clients. The Big N companies with their ability to restrict earnings management of the firms might be useful for some types of clients. For instance, high-debt companies need the services of Big N auditing firms to increase the level of credibility of the financial statements to their creditors.

There is a similar research by Herrmann et al. (2008) about the impact of the Asian financial crisis on the conservatism of auditors, however, now the authors focus on a different country - Thailand. The purpose of their study is to examine conservatism in the firms audited by Big N and non-Big N companies during and after the crisis. The results agree with the previous study by Chia et al. (2007) that there was an increase in conservatism following the Asian financial crisis, and the Big N clients reported more conservatively than non-Big N clients. Conservative accounting requires

an anticipation of future losses before future profits, therefore, earnings are more sensitive to bad news than to good news. The authors found out that Big N clients were more sensitive to bad news than non-Big N clients, especially in the crisis period. However, firms with non-Big N auditors increased their conservatism in the post-crisis period when there was no significant difference between the conservatism of the firms with Big N and non-Big N auditors. It might be caused by adoption of the International Accounting Standards in 1999–2000 or by improvements in the accounting regulation and corporate governance in Thailand. For example, the crisis encouraged many Thai firms to focus more on the improved accounting techniques and better corporate governance to obtain support from international organizations such as the IMF, the World Bank, and the Asian Development Bank. The authors conclude that firms in Thailand, in general, reported more aggressively during the crisis and more conservatively after that.

The objective of the study by Krishnan & Krishnan (1996) is to extend the existing empirical models with economic trade-offs faced by auditors when making the opinion decision. Most of the factors representing trade-offs were not included in the previous studies on opinion decisions. The auditors face on one hand the costs of litigation or reputation risk when they fail to issue a modified opinion when it should be, on the other hand, there is a risk of losing a client if they issue a modification. The authors use a bivariate model to break down the probability of issuing a modified report into two parts: firstly, the probability that the client should receive a modified opinion based on the results of the audit, and secondly, the probability that the audit firm actually issues a modified opinion, given its belief that the client deserves such an opinion. The results of the study suggest that the risk of lawsuits, the relative importance of the client for the auditor, the degree of outsider ownership, and a future growth are all important factors for the decision making.

The team of Australian researchers Xu et al. (2011) investigated how an increased business risk during the crisis influenced the modification of audit reports in the period 2005–2009. They examined the frequency of several types of audit reports, mainly those related to the going concern probability. Auditors should assess whether the firm is able to continue as a going concern for the period of next twelve months from the current report. The lack of credit liquidity during the financial crisis can threaten the existence of many companies as they might have problems to raise new finance and continue running a business. The authors divide audit reports to three categories: unqualified, unqualified with an emphasis of the matter, and qualified. Emphasis of the matter is then divided into more categories, for example, significant uncertainty regarding the ability of the firm to continue as a going concern, and

significant uncertainty due to other reasons than going concern. The results show that there is a significant increase in the percentage of unqualified opinions with EoM from 12% during 2005-2007 to 18.4% in 2008 and even 22.3% in 2009. More than 90% of EoMs in the period of 2005-2009 are related to the going concern issues. The opinions usually emphasise losses or negative operating cash flows, delayed payments to creditors, and inability to obtain another financing. Moreover, both Big 4 and non-Big 4 companies increased the frequency of modified reports in the years 2008-2009, however, non-Big 4 auditors issued a higher percentage of modified opinions compared to Big N auditors. This might be explained by a different client base of these firms, that is, non-Big N firms have mostly smaller and riskier clients than Big N firms.

Audit Analytics (2015) collected the number of audit opinions containing going concern modifications during the period of 2000-2013 in the United States. This analytics has comparable results to the Australian statistics, i.e. the number of going concern opinions has increased in the crisis. In 2007 and 2008, when the crisis was the strongest in the United States, there were the highest numbers of going concern opinions in the whole 14-year period. After the crisis, the number of going concern modifications started to decrease and continued decreasing until 2013. Although this might seem positive, the conclusion cannot be done without further analysis. Out of 2532 companies with going concern opinions in 2012, 207 companies no longer exist, which is more than a decrease in the number of going concern opinions from 2012 to 2013. The number of improved companies which have a going concern report in one year and a clean report in the next year is the lowest in the last three years 2011-2013. This means that companies with going concern opinions continue to have problems. However, there were only 505 new going concern opinions in 2013, which is the lowest number since 2001, and 59% of these opinions were related to the recent IPOs. This might reflect the fact that auditors cannot fully predict the future for new companies with no history of records.

The study of Menon & Williams (2010) examines the reaction of investors to the going concern audit reports. They use a much larger sample than the previous studies, so their results have a greater informative value. They find, on average, a significant negative reaction of investors to the first going concern opinion. If the auditor refers to the financing problems of the firm, for example, difficulties with obtaining of new financing, the investors tend to react more negatively to these going concern opinions. The authors also focused on the restrictive debt covenants that require firms not to obtain a going concern report. Investors react more adversely to the firms that breach these debt covenants. Moreover, they find out that there is no reaction to the

going concern opinion in firms which have a very low level of institutional ownership, however, the reaction is negative when this level is high.

## 2.2 Audit in the Czech Republic

There are only a few studies examining the audit profession in the Czech Republic. To start with, the study of Seal et al. (1996) describes a gradual post-socialist development of an accountancy and an auditing profession in the Czech Republic. Unlike Poland which had a pre-war auditing profession, there was no such profession in Czechoslovakia before the Second World War. This difference remained also in the post-war period, even though both of these countries had a similar accounting system and a communist structure. Just before the Velvet Revolution, the government established a form of auditing comparable to the western countries' auditing. However, this auditing was not very professional since there was no formal audit education and no proper examination. Only after the revolution, the Union of Auditors drafted stronger laws on auditing. Between 1989-1992 an annual audit was compulsory only for the joint ventures with an international participation. The Union of Auditors, formed by the officials at the Ministry of Finance, helped prepare the Law on Auditors which was passed in October 1992. The law determined, for example, who can become an auditor, how are auditors regulated, and what are the requirements for an auditor independence. In that time, the public perception of the audit profession in the Czech Republic was quite mixed. Some people considered auditors as unskilled technicians, while some overestimated them and thought they can solve all the tax and accounting problems of the firms. After the Velvet Revolution, all the large accountancy firms came to Czechoslovakia to develop their business here as well as to support their international clients who set up the subsidiaries in the Czechoslovakia. Many shareholders of the major Czech companies preferred Big N auditors for their firms because they did not believe that the local accountants, trained under the old system, would be able to work with a "true and fair" view of accounts. Therefore, the same system as in the United Kingdom developed also in the Czech Republic - the Big N firms audit most of the large enterprises and the local firms audit smaller enterprises.

Another paper of Sucher & Zelenka (1998) analyzes the development of an audit role in the Czech Republic. The authors study some of the legislative changes related to audit before and after the Velvet Revolution in 1989. They also compare the Czech audit legislation with the German and UK legislations and focus on the aspects that influence development of the Czech audit. The comparison reveals that there are similarities between the Czech and UK regulations related to audit reports. It seems

that the UK legislation had a key influence on the Czech legislation at that time when the Law on Auditing was drafted. The Big N firms had another influence on audit development in the Czech Republic. It was examined that in the country without strong tradition of accountancy profession, the Big N firms might have a significant influence on the professional development (Garcia-Benau & Humphrey 1992). For instance, they were lobbying for the Czech Ministry of Finance and the Chamber of Auditors to change a part of the requirements in the auditing guideline. A comparison to the German and UK legislations also highlighted some inconsistencies and omissions in the Czech audit legislation which tend to happen when the legislation is drafted very quickly. What is more, the audit generally did not seem to be perceived as a tool for enhancing credibility of the financial statements. Many enterprises and government officials considered audit only as a legal necessity, however, there were some firms that used the Big N auditors to increase the credibility with international investors.

The study of Sucher et al. (1999) examines the image that local users have of Big N and other audit firms in the Czech Republic. They present the results of a questionnaire survey in which they asked the Czech financial executives what image they have of audit companies. Image plays an important role for auditors because their clients do not have many possibilities on assessing the quality of audit services. After 1989, when the Big N firms followed their overseas clients into the CR, each of the Big N firms chose a little bit different approach on how to set up a local office. Most, but not all of the former Big 6 firms, set up their own accountancy offices with a large number of expatriates initially involved in the firms. The authors found out that because of various approaches to establishing firms in the Czech Republic, there are differences in the image of each of the Big N firms. An image comparison of Big N and non-Big N firms shows that Big N firms are considered more international and better known, more modern, more organized, and more ambitious than non-Big N firms, however, with less understanding of the Czech context. Clients of the Big N firms are simply searching for different audit services than non-Big N firms offer. The results of the study conclude that there are substantial differences in the image of Big N audit firms compared to the local audit firms. Moreover, when the authors compared their results with other countries such as the UK or Spain, they found out that each of the Big N firms has a different image in each country.

Auditor independence is an inevitable feature for the credibility of audit profession. At the end of the 20<sup>th</sup> century, this independence was incorporated into the legislation of central and eastern European countries when these countries were preparing for their entry into the European Union. The study of Sucher & Kosmala-MacLulich

(2004) looks over the realisation of auditor independence in the Czech Republic and examines how the local culture can affect the understanding of this independence. The authors first analyse all the legal and professional regulations concerning auditor independence. After that they examine the situation by asking the auditors, regulators, and users of financial statements how they perceive the auditor independence. In majority of cases, the auditors answered that auditor independence is an economic issue, for example, relating to dependence on the client because of audit fees. Small audit firms are seriously concerned about non-payment of these fees. Therefore, the authors conclude that there is a particular understanding of the auditor independence, mainly as an economic concept in the immature legal environment, and that the socio-economic pressures and culture tend to outweigh professional integrity in the CEE countries.

From the recent research, there is a study by Pěkná (2011) examining the audit quality in the Czech Republic. There is no direct method on how to measure the audit quality, however, some proxy factors can be used. For instance, the size of an audit firm is considered as a proxy for audit quality. The large firms do not want to risk the loss of their reputation and they tend to be less influenced by management as they are not dependent on the fees from a single client. Therefore, the large audit firms are believed to provide a higher audit quality (DeAngelo 1981). It is hard to say whether it is true but Big N firms definitely have a better technological equipment than smaller audit firms (Frances & Yu 2009). They can also spend more money on the professional training of their employees (Boone et al. 2010). Pěkná in her study shows that the Big N companies have gradually developed their share in the Czech market and it reached 90% of Czech TOP 100 companies in 2008 (measured by revenues). There are several heterogenous and divided segments of the audit market in the Czech Republic with almost no intersection of the Big N firms' segment with the segment of individual auditors. Concentration on the overall audit market is not excessively over the accepted levels but there is a dominance of the Big N firms over the segment with large companies. The author also analyzed the cost of capital and the quality of audit but found no significant relationship between them. This is a contrast to the results of the foreign research which suggest that a better audit quality can reduce company's cost of capital. The difference might be caused by some specifics of the Czech market as well as by a unique data set composed of both listed and non-listed companies because there are not many listed companies in the Czech Republic compared to the most developed countries.

## 3 Role of the Auditors in the Recent Financial Crisis

### 3.1 Contribution of auditors to the financial crisis

During and after the global financial crisis, the auditors were highly criticised and accused mainly of failing to give a warning signal about the financially distressed companies. There were also other contributors to the crisis but auditors definitely had their role in it. As they neglected their duty of scepticism during the financial crisis, it was impossible for the supervisors to find out the actual situation of the financial institutions. It is the role of the auditors to give a going concern opinion if they have significant doubt about the company's ability to continue in its activity in the next fiscal year.<sup>1</sup> Assessment of the going concern ability of the company might help the stakeholders to identify potential solvency and liquidity risks (Kandemir 2013). However, many banks failed after they were given clean audit reports without any risk in their financial statements. The reason might be that there are several disadvantages of a going concern opinion. Firstly, it can jeopardize market confidence, affect the stock value of the company, and consequently cause its failure. Therefore, clients prefer to receive clean unmodified reports. It is suggested that the banks' auditors would not issue the going concern opinions publicly but they would announce it only to the regulators and to the bank's board (Sharman Inquiry 2012). Secondly, it might be costly for auditors to issue a going concern opinion because the client is likely to switch to another auditor (Chow & Rice 1982). Issuing a modified opinion is also related to the auditor's independence and the audit quality. There are several factors which might influence auditors when deciding whether to issue a going concern opinion. For example, when the audit committee is not fully independent (they have some relations with the audit company), the management might threaten the audit firm to be changed if they issue a report with a going-concern uncertainty (Carcello & Neal 2003).

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<sup>1</sup> International Standards on Auditing (ISA) 570: Going Concern.

## 3.2 Role of the Big 4 firms in the crisis

In recent years, there has been a dominance of the Big 4 firms in the market with large companies, which limits the choice and competition in the audit market. There is also a real possibility that one of the Big 4 firms will end, which might happen quickly and unexpectedly as in the Arthur Andersen' case, and this would constrain a choice to even more unacceptable levels. For example, in 2010 only one company in the FTSE 100 index of leading UK listed companies was not audited by a Big 4 auditor. What is more, the auditors remained in these firms, on average, for 48 years. Such a long tenure is also a sign of the lack of the competition in the audit market. In the Czech Republic, the share of Big 4 auditors among the Czech TOP 100 companies is lower than in the UK (75% in 2008 according to Pěkná 2011) also because there are not as many large and listed companies in the Czech Republic as in the UK.

The UK House of Lords Economic Affairs Committee (2011) issued a report about eight month inquiry into the audit market. The outcomes emphasise several main issues about audit in the period of the crisis:

- Dereliction of the duty by both auditors and regulators contributed to the financial crisis. Auditors were either unaware of the danger or they failed to warn the supervisors. An insufficient amount of the dialogues between bank auditors and regulators helped the financial crisis to break out.
- The International Financial Reporting Standards, which have been mandatory for EU listed companies since 2005 to promote international trade and investment, have lower audit standards. The IFRS require more box-ticking and leave less time for auditors to exercise their own judgement.
- There are serious concerns about the Big 4 firms' dominance and the possibility that they could become only the Big 3. These concerns were increased when the auditors failed to give a warning signal about the troubles in the financial markets. Bank auditors cannot express their concerns publicly because they would undermine the bank's credibility and possibly cause a bank run. However, the Committee criticised mainly a weak exchange of information between auditors and regulators that might have mitigated the impact of the crisis if performed properly. In this regard, there was certainly a negligence of the duties.



The Committee recommends that the leading 350 companies should tender their audit contract regularly every five years and they must explain the reasons why they chose that particular auditor in the report to shareholders. The government should also make it possible for the non-Big 4 firms to win the contracts in the public sector.

### 3.3 Distressed companies with unqualified audit opinions

In the beginning of the crisis period, audit companies issued an unqualified audit opinion to many financial institutions which then collapsed or had to be bailed out in the short time after receiving the opinion. In these cases, most of the opinions were issued by one of the Big 4 audit firms. Examples of such companies include Lehman Brothers, Bear Stearns, Citigroup, Fortis, Carlyle Capital Corporation, Royal Bank of Scotland, Lloyds TSB, or Thornburg Mortgage. These companies received neither going concern opinion nor any modified opinion concerning the fraud in their financial statements. Sikka (2009) analysed several of them more in detail:

- Bear Stearns got an unqualified opinion from Deloitte & Touche on January 28, 2008 but during the week of March 10 the news about its liquidity problems spread, causing Bear Stearns unable to obtain secured financing. On March 14, 2008 it was announced that Bear Stearns would be sold to JP Morgan with financing support from the Federal Reserve Bank of New York. The sale was accomplished in May of the same year (US SEC 2008).
- Lehman Brothers received an unqualified audit opinion from Ernst & Young on its annual as well as quarterly financial statements on January 28, 2008 and on July 10, 2008, respectively. The bank used some repo transactions to hide its assets but EY ignored the mistake and issued a clean report (Kandemir 2013). However, by August 2008 the bank experienced serious financial difficulties which ended in announcement that it would file for bankruptcy protection on September 15, 2008.
- Carlyle Capital Corporation was given a clean bill of health by its auditor, PricewaterhouseCoopers, on February 27, 2008. However, two weeks later the company announced that it was not able to stabilize its financing and the assurance by auditors was quickly gone.
- Thornburg Mortgage received an unqualified opinion on February 27, 2008. Six days later, when the company announced that it was experiencing financial problems, the auditors decided to draw their opinion back.

On March 7, the company said it had received a letter from its auditor, KPMG, notifying the company that the audit reports on the consolidated financial statements as of December 31, 2007 and 2006 should not be relied on.

These incidents raise questions about the quality of audit reports, the independence of auditors, and their knowledge. The audit firms received large amounts of both audit and non-audit fees from the distressed companies. The fee dependency and provision of non-audit services make the auditor independence questionable. The UK House of Commons Treasury Committee (2008) claim in their report that there seems to be a conflict of interests between the statutory role of auditors and the other services auditors perform for the financial institutions.

## 4 Changes in Audit Regulation

### 4.1 Development of audit regulation in the European Union before the financial crisis

Statutory audit has been for the long time in the field of interest for the European Union. In order to understand a current situation in the audit regulation, it is important to know how the regulation was developing throughout the years.

First requirement that the company's annual accounts have to be audited was mentioned in the Fourth Directive (78/660/EEC) of the Council's Company Law Directives. In the Seventh Directive (83/349/EEC), this requirement was applied also to the consolidated accounts. The Eighth Directive (84/253/EEC) determined which persons could be approved for performing the companies' accounts audit. These three directives seemed to be successful and they also played an important role in the plans for development of a Single Market in the EU (Humphrey et al. 2011). Several audit issues, however, raised attention of the Commission in the 1990s, mainly the critique of auditors' behaviour and a few corporate scandals. The Commission afterwards published a Green Paper (Commission of the European Communities 1996) discussing the regulation of the statutory audit at the EU level, the scope of auditor independence, and the need for an audit committee. Based on the work of the EU Committee on Auditing, the Commission published a Recommendation (2001/256/EC) which suggests that auditors' compliance with ethical principles should be checked by quality review procedures. After the Enron scandal in the end of 2001, its auditor Arthur Andersen collapsed, which again raised the questions about the auditor independence and competence. The regulatory response by the Commission was another Recommendation (2002/590/EC) stating that auditors should be banned from carrying out an audit if they have any relationship with the client (business, financial, employment, or when they provide additional services to the client) that might compromise their independence. In the US, the Sarbanes-Oxley Act in 2002 and the Public Company Accounting Oversight Board ensured stricter controls of auditors in the US listed companies. The European Union also needed better regulations concerning the auditor oversight. The result was a Communication from the Commission to the Council and the European Parliament (COM/2003/0286) on reinforcing the audit in the European Union and later a new Directive (2006/43/EC). This Directive amended the Council's Fourth and Seventh Directives,

and canceled the Eighth Directive. The purpose of the Directive was an improvement and harmonisation of audit quality, and a higher public confidence in the audit profession. One of the most important issues that have not been resolved in the Directive is the adoption of the International Standards on Auditing (ISA) as audit standards in Europe. According to Humphrey et al. (2011) the Commission had concerns about the acceptance of standards that are set by a private sector organisation (International Auditing and Assurance Standard Board, IAASB).

In 2008, the Commission issued a Recommendation (2008/362/EC) on quality assurance for statutory auditors and audit firms in order to strengthen confidence in statutory audit. It provides instructions for the EU member states on how to establish an effective system of inspections and gives more responsibilities to the oversight bodies. Another Recommendation (2008/473/EC) concerns the limited civil liability of auditors and its main objective is to support the alternative audit firms in the audit market so that the competition will increase. It responds to the increased amount of litigation and tries to ensure that audit firms will remain capable of performing audits on EU listed companies.

## 4.2 The Green Paper and the regulatory reaction on the crisis

Green Papers are documents published by the European Commission which stimulate the discussion on certain topics at the European level. They invite relevant parties to participate in the debates on proposals they offer (European Commission 2015). The Green Paper on audit named “Audit Policy: Lessons from the Crisis” was published in October 2010 as a reaction to the global financial crisis (European Commission 2010). The Commission emphasises that audit “should be a key contributor to the financial stability” and “robust audit is key to re-establishing trust and market confidence” (European Commission 2010, p.3). Auditors play an important role in the financial markets as they provide assurance on the financial health of the companies, on the true and fair financial statements, and thus protect investors and reduce cost of capital for the companies. The Green Paper emphasises that independence should be a strong base for the auditor profession.

The Commission wants to establish a stronger focus on thorough verification of the balance sheet and less reliance on the compliance. The auditors could make the list of components that were verified directly and that were verified on the basis of their judgment or management explanations. They should also actively challenge the management and exercise the professional scepticism. The Green paper suggests that

there should be a better external and internal communication of auditors. For example, it needs to be considered that information of public interest (company's exposure to future risks or risk to intellectual property) should be communicated to the public. The internal communication between the company's audit committee, its statutory auditor, and internal auditor should be more often to avoid any loopholes in the verification of financial statements and in risk monitoring.

EU stakeholders would like to adopt the ISAs at EU level. The IAASB made a revision and clarification of the ISAs between 2006 and 2009. These clarified ISAs are now being adopted by the majority of Member States and also large audit firms are applying them. The common standards in the form of clarified ISAs should contribute to the harmonised and qualitative audits. The Commission is considering a way of introducing ISAs in the EU, either via binding or non-binding Community laws.

As many other businesses, audit firms also face the conflict of interests. Audit is, however, mandatory by law and auditors play a statutory role. Therefore, the independence of auditors is necessary for audit environment. The Green Paper seems to be based on the assumption that audit quality is declining because of a lack of independence. The Commission has a few suggestions on how to reinforce the auditor independence. It considers, for example, the possibility where remuneration of auditors would be the liability of a third party rather than the company itself. Mandatory rotation of audit firms should be applied because it is not compatible with independence rules when companies are audited by one firm for decades. The Commission would also like to examine the ban on non-audit services because auditors should not have any business relation with the audited company. There could be a limit to the proportion of fees from one single client compared to the total revenues of audit firm to avoid fee dependency. What is more, the supervision of audit firms has to be more integrated and national audit oversight systems should cooperate more closely.

Regarding the concentration on audit market, the listed companies are mostly covered by Big 4 audit firms. Entry of mid-tier audit firms to this section of audit market is almost impossible. The concentration in some market segments seems to be too high and clients have only limited choice of auditors. The Commission suggests the practice of joint audits where listed companies have to appoint two audit firms which divide the work and then both sign the audit report. Another possibility is to issue European quality certification for audit firms which have the ability to audit large listed companies.

### 4.3 Recent regulations in audit market

In June 2014, the reform of audit regulatory rules entered into force. This new legal framework consists of two documents: a Directive (2014/56/EU) which amends the previous Statutory Audit Directive (2006/43/EC) and a Regulation (537/2014) of the European Parliament and of the Council which requires special rules for audit of public-interest entities. The reform is a result of the long consultation process which started with the Green Paper on Audit Policy in 2010. It is also another step in reinforcing the confidence of investors in financial statements and increasing the quality of statutory audit. The Directive focuses on the independence of auditors and a stronger supervision in the Union. The Regulation requires stricter rules for public-interest entities to enhance professional scepticism, avoid excessive familiarity between auditors and their clients, and reduce conflicts of interest. PIEs include listed companies, credit institutions, or insurance companies. There are more rigorous rules for these entities because the potential misstatement in their financial statements would have great negative consequences for shareholders, investors, and the broad society. Therefore, the costs of specific rules are outweighed by the benefits of not having audit problems in these companies. Member States have two years to adopt the new Directive and implement provisions necessary to comply with it. A direct application of the Regulation will also start in mid-2016.

The main objectives of this reform are to define the role of statutory auditor, restore independence and professional scepticism, simplify the cross-border arrangement of audit services in the EU, improve audit supervision and its coordination in the EU, and make the audit market more dynamic.

There are a few measures that apply to all statutory auditors and audit firms:

- Audit reports will be more informative for investors since they will include all the important information about the company, not just a standardised opinion.
- Competences of the authorities for public oversight of auditors will be strengthened, including investigative and sanctioning powers to recognize and prevent breaches of the reform.
- There will be a more effective sanctioning system with predetermined criteria that should be taken into account when applying sanctions.
- Improved organisational requirements of audit firms should result in a stronger independence.
- European Commission has been given the competence to adopt International Standards on Auditing (ISAs) in the Union.

Additionally, there are some special requirements that apply to audit of public-interest companies:

- The rotation of auditors will be compulsory every 10 years.
- Auditors cannot provide certain non-audit services to the audited company.
- There will be a limit on the fees for the remaining non-audit services.
- The audit committee will have stronger competences and a direct role in appointing the auditor and monitoring the whole audit process.
- Auditors will have to prepare another report to the committee describing in detail the performance of audit.
- A dialogue between the auditor and the supervisor of the firm will be established.

The new reform will ensure a higher informational value of the audit report. For example, auditors have to report on key areas of the material misstatement risk in case of PIE audit. Moreover, they have to describe to what extent they were capable of detecting irregularities such as fraud. Additional report to the audit committee will provide the firm with more detailed information about the conduct of audit, for instance, about the methodology and the valuation methods used, or the possible errors found in the internal control system.

Mandatory rotation of auditors should reduce the familiarity between auditors and their clients, decrease the risk of ignoring the repeated mistakes, stimulate fresh thinking, and thus support professional scepticism. According to the new rules, the former auditor has to hand in the file with relevant information to the current auditor.

Provision of non-audit services to the audited company might cause the conflict of interests and decrease the independence of auditors. Therefore, the Regulation introduced a list of forbidden services that auditors will no longer be able to offer to the audited company, its parent undertaking, and controlled undertakings in the EU. This list includes specific tax, consultancy, and advisory services, other services that play part in the company's decision making, or services linked to the financing and investment strategies of the audited company.

A limit on the fees for other non-audit services should also strengthen the independence of auditors. The Regulation specifies that the total fees for non-audit services, if they have been provided for three or more consecutive years by the audit firm, should be limited to a maximum of 70% of the average audit fees paid in the last three financial years. These calculations have to be done on the group level, where applicable. What is more, if the fees from a single public-interest entity exceed

15% of the total audit company's income in each of three consecutive years, it has to be disclosed to the audit committee.

Mid-tier audit firms should benefit from this new reform since it will bring new market opportunities. Compulsory rotation, tenders, incentives for joint audits, or prohibition of some non-audit services are all measures which should make the audit market more dynamic and more competitive.

## 4.4 Regulation in the Czech Republic

The Czech auditing profession is currently governed by the Auditor's Act no. 334/2014 which amended the previous Act no. 93/2009. The new Act determines that public-interest entities in the Czech Republic are banks, insurance companies, health insurance companies, savings and credit cooperatives, legal entities with investment securities admitted to trading on European or foreign regulated markets, central securities depository, investment and pension companies, business corporations with the number of employees higher than 4 000, and other (Act no. 334/2014 Section 2a).

Auditors in the Czech Republic follow the standards on auditing adjusted by the European Union law and the standards issued by the Chamber of Auditors in the Czech Republic which specify auditor procedures that are not defined by the European Union auditing standards. The Chamber of Auditors adopted international standards issued in 2014, including International Standards on Auditing (ISAs), International Standards on Quality Control (ISQC), International Standards on Review Engagements (ISRE), International Standards on Assurance Engagements (ISAE), and International Standards on Related Services (ISRS). Besides, the Chamber of Auditors issued its own standards, for example, the standard on Verification of Report on Relations (AS 56), or the standard on Economic Review of Local Government Units (AS 52) (Chamber of Auditors of the Czech Republic 2014).



## 5 Data

The data for our research come from two main sources:

- MagnusWeb database which contains financial statements of the Czech companies
- website of the Ministry of Justice ([www.justice.cz](http://www.justice.cz)) gathering annual reports and notes to the financial statements which contain audit data

We needed to build our audit data set manually, so we decided to collect the data only for the joint stock companies. We downloaded the list of joint stock companies in the Czech Republic with the turnover higher than CZK 1,500 million from the MagnusWeb database. Financial companies are excluded from the sample since they have different financial reporting requirements and disclosures than the non-financial companies. We focus on comparison of the auditors' behaviour in the crisis and in the non-crisis period, therefore our period of interest covers the years 2006-2013, i.e. the pre-crisis period of 2006-2007, the financial crisis period of 2008-2009, and the post-crisis period of 2010-2013.

We firstly collected audit data from the companies' annual reports or from the notes to the financial statements. We had to exclude the companies that were not suitable for our data set, for example, if they were deleted from the Companies Register before our period of interest, or if they did not have audit during this period. For the remaining companies we assigned the name of the auditor, the auditor's opinion on the company's financial statements, the date of this opinion, and the fees for auditor or audit company for every year. The Chamber of Auditors approved in April 2009 the obligation for the entities to include the total fees for their statutory auditor or audit firm in the notes to the financial statements (Chamber of Auditors of the Czech Republic 2009). There is an exception to the entities which are part of a consolidation unit, provided that audit fees are included in the notes to the consolidated financial statements.

After that we downloaded the financial statements for these companies from the MagnusWeb database. Using them we computed and prepared the variables needed for our regressions, especially various financial ratios, profit or loss of the company, total assets of the company, and the Altman Z-Score which measures the company's

likelihood of bankruptcy. Since there are not many listed companies in the Czech Republic, we mostly used the Z-Score estimated for the private companies.

Table 1 below shows the number of companies we have managed to collect. From the list of 935 joint stock companies we have excluded financial companies and companies with no or insufficient audit data. The total number of companies with audit data for the statistical analysis is 598 but there are fewer observations in each year because not all of the companies were active or audited during the whole period 2006-2013. The joint data set of audit and financial data for the models has slightly fewer companies and because of a consolidation exception, there are only 296 companies with available audit fees data.

**Table 1: Collected Data**

<b>Sample</b>	<b>Number of companies</b>
Joint stock companies with turnover higher than 1,500 million	935
Financial companies	(117)
Companies with no or insufficient audit data	(220)
Sample of companies for the statistical analysis	598
Sample of companies for the going concern model	555
Sample of companies for the audit fee model	296
Sample of companies for the audit reporting lag model	555

*Source: Author*

## 6 Methodology

We are going to use three models to assess the auditors' behaviour during the crisis. The GFC increased auditors' risk exposure since there was a higher probability of issuing an inappropriate opinion and stricter regulatory scrutiny.

### 6.1 Going concern model

It might be difficult for the auditors to judge the suitability of a going concern opinion in a period of higher uncertainty. Auditors need to judge several factors before they determine whether the company is able to continue as a going concern. It is not only the financial condition of the company, but also the support of a parent company, possibility to extend the maturity of debt from the bank or other creditors, and indications of profitable activities in the upcoming year.

The final decision might be influenced also by the risks faced by auditors. On one hand, they are threatened by a litigation risk if they issue a wrong opinion, on the other hand, they face the risk of losing a client, thus lower revenues in the future, if they do not issue a clean unmodified report. We suppose that the auditors do not want to damage their reputation and, therefore, they increase the number of going concern opinions issued in the crisis period. We will consider both the qualification and the emphasis of matter with going concern uncertainty as a going concern opinion. We will test the following hypothesis:

- **Hypothesis #1:** Auditors are more likely to issue going concern opinions during the GFC period compared to the non-crisis period.

Big 4 auditors and non-Big 4 auditors might react differently to the crisis period. Big 4 auditors have more to lose due to the higher reputation costs, therefore they could adopt a more conservative approach to audit reporting. Big 4 firms also have more resources and are better prepared to detect errors and inconsistencies in a risky environment. We will look at the differences in issuing going concern opinions between Big 4 auditors and non-Big 4 auditors.

To test our hypothesis, we will use the statistics of going concern opinions and also logit models in individual years, in which the dependent variable is a going concern opinion. We will examine which variables, including financial ratios of the firm, are

significant for issuing a going concern opinion by auditors and observe if there are differences in significance of variables in individual years. Our going concern logit model is as follows:

$$GCO = \beta_0 + \beta_1 CATCL + \beta_2 LTDTA + \beta_3 CTTA + \beta_4 ITTA + \beta_5 RTTA + \beta_6 LTA \\ + \beta_7 AZSCORE + \beta_8 3YLOSS + \beta_9 BIG4$$

where

- GCO = a dependent variable which is equal to 1 if there is a going concern opinion, and 0 otherwise
- CATCL = ratio of current assets to current liabilities
- LTDTA = ratio of long-term debt to total assets
- CTTA = ratio of cash to total assets
- ITTA = ratio of inventories to total assets
- RTTA = ratio of receivables to total assets
- LTA = natural logarithm of total assets
- AZSCORE = probability of bankruptcy measured by Altman Z-Score
- 3YLOSS = dummy variable which is equal to 1 if the client had a loss in any of past three years, 0 otherwise
- BIG4 = dummy variable which is equal to 1 if the client is audited by a Big 4 audit firm, 0 otherwise

## 6.2 Audit fee model

We expect that auditors increase their effort during the crisis since they are more cautious and sceptical. Bell et al. (2001) showed that in the period of a higher business risk auditors increase the number of audit hours. Audit companies increase both planned hours of their employees and hourly rate to adjust their audit approach to the higher risk. Additional audit effort can be seen in enhancing the scope of audit procedures, higher amount of audit evidence, greater part of the work done by experienced employees, and more conservative risk assessment.

Therefore, we predict that audit fees will increase during the crisis period because of a higher effort. We are going to test the following hypothesis:

- **Hypothesis #2:** Auditors obtain higher audit fees during the GFC period compared to the non-crisis period.

Since we were not able to collect many data on audit fees before the crisis, we will only be able to compare the crisis period with the post-crisis period. We will test in our model, if the crisis had a significant impact on the audit fees charged by auditors.

We will adopt an audit fee model used by Ferguson et al. (2003) or Xu et al. (2013) based mainly on the financial ratios of the companies. There is also a Big 4 dummy variable as we know that Big 4 auditors charge premiums for their high-quality audits. To support the hypothesis, variables of interest (crisis years 2008 and 2009) should be positive and significant.

Our audit fee model looks as follows:

$$\begin{aligned}
 FEES = & \beta_0 + \beta_1 LTA + \beta_2 CATTA + \beta_3 QACL + \beta_4 LTDTA + \beta_5 EBITTA \\
 & + \beta_6 MODIFIED + \beta_7 YEAREND + \beta_8 3YLOSS + \beta_9 BIG4 \\
 & + \beta_{10} ACHANGE + \beta_{11} 2006 + \beta_{12} 2007 + \beta_{13} 2008 + \beta_{14} 2009 \\
 & + \beta_{15} 2010 + \beta_{16} 2011 + \beta_{17} 2012 + \beta_{18} 2013
 \end{aligned}$$

where

- FEES = audit fees
- LTA = natural logarithm of total assets
- CATTA = ratio of current assets to total assets
- QACL = ratio of quick assets (current assets less inventories) to current liabilities
- LTDTA = ratio of long-term debt to total assets
- EBITTA = ratio of earnings before interest and taxes to total assets
- MODIFIED = dummy variable equal to 1 if the client gets modified opinion, 0 otherwise
- YEAREND = dummy variable which is equal to 1 if client's financial year does not end on 31 December, 0 otherwise
- 3YLOSS = dummy variable which is equal to 1 if the client had a loss in any of past three years, 0 otherwise
- BIG4 = dummy variable which is equal to 1 if the client is audited by a BIG 4 audit firm, 0 otherwise
- ACHANGE = dummy variable which is equal to 1 if the client changed the auditor in that year, 0 otherwise
- 2006 - 2013 = dummy variables equal to 1 for observations from respective years, 0 otherwise

### 6.3 Audit reporting lag model

Auditors also have another way of dealing with an increased business risk. They might prolong the audit reporting lag, i.e. increase the number of days between the financial year end and the date when auditor signs an audit opinion. Krishnan & Yang (2009) found out that auditors had a longer reporting lag in 2002 in comparison to the pre-Enron period. If auditors find a going concern uncertainty, they might wait for some additional supporting evidence to assess whether they should issue a going concern opinion. Therefore, we expect that there will be longer reporting lags in the financial crisis period compared to the non-crisis period. Our tested hypothesis will be:

- **Hypothesis #3:** The audit reporting lag is longer during the GFC period compared to the non-crisis period.

To test this hypothesis, we will use the audit reporting lag model similar to the one used by Xu et al. (2013). If auditors postpone the date of issuing an opinion in the crisis, we expect the variables 2008 and 2009 to be significantly positive.

Our audit reporting lag model looks as follows:

$$LAG = \beta_0 + \beta_1 LTA + \beta_2 NPDTA + \beta_3 TDDTA + \beta_4 LOSS + \beta_5 GCONCERN + \beta_6 OTHERMOD + \beta_7 END + \beta_8 BIG4 + \beta_9 ACHANGE + \beta_{10} 2006 + \beta_{11} 2007 + \beta_{12} 2008 + \beta_{13} 2009 + \beta_{14} 2010 + \beta_{15} 2011 + \beta_{16} 2012 + \beta_{17} 2013$$

where

- LAG = audit reporting lag – number of days between financial year end and date of audit opinion
- LTA = natural logarithm of total assets
- NPDTA = ratio of net profit divided by total assets
- TDDTA = ratio of total debt divided by total assets
- LOSS = dummy variable equal to 1 if the client has a loss in the current year, 0 otherwise
- GCONCERN = dummy variable equal to 1 if the client is given a going concern opinion, 0 otherwise
- OTHERMOD = dummy variable equal to 1 if the client is given a modified opinion for the reason other than going concern, 0 otherwise
- BIG4 = dummy variable equal to 1 if the client is audited by a Big 4 audit firm, 0 otherwise

- END = dummy variable equal to 1 if client's financial year ends on 31 December, i.e. in the busy season, 0 otherwise
- ACHANGE = dummy variable which is equal to 1 if the client changed the auditor in that year, 0 otherwise
- 2006 - 2013 = dummy variables equal to 1 for observations from respective years, 0 otherwise

# 7 Statistical Analysis of Audit Reports

In this Section, we will present the statistical analysis of audit reports in the Czech Republic during the examined period 2006-2013. We are interested in how the financial crisis affected auditors and their reporting, and what the differences in the behaviour are between Big 4 and non-Big 4 companies in the Czech Republic. The first subsection compares the rate of modified opinions in the crisis and the non-crisis periods. In the second subsection, we have looked closer at the audit companies, mainly at the share of Big 4 firms in the market and the differences in reporting between Big 4 and non-Big 4 auditors. The third subsection shows the development of audit fees charged by auditors during our period of interest and the last subsection examines the non-audit fees paid to audit firms.

## 7.1 Modified opinions

The global financial crisis reduced economic growth and increased business risk, thus presented a challenge for the audit profession. The concerns about the ability of companies to continue in their business activities should be reflected in the audit reports. A study in the United States by Cheffers et al. (2010) showed an increase in modified opinions relating to going concern uncertainty from 14% in 2003 to 21% in 2008. Although the Czech economy has not suffered in the crisis as much as the American one, we can still expect a rise in the going concern opinions. Besides the reports with a going concern uncertainty, we will also look at the frequency of other types of audit opinions in the Czech Republic. We will use the following categories to differentiate between audit opinions:

- Unmodified (unqualified) opinions
- Unqualified opinions with an emphasis of matter – going concern
- Unqualified opinions with an emphasis of matter – other reason
- Qualified opinions for going concern
- Qualified opinions for other reason
- Adverse opinions



- Disclaimer of opinion
- Disclaimer of opinion with an emphasis of matter – going concern

We will use the years 2006-2013 to compare the period before, during and after the crisis. We have collected 4327 audit reports together for the Czech joint stock companies and we have 500 to 600 companies each year.

The Table 2 shows the frequency of various types of audit reports issued by the Czech auditors during the period 2006-2013. From the data we can observe:

- Percentage of unmodified reports reached 97.63% in 2006, then decreased by 2% in the following years (in 2011 even by 3%) and after that began to rise again.
- There is a significant increase of unqualified opinions with an emphasis of matter from 1.38% in 2006 to 2.96% in 2007 and even 3.62% in 2011.
- There is only a little change in the frequency of qualified opinions, however, the highest rates of these opinions belong to the years 2008 and 2011 (1.61% and 1.81% respectively).
- We observed that the reason for an emphasis of matter is mainly the going concern uncertainty, in 2008 reaching the 80% share. The number of opinions with an emphasis of matter related to the going concern uncertainty increased from 5 in 2006 to 12 in 2008, and to 16 in 2011 (including one disclaimer with GC emphasis of matter).
- The reasons for going concern opinions are usually cumulative losses, financial dependence on the parent company, negative equity, financial dependence on the bank loans or the company's inability to repay them, and the lack of liquid assets.

We can conclude that the rate of modified opinions increased in 2007, then it remained relatively stable until 2010. In 2011 it increased the most, probably because the financial troubles of companies during the crisis culminated in this year. In 2012, the rate of modified opinions decreased by more than 1% as the Czech economy started recovering from the crisis.

**Table 2: Statistics of unmodified and modified reports in the Czech Republic.**

	2006	2007	2008	2009	2010	2011	2012	2013
Unqual. with EoM – GC	5	11	12	10	11	15	12	12
Unqual. with EoM – other	2	5	3	6	6	5	6	4
Qual. for GC		2	1	1		2		1
Qual. for other	5	6	8	5	5	7	5	3
Adverse				1				
Disclaimer								1
Disclaimer with EoM – GC						1		1
Total number of reports	506	540	559	558	557	552	538	517
% of unmodified	97.63	95.56	95.71	95.88	96.05	94.57	95.72	95.74
% of unqualified with EoM	1.38	2.96	2.68	2.87	3.05	3.62	3.35	3.09
% of qualified	0.99	1.48	1.61	1.25	0.90	1.81	0.93	1.16

*Source: Author*

We can also assess how precise were the auditors' modified opinions. In the following analysis, we will consider both the qualification and the emphasis of matter with going concern uncertainty as a going concern opinion. The company will be classified as “failed” if it is put into liquidation or if the insolvency proceeding starts within two years after getting the last going concern opinion. The results suggest that:

- 42% of companies with at least one going concern opinion in the period 2008-2011 fail within two years after getting the last going concern opinion. This means that auditors correctly predicted a future disability of the companies to continue in their activities in less than half of the cases.
- 47% of companies which got a going concern opinion in the period 2008-2011, obtained another going concern opinion in the following year.

We found out that the percentage of going concern opinions increased in the crisis, however, only fewer than 50% of companies actually failed. This fact implies that the Czech auditors were cautious during the crisis and pointed out the potential liquidity problems in the companies, although it was not always necessary. Nevertheless, they fulfilled their duty of scepticism during the period of higher business risk. The results might also suggest that the crisis in the Czech Republic was not so severe and therefore many companies were not in a real danger of bankruptcy, despite some financial problems during the crisis.

On the other hand, we are also interested in the company failures when the audit reports did not include a prior going concern warning. Out of the companies which were placed into liquidation or their insolvency process started in the years 2008-2011, only 58.06% companies obtained a going concern opinion before their failure.

We can conclude that auditors issued a going concern opinion also for the companies which did not fail in 58% of cases, however, they did not predict the future financial problems of the companies in more than 41% of cases.

## 7.2 Big 4 firms versus non-Big 4 firms

In this subsection, we would like to examine whether there are differences between Big 4 and non-Big 4 firms in the issuance of modified reports. We will first examine the share of Big 4 firms in our sample of joint stock companies in the Czech Republic.

**Table 3: Share of Big 4 firms in the joint stock companies.**

	<b>EY</b>	<b>PwC</b>	<b>Deloitte</b>	<b>KPMG</b>	<b>Sum</b>	<b>Total reports</b>	<b>Big 4 share</b>
<b>2006</b>	39	48	38	66	191	506	38%
<b>2007</b>	42	52	42	70	206	540	38%
<b>2008</b>	44	49	48	74	215	559	38%
<b>2009</b>	48	47	53	76	224	558	40%
<b>2010</b>	49	55	58	80	242	557	43%
<b>2011</b>	50	59	54	89	252	552	46%
<b>2012</b>	53	68	53	85	259	538	48%
<b>2013</b>	53	68	58	79	258	517	50%
<b>Sum</b>	378	446	404	619	1847	4327	43%

*Source: Author*

As we can see in the Table 3 above, Big 4 firms have lower than 50% share in the market of joint stock companies except for the year 2013. An interesting fact is that the share has been rising constantly in the last years and it increased from 38% to 50% within eight years. The reason for this change might be a higher popularity of the Big 4 auditors among the Czech companies since their services are considered to be highly professional and internationally recognized. The other reason might be that the Big 4 firms have lowered the fees for their services and are thus more affordable for a higher number of companies. If we look at the individual Big 4 audit firms, we can observe that KPMG issued the highest number of reports, followed by PwC, Deloitte, and EY with the lowest number of reports. KPMG has a much higher

number of reports than other three companies, suggesting that it has a dominant position in the audit for joint stock companies in the Czech Republic.

Now we can look at the differences in the issuance of modified reports between Big 4 and non-Big 4 firms. From the Table 4 we can see:

- Big 4 companies have increased their frequency of issuing modified opinions since 2007. In 2008 and 2011, they had the lowest average rates of unmodified opinions, i.e. 93.95% and 93.65% respectively.
- Non-Big 4 companies also increased the issuance of modified opinions in 2007, however, not as significantly as the Big 4 firms. Average rate of unmodified opinions decreased from 98.41% in 2006 to 96.41% in 2007, then kept quite stable around 96% until 2010, while in 2011 it decreased to 95.36%.
- Among the Big 4 companies, EY has the highest rate of modified reports during the examined period, especially in 2008 it has much higher rate of modified opinions (13.64%) than other companies. We can observe that KPMG has the lowest rate of modified opinions during the period 2006-2013, for example, in 2008 it is only 2.7%, thus much lower than EY. It is, however, caused by the fact that KPMG issued a much higher number of reports than other companies.
- Among the non-Big 4 auditors we focused on, BDO has the highest percentage of modified rates during our period of interest (it reaches 13.51% in 2011).

The share of going concern opinions in the total modified opinions differs across the Big 4 firms. While KPMG has a 60% share of going concern opinions in all of its modified opinions, Deloitte has only a 22% share. The non-Big 4 firms have on average a higher rate of opinions with going concern uncertainty among their modified opinions than the Big 4 firms (65.43% and 44.76% respectively). This might be explained by the fact that the non-Big 4 firms have clients which are usually smaller and riskier than clients of the Big 4 firms.

A similar Australian research by Xu et al. (2011) found out that both Big 4 and non-Big 4 firms increased their modification rates in the GFC period of 2008-2009 compared to 2005-2007. They showed, however, that the Australian Big 4 auditors issued a lower percentage of modified reports relative to non-Big 4 auditors in the crisis period. On the contrary, we found out that the Czech Big 4 auditors issued a

higher percentage of modified reports during the crisis than non-Big 4 auditors (in 2008 it was 6.05% and 3.2%, respectively). On the other hand, as we mentioned above, the Czech Big 4 firms issued on average a lower percentage of opinions with going concern uncertainty during the examined period. This can be most likely explained by the fact that Big 4 firms' clients did not have such a high bankruptcy risk but their auditors did the audit work thoroughly and highlighted all the irregularities, even of minor importance.

While Australian research was performed just after the crisis, we have collected the data also for the after-crisis period. The most surprising might be the year 2011, when both Big 4 and non-Big 4 auditors issued the highest percentage of modified opinions in the entire period 2006-2013. The number of going concern uncertainties was also the highest in that year. It can be probably attributed to the final consequences of the crisis when many companies found themselves in financial problems after the GFC and it was hard for them to recover. After 2011, the rate of unmodified opinions started to increase slowly, as the recession period was approaching towards its end.

**Table 4: Frequency of audit opinions in the Czech Republic by Big 4 and non-Big 4 companies (in %)**

	EY	PwC	Deloitte	KPMG	Big 4 average	BDO	A&CE	Other	Non-Big 4 average	Total
2006 Unmod	94.87	97.92	94.74	96.97	96.34	100.00	89.47	98.86	98.41	97.63
2006 EoM	0.00	2.08	2.63	1.52	1.57	0.00	10.53	0.76	1.27	1.38
2006 Qual	5.13	0.00	2.63	1.52	2.09	0.00	0.00	0.38	0.32	0.99
2007 Unmod	90.48	94.23	97.62	94.29	94.17	97.06	88.89	96.81	96.41	95.56
2007 EoM	7.14	3.85	2.38	2.86	3.88	2.94	11.11	1.77	2.40	2.96
2007 Qual	2.38	1.92	0.00	2.86	1.94	0.00	0.00	1.42	1.20	1.48
2008 Unmod	86.36	91.84	97.92	97.30	93.95	94.59	94.74	97.22	96.80	95.71
2008 EoM	11.36	4.08	2.08	2.70	4.65	2.70	5.26	1.04	1.45	2.68
2008 Qual	2.27	4.08	0.00	0.00	1.40	2.70	0.00	1.74	1.74	1.61
2009 Unmod	95.83	93.62	90.57	98.68	95.09	95.35	95.00	96.68	96.41	95.88
2009 EoM	4.17	0.00	7.55	0.00	2.68	4.65	5.00	2.58	2.99	2.87
2009 Qual	0.00	6.38	1.89	1.32	2.23	0.00	0.00	0.74	0.60	1.25
2010 Unmod	95.92	94.55	93.10	96.25	95.04	94.74	95.24	97.27	96.83	96.05
2010 EoM	2.04	3.64	5.17	2.50	3.31	5.26	4.76	2.34	2.86	3.05
2010 Qual	2.04	1.82	1.72	1.25	1.65	0.00	0.00	0.39	0.32	0.90
2011 Unmod	92.00	94.92	92.59	94.38	93.65	86.49	100.00	96.34	95.36	94.58
2011 EoM	4.00	3.39	5.56	4.49	4.37	5.41	0.00	2.85	2.98	3.61
2011 Qual	4.00	1.69	1.85	1.12	1.98	8.11	0.00	0.81	1.66	1.81
2012 Unmod	96.23	94.12	90.57	95.29	94.21	93.94	100.00	97.42	97.16	95.75
2012 EoM	1.89	2.94	7.55	4.71	4.25	3.03	0.00	2.58	2.48	3.33
2012 Qual	1.89	2.94	1.89	0.00	1.54	3.03	0.00	0.00	0.35	0.92
2013 Unmod	98.11	94.12	94.83	93.67	94.96	93.75	100.00	96.73	96.58	95.78
2013 EoM	0.00	2.94	1.72	5.06	2.71	6.25	0.00	3.27	3.42	3.07
2013 Qual	1.89	2.94	3.45	1.27	2.33	0.00	0.00	0.00	0.00	1.15

Source: Author

### 7.3 Audit fees

Audit companies charge audit fees for their services which are paid by the audited company. The bigger the company, the higher the audit fees usually are. The fees can be influenced also by the current economic situation. During the period of higher risk, such as the global financial crisis, auditors should be more sceptical and put higher effort into audit. This additional effort might be then transposed into higher audit fees. We have collected audit fees data for our sample of Czech joint stock companies. The duty to include the amount of audit fees in the notes to the financial statements has, however, only become obligatory since 2008. Therefore, we were only able to collect the data on audit fees since 2008 and a few observations in 2007 when the companies included the previous year for the comparison. In the Table 5 below, there are exact numbers of observations in the individual years. In 2007, there is a much lower number of observations in comparison with other years, in 2013, we also managed to collect slightly lower number of data.

As we can see from the Figure 1, the average value of audit fees was decreasing since 2007 and increased only slightly in 2012 and 2013. A high value of fees in 2007 is, however, caused by a very low number of observations in this year and also an increase in 2013 might be partly influenced by a smaller number of observations in this year.

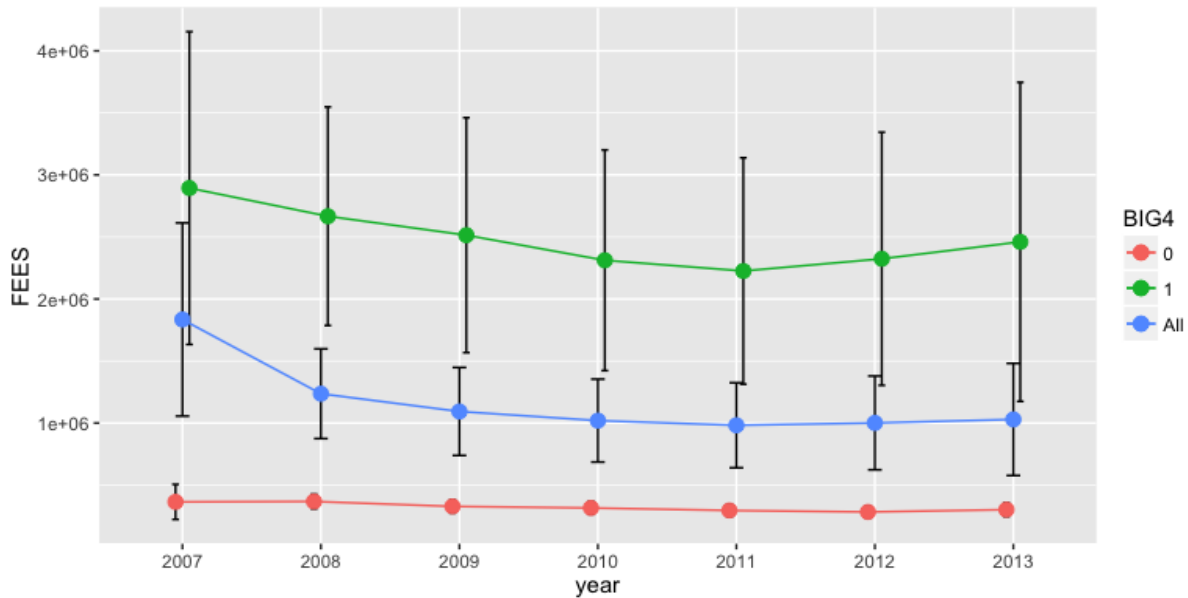
If we compare Big 4 and non-Big 4 firms, there is an obvious difference in the amount of audit fees. While Big 4 average fees move between CZK 2 and 3 million, non-Big 4 auditors charged on average only around CZK 300 000. When looking at the years with a similar number of observations (2008-2012), we can see a significant decreasing trend after the crisis and only a slight increase in 2012. When we compare a crisis year 2008 with a post-crisis year 2012, there is a difference of more than CZK 240 ths. between average audit fees in these years. Whether it is a consequence of the crisis or just a pressure from the clients to reduce audit fees is difficult to judge since we do not have the proper pre-crisis data. Nevertheless, we can conclude that auditors have been receiving lower revenues for their audit services in the after-crisis years than during the crisis years.

**Table 5: Number of observations for audit fees.**

	2007	2008	2009	2010	2011	2012	2013
Big 4	46	91	90	91	92	84	67
Non-Big 4	33	148	164	166	160	148	129
Together	79	239	254	257	252	232	196

*Source: Author*

**Figure 1: Average audit fees by the type of the audit company.**



*Source: Author*

## 7.4 Non-audit fees

Recently, there have been debates whether providing both audit and non-audit services to the client by one audit company is not influencing the auditors' independence. Revenues from provision of certain non-audit services might significantly increase the risk of conflict of interests for audit firms.

The recent audit Directive (2014/56/EU) aims at independence of auditors who are auditing public interest entities. It contains the list of non-audit services which statutory auditors or audit firms will not be able to provide to the audited company. It also introduces a cap on fees for non-audit services to PIEs which are limited to a maximum of 70% of average audit fees paid in the last three years.

We have collected the available data on non-audit fees for our sample of joint stock companies in the period 2006-2013 and focused mainly on companies which are audited by Big 4 firms. Many of these companies use also other services from their audit firm in addition to the compulsory audit of the financial statements. What matters is the amount of non-audit fees paid for these services. Most of the companies (57%) would fit to the limit since their non-audit fees did not account for more than 70% of audit fees. On the other hand, we found several companies (32%), mostly from the energy industry, which paid higher non-audit fees than audit fees to their audit firm at least in one year. This might have a serious impact on auditors'

independence because they might be afraid of losing high non-audit revenues when issuing a modified opinion. This will no longer be possible for the public-interest entities when the new audit directive will enter into force in the Czech Republic, however, it is an independence issue which should be solved also for other types of companies.



## 8 Results of the Models

We work with unbalanced panel data because we do not have data for all the years for every company. Since we have enough observations, we decided to omit the missing data.

### 8.1 Results of the going concern model

We first prepared a descriptive statistics and box plot analysis to compare the values of financial variables in years when auditors issued a going concern opinion and in years when they did not. The results are reported in the following Table 6.

**Table 6: Comparison of variables in the years with and without a going concern opinion.**

<b>Years with a going concern opinion</b>							
	CATCL	LTDTA	CTTA	ITTA	RTTA	TA	AZSCORE
Min	0.05332	0.00000	0.00001	0.00000	0.00000	8264	-2.01757
Q1	0.45262	0.00500	0.00548	0.00456	0.13902	542426	0.42530
Med	0.62439	0.06875	0.02238	0.07352	0.25695	994077	1.23022
Q3	0.92614	0.26878	0.07957	0.20033	0.46377	2887147	2.23383
Max	17.58080	0.96526	0.41451	0.70150	0.99818	42996475	9.80453
<b>Years with no going concern opinion</b>							
	CATCL	LTDTA	CTTA	ITTA	RTTA	TA	AZSCORE
Min	0.00000	-0.00194	-0.02024	0.00000	0.00000	0	-27.40166
Q1	0.94557	0.00289	0.01008	0.01288	0.16073	724023	1.70493
Med	1.25305	0.03502	0.03810	0.08676	0.28949	1499163	2.52193
Q3	1.77608	0.10921	0.10967	0.21382	0.48584	3137900	3.64090
Max	1281.79515	7.81390	1.00000	0.85525	0.99990	549257000	3754.23831

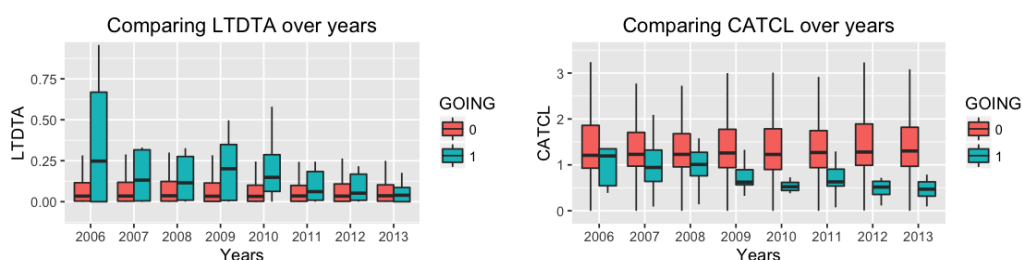
*Source: Author*

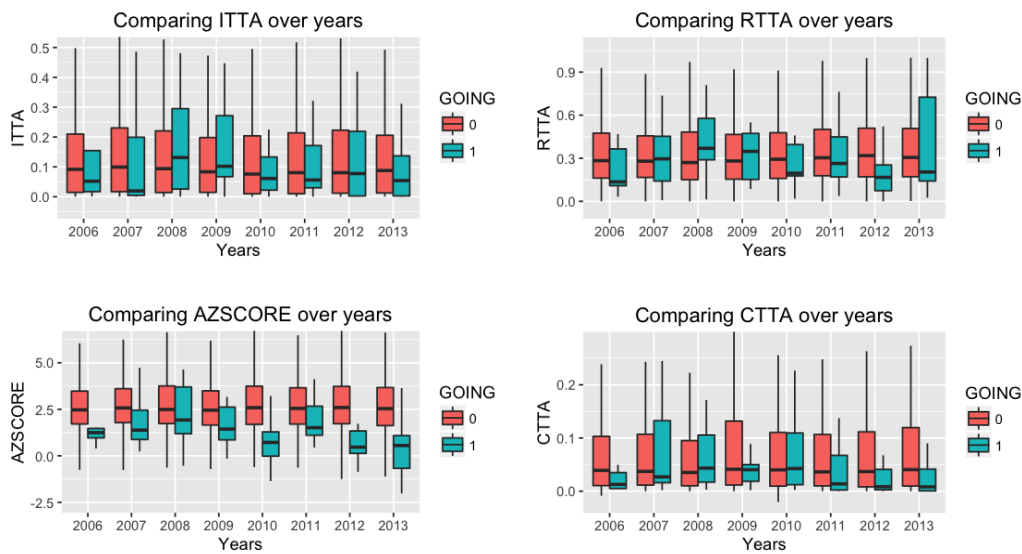
As we can see from the table, there are differences between the variables in the years with different audit opinions. To start with, the ratio of current assests to current liabilities (CATCL) is much lower in all three quartiles in the years with a going concern opinion than without this opinion. On the other hand, the ratio of a long-term debt to total assets (LTDTA) is higher for the years with a going concern opinion, suggesting that the companies which have trouble to continue as a going concern also have relatively higher debts than other companies. What is

more, the cash to total assets ratio (CTTA) is lower in years with going concern opinion, which means that these companies have lower liquidity than companies with no financial problems. There are also lower ratios of inventories and receivables to total assets (ITTA and RTTA) in the years with a going concern opinion than in other years, although the differences are quite small. We can observe that the total assets (TA) are much higher in all three quartiles for the years with no going concern issues. Finally, the Altman Z-Score (AZSCORE), which predicts the probability that a company will go bankrupt, is in line with our expectations, i.e. much lower for the distressed companies which obtained a going concern opinion in certain years. We also found out that 80% of companies which obtained a going concern opinion, had a loss in one of the past three years (3YLOSS).

We also made the box plot comparison of variables in individual years which can be found in the Figure 2. If we compare CATCL over years, we can see that for the observations without a going concern opinion CATCL is relatively stable, while for the observations with going concern opinion CATCL has decreased significantly since 2009. This suggests that in the recent years, a lower ratio of current assets to current liabilities has been needed for issuing a going concern opinion. When looking at the ratio of long-term debt to total assets, we also see relatively stable values for non-GC observations, but more volatile values for GC observations. LTDTA is higher in the years 2007-2010 than in the following years 2011-2013 (in 2006 it has the highest value, but we have very few GC observations for this year, so it does not have such an informative value). Inventories to total assets ratio (ITTA) is the highest in the crisis years 2008-2009 for the going concern observations, while receivables to total assets (RTTA) are higher in 2008 and 2013 than in other years. Altman Z-Score (AZSCORE) for the GC observations is higher during the crisis years 2008, 2009, and also 2011 than in other years suggesting that even companies with a higher AZSCORE obtained a going concern opinion during the crisis. Cash to total assets (CTTA) does not seem to have a certain pattern in the crisis and in the non-crisis period.

**Figure 2: Box plot comparison of variables used in the going concern model.**





*Source: Author*

In most of the variables, we can observe the effect of the crisis. However, we have only few going concern observations out of the total amount of observations, therefore the effects might not be properly seen in the model. We have decided to use the logit model as our probability model. Firstly, we run the logit model separately for every year and we compare the results in the Table 7.

We can observe which variables were significant for the probability of going concern opinion in individual years. Starting with the year 2006, in which we have the lowest number of going concern opinions, we can see that three variables are significant. Logarithm of total assets (LTA) and loss in any of the past three years (3YLOSS) are positive and significant at 5% level, while Altman Z-Score (AZSCORE) is negative and significant only at the 10% level. In 2007 we have only two significant variables, again 3YLOSS at 5% level and long-term debt to total assets (LTDTA) which is positive and significant at 1% level. We can notice that during the crisis years 2008, 2009, and also 2010 there are much more significant variables for the probability of a going concern opinion. Besides 3YLOSS and LTDTA, significant variables in these years are also ratios of inventories and receivables to total assets (ITTA and RTTA) which have a positive sign. In 2008 it is also a Big 4 dummy variable which is positive and significant at 5% level. In 2009 and 2010 there is ratio of current assets to current liabilities (CATCL) which is negative and strongly significant, and in 2010 also cash to total assets (CTTA) which is positive and significant at 1% level and AZSCORE which is negative and strongly significant. On the other hand, in 2011 there is only one significant variable (3YLOSS). It is interesting since there was the highest number of going concern opinions in this year.

**Table 7: Results of the logit model separately for every year.**

<b>2006</b>	Estimate	Pr(> z )	<b>2007</b>	Estimate	Pr(> z )
Interc.	-10.20684	0.00062 ***	Interc.	-8.34502	0.00221 **
CATCL	0.28610	0.21885	CATCL	-0.43805	0.60094
LTDTA	1.41850	0.21461	LTDTA	3.71714	0.00677 **
CTTA	-25.13320	0.18354	CTTA	2.56181	0.30034
ITTA	0.13205	0.95956	ITTA	2.36037	0.32725
RTTA	-1.55427	0.41607	RTTA	1.81722	0.12081
LTA	0.75345	0.04570 *	LTA	0.37947	0.30643
3YLOSS	2.65953	0.01939 *	3YLOSS	1.59934	0.02998 *
BIG4	0.28076	0.73309	BIG4	0.43371	0.45033
AZSCORE	-0.43180	0.07687 .	AZSCORE	-0.05854	0.78508
<b>2008</b>			<b>2009</b>		
Interc.	-5.50641	0.01366 *	Interc.	-9.11218	0.02257 *
CATCL	0.06143	0.42080	CATCL	-3.99627	0.00035 ***
LTDTA	3.66409	0.00760 **	LTDTA	5.70429	0.04962 *
CTTA	0.86214	0.69874	CTTA	2.82948	0.22696
ITTA	4.69554	0.00070 ***	ITTA	7.69574	0.01193 *
RTTA	3.26328	0.00058 ***	RTTA	5.63312	0.01173 *
LTA	-0.29127	0.36612	LTA	0.58331	0.27659
3YLOSS	1.85341	0.00015 ***	3YLOSS	1.75056	0.05991 .
BIG4	1.10194	0.04579 *	BIG4	-1.55402	0.14726
AZSCORE	-0.05757	0.50081	AZSCORE	-0.06826	0.23093
<b>2010</b>			<b>2011</b>		
Interc.	-13.19989	0.11435	Interc.	-4.04597	0.18030
CATCL	-5.52930	0.00046 ***	CATCL	-0.77351	0.49385
LTDTA	1.53854	0.32031	LTDTA	0.54323	0.75143
CTTA	8.86844	0.00465 **	CTTA	-4.33975	0.21247
ITTA	4.52974	0.08801	ITTA	-1.25720	0.60298
RTTA	8.02553	0.00019 ***	RTTA	1.37293	0.36457
LTA	1.19512	0.22681	LTA	0.00557	0.98782
3YLOSS	3.19083	0.00904 **	3YLOSS	2.00379	0.00230 **
BIG4	-0.59732	0.40316	BIG4	0.55392	0.28103
AZSCORE	-1.22066	0.00060 ***	AZSCORE	-0.07919	0.15731
<b>2012</b>			<b>2013</b>		
Interc.	-26.86920	0.01431 *	Interc.	-2.93112	0.35850
CATCL	-3.17245	0.09186 .	CATCL	-6.04274	0.01137 *
LTDTA	1.85871	0.41024	LTDTA	-1.99072	0.73871
CTTA	0.50745	0.90014	CTTA	6.13906	0.04694 *
ITTA	3.19250	0.29571	ITTA	4.10953	0.27272
RTTA	2.06065	0.42417	RTTA	3.22268	0.12576
LTA	0.13718	0.79045	LTA	0.34100	0.47565
3YLOSS	24.80895	0.03824 *	3YLOSS	0.55494	0.55090
BIG4	0.65816	0.33366	BIG4	-0.47347	0.53576
AZSCORE	-0.37895	0.26978	AZSCORE	-0.25744	0.57872

Source: Author

In 2012 and 2013, there are two significant variables in each year: the ratio of current assets to current liabilities (CATCL) with a negative sign, and in addition 3YLOSS in 2012 and the ratio of cash assets to total assets (CTTA) in 2013, both with a positive sign. Bigger number of significant variables during the crisis years suggests that because of a higher risk and higher uncertainty in the crisis, auditors did a more thorough and complex analysis of all accounting areas to help them decide about the appropriate opinion.

We ran the logit model also on the panel data but we encountered an incidental parameters problem: since we have a small number of years, adding dummy variables into the logit specification results in inconsistent estimates of  $\beta$ . The results of this model are reported in the Table 8.

**Table 8: Results of the logit going concern model.**

	Estimate	Std. Error	z value	Pr(> z )	
(Intercept)	-6.03716	1.29911	-4.6471	3.366e-06	***
CATCL	-0.38976	0.69372	-0.5618	0.574222	
LTDTA	0.72099	0.24862	2.8999	0.003733	**
CTTA	-1.22040	1.75969	-0.6935	0.487976	
ITTA	0.34314	1.54302	0.2224	0.824018	
RTTA	1.02783	0.81276	1.2646	0.206009	
LTA	0.15316	0.17810	0.8599	0.389818	
3YLOSS	2.32374	0.36701	6.3315	2.428e-10	***
BIG4	0.16100	0.32254	0.4992	0.617656	
AZSCORE	-0.21141	0.11388	-1.8564	0.063396	.
year2007	0.70745	0.40164	1.7614	0.078172	.
year2008	0.40428	0.50803	0.7958	0.426166	
year2009	0.19343	0.49046	0.3944	0.693301	
year2010	0.12469	0.54660	0.2281	0.819554	
year2011	0.45838	0.53888	0.8506	0.394984	
year2012	0.34035	0.48618	0.7000	0.483905	
year2013	0.28416	0.50129	0.5669	0.570806	
Signif. Codes: '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1					

*Source: Author*

Although the estimates are not reliable, we can see that the loss in the previous years (3YLOSS) and the ratio of a long-term debt to total assets (LTDTA) seem to be good predictors for probability of getting a going concern opinion with their positive sign. Altman Z-Score (AZSCORE) has a negative sign which suggests that companies with a higher Z-Score have lower probability of receiving a going

concern opinion.

If we look at the year dummy variables, we can see that the year 2007 seems to be significant and has a positive sign, which means that in this year there was a higher probability of getting a going concern opinion than in the year 2006. This can be probably explained by the fact that opinions for the year 2007 were given during the year 2008 when the crisis already began, so the auditors started to be more cautious.

## 8.2 Results of the audit fee model

In this model we would like to find out which variables have significant effect on the amount of fees charged by auditors. We first did a pooling model with no adjustments in regressors and obtained the results found in the Table 9. The R-Squared is, however, very small and therefore we decided to do some data transformation in the model.

We used logarithm of FEES and also of other three regressors (CATT, QACL, LTDTA) so that they have normal distribution. Now the R-Squared is much higher (49%) in comparison with the previous model (15.7%). We also used robust standard errors. Results of a new model are reported in the Table 10.

We can see that effect of the Big 4 firm is positive and highly significant. This is in line with our statistical analysis where we observed that Big 4 auditors charge much higher fees than other auditors. Change of auditor (ACHANGE) is negatively associated with audit fees which means that companies change auditors also because of the costs reasons. Modified opinion (MODIFIED) increases the fees probably because auditors have to spend more time on the client, but it is only significant at 10% level. Logarithm of long-term debt to total assets (log\_LTDTA) also has a positive sign and is highly significant.

If we look at the year dummy variables, we can see that all of them have a negative sign. It means that in comparison with the year 2008, the fees were lower in the other years. This confirms the hypothesis that during the crisis the fees were higher than in the after-crisis period. However, we do not have the pre-crisis data to compare with, therefore we cannot say for sure that the fees were higher only because of the crisis.

**Table 9: Results of the audit fee model before adjustments in variables.**

	Estimate	Std. Error	t-value	Pr(> t )	
(Intercept)	2856936.9	533296.7	5.3571	9.952e-08	***
LTA	-289526.2	66607.4	-4.3468	1.487e-05	***
CATTA	-1200922.5	507836.7	-2.3648	0.018183	*
QACL	-2714.7	1996.8	-1.3595	0.174216	
LTDTA	473546.5	282440.9	1.6766	0.093851	.
EBITTA	-44246.3	313731.3	-0.1410	0.887866	
MODIFIED	413604.8	493643.0	0.8379	0.402258	
YEAREND	-354121.4	249495.2	-1.4194	0.156031	
3YLOSS	-416467.9	158438.4	-2.6286	0.008673	**
BIG4	2038736.9	148086.4	13.7672	< 2.2e-16	***
ACHANGE	-563418.8	240863.9	-2.3392	0.019474	*
X2009	-50408.1	239367.1	-0.2106	0.833240	
X2010	-112172.0	239806.3	-0.4678	0.640032	
X2011	-148026.2	240443.0	-0.6156	0.538238	
X2012	-173296.1	245160.1	-0.7069	0.479771	
X2013	-133556.0	256931.8	-0.5198	0.603282	
R-Squared:	0.15774				

*Source: Author*

**Table 10: Results of the audit fee pooling model.**

	Estimate	Std. Error	t-value	Pr(> t )	
(Intercept)	13.3544433	0.1981189	67.4062	< 2.2e-16	***
LTA	-0.0688411	0.0231060	-2.9794	0.0029409	**
log_CATTA	0.0048337	0.0213077	0.2269	0.8205746	
log_QACL	-0.0664283	0.0315761	-2.1038	0.0355870	*
log_LTDTA	0.0978984	0.0126836	7.7185	2.297e-14	***
EBITTA	-0.0695204	0.1128920	-0.6158	0.5381231	
MODIFIED	0.7160858	0.1721807	4.1589	3.402e-05	***
YEAREND	-0.1351324	0.0867154	-1.5583	0.1193894	
3YLOSS	-0.0673223	0.0557094	-1.2085	0.2270865	
BIG4	1.7404629	0.0519857	33.4797	< 2.2e-16	***
ACHANGE	-0.2141540	0.0841631	-2.5445	0.0110551	*
X2009	-0.0765344	0.0834977	-0.9166	0.3595160	
X2010	-0.1381890	0.0836288	-1.6524	0.0986866	.
X2011	-0.2193201	0.0838230	-2.6165	0.0089850	**
X2012	-0.2858582	0.0855009	-3.3433	0.0008508	***
X2013	-0.2376040	0.0895134	-2.6544	0.0080397	**
R-Squared:	0.49038				

Using robust standard errors:

	Estimate	Std. Error	t value	Pr(> t )	
(Intercept)	13.3544433	0.4547308	29.3678	< 2.2e-16	***
LTA	-0.0688411	0.0565575	-1.2172	0.2237483	
log_CATTA	0.0048337	0.0334234	0.1446	0.8850335	
log_QACL	-0.0664283	0.0568672	-1.1681	0.2429635	
log_LTDTA	0.0978984	0.0237285	4.1258	3.924e-05	***
EBITTA	-0.0695204	0.1293391	-0.5375	0.5910088	
MODIFIED	0.7160858	0.3900748	1.8358	0.0666152	.
YEAREND	-0.1351324	0.1746830	-0.7736	0.4393128	
3YLOSS	-0.0673223	0.0906893	-0.7423	0.4580121	
BIG4	1.7404629	0.1101519	15.8006	< 2.2e-16	***
ACHANGE	-0.2141540	0.0907587	-2.3596	0.0184384	*
X2009	-0.0765344	0.0504413	-1.5173	0.1294295	
X2010	-0.1381890	0.0527564	-2.6194	0.0089090	**
X2011	-0.2193201	0.0584864	-3.7499	0.0001845	***
X2012	-0.2858582	0.0647325	-4.4160	1.087e-05	***
X2013	-0.2376040	0.0699650	-3.3960	0.0007038	***

Source: Author

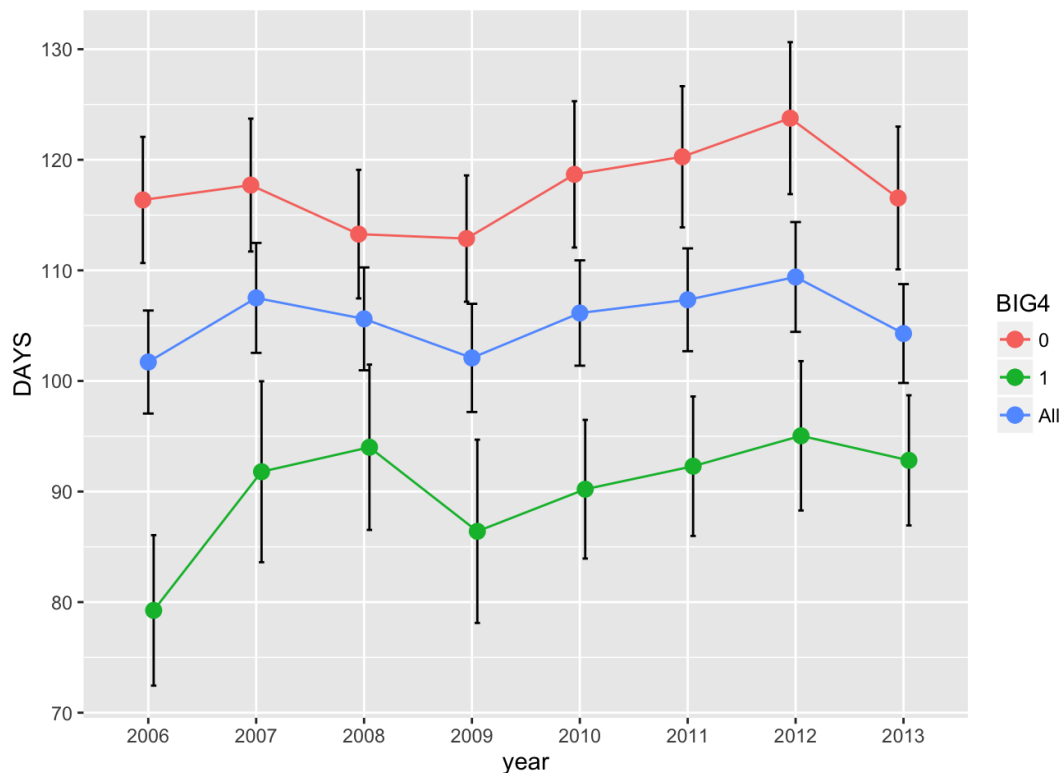
### 8.3 Results of the audit reporting lag model

In this model, we would like to find out whether auditors prolong the period between financial year end and the date of audit opinion because of a higher risk during the crisis. In the Figure 3, we can see the changes in audit reporting lag over the years. We can observe that Big 4 firms increased the number of days in 2008, then in 2009 it was much lower but started to increase until 2012 when it was approximately equally high to 2008. For the non-Big 4 firms the number of days in 2012 was also very high, however, there is a rather decrease than an increase in the crisis years 2008-2009. A possible explanation is that auditors feel more pressure to issue their opinion earlier in the crisis period than in the period of lower risk. We can also see that non-Big 4 auditors take on average more time than Big 4 auditors until they issue their opinion. It can be explained by the fact that clients of the Big 4 auditors usually need their audit results earlier because of the audit of the whole consolidated group. Big 4 companies also have larger personnel capacities, which enables them to issue opinions for many companies shortly after the fiscal year end.



The results of our poisson regression pooling model are reported in the Table 11. As we expected, higher total assets (LTA) are associated with lower audit reporting lag. On the other hand, the ratio of net profit to total assets (NPDTA) has an unexpected positive sign. We thought that higher profit, similarly as higher total assets, would lower the number of days between financial year end and audit opinion date. Clients of Big 4 auditors have much shorter reporting lag than the other companies. It might be a little bit surprising that fiscal year ending at December 31 (END) has a negative sign, since auditors have the most work in this period. Audit reporting lag is positively associated with ratio of total debt divided by total assets (TDDTA), loss in current year (LOSS), going concern (GCONCERN) or other modified opinion (OTHERMOD). It means that auditors have to spend more time on problematic companies. Change of auditor (ACHANGE) is also positively related to audit reporting lag because new auditor needs more time to understand client's business and accounting.

**Figure 3: Changes in the number of days between the financial year end and the date of audit opinion.**



*Source: Author*

If we look at the year dummy variables, we can observe that all the years have significant effect except the year 2009, which is also the only one with a negative sign. The highest coefficient (0.08) has the year 2012 since both Big 4 and non-Big 4

firms had the longest reporting lags in this year. Although Big 4 auditors prolonged their reporting lag in 2008, this year has a lower coefficient in comparison with other significant years. Overall, it seems that the opposite is true and that audit reporting lags are lower in the crisis period because auditors feel more pressure from their clients or clients' creditors to issue the audited financial statements earlier than in the non-crisis period. We also have only a few observations with modified opinions, so their positive effect on the number of days is not so much visible in the total amount of observations.

**Table 11: Results of the audit reporting lag pooling model.**

	Estimate	Std. error	t value	Pr(> t)	
(Intercept)	4.723456	0.012957	364.549	< 2e-16	***
LTA	-0.010132	0.001506	-6.727	1.73e-11	***
NPDTA	0.052717	0.007683	6.862	6.81e-12	***
TDDTA	0.169405	0.003567	47.489	< 2e-16	***
LOSS	0.140201	0.004175	33.583	< 2e-16	***
GOING	0.059520	0.009791	6.079	1.21e-09	***
OTHERMOD	0.304092	0.009407	32.326	< 2e-16	***
END	-0.061838	0.004960	-12.467	< 2e-16	***
BIG4	-0.254563	0.003216	-79.162	< 2e-16	***
ACHANGE	0.053239	0.005298	10.049	< 2e-16	***
year2007	0.042797	0.006319	6.773	1.26e-11	***
year2008	0.016585	0.006331	2.620	0.0088	**
year2009	-0.009452	0.006328	-1.494	0.1353	
year2010	0.042194	0.006277	6.721	1.80e-11	***
year2011	0.051651	0.006280	8.224	< 2e-16	***
year2012	0.081857	0.006287	13.020	< 2e-16	***
year2013	0.034021	0.006422	5.298	1.17e-07	***

*Source: Author*

## 8.4 Comparison of results with other countries

We have found two similar studies examining the auditors' behaviour. The paper by Xu et al. (2013) focusing on Australian auditors confirmed the hypothesis that auditors increase their likelihood of issuing going concern opinions. Their variables of interest (years 2008 and 2009) were positive and significant at one percent level. They also supported the hypothesis that auditors charge higher audit fees during the financial crisis as a result of additional work performed because of a higher audit risk. Their audit reporting lag model did not find the number of days in the period 2008-

2009 significantly different from the period 2005-2007. The study by Chen & Zhang (2012) using data on American companies also supported the hypothesis that auditors charge significantly higher fees during the crisis than in the pre-crisis period. According to their results, fees are higher for bigger firms, for high leverage- and loss firms, and for the Big 4 clients. On the other hand, their research showed that auditors are less likely to issue modified opinion during the crisis. They showed that loss firms have much higher auditor turnover because if the acceptable risk level cannot be achieved, auditors rather leave their clients.

Unlike these studies which compared only pre-crisis period with crisis period, we had also the after-crisis data available. Our audit fees analysis showed that there were significantly lower audit fees after the crisis than during the crisis years. We have also analysed the frequency of modified opinions and found out that both Big 4 and non-Big 4 auditors increased their frequency of issuing modified opinions (most of which were going concern opinions) during the crisis period. It might be, however, surprising that the highest percentage of going concern opinions was in the year 2011. This is probably the consequence of the crisis when companies could not recover from their financial problems encountered during the crisis. In our logit going concern models for the individual years, we also observed a change in the auditors' behaviour during the crisis years 2008-2010. Due to all these reasons, we conclude similarly as Australian researchers that auditors were more likely to issue going concern opinions during the crisis. Unlike Xu et al. (2013) we found out that Big 4 auditors increased their audit reporting lag in 2008, however, our overall results also suggest that audit reporting lag was shorter during the crisis.

## 9 Conclusion

In our study, we focused on the analysis of the Czech audit market and the comparison of the auditors' behaviour during the crisis period and the non-crisis period. We have collected both the audit and financial data for the Czech joint stock companies. We have analysed the frequency of various types of audit opinions, the difference in behaviour between Big 4 companies and non-Big 4 companies, audit fees and non-audit fees, audit reporting lags, and other financial factors influencing the decision-making of auditors.

Our hypotheses were based on the assumption that the auditors change their behaviour in the crisis. There might be several reasons for this change including higher business risk during the crisis, loss of reputation, or litigation risk. We have collected data for 500-600 joint stock companies every year over the period 2006-2013 and performed both the statistical analysis and regression models on them.

We have found an increase in the number of going concern opinions already in 2007, then it was quite stable until 2011, when there was the highest number of going concern opinions, then it started to decrease again. We suppose that the frequency of going concern opinions increased already in 2007 because opinions for this year were given during the year 2008, when the crisis already started, so the auditors were behaving more conservatively. Our logit going concern models for individual years showed a change in behaviour of auditors during the crisis years 2008-2010, since there were much more significant variables in these years than in the non-crisis years. Therefore, we confirm our hypothesis that auditors are more likely to issue going concern opinions in the crisis period. We also found some differences in the behaviour of Big 4 auditors and non-Big 4 auditors. For example, Big 4 auditors issued a higher percentage of modified opinions during the crisis but lower percentage of going concern opinions than non-Big 4 auditors. This might be caused by a different structure of their clients.

We analysed also fees charged by the audit companies for their services associated with the audit of financial statements. We confirmed our expectations that the Big 4 companies charge much higher fees than the non-Big 4 companies, mainly because they audit bigger companies but they also charge premium for their high-quality audits. We found a decreasing tendency of audit fees after the financial crisis, however, we do not have proper pre-crisis data to compare this with. It is therefore

difficult to say whether the fees were higher just because of the crisis or whether they were overvalued already before the crisis. We can, however, confirm the hypothesis that audit fees are higher during the crisis period than in the after-crisis period. We took a look also on the non-audit fees and found out that most of the companies have non-audit fees lower than 70% of audit fees, but we observed also a few companies with higher non-audit fees than audit fees. In our opinion, this might impair the independence of auditors and should be therefore in the interest of regulators to limit it.

Our second measure of audit effort, besides audit fees, was the number of days between the financial year end and the date of audit report. Although Big 4 auditors increased their audit reporting lag in 2008, overall results suggest that audit reporting lag is lower during the crisis, probably because clients and creditors put more pressure on auditors to issue an audit report and audited financial statements earlier during the crisis period. We observed that modified and going concern opinions prolong the audit reporting lag, however, there are not many of these observations to have a substantial effect on the average number of days.

Overall, our results confirm that the auditors behaved more conservatively during the crisis period. They increased the frequency of going concern opinions during the crisis, charged higher audit fees than in the after-crisis period, and Big 4 auditors also prolonged their audit reporting lag in 2008.

Our research naturally has some limitations. We work with the data which are publicly available in the annual reports and financial statements of the companies but we cannot observe the agreements or negotiations between clients and their auditors. Moreover, audit fees may not fully reflect the work done by auditors and audit reporting lag also depends on the time when the client prepares the final statements. Therefore, these measures of audit effort might not be very precise but they work with the best possible data available. Further research could be done also for the other types of companies in the Czech Republic to get a more complex overview of the Czech audit market. Another studies could consider the impact of new audit regulations on the independence and behaviour of auditors, whether they are more capable of detecting the going concern issues and warn the markets about the potential upcoming crisis. Understanding auditors' behaviour is essential for setting up an appropriate regulation and restoring confidence in audit results.

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