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Audit fees and the salience of financial crisis: evidence from Slovenia

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ABSTRACT

The financial crisis that has recently affected the EU economies created a research setting that enabled the examination of the effect of the financial crisis outbreak on audit fees by studying the deviation of audit fees in the post-crisis period as compared to the pre-crisis period. Financial crisis represents a setting that is tightly related to the concepts of audit risk and liability, where higher audit fees can be expected to account for increased audit engagement. The article identifies the characteristics of audit fees in Slovenia, a country with a relatively short auditing tradition. Since the establishment of the first audit firms in Slovenia in 1992, the number has consistently increased and reached 50 in 2007. This trend resulted in decreasing concentration and increasing price competition in the audit market for the large segment of non-listed companies. The aim of the article is to investigate the effect of the financial crisis on audit fees in Slovenia. Using the fixed effects panel model, our study provides evidence that financial crisis negatively affected audit fees in Slovenia. It seems that the negative effects on audit fees (reduced demand, increased competition and cost reduction measures) outweigh the opposing positive effect on audit fees resulting from increased audit engagement.

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1. Introduction

Since the seminal work of Simunic (1980), numerous researchers have focused on a variety of factors expected to affect audit fees. A thorough review of this body of literature was presented by Hay, Knechel, and Wong (2006), who identified as many as 62 audit fee studies on US data, 24 such studies on UK samples and 17 Australian studies. More than one study was also reported for Hong Kong, New Zealand, Canada, India, Ireland, Belgium and the Netherlands and one study in ten other countries. In spite of the remarkable volume of available empirical evidence, empirical evidence on audit fees continues to evolve with new areas of research in the field (Al-Harshani, 2008; Carson & Dowling, 2012; Chang, Gygas, Oon, & Zhang, 2008; Choi, Kim, Kim, & Zang, 2010; El-Gammal, 2012; Koh & Tong, 2013;

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Krishnan & Visvanathan, 2009; Owusu-Ansah, Leventis, & Caramanis, 2010; Sundgren & Svanström, 2013; Wysocki, 2010).

Although audit fee research has been conducted in a number of countries, it mostly derives from larger countries with longer auditing tradition. In spite of the large body of literature from the field, our research in high quality journals provided no evidence of thorough investigation of audit fees focusing on Central and East European (CEE) countries, including Slovenia. The article sheds light on determinants of audit fees in Slovenia, a country with a relatively short auditing tradition where the recent developments in the audit market have led to comparatively low audit fees. Identifying the determinants of audit fees is of crucial importance for the users of financial information: higher complexities and risks should be reflected in higher audit engagement and, consequently, higher audit fees. Otherwise, audit quality is at risk.

The aim of the study is to investigate the effect of the current financial crisis on audit fees. McMeeking (2007) reports that independence concerns, corporate scandals and additional legislation have contributed to a sharp increase in audit fees since the turn of the century. It is plausible that financial crisis represents a setting with a similar (i.e., positive) effect on audit fees. In the field of auditing, financial crisis is tightly related to the concepts of audit risk and liability. According to Simunic (1980) the benefits of auditing are in the nature of liability avoidance. Consequently, financial crisis is expected to affect audit fees due to increased audit engagement (Xu, Carson, Fargher, & Jiang, 2013; Zhang & Huang, 2013). However, some existing empirical evidence reveals that financial crisis has a reverse effect on audit fees. Struggling for long-term survival, companies engage in various cost reduction measures. In this process costs of services (including audit services) are also considered. To complement the existing findings regarding the effect of financial crisis, we perform a panel regression to pinpoint the relevance of financial crisis for audit fees in Slovenia.

The article is structured as follows. The next section provides brief background information on the Slovenian setting, including the development of the auditing profession and recent trends in the audit market. The third section presents an overview of the existing audit fee research. The fourth section focuses on the effect of financial crisis on audit fees and the fifth presents our study of audit fees in Slovenia. Research methodology is followed by descriptive statistics, robust regression and panel model results. The paper concludes with the discussion of the main empirical findings, limitations of the study and potential avenues for future research.

2. Background: auditing profession, audit market and audit fees in Slovenia

Auditing in Slovenia has a relatively short history. The nature of accounting and auditing were very different prior to 1991 when Slovenia was still part of the Yugoslav Republic and workers' self-management and socially owned capital of enterprises played an influential role (Zaman Groff & Valentinčič, 2011). In the field of accounting, the role of bookkeeping prevailed over other accounting functions and its use was almost entirely used for internal purposes. Moreover, the concept of owners' equity emphasised production rather than ownership (Cadez, Slapnicar, & Valentincic, 2011). At the same time, auditing was not mandatory, with the sole exception of joint ventures with foreign companies (Garrod & Turk, 1995).

The Declaration of Independence of Slovenia in June 1991 proved pivotal in the subsequent development of the auditing profession. Following this historical event, an array of new legislation was adopted in Slovenia, including the new Companies Act of 1993. Auditing became mandatory after the adoption of this act for all large and medium-sized joint stock companies, large limited liability companies and all companies quoted on the stock exchange. A further important act, adopted in the same year, was the Slovenian Auditing Act of 1993. In line with the requirements of this act, the Slovenian Association of Accountants and Treasurers established the Slovenian Institute of Auditors, the leading professional organisation in Slovenia responsible for the advancement of the auditing profession. In addition to important tasks such as the preparation of Slovenian accounting standards, the Institute was assigned the responsibility for delivering the formal professional education programmes, licencing statutory auditors and providing quality assurance related to statutory audits. International Standards on Auditing were directly incorporated into law. Due to the lack of certified auditors in the first years after the adoption of the new legislation, monitoring of the auditing profession was carried out by way of peer review, organised and supervised jointly by the Slovenian Institute of Auditors and the Association of Chartered Certified Accountants of the UK.

Some important changes, especially in the field of audit quality assurance, followed after the adoption of the revised Auditing Act of 2001. The revised act established the legal basis for the quality control of auditing firms and auditors (Zaman Groff & Valentinčič, 2011), replacing the former peer review system on a part-time basis with a monitoring system carried out by the experts of the Institute of Auditors (Duhovnik, 2005). The field of quality assurance was further developed by the revised Auditing Act of 2008 that adapted the requirements of the Directive 2006/43/EU on statutory audits of annual accounts and consolidated accounts. In line with the EU directive, the Auditing Act reshaped the auditor independence constraints and introduced public oversight of the auditing profession. Supervision of auditing firms and statutory auditors was assigned to a newly established independent Agency for Public Oversight of Auditing. The Slovenian Companies Act currently requires statutory auditing for all large and medium-sized companies, small listed companies and companies preparing consolidated financial statements. Regardless of their size, banks and insurance companies are subject to statutory auditing.

Financial statements of Slovenian companies are currently audited by 58 audit firms listed in the public register. Overall, the audit market concentration is relatively low in Slovenia. On basis of annual revenues, reported by all registered audit firms in Slovenia, the Agency for Public Oversight yearly reports separate market shares for each of the 10 largest audit firms in Slovenia. For year 2013, for example, on basis of reported revenues of all Slovenian audit firms, the Agency reported 59.9% market share of the Big 4 audit firms on the Slovenian audit market (Annual report of the Agency for Public Oversight of Auditing, 2014). Concentration levels in the segment of listed companies were investigated by Huber (2011), who reported that in Slovenia the market share of the Big 4 rises from 59% for companies with market capitalisation over 50 million GBP to 91% for companies with market capitalisation over 100 million GBP.

The level of audit fees in Slovenia is relatively low. Le Vourc'h and Morand (2011) investigated the level of audit fees in EU Member States on samples of companies included in the Member State's main index. To enable the comparison between countries with different size of companies in the sample, the authors introduced the variable 'audit fees per million

turnover'. The analysis revealed that among all Member States audit fees were lowest in Poland (214 EUR per million turnover), followed by Slovenia (267 EUR per million turnover). The highest audit fees for this segment of companies were reported for Belgium (792 EUR per million turnover) and Ireland (739 EUR per million turnover). As the Slovenian audit market is one of the least concentrated in the EU, the strong price competition between audit firms is often regarded as the principal driver of low audit prices. Moreover, few cases of licence withdrawal and other significant penalties imposed on auditors are considered an additional constituent of the current level of audit fees in Slovenia.

3. Brief overview of existing research on audit fees

A considerable body of empirical research has focused on determinants of audit pricing. Although individual studies differ by setting (country/sample/selection of independent variables), their main aim is to identify the determinants of the variation of audit fees. The studies mostly use audit fee models similar to the original model by Simunic (1980), using a number of independent variables as proxies for size, complexity and riskiness. The models are often complemented by other independent variables claimed by individual researchers to contribute to audit pricing. The in-depth study conducted by Hay et al. (2006) of existing audit fee models (147 separate analyses from more than 20 countries) reveals a total of 186 independent variables that have been used in these models.

In spite of some inconsistencies in the reported findings, there is a general consensus among researchers that the determinants affecting audit fees are client- and auditor-specific. Meta-analysis has demonstrated that audit fees are related to size, complexity and risk as the client-specific variables (Hay et al., 2006), which are also treated by authors as supply variables as they proxy for audit engagement. The studies using these variables exhibited high explanatory power and robustness (Al-Harshani, 2008; Chang et al., 2008; Choi et al., 2010; Chung & Lindsay, 1988; DeFond, Francis, & Wong, 2000; Koh & Tong, 2013; Krishnan & Visvanathan, 2009; Sundgren & Svanström, 2013; Taylor & Simon, 1999). On the other hand, the prevailing auditor-specific variable is auditor quality. Although researchers have used a number of different proxies for audit quality, the majority of studies (85 studies) used a dummy variable for audit firms included in the group of – depending on the timing of the research – Big 8, Big 6, Big 5 or Big 4. As alternatives, dummy variables for industry specialisation and individual audit firms have also been used, but less frequently (Hay et al., 2006). The next sections briefly present the principal client-specific and auditor-specific variables along with the predicted effect on audit fees and existing empirical evidence.

3.1. Auditee size and complexity

Not surprisingly, existing studies confirm that auditee size is closely related to the level of audit fees. The variable that is prevalently used in the analyses is client's total assets (usually in the form of the natural logarithm) whereas the other size variable, total sales, is used less frequently. Hay et al. (2006) report that out of 87 studies using total assets as the independent variable (and 24 studies using total sales) as many as 85 (and 22, respectively), report a significant positive effect of client size on audit fees.

The reasoning provided in existing literature is twofold. First, the auditor must carry out the financial statements audit to obtain reasonable assurance as to whether financial

statements are free of material misstatement. This can only be achieved by reducing audit risk to a reasonably low level by acquiring sufficient appropriate audit evidence, also in the form of substantive testing, and applying due professional care. It is therefore conceivable that audits of larger clients require more audit engagement to provide reasonable assurance, resulting in higher audit fees. Second, price competition prevails in the submarket for audits of small companies, resulting in comparatively lower audit fees in this market segment (Simunic, 1980).

Similar to size, auditee complexity is a predictor of higher audit engagement and, consequently, higher audit fees. The variables used as proxies for auditee complexity include the number of business subsidiaries, number of Standard Industrial Classification codes of the auditee, number of business segments that the client is operating in, foreign subsidiaries and foreign assets (Hay et al., 2006). Existing research also confirms that foreign ownership requires more audit engagement because of higher reporting complexity of the auditee (Jaggi & Low, 2000) and that audit hours and fees are consequently higher for subsidiaries of foreign companies (Niemi, 2005). The results of studies focusing on complexity are generally consistent and provide evidence that higher complexity results in increased audit fees.

3.2. Auditee risk

Literature on the relation between auditee risk and audit fees proposes that audit fees are closely related to auditor litigation risk associated with financial misstatement (Koh & Tong, 2013; Seetharaman, Gul, & Lynn, 2002; Simunic & Stein, 1996) and that higher perceived auditor business risk results in a higher number of audit hours and, consequently, increased audit fees (Bell, Landsman, & Shackelford, 2001; Johnstone & Bedard, 2001).

Hay et al. (2006) distinguish between three distinctive sets of risk-related variables. First, certain parts of the audit have a higher risk of error and require specialised audit procedures to account for the inherent risk (Simunic, 1980). The three proxies used to observe the effect of inherent risk on audit fees are inventories divided by total assets, receivables divided by total assets, and sum of inventories and receivables divided by total assets. Current assets are used less frequently. Regardless of selected proxy, existing studies consistently report a significant positive effect of inherent risk on audit fees. Second, client profitability measures reflect the auditor's exposure to loss, a risk that is expected to be compensated by higher audit fees. Profitability ratio and a dummy variable for loss in the year of audit are used most frequently. The evidence on the effect of client's profitability on audit fees is not as consistent as in the case of inherent risk, especially for the loss variable. And third, client leverage is expected to affect the auditor in a way similar to client profitability as it proxies for the auditor's exposure to loss in the case of client default (Simunic, 1980). The ratio debt to total assets is used most frequently followed by the current ratio. Hay et al. (2006) report a relatively large number of insignificant results for leverage in prior studies.

When assessing auditee risk, management and governance related factors should not be overlooked. Client characteristics such as management reputation, management philosophy related to operational and accounting matters, to list just a few, should also be considered. Clients' involvement in controversial corporate activities, for example, compromises management integrity, raises ethical concerns and results in an auditor's assessment of higher business risk. Koh and Tong (2013) report that such clients pay higher audit fees compared to clients not involved in controversial activities.

3.3. *Big 4 vs. non-Big 4 auditor*

Studies examining the potential effect of audit firm characteristics on audit fees typically investigate the question of whether fees charged by big audit firms are higher than fees charged by other audit firms. The reasoning for the expected fee premium of the big audit firms differs among different authors. Building on existing literature Al-Harshani (2008) defines three main grounds for such an expectation: (1) higher audit fees of big audit firms might reflect the higher quality of audits (i.e., a differential product of big audit firms); (2) according to the 'deep pocket' hypothesis, users of audited financial statements are more willing to file lawsuits against wealthier big audit firms: higher exposure to litigation reflects in higher audit fees; and (3) the non-competitive pricing hypothesis suggests that fee premiums are charged due to the lower level of competition and higher market power of the big audit firms, especially in the segment of large auditees.

Although the majority of studies report the existence of the Big 4 premium (Chan, Ezzamel, & Gwilliam, 1993; Chang et al., 2008; Francis & Stokes, 1986; Gist, 1992; Koh & Tong, 2013; Palmrose, 1986), some authors report no fee premium (Chung & Lindsay, 1988; Firth, 1985). Simunic (1980) even reports lower fees in the big audit firms and attributes the negative fee premium to the economies of scale enjoyed by larger audit firms. Similar findings were recently presented by Carson and Dowling (2012), who report lower audit fees in audit firms deploying more structured audit support systems. These are predominantly used by global audit firms to promote consistency across the firm's global network of offices and facilitate efficient audits.

4. The effect of financial crisis on audit fees and the development of the hypothesis

Simunic (1980) defines audit fees as the product of unit price and the quantity of audit services. Financial crisis represents a period with high uncertainty (Trujillo-Ponce, Samaniego-Medina, & Cardone-Riportella, 2014), therefore it is expected to affect audit fees due to increased risk and, consequently, increased audit engagement. Koh and Tong (2013) report evidence of audit firms pricing the business risk and insuring against higher expected losses through additional audit engagement. Xu et al. (2013) propose that auditors are likely to manage their risk exposure more actively in an environment with higher litigation risk and more severe scrutiny by regulators that can result in high penalties for risks that are highlighted by standard setters and regulators. They propose increased likelihood of issuing going concern modified audit reports and additional audit effort as two viable consequences of increased risk exposure.

However, the evidence on this risk-based assumption is rather mixed in the scant existing evidence on the behaviour of audit fees in times of financial crisis. Researchers report evidence of decreasing audit fees since the beginning of the financial crisis in 2008 in the US. They report that audit fees fell on average by 8% in 2008 in the segment of companies with annual revenues between \$100 million and \$250 million, and by 5% in the segment of companies with annual revenues between \$250 million and \$500 million. While the decreases in audit fees were less evident, they continued in larger companies in year 2009 (McCann, 2010). Similarly, Whitehouse (2010) reports a fall in audit prices for the Standard & Poor's 500 companies with a median decline of 5.4% from 2008 to 2009. Moreover, for the period

2008–2009 Krishnan and Zhang (2014) report cuts in audit fees in 32% of the banking sector. On the other hand, Xu et al. (2013) find evidence of increased audit fees during the period 2008–2009 compared with the period 2005–2007 on a sample of Australian listed companies. They report that audit fees increased by approximately 10% each year between 2008 and 2009. As there was no evidence on increased auditor salaries in the mentioned period, the results reveal that the auditors are likely to have increased their engagement in conducting audits during the global financial crisis period. They report that in Australia the auditors faced increasing scrutiny by both, regulators and audit report users during the financial crisis (including several legal actions against them), suggesting a high litigation risk environment. In addition to Australia, evidence of increasing audit fees in times of the recent financial crisis is reported by Zhang and Huang (2013) for the Chinese listed companies that faced higher risk in times of the crisis, export oriented companies in particular and by Alexeyeva and Svanström (2015) for the companies listed on the NASDAQ OMX in Stockholm. Although the authors reporting the evidence from Sweden find support for increasing audit fees during the financial crisis period they found no evidence of increasing auditor effort in the studied period.

As in other EU economies, the recent financial crisis hit Slovenia in 2008 and resulted in a sharp rise of unemployment and continuous rise of public debt. An increased number of insolvent companies have had a knock-on effect and damaged the healthier segment of companies in turn. In combination with a persistent Slovenian bank crisis and the uncertain recovery of other economies within the EU – the largest partners of Slovenian export oriented companies – the circumstances represent a relatively higher audit risk. To respond to the risks related to valuation of financial assets, inventories and receivables, to list just a few, it is plausible to expect a rise in audit prices as a result of increased engagement to carry out a particular audit. Moreover, Zdolšek, Jagrič, and Odar (2015) report that the financial crisis from 2009 onwards additionally increased the interest in auditors' reports. This implies that the work of auditors is becoming more scrutinised by diverse stakeholders, serving as an additional incentive to auditors for increased audit engagement and audit quality. As the audit market in Slovenia was already highly competitive and audit prices comparatively low before the outbreak of the economic downturn we would not expect to witness a further decline in audit fees as a result of financial crisis. Therefore, we propose to test the following hypothesis:

H1: The eruption of the crisis positively influences audit fees.

5. Research design and empirical results

We studied the audit fees of all non-listed large and medium-sized Slovenian manufacturing companies (Industry C from the Slovenian Standard Classification of Activities – SKD) that presented audited financial statements in the years 2007 to 2012. In the selection process we considered the proposition that, from a research design standpoint, focusing on a single industry offers some advantages (Krishnan & Zhang, 2014). These include avoidance of problems of control for confounding differences (such as in risk) related to inter-industry comparison (Simunic, 1980) and differences in drivers of audit fees in specific subsamples such as the financial sector (Fields, Fraser, & Wilkins, 2004). The selected

period (2007–2012) allows the analysis of the trend of audit prices in Slovenia along with any possible shift in the trend provoked by the financial crisis.

The number of audited financial statements presented by non-listed manufacturing companies was decreasing throughout the studied period. The manufacturing companies represent a significant part of the total audited financial statements presented by Slovenian companies. In spite of the aforementioned trend, the share of audited financial statements presented by the manufacturing sector was increasing and amounted to 31.3% in year 2012.

For the selected period we matched audit fees with income statement and balance sheet data, auditor-related data and additional information from annual reports to identify the determinants of audit fees in this period. While the audit fee, statutory auditor and auditee ownership related data were gathered manually from individual annual reports, the financial statements data were retrieved from the AJPES (Agency of the Republic of Slovenia for public legal records and related services) database. The total number of audited manufacturing companies was 652 in year 2007, 608 in year 2008, 574 in year 2009, 562 in year 2010, 549 in year 2011 and 537 in year 2012.

Based on the literature review we decided to extend the original model of Simunic (1980) to examine the determinants of audit fees in Slovenia. We include auditee size, complexity and risk related variables as well as an auditor-specific variable. The empirical specification for regression estimation is as follows:

$$\begin{aligned} \ln \text{audit} = & \beta_0 + \beta_1 \ln \text{assets} + \beta_2 \text{bal}_{\text{findebt}} + \beta_3 \text{bal}_{\text{invrec}} + \beta_4 \text{bal}_{\text{ebit}} + \beta_5 \text{dum}_{\text{loss}} \\ & + \beta_6 \text{dum}_{\text{bigfour}} + \beta_7 \text{dum}_{\text{own}} + \varepsilon \end{aligned} \quad (1)$$

First, we conducted the robust estimation year by year. Next, we estimated this equation with year fixed effects panel regression added for the pre- and post-crisis eruption period.

Our independent, dependent and dummy variables are as follows:

Variable	Predicted direction	Definition
In audit	independent variable	Natural log of audit fee
In assets	+	Natural log of total assets
bal_findebt	+	Financial debt / total assets
bal_invrec	+	(Long-term + short-term receivables + inventories) / total assets
bal_ebit	–	EBIT / total assets
dum_loss	+	1 if net loss in year of audit, otherwise 0
dum_bigfour	+	1 if audited by Big 4, otherwise 0
dum_own	–	1 if domestic ownership more than 50%, otherwise 0
dum_crisis	+	1 for years 2009, 2010, 2011 and 2012, otherwise 0

Source: Authors' calculation.

5.1. Descriptive statistics

Selected descriptive statistics are presented in Table 1. The number of companies in the sample varies from year to year. To obtain the final sample of the companies for the analysis we first derived a comprehensive list of all non-listed manufacturing companies that presented audited financial statements in each year (from 2007 to 2012) from the AJPES database (which represents around 30% of all audited companies). Next, we manually collected the audit fee, the names of the audit firms carrying out statutory audits in any particular year and auditee ownership related data from individual annual reports. A total of 3482 individual annual reports were inspected. Some companies were excluded from further analysis because the required data was either missing (some of the companies did not disclose the audit fee in their annual reports, especially in the early years of the studied period) or was

Table 1. Descriptive statistics and share of Big 4 audited companies by year.

Year		Audit fee (EUR)	Assets (in EUR)	bal_findeb	bal_ebit	bal_invrec	Share of Big 4
2007	median	8480	13,000,000	0.250	0.040	0.433	41.14%
2008	median	9260	14,000,000	0.308	0.036	0.423	39.62%
2009	median	9280	14,800,000	0.326	0.024	0.391	37.70%
2010	median	8500	15,300,000	0.322	0.027	0.414	39.80%
2011	median	8500	15,600,000	0.311	0.031	0.402	40.29%
2012	median	8560	15,800,000	0.315	0.027	0.377	39.20%
Total	median	8800	14,800,000	0.301	0.031	0.411	39.71%
Year		Audit fee (EUR)	Assets (in EUR)	bal_findeb	bal_ebit	bal_invrec	
2007	mean	12,768	35,700,000	0.258	0.053	0.436	
	std. dev.	15,373	89,600,000	0.189	0.090	0.181	
2008	mean	13,154	41,000,000	0.306	0.039	0.437	
	std. dev.	14,638	106,000,000	0.201	0.116	0.178	
2009	mean	13,179	40,600,000	0.327	0.025	0.408	
	std. dev.	13,782	104,000,000	0.221	0.092	0.180	
2010	mean	13,043	41,900,000	0.328	0.026	0.420	
	std. dev.	15,744	108,000,000	0.236	0.117	0.178	
2011	mean	12,730	42,100,000	0.324	0.034	0.412	
	std. dev.	14,784	109,000,000	0.236	0.090	0.178	
2012	mean	12,530	42,000,000	0.322	0.030	0.403	
	std. dev.	15,458	112,000,000	0.241	0.084	0.177	
Total	mean	12,893	40,400,000	0.309	0.035	0.420	
	std. dev.	14,997	104,000,000	0.221	0.099	0.179	
Year		Audit fee (EUR)	Assets (in EUR)	bal_findeb	bal_ebit	bal_invrec	
2007	min	1180	451,001	0.000	-0.375	0.000	
	max	140,000	1,100,000,000	0.929	0.500	1.009	
2008	min	1200	2,200,000	0.000	-1.630	0.004	
	max	149,000	1,200,000,000	0.960	0.473	1.000	
2009	min	800	447,176	0.000	-0.925	0.001	
	max	130,000	1,310,000,000	1.403	0.447	0.999	
2010	min	980	445,070	0.000	-1.561	0.000	
	max	170,195	1,450,000,000	1.867	0.509	0.994	
2011	min	800	441,470	0.000	-0.536	0.001	
	max	165,089	1,460,000,000	2.312	0.487	0.997	
2012	min	800	811,440	0.000	-0.388	0.006	
	max	187,142	1,570,000,000	2.539	0.420	0.999	
Total	min	800	441,470	0.000	-1.630	0.000	
	max	187,142	1,570,000,000	2.539	0.509	1.009	

Source: Own calculation.

not suitable for the analysis (in some cases audit fees were only disclosed for consolidated and not for individual financial statements). The final sample consists of 508 companies in year 2007, 419 companies in year 2008, 382 companies in year 2009, 402 companies in year 2010, 407 companies in year 2011 and 398 companies in year 2012. For all the companies in the final sample we retrieved the required financial data from the AJPES database. Due to missing data and non-consistent reporting in the AJPES database the actual number of observations in the regression results was further decreased by around 5%. Since there is a lot of variability and skewness in the sample we opted to focus on median values. Nevertheless, we also report mean, standard deviation and minimum and maximum values in Table 1. The median value of company assets in the sample is between 13.0 million EUR (in year 2007) and 15.8 million EUR (in year 2012). The median (as well as mean) audit fee was highest in year 2009 when it reached 9,280 EUR (mean 13,179 EUR). It declined to 8500 EUR in year 2010 returning to the level of the pre-crisis boom period and did not change significantly in the following two years.

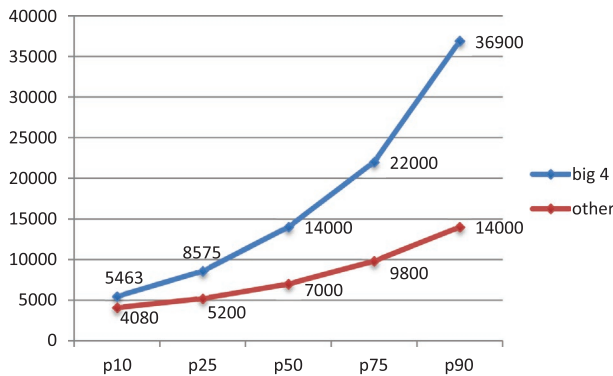


Figure 1. Audit fee distribution in EUR for Big 4 and other auditors. Source: Own calculation.

Financial debt over total assets was increasing in the pre-crisis years (2007 and 2008) and also at the beginning of the crisis in 2009. The mean value increased also in 2010 (0.328) but only slightly and would have to be tested whether it was significantly different than in 2009 (0.327). It started to decline after 2009 thus showing possible deleveraging of companies. In 2012 the median value of financial debt over total assets was 31.5%. The median and mean EBIT over total assets was the largest in the boom year of 2007 when it reached 4.0% (median) and 5.3% (mean). It fell significantly in the first year of the crisis to 2.4% (median). In spite of the financial crisis the median EBIT over total assets of the observed companies increased between years 2009 and 2011. It decreased in year 2012 to 2.7%. The movement of EBIT over total assets corresponds to either improved operating efficiency of sample companies or shrinking balance sheet total due to the deleveraging process, or both. The receivables and inventories variable shows that the median of sample companies was around 40% throughout the observed period, slightly declining to 37.7% in year 2012. The mean values of receivables and inventories are very similar to that of median values. The share of companies audited by a Big 4 auditor varies between 37.7% and 41.14%.

Although there is not much time variability in the median values of the observed variables there are some interesting differences in the sample between certain groups of companies. For example we can observe a significant difference of the mean of audit fee between companies that have a Big 4 auditor and companies that are audited by a non-Big 4 auditor. The same can be seen over the whole distribution of companies' fees (Figure 1), where the audit fee is shown to be much higher over the whole distribution for the companies audited by a Big 4 auditor.

5.2. Empirical results

Because of possible effects of differences in ownership and organisational specifics on heteroscedasticity the regression model is firstly estimated for each year separately using a robust regression with Huber weights and biweighting due to possible influential outliers in the sample (Table 2). Since biweights can have problems converging or may produce several solutions and Huber weights may have difficulties with some outliers, both weights are used in the robust estimation. Due to year by year observation we also did not include year or crisis dummy variables. Since we also wanted to check the soundness of our estimations we

Table 2. Robust regression results of 'ln audit' by year.

		2007	2008	2009	2010	2011	2012
ln assets	β_1	0.451*** (0.0206)	0.451*** (0.0208)	0.426*** (0.0216)	0.428*** (0.0204)	0.421*** (0.0192)	0.416*** (0.0212)
bal_findeb	β_2	-0.373*** (0.119)	-0.359*** (0.107)	-0.0888 (0.111)	-0.0812 (0.0969)	-0.0706 (0.0929)	-0.211** (0.0962)
bal_invrec	β_3	0.263** (0.120)	0.240** (0.117)	0.329*** (0.124)	0.330*** (0.122)	0.409*** (0.115)	0.484*** (0.123)
bal_ebit	β_4	0.458 (0.280)	-0.285 (0.193)	0.198 (0.282)	-0.351* (0.204)	0.178 (0.282)	-0.420 (0.316)
dum_loss	β_5	0.254*** (0.0720)	0.0397 (0.0574)	0.130** (0.0566)	0.00367 (0.0537)	0.185*** (0.0547)	0.0429 (0.0581)
dum_bigfour	β_6	0.250*** (0.0452)	0.296*** (0.0456)	0.307*** (0.0508)	0.262*** (0.0487)	0.234*** (0.0445)	0.243*** (0.0481)
dum_own	β_7	-0.189*** (0.0577)	-0.243*** (0.0511)	-0.264*** (0.0547)	-0.306*** (0.0523)	-0.302*** (0.0489)	-0.295*** (0.0511)
Constant	β_0	1.616*** (0.357)	1.748*** (0.359)	2.018*** (0.373)	2.032*** (0.356)	2.055*** (0.336)	2.173*** (0.371)
Observations		481	419	334	381	389	380
R-squared		0.596	0.663	0.688	0.666	0.669	0.643

Standard errors in parentheses.

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

Source: Own calculation.

Table 3. Fixed effects (within) panel regression results of 'ln audit'.

In audit		Coefficient	Standard error	t-stat	p-value
ln assets	β_1	0.224***	0.031	7.220	0.000
bal_findeb	β_2	0.047	0.058	0.810	0.416
bal_invrec	β_3	0.075	0.080	0.940	0.347
bal_ebit	β_4	-0.126	0.088	-1.430	0.153
dum_loss	β_5	-0.016	0.019	-0.840	0.403
dum_bigfour	β_6	0.249***	0.034	7.240	0.000
dum_own	β_7	-0.100***	0.038	-2.660	0.008
dum_crisis	β_8	-0.046***	0.013	-3.630	0.000
constant	β_0	5.381***	0.524	10.260	0.000
Observations		2,384			

*** $p < 0.01$.

** $p < 0.05$.

* $p < 0.1$.

Hausman test statistics: $\chi^2(8) = 73.83$, Prob $>> \chi^2 = 0.0000$.

Source: Own calculation.

also estimated our sample with panel regression. Table 3 shows the results of fixed effects (within) panel regression, confirmed as a better alternative to a random effects model, using Hausman's test (Hausman, 1978). The R-squared is around 60% for the robust regression, which shows that our model explains 60% (or more) of the variability in audit fees.

The asset variable (ln assets) has a positive and significant influence on audit fees, but the growth of assets influences the growth of fees less than proportionally (inelastic). The impact is reasonably consistent over the entire period of observation. In line with the existing empirical evidence, the panel model confirms the positive effect of total assets on audit fees although it reveals smaller magnitudes. Similarly, the effect of receivables and inventories is positive and statistically significant in all years (and raising in its magnitude) in the robust regression model, consistent with existing evidence that more receivables

and more inventories represent inherent risk and result in higher audit fees although these results should be treated with caution since the coefficient was not significant in the panel model. Another variable, showing consistent and significant positive effect on audit fees in all years and both models is the variable for Big 4 audit firm (*dum_bigfour*). Looking at the panel model it implies that choosing a Big 4 audit firm would raise the cost of auditing by $\exp(0.249)$, that is, by 28.27%.

On the other hand, the variable for ownership (*dum_own*) has significant negative effect on audit fees looking at the panel model which is even more enhanced in the crisis years. The robust specification is consistent with the direction of the coefficient in the panel model within all years. The reported finding is related to the question of whether foreign ownership implies more audit engagement because of higher reporting complexity of the auditee and/or the need for higher levels of assurance. In line with expectations both analyses reveal higher audit fees in companies with more than 50% foreign ownership.

Robust regression results also report a negative impact of financial debt on audit fees in all years, but statistically significantly so only in years 2007, 2008 and 2012. As the fixed effects panel regression shows a positive (and not statistically significant) relationship, the results for this variable are inconclusive.

Profitability components in the analysis are EBIT over total assets and loss in year of audit. The two variables proxy for auditor exposure to loss: hence higher EBIT over total assets is expected to result in lower audit fees whereas reported loss in year of audit is expected to increase audit fees due to higher risk to the auditor. Although the robust specification provides somewhat inconsistent results, the coefficient of the EBIT variable in regression model is negative in line with expectations and is (marginally) statistically significant in year 2010. The panel model also suggests a negative relation albeit not statistically significant. On the other hand, the dummy variable for loss in the year of audit (*dum_loss*) shows inconsistent results: we observe a positive impact of loss on audit fees in the robust specification (significant in years 2007, 2009 and 2011) while the panel model reveals a negative (yet not significant) effect on audit fees.

Consistent with descriptive statistics, the dummy variable for the crisis period in the panel model reveals small and negative, yet statistically significant, deviation of influence in years 2009, 2010, 2011 and 2012 as compared to the pre-crisis years of 2007 and 2008. This result is not congruent with our hypothesis of increased audit fees as the result of increased audit engagement in times of financial crisis and consequent riskier audit environment. Thus our hypothesis is rejected. However, it is in line with existing empirical evidence in the US, reporting that the outbreak of the financial crisis negatively affected audit fees (Krishnan & Zhang, 2014; McCann, 2010).

6. Discussion and conclusion

Our study is the first to empirically investigate the determinants of audit fees in Slovenia. All non-listed large and medium-sized Slovenian manufacturing companies that presented audited financial statements and disclosed audit fees in their annual reports in years 2007, 2008, 2009, 2010, 2011 and/or 2012 were included in the analysis. The study is based on a total of 2,516 year observations.

The results of the regression analysis are predominantly consistent with existing empirical evidence. While auditee size has a significant positive effect on audit fees, the influence

of risk is not as straightforward. On the one hand, the variable requiring specialised audit procedures to account for inherent risk (inventories and receivables) influences audit fees in predicted ways (yet the conclusion based on our sample would need further analysis to be confirmed without doubt since the panel model coefficients were not significant). On the other hand the analysis provides no consistent support for the proposition that client profitability measures (EBIT over total assets, client's loss in the year of audit) and leverage measures (financial debt over total assets) that reflect the auditor's exposure to loss affect audit fees in predicted ways. The negative coefficient of the EBIT variable in the panel model is consistent with the auditor exposure related argument whereas the negative coefficient of the loss variable is not. It might be that in line with theoretical reasoning auditors charge higher fees to financially less viable clients due to higher risk but that they do not perceive loss in the audited year as a relevant threshold. The other plausible explanation is that companies that report loss in the year of audit and companies with higher leverage are more active in the implementation of cost reduction measures, engage more in price negotiation with existing auditors and engage new auditors that perform audit services at lower prices.

Audit fees in Slovenia are higher when clients hire Big 4 audit firms. Considering the Slovenian environment of a low incidence of lawsuits against audit firms, it is not likely that higher audit fees of the Big 4 auditors are related to the deep pockets theory. The differential product theory seems to better explain this finding, especially in the light of price competition in the audit market in the segment of non-listed auditees and the increasing number of small audit firms with only one certified auditor entering the Slovenian audit market (Zaman Groff & Salihović, 2016). For the segment of the largest auditees, where the market power of the Big 4 audit firms is much higher, the reported results are also consistent with the non-competitive pricing hypothesis (Al-Harshani, 2008).

Ownership of the client (predominantly domestic vs. predominantly foreign ownership) is an important determinant of audit fees in Slovenia. This part of the analysis is related to the question of whether foreign ownership requires more audit engagement because of higher reporting complexity of the auditee and/or requires higher levels of assurance. Regarding higher complexity, existing evidence reveals that multinational companies report their results in more detail than their local counterparts (Jaggi & Low, 2000) and that audit hours and fees are consequently higher for subsidiaries of foreign companies (Niemi, 2005). Regarding the request for higher levels of assurance Niemi (2005) claims that audit fees in subsidiaries of foreign companies should also be higher due to the importance attributed to corporate governance related topics in subsidiaries with foreign ownership. Moreover, the study by Skinner and Srinivasan (2012) conducted in the aftermath of a massive accounting fraud in Japan revealed that the likelihood of replacing the disputed auditor was significantly higher in companies with higher foreign ownership, a characteristic associated with a demand for higher quality of auditing. The effect of ownership on audit fees in our study confirms prior evidence.

The aim of the study was to investigate the effect of the recent financial crisis on audit fees and thus to contribute to the relatively scarce and mixed empirical evidence. The results are not congruent with our expectations of increased audit fees as a result of increased audit engagement in times of financial crisis, the hypothesis that has been confirmed in existing literature for the sample of listed Australian companies in a high litigation risk environment (Xu et al., 2013) and for the export oriented Chinese listed companies (Zhang & Huang, 2013), that were most severely affected by the crisis. On the contrary, using the fixed effects

panel model as the most contemporary tool to estimate panel data of such specifics, our study provides evidence that financial crisis negatively affected audit fees in Slovenia, a finding that is in line with existing US evidence (Krishnan & Zhang, 2014; McCann, 2010).

To explain the relevance of financial crisis to the level of audit fees in Slovenia we turn to the definition of Simunic (1980), who defines audit fees as the product of unit price and the quantity of audit services. The interpretation should consider both components of audit fees. Evidence from prior studies (Bell et al., 2001; Johnstone & Bedard, 2001) confirms that higher audit risk results in a higher number of audit hours, especially in a high litigation risk environments and more severe scrutiny by regulators (Xu et al., 2013). Slovenia cannot be regarded a high litigation risk and severe regulation scrutiny environment (this is also supported by few cases of licence withdrawal and other severe penalties). If the level of audit fees in such setting declines, it is plausible to consider the decreasing unit price as the element with decisive effect on the ultimate audit fee. Audit services are performed on an annual basis and thus represent an important and permanent segment within the company cost structure. In times of financial crisis cost reduction is seen as one of the critical factors for company survival (Zhang & Huang, 2013). It is therefore reasonable to expect pressure to lower the unit price. Moreover, an economic downturn reduces demand for audit services, creates temporary excess capacities and consequently contributes to increased competition in the audit market (Abdel-Khalik, 1990). In Slovenia, the number of audit firms has been growing since the establishment of the first audit firms in 1992. In 2007, representing the first year of the present analysis, the total number of registered audit firms in Slovenia reached 50 and the total number of certified auditors was 196 (Annual report of the Slovenian Institute of Auditors, 2007). In 2012, which was the final year of the analysis, the number of audit firms grew to 56 and the number of certified auditors reached 211 (Annual report of the Slovenian Institute of Auditors, 2012). As the outbreak of the crisis did not reverse the trend, the decreasing concentration and increasing competition continued throughout the studied period. Moreover, the number of auditees was reduced, in prevailing part due to bankruptcy and other forms of insolvency proceedings. As our analysis reveals, the total number of audited manufacturing companies was 652 in year 2007, 608 in year 2008, 574 in year 2009, 562 in year 2010, 549 in year 2011 and 537 in year 2012. Similarly, the research focusing on all large auditees in Slovenia in the period 2008–2011 also reports the decreasing number of auditees in the given period. The number of large auditees fell from 769 auditees in 2008 to 763 in 2009, 756 in 2010 and 750 in 2011. All in all, it seems that the negative effects on audit fees, triggered by reduced demand, increased competition in the market and the cost reduction measures of the auditees, outweigh the opposing positive effect on audit fees due to increased audit engagement.

Future research could profitably investigate the impact of financial crisis on audit fees in different segments of the audit market. The present study reveals its effect on audit fees for the segment of manufacturing companies. An analysis of audit fees in the banking sector would enable international comparison with existing empirical evidence (Krishnan & Zhang, 2014). The consequences of an audit fees decrease for the economy, and its capital market in particular, could be assessed by adding the audit quality related variables into the analysis. Future research should not neglect the effects on audit fees, triggered by the EU and/or national legislation and regulation. More specifically, the Directive 2013/34/EU of the European Parliament and of the Council on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings aims to reduce

the administrative burden for small companies, improve the quality and comparability of the information disclosed and refocuses the recognition and measurement on prudent basis. It is plausible to believe that the changes, already implemented in the new Slovenian Accounting Standards 2016, will influence audit risk and, consequently, affect audit fees. Moreover, the new Auditing Act of 2016 that is expected in the following months to implement the requirements of the Directive 2014/56/EU and Regulation 537/2014 will affect the Slovenian audit market, especially as regards the public oversight of auditing. Studying the effects of the new legislation and regulation on audit risk, audit quality and audit fees represents a viable area of future research. A further viable area for future research is the construction of dynamic dummies (dummy variable multiplied with the observed variable) instead of static dummies in the panel model. In respect to the econometric limitations the instrumental variable procedure would also help to address endogeneity problems with our estimations and make our results more robust. Constructing relevant instruments, however, remains a challenge.

Disclosure statement

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