The effect of limiting statutory auditors' civil liability on financial reporting quality: Empirical evidence on liability caps and earnings management in Europe

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Abstract

The European Commission has recommended that EU member states limit the civil liability of statutory auditors. This paper examines the effect of the existence of a liability cap on financial reporting quality, which is measured by the magnitude of earnings management in audited financial statements. The results from a sample of 1,306 listed companies in six European countries in 2008 indicate that liability caps lead to lower financial reporting quality when a large company is audited by a non-Big 4 auditor. This is consistent with that large companies are more likely to be affected than small and medium size companies because of the fixed threshold nature of the liability caps. As to the auditor type, the findings are consistent with earlier research on the effects of auditor type on financial reporting quality. The findings should be useful when assessing the implications of introducing similar liability limitations.

Keywords: *accounting harmonisation, audit regulation, auditor liability, earnings management, financial reporting quality.*

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1. Introduction

This paper examines the effect of limiting statutory auditors' civil liability on financial reporting quality. Auditor liability as a part of audit regulation is of particular current interest, as the European Commission has in 2008 issued a recommendation concerning the limitation of the civil liability of statutory auditors and audit firms (2008/473/EC)[1]. The first objective of the recommendation is to ensure the insurability of audit services and thus their availability to clients. Other goals are reducing the risk of a Big 4 firm collapse and encouraging middle-sized audit firms to offer their services to listed clients[2]. The Commission recommends that EU member states should limit auditors' liability, but does not oblige them to take action. It also gives member states the freedom of choosing the means of limitation, one alternative being a monetary liability cap, either a fixed amount threshold or a cap based on a formula allowing the calculation of such an amount[3]. This paper examines the effect of a fixed liability cap, which was in place in five EU member countries in 2008: Austria, Belgium, Germany, Greece, and Slovenia. Belgium, Germany, and Greece are included in this study; Austria and Slovenia were excluded due to data availability. Of the countries without a liability cap, Finland, France, and Sweden were selected so that the samples from liability cap and non-liability cap countries are roughly equal in size[4]. The main features of the liability regimes of these six countries are presented in Table 1.

The possible negative external implications of liability limitations on audit quality and audit markets are a controversial issue. A study by London Economics (2006) proposed that auditors' liability should be limited throughout Europe, and reached a conclusion that liability caps do not affect audit quality. The study greatly contributed to the European Commission's recommendation on the matter (European Commission 2008b). It identifies three main reasons why auditors' liability in Europe should be limited: (1) the poor availability of auditor insurance especially for higher levels of liability, (2) the increased risk of litigation that would lead to a Big 4 firm collapse, and (3) the increased overall risk of the audit profession. Other arguments for limitations have also been presented, such as moderating audit fees. For example, Choi et al. (2008) found that the strictness of a country's liability regime is an important driver of audit fees. Fair allocation of responsibility has also been mentioned as an argument, for example a study by the Swedish justice department (SOU 2008: 79) points out that it is highly questionable that the auditor can be liable for any damages due to negligence also on the client company's part.

As to arguments against limiting auditor liability, Doralt et al. (2008: 63) claim that limiting auditors' liability protects auditors unfairly, as they are treated differently compared to other professions as lawyers or physicians. Köhler et al. (2008) have a similar view and add that a liability cap's fairness is questionable since the relative compensation for the loss suffered increases with the declining extent of damage. From investor protection's point of view, higher auditor liability also raises investors' expected damage compensation and thus the value of the investment (Liu and Wang 2006). Finally, unlimited liability can be seen as incentive for better audit quality and increasing public confidence in this quality, as suggested by Köhler et al. (2008: 143).

In conclusion, there is high controversy and uncertainty over the possible negative externalities and unintentional incentives of limiting statutory auditors' liability. This brings about the need for more empirical research on the matter. This paper contributes to the discussion by examining if financial reporting quality in audited financial statements of publicly listed companies is affected by fixed monetary liability caps. The presumption

1 Statutory audit in the European Union is currently regulated by the Audit Directive (2006/43/EC) accompanied by an amending directive (2008/30/EC). They do not regulate auditor liability.
2 EU press releases IP/07/60, IP/07/845, and IP/08/897 emphasise these three objectives as the goals that liability limitations are meant to achieve.
3 For example a liability cap based on the annual fees of the auditor. The two other alternatives are (1) proportional liability and (2) enabling contractual liability limitation.
4 The liability cap sample consists of 645 observations, and the non-liability cap sample of 661 observations, respectively.

Table 1. The main features of the liability regimes in Belgium, Finland, France, Germany, Greece, and Sweden.

COUNTRY	LEGAL SYSTEM	BASIS FOR LIABILITY TOWARDS AN AUDITEE*	BASIS FOR LIABILITY TOWARDS A THIRD PARTY*	LIABILITY CAP*	THE AMOUNT OF THE LIABILITY CAP*	MANDATORY INSURANCE REQUIRED BY LAW / OTHERS*	MINIMUM INSURANCE COVERAGE*
Belgium	French civil law	Contractual / Tort	Tort	Yes	€3 million (unlisted company), €12 million (listed company)	By the professional association	€619,733 per event
Finland	Scandinavian civil law	Tort	Tort	No	-	Not required. In practice, in Finland all auditors cover their work with voluntary insurance protection provided by the group insurance policy of the Authorised Public Accountants' Institute.	-
France	French civil law	Tort	Tort	No	-	By law	€2,500,000 minimum per claim
Germany	German civil law	Contractual / Tort	Contractual / Tort	Yes	€1 million (unlisted company), €4 million (listed company)	By law	Minimum coverage of €1 million for unlisted companies and €4 million for listed companies
Greece	French civil law**	Contractual	Tort	Yes	Calculated based on total annual fees of the auditor or the salary of the President of the Supreme Court, whichever gives the higher value.	By law	Insurance must not be less than the 150% of the total fees which the Certified Auditors received in the previous financial year and in no case less than 10 times the total annual remuneration of the President of the Supreme Court.
Sweden	Scandinavian civil law	Contractual	Tort	No	-	By law	Depends above all on the number of auditors in the practice. The amount varies between €440,000 per claim and up to €880,000 per claim or €2.65 million per year.

* European Commission (2001); European Commission (2008a); London Economics (2006)
**Depending on the source, the legal system of Greece is classified either in French or German civil law families. In this paper it is classified in the French legal family based on La Porta, Lopez-de-Silanes, Shleifer and Vishny (1998).

is that audits of larger clients are affected more by liability caps, because of higher liability risks associated with them.

Figure 1 portrays the causal chain of how liability regime affects financial reporting quality through liability risk. For an auditor, liability risk constitutes a part of every audit engagement. Changes in the existence and the extent of liability, i.e. the liability regime, affect this risk, and cause the auditor to respond accordingly. For the liability risk to realise there has to be (1) an audit failure and (2) damage inflicted on the audit client or a third party. From a purely financial standpoint, liability risk can be seen as the expected value of damages to be paid. In the audit fee model by Simunic (1980) the expected damages are a function of audit effort[5]. The assumption is that the auditor responds to increased expected liability costs by increasing audit effort, thus lowering the probability of audit failure and litigation and the expected value of damages to be paid, and vice versa. The results from experiments by Gramling et al. (1998), and Koch and Schunk (2008) support this. The empirical analysis in this paper focuses on the elements of the causal chain highlighted in Figure 1. It is hypothesised that the extent of auditor liability, i.e. the existence of a liability cap, affects the expected damages to be paid and auditors' decision making concerning audit effort, eventually impacting information quality of audited financial reports. The presumption is that audits of larger clients are affected more by liability caps, because larger clients have been associated with higher liability risk. This applies to expected damage payments as well as potential loss of reputation[6]. The fixed monetary caps affect the liability risks associated with each audit client only when the potential damage payments following from an audit failure are larger than the monetary cap. The larger the client in size, the higher the liability risk, and the more the expected liability costs are relatively affected by a liability cap.

The proxy measure for financial reporting quality used in this paper is the magnitude of earnings management, i.e. the absolute value of discretionary accruals. High quality financial reports present a true and fair view of an entity's finances, and discretionary accruals are seen to weaken this true and fair view. The discussion above leads to the following empirically testable hypothesis:

***H_1**: The existence of an auditors' liability cap is positively associated with reported discretionary accruals in audited financial statements when audit clients are large in size.*

The main finding of this paper is that the existence of a liability cap affects financial reporting quality

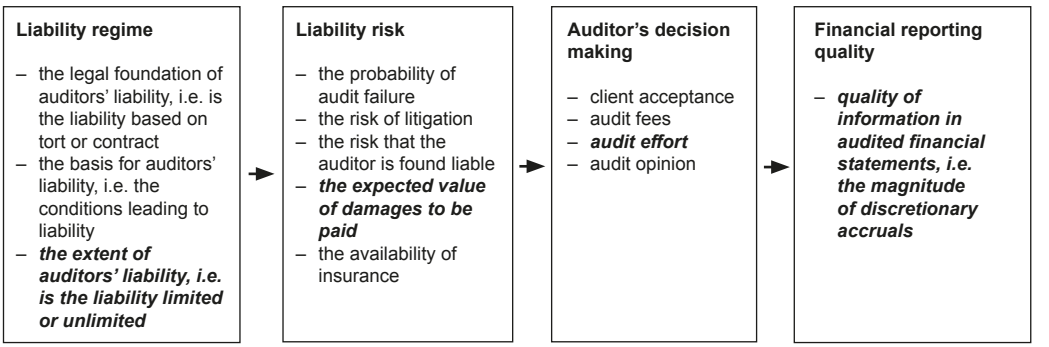

Figure 1. The causal chain from liability regime to financial reporting quality.

5 In the audit fee model by Simunic (1980), the expected damages are a function of resources used by the auditor and the client: $E(\bar{d}) = f(a,q)$.

6 Questionable audits of large high-profile clients are more likely to get publicity than those of smaller clients, leading to higher likelihood of reputation loss for the auditor. See Bonner et al. 1998, Lys and Watts 1994, St. Pierre and Anderson 1984, and Stice 1991.

as measured by the magnitude of earnings management given certain conditions. The effect is conditional on audit client size, as hypothesised. The existence of a liability cap is positively (negatively) associated with the magnitude of discretionary accruals (financial reporting quality) in the case of large companies audited by non-Big 4 auditors. As to auditor type, the results support earlier literature on Big 4 auditors producing higher audit quality[7].

The outline of the paper is as follows. Chapter 2 gives an overview of related earlier research, Chapter 3 presents the research design, and Chapter 4 the sample and descriptive statistics. The empirical results are presented in Chapter 5 and the discussion and conclusions in Chapter 6.

2. Related literature

2.1. Legal environment and financial reporting quality

Different approaches have been used in earlier research when examining the effects of legal environment on earnings management and accruals quality. The results of Leuz et al. (2003) indicate that stronger investor protection leads to less earnings management. Maijoor and Vanstraelen (2006) studied earnings management in France, Germany, and the United Kingdom, and found that the amount of earnings manipulation is not uniform across countries, and that a stricter audit environment reduces it, as companies in countries with flexible audit quality regimes report significantly higher absolute values of discretionary accruals compared to companies in countries with strict audit quality regimes. Their results indicate that national differences in earnings management are dominant and are not removed by the presence of a Big 4 audit firm. These results are consistent with the later findings of Francis and Wang (2008) on legal environment and Big 4 auditor conservatism. Lee and Mande (2003), on the other hand, reported results that limiting litigation exposure in the US in 1995 led to rise in earnings management for clients of Big 6 auditors but not for non-Big 6 clients. The London Economics (2006) study found no evidence of liability caps affecting accounting accruals.

Since regulation depends partly on a country's legal tradition[8], it can be argued that it affects financial reporting quality. Accounting standards in civil law countries give greater discretion to managers in reporting earnings than in common law countries (Ball et al. 2000). Respectively, Big 4 auditors have been found to be more conservative, i.e. more restrictive concerning accruals reporting, in common law countries with stricter investor protection than in civil law countries (Francis and Wang 2008). To keep the institutional framework as homogenous as possible, all six countries in this study are civil law countries.

2.2. Liability risk, audit effort, and financial reporting quality

Liability risk affects the decisions auditors make regarding audit effort. The outcome of a higher risk related to a client or an audit engagement should be auditors increasing audit effort to lower the probability of audit failure and thus liability risk, leading to higher financial reporting quality. Choi et al. (2008) state that litigation risk is an important motivating factor when auditors are deciding on audit effort. According to Gietzmann et al. (1997: 24) auditors' incentives to commit to independence and high degree of care, i.e. produce high quality audits, could weaken if liability is less strict. Hence, the risk of litigation should lead to higher audit quality and higher financial reporting quality in audited financial statements. Caramanis and Lennox (2008) examined the effect of audit effort on accruals in Greece, and found that lower level of effort leads to higher level of abnormal accruals and companies reporting aggressively high earnings. Basu (1997) found that

7 See e.g. DeAngelo 1981, Krishnan 2003, Lennox 1999, and Palmrose 1988.

8 Countries can be classified by the legal tradition it represents. European countries are usually divided in four categories: French civil law, German civil law, Scandinavian civil law, and common law countries.

auditor conservatism historically increases during periods of stricter auditors' liability exposure. Laux and Newman (2010) also claim that audit quality does increase with the auditor's expected litigation losses from audit failures. Heninger (2001) provides evidence of the relation between earnings management, namely income-increasing abnormal accruals, and auditor litigation. This is due to external stakeholders holding auditors responsible for letting their clients to release false financial information.

Koch and Schunk (2008) studied experimentally how the extent of liability affects auditors' decision making. Examining decisions under environments of limited and unlimited liability, they found that unlimited liability can lead to an inefficiently high level of auditors' effort, and even to auditors stopping their activity entirely, if liability risk is high enough. Gramling et al. (1998) also found in their experiment that limiting liability affects auditors' decisions concerning audit effort.

2.3. Earnings management, audit quality, and financial reporting quality

Earnings quality is an often used proxy measure for audit quality. Since earnings management reduces accuracy and thus quality of financial reporting, it can be argued that better audit quality should reduce the amount of earnings management. According to Becker et al. (1998) high quality auditing acts as a deterrent to earnings management because management's reputation is likely to be damaged and firm value reduced if misreporting is detected and revealed. Earnings management is in practice conducted by manipulating accounting accruals. As Heninger (2001: 124) notes, managers have limited ability to manipulate accruals attributable to normal business operations, and any such earnings manipulation should show as abnormal accruals. In this paper earnings management is measured by the magnitude of discretionary accruals, more precisely abnormal working capital accruals. This follows earlier studies by Defond and Park (2001), and Maijoor and Vanstraelen (2006).

Auditor size has been associated with higher audit quality since DeAngelo (1981), and there is evidence of higher financial reporting quality of clients of Big N auditors (Becker et al. 1998, Francis et al. 1999, Francis and Wang 2008, Francis 2011, Krishnan 2003). Francis and Wang (2008) found that earnings quality depends on investor protection environment (e.g. stricter liability legislation) when the firm is audited by a Big 4 auditor. The earnings quality of non-Big 4 clients was consistent despite the legal environment. Maijoor and Vanstraelen (2006) found that this effect only exists in stricter legal environments present in common law countries and not in code law countries. Becker et al. (1998) found that clients of non-Big 6 auditors reported higher levels of absolute and income-increasing accruals than clients of Big 6 auditors. Francis, Maydew and Sparks (1999) also found that Big 6 auditors' clients have lower discretionary accruals, even while having higher total accruals, further strengthening the presumption that Big N auditors effectively moderate earnings management. Furthermore, Krishnan (2003) found that discretionary accruals of Big 6 clients are more closely associated with future profitability when compared to non-Big 6 clients.

Industry specialist auditors are perceived to produce higher audit quality in their industry of expertise, and clients of industry specialist auditors have been found to report lower discretionary accruals compared to clients of auditor who are not industry specialists (Balsam et al. 2003; Kwon et al. 2007). This further indicates the correlation between audit quality and financial reporting quality.

3. Research design

Following Defond and Park (2001) and Maijoor and Vanstraelen (2006) discretionary accruals are measured as abnormal working capital accruals. They are calculated as:

(1) $DA_t = WC_t - [(WC_{t-1} / S_{t-1}) * S_t]$,

where:

DA_t = discretionary accruals, i.e. abnormal working capital accruals in year t;

WC_t = non-cash working capital in year t calculated as (current assets - cash and cash equivalents) - (current liabilities - short-term debt);
WC_{t-1} = non-cash working capital in year t-1;
S_t = sales in year t;
S_{t-1} = sales in year t-1.

The abnormal working capital accruals are then scaled by the sales of that year to acquire the variable AWCA and its absolute value ABSAWCA used in the univariate and multivariate analyses.

The empirical analysis in this paper will focus on the absolute value of discretionary accruals. Direction of the incentives to manage earnings may vary across countries, as suggested by Maijoor and Vanstraelen (2006), and with company size, as larger companies may prefer income-decreasing earnings management due to political costs (Watts and Zimmermann 1990; Young 1999).

The paper's primary analysis uses OLS regression model (2). The model's dependent variable is the natural logarithm of the absolute value of abnormal working capital accruals LNABSAWCA. As absolute values of discretionary accruals have a heavily skewed distribution by nature, a log transformation is used to deal with this skewness. The independent variables of interest are the dummy variables LCAP, SME, and BIG4. In addition, consistent with previous literature and due to differences between the samples with and without a liability cap (see Table 3), control variables are included in the model. The regression model used is of the following form:

(2) $$LNABSAWCA = \beta_0 + \beta_1 LCAP + \beta_2 SME + \beta_3 BIG4 + \beta_4 LCAP*SME + \beta_5 LCAP*BIG4 + \beta_6 SME*BIG4 + \beta_7 LCAP*SME*BIG4 + \beta_8 FRENCH + \beta_9 GERMAN + \beta_{10} LOSS + \beta_{11} LNASSETS + \beta_{12} LEV + \beta_{13} OPCF + \beta_{14} SALESG + \beta_i IND_j + \varepsilon,$$

where:

LNABSAWCA = natural logarithm of the absolute value of abnormal working capital accruals scaled by sales,
LCAP = dummy variable for the existence of a liability cap (1 = liability cap, 0 = no liability cap);
SME = small or medium size enterprise, company size dummy (1 = company is a SME as defined by European Commission recommendation 2003/361/EC (250 or fewer employees and turnover not exceeding 50 million € or total assets not exceeding 43 million €, 0 = larger company);
BIG4 = dummy variable for Big 4/ non-Big 4 auditor (1 = company is audited by a Big 4 auditor, 0 = company is not audited by a Big 4 auditor);
LCAP*SME = interaction variable for the combined effect of LCAP and SME;
LCAP*BIG4 = interaction variable for the combined effect of LCAP and BIG4;
SME*BIG4 = interaction variable for the combined effect of SME and BIG4;
LCAP*SME*BIG4 = interaction variable for the combined effect of LCAP, SME and BIG4;
FRENCH = dummy variable for legal tradition (1 = country is of French legal origin, 0 = country is not of French legal origin)
GERMAN = dummy variable for legal tradition (1 = country is of German legal origin, 0 = country is not of German legal origin)
LOSS = dummy variable with a value of one if company has negative earnings, zero otherwise;
LNASSETS = control variable for company size, natural logarithm of total assets;
LEV = control variable for leverage, the ratio of total liabilities and total assets;
OPCF = control variable for company performance, operational cash flow scaled by total assets;
SALESG = sales growth from previous year ((sales in year t – sales in year t-1) / sales in year t-1);

IND_i = dummy variables for industries (SIC10-17: Mining & Construction; SIC20-39: Manufacturing; SIC50-59: Wholesale trade; SIC70-89: Services). The industry of reference is SIC01-09: Agriculture, forestry and fishing.

The first test variable LCAP tells whether the company is from a country where a liability caps is in place, and the second one SME whether the company is a small or medium size company[9]. BIG4 states whether the company is audited or not by a Big 4 auditor, as results of earlier studies indicate a connection between auditor size and discretionary accruals[10]. The model also includes four interaction variables measuring the combined effects of the first three dummy variables.

Consistent with previous studies on earnings management, control variables are included in the model to control for earnings management incentives and differences between the liability cap and no liability cap samples (see Table 3). FRENCH and GERMAN are dummy variables controlling for legal environment. The magnitude of earnings management has been found to differ between countries with different legal origins[11]. In this paper, Belgium, France, and Greece belong to the French legal family, Germany is of German legal tradition, and Finland and Sweden compose the Scandinavian family group. This classification is based on La Porta et al. (1998). LOSS is included in the model to control for client profitability, which is different between the samples[12]. LNASSETS for company size is included, as larger companies are argued to prefer income-decreasing earnings management due to political costs[13]. The variable LEV for leverage is included in the model, as highly leveraged companies have incentives for income-increasing earning management because of debt covenants[14]. High leverage is also associated with financial distress, with distress leading to contractual renegotiations which provide incentives for income-decreasing earnings management[15]. OPCF controls for company performance, as the liability cap and no liability cap samples differ with respect to operational cash flows. It is calculated following Leuz et al. (2003) and Maijoor and Vanstraelen (2006) by subtracting total accruals from net income after tax, and scaling result by total assets. Higher values of operational cash flow are expected to result in lower values of absolute discretionary accruals. As sales growth also is significantly different between the samples, and accruals are directly linked to sales growth[16], SALESG is included. Finally, industry dummy variables control for industry effects on earnings management. Discretionary accruals are likely to vary by industry, as noted by Becker et al. (1998: 9).

Table 2. Sample size by country.

COUNTRY	N	%	SME	%	NON-SME	%	BIG 4	%	NON-BIG-4	%
Belgium	67	5.1	59	4.5	8	0.6	39	3.0	28	2.1
Germany	395	30.2	283	21.7	112	8.6	216	16.5	179	13.7
Greece	183	14.0	130	10.0	53	4.1	35	2.7	148	11.3
Total / Liability cap	645	49.4	472	36.1	173	13.2	290	22.2	355	27.2
Finland	87	6.7	78	6.0	9	0.7	82	6.3	5	0.4
France	399	30.6	296	22.7	103	7.9	263	20.1	136	10.4
Sweden	175	13.4	125	9.6	50	3.8	159	12.2	16	1.2
Total / No liability cap	661	50.6	499	38.2	162	12.4	504	38.6	157	12.0
Total	1,306	100.0	971	74.3	335	25.7	794	60.8	512	39.2

9 As defined by European Commission recommendation 2003/361/EC: 250 or fewer employees and turnover not exceeding 50 million € or total assets not exceeding 43 million €.
10 See Becker et al. 1998, Francis et al. 1999, Francis and Wang 2008, and Krishnan 2003.
11 See e.g. Francis and Wang 2008, Maijoor and Vanstraelen 2006.
12 The liability cap sample has negative mean earnings, see Table 3.
13 See Watts and Zimmermann 1990, Young 1999.
14 See e.g. Beatty and Weber 2003, Dichev and Skinner 2002.
15 See e.g. Becker et al. 1998.
16 See e.g. Richardson et al. 2006.

Table 3. Descriptive statistics of the sample.

			NATURAL LOGARITHM OF TOTAL ASSETS	EARNINGS AFTER TAX / TOTAL ASSETS	OPERATING CASH FLOW / TOTAL ASSETS	TOTAL LIABILITIES / TOTAL ASSETS	SALES GROWTH FROM PREVIOUS YEAR	TOTAL ACCRUALS / LAGGED TOTAL ASSETS	ABSOLUTE VALUE OF (TOTAL ACCRUALS / LAGGED TOTAL ASSETS)
Section A	Pooled sample (N = 1,306)	Mean	11.929	-0.007	0.085	0.591	0.117	-0.043	0.087
		Median	11.683	0.029	0.094	0.587	0.046	-0.037	0.053
		Std. Deviation	2.064	0.220	0.191	0.327	0.500	0.163	0.145
Section B	Observa-tions with a liability cap (N = 645)	Mean	11.857	-0.023	0.074	0.592	0.157	-0.042	0.099
		Median	11.695	0.024	0.085	0.594	0.058	-0.038	0.058
		Std. Deviation	1.907	0.254	0.185	0.326	0.560	0.201	0.180
Section C	Observations without a liabi-lity cap (N = 661)	Mean	11.999	0.007	0.095	0.589	0.077	-0.045	0.076
		Median	11.659	0.035	0.103	0.586	0.028	-0.037	0.050
		Std. Deviation	2.205	0.180	0.197	0.329	0.430	0.115	0.097
Section D	Tests of null* (B = C)	t-statistic (p-value)	1.242 (0.214)	2.481 (0.013)	1.967 (0.049)	-0.141 (0.888)	-2.879 (0.004)	-0.374 (0.708)	-2.912 (0.004)
		Z-statistic (p-value)	-0.733 (0.464)	-3.704 (0.000)	-3.230 (0.001)	-0.518 (0.605)	-4.311 (0.000)	-0.532 (0.595)	-1.777 (0.076)

* T-statistics are from t-tests of the differences in the means and Z-statistics from Mann Whitney U-tests. The tests are two-tailed.

4. Sample and descriptive statistics

The data are collected from three sources. The financial statement data have been obtained from the Orbis database, and auditor data partly from Thomson One database and partly manually from companies' annual reports. The six countries in this study are Belgium, Finland, France, Germany, Greece, and Sweden. Three of these, namely Belgium, Germany, and Greece, had limited statutory auditors' liability by the means of a liability cap before 2008. The data include all listed companies in the aforementioned countries with available financial data from 2008, and data from 2007 needed for analysis and calculating abnormal working capital accruals. Consistent with earlier research[17], financial institutions (US SIC industry codes 6000–6999) and utility companies (US SIC 4000–4999) were excluded due to different accounting requirements, high degree of complexity, and different accrual generating process.

The initial search of all listed and previously listed companies from Orbis returned 2,448 observations. Companies that were not listed in 2008, were missing auditor or industry information, or were missing financial data needed for calculating discretionary accruals were removed, leaving 1,681 observations. Further companies were removed because of missing financial data needed in the regression models, leaving 1,343, and finally, observations with extreme values (ABSAWCA > 1) of discretionary accruals scaled by sales were removed, leading to final sample size of 1,306 companies. The number of observations by country is presented in Table 2. There are 645 observations from countries with a liability cap and 661 from countries without a liability cap. The frequencies of small and large companies as well as companies audited by Big 4 and non-Big 4 auditors are also presented in the table.

Table 3 contains selected descriptive statistics of the sample. The pooled sample is presented in section A, and the samples from countries with and without a liability cap in sections B and C, respectively. The results of parametric and non-

17 Becker et al. 1998; Maijoor and Vanstraelen 2006.

Table 4. Pearson correlation coefficients (N = 1,306).

	LCAP	SME	BIG4	FRENCH	GERMAN	SCAND	LOSS	LNASSETS	LEV	OPCF	SALESG	SIC01-09	SIC10-17	SIC20-39	SIC50-59
SME	.026														
	.339														
BIG4	-.320**	-.250**													
	.000	.000													
FRENCH	-.216**	-.009	-.181**												
	.000	.754	.000												
GERMAN	.667**	.041	-.082**	-.654**											
	.000	.141	.003	.000											
SCAND	-.495**	-.036	.320**	-.498**	-.330**										
	.000	.194	.000	.000	.000										
LOSS	.072**	.193**	-.070*	.011	.031	-.049									
	.009	.000	.012	.700	.263	.077									
LNASSETS	-.034	-.580**	.344**	.053	-.029	-.033	-.225**								
	.215	.000	.000	.054	.291	.232	.000								
LEV	.004	-.130**	-.023	.089**	-.030	-.076**	.153**	.108**							
	.888	.000	.415	.001	.271	.006	.000	.000							
OPCF	-.054*	-.199**	.076**	.007	-.060*	.060*	-.292**	.164**	-.197**						
	.050	.000	.006	.802	.031	.031	.000	.000	.000						
SALESG	.080**	-.007	-.017	-.014	.053	-.044	-.095**	-.026	-.017	-.085**					
	.004	.792	.540	.626	.054	.110	.001	.340	.538	.002					
SIC01-09	.024	-.006	-.014	.070*	-.032	-.050	-.031	.021	-.003	-.004	.016				
	.379	.831	.606	.011	.241	.070	.270	.439	.905	.873	.575				
SIC10-17	-.005	-.062*	.041	.016	-.049	.036	-.004	.122**	-.001	.032	.016	-.022			
	.867	.025	.135	.564	.077	.191	.873	.000	.974	.244	.563	.427			
SIC20-39	.048	-.072**	.028	-.039	.017	.030	.076**	.124**	.022	-.086**	-.085**	-.114**	-.249**		
	.084	.010	.318	.155	.544	.281	.006	.000	.432	.002	.002	.000	.000		
SIC50-59	.023	.043	-.057*	.045	-.016	-.037	-.034	-.018	.014	.029	.036	-.037	-.081**	-.417**	
	.398	.119	.039	.106	.555	.180	.214	.508	.616	.295	.188	.182	.003	.000	
SIC70-89	-.074**	.080**	-.005	-.012	.024	-.012	-.051	-.188**	-.034	.061*	.058*	-.060*	-.131**	-.676**	-.220**
	.007	.004	.844	.665	.392	.659	.066	.000	.225	.027	.036	.031	.000	.000	.000

**Significant at the .01 level (2-tailed). *Significant at the .05 level (2-tailed).
Variable definitions:
LCAP = Dummy variable (company from country with a liability cap = 1, else = 0)
SME = Dummy variable (SME = 1, else = 0)
BIG4 = Dummy variable (company audited by a Big 4 auditor = 1, else = 0)
FRENCH = Dummy variable (company from country belonging to the French legal family = 1, else = 0)
GERMAN = Dummy variable (company from country belonging to the German legal family = 1, else = 0)
SCAND = Dummy variable (company from country belonging to the Scandinavian legal family = 1, else = 0)
LOSS = Dummy variable (company has negative earnings = 1, else = 0)
LNASSETS = Natural logarithm of total assets
LEV = Leverage, ratio of total liabilities to total assets
OPCF = Cash flow from operating activities scaled by total assets
SALESG = Sales growth from previous year
SICxx-xx = Dummy variable
(Industry: 01-09 = Agriculture & fishing, 10-17 = Mining & Construction, 20-39 = Manufacturing, 50-59 = Wholesale trade, 70-89 = Services)

parametric tests comparing the two groups are found in section D.

Companies from countries with a liability cap seem to be less profitable, have more sales growth, and have more accrual-generating potential than companies from countries without a liability cap. Specifically, earnings after tax and operating cash flow scaled by total assets are significantly smaller and sales growth from previous year is significantly larger in the capped liability sample. These differences are controlled for in regression model (2) by including control variables LOSS, OPCF, and SALESG. When comparing the absolute value of total accruals scaled by lagged total assets the liability cap companies' mean is significantly and the median nearly significantly higher. There is no statistically significant difference in company size or leverage between the groups.

5. Results

Table 4 contains the Pearson correlation matrix of the variables of the regression model. It shows that there is statistically significant correlation between several of the variables. However, the correlation coefficients are relatively low, suggesting no multicollinearity problems.

5.1. Univariate results

Table 5 presents the univariate analysis of abnormal working capital accruals scaled by sales (AWCA). The mean and median values for the pooled sample are presented in section A. Values for samples from countries with and without a liability cap are in sections B and C, and the differences between them in section D.

Companies in the three countries with a liability cap report negative mean (median) discretionary accruals of -0.7% (-0.2%) of sales, when companies from unlimited liability countries report mean (median) positive accruals, 0.5% (0.2%). However, to examine differences in earnings management in general without taking its incentives into account, one must examine absolute values to capture the total magnitude of earnings management despite its direction. When examining absolute working

Table 5. Univariate results for discretionary accruals.

			AWCA	ABSAWCA	AWCA < 0: INCOME-DECREASING	AWCA ≥ 0: INCOME-INCREASING
A	Pooled sample	N	1,306	1,306	652	654
		Mean	0.000	0.083	-0.083	0.084
		Median	0.000	0.038	-0.035	0.040
B	Observations with a liability cap	N	645	645	337	308
		Mean	-0.007	0.087	-0.090	0.083
		Median	-0.002	0.042	-0.041	0.042
C	Observations without a liability cap	N	661	661	315	346
		Mean	0.008	0.080	-0.076	0.084
		Median	0.002	0.035	-0.030	0.039
D	Differences across samples B and C	Mean (p-value)*	0.015 (0.088)	0.007 (0.389)	0.014 (0.202)	0.001 (0.931)
		Median (p-value)*	0.005 (0.044)	0.007 (0.023)	0.010 (0.014)	0.003 (0.424)

* In section D the p-values for means are from t-tests and the p-values for medians from Mann-Whitney U-tests. The tests are two-tailed.

capital accruals, the mean (median) of liability cap countries is 8.7% (4.2%) of sales, and no liability cap countries 8.0% (3.5%). The differences in mean and median values are 0.7%, and in the direction predicted by the hypothesis. The median difference is statistically significant at the 0.05 level, but the difference between the means is not.

Table 5 also presents univariate results separately for income-decreasing (negative) and income-increasing (positive) abnormal working capital accruals. The mean (median) negative discretionary accruals reported in countries with a liability cap are -9.0% (-4.1%), and -7.6% (-3.0%) in countries without a cap. The median difference is statistically significant ($p = 0.014$). When examining positive accruals the differences between the two groups are very small and not statistically significant.

Table 5 indicates that there are statistically significant differences in the magnitude of discretionary accruals between the two groups. According to the t-tests and nonparametric tests there is a statistically significant difference in the median values. When examining negative and positive accruals separately, only the difference of the medians of negative discretionary accruals is significant.

Table 6. OLS regression results for pooled sample.

DEPENDENT VARIABLE: LNABSAWCA = NATURAL LOGARITHM OF ABSOLUTE VALUE OF ABNORMAL WORKING CAPITAL ACCRUALS SCALED BY SALES			
INDEPENDENT VARIABLE	**PARAMETER ESTIMATE**	**T-VALUE**	**SIGNIFICANCE**
Constant	-3.545	-7.270	.000
LCAP	.510	2.940	.003
SME	.836	3.850	.000
BIG4	.190	1.167	.243
LCAP*SME	-.414	-1.607	.108
LCAP*BIG4	-.318	-1.578	.115
BIG4*SME	-.040	-.152	.879
LCAP*BIG4*SME	-.033	-.089	.929
FRENCH	.251	2.237	.025
GERMAN	-.117	-.741	.459
LOSS	.588	6.702	.000
LNASSETS	-.028	-1.175	.240
LEV	-.061	-.523	.601
OPCF	-.460	-2.212	.027
SALESG	.370	4.966	.000
SIC10-17	-.130	-.322	.748
SIC20-39	-.146	-.394	.694
SIC50-59	-.313	-.820	.413
SIC70-89	-.141	-.377	.706
Adjusted R^2	13.9 %		
F-value	12.663		.000
N	1,306		

Variable definitions:
LCAP = Dummy variable (company from country with a liability cap = 1, else = 0)
SME = Dummy variable (SME = 1, else = 0)
BIG4 = Dummy variable (company audited by a Big 4 auditor = 1, else = 0)
FRENCH = Dummy variable (French legal family = 1, else = 0)
GERMAN = Dummy variable (German legal family = 1, else = 0)
LOSS = Dummy variable (company has negative earnings = 1, else = 0)
LNASSETS = Natural logarithm of total assets
LEV = Leverage, ratio of total liabilities to total assets
OPCF = Cash flow from operating activities scaled by total assets
SALESG = Sales growth from previous year
SICxx-xx = Dummy variable (Industry: 01-09 = Agriculture & fishing, 10-17 = Mining & Construction, 20-39 = Manufacturing, 50-59 = Wholesale trade, 70-89 = Services)

5.2. Multivariate results

Table 6 presents the results of the OLS regression for the pooled sample including all observations. Two test variables stand out having estimates statistically significant at the 0.01 level: LCAP and SME. The results show that the dummy variable LCAP has a positive estimate value with p = 0.003. This suggests that the existence of a liability cap is related to higher discretionary accruals in the case of large companies audited by non-Big 4 auditors. The value of SME is positive with p < 0.001. This implies that when comparing small and medium size companies to large companies in countries without a liability cap and audited by non-Big 4 auditors, the SMEs have significantly larger discretionary accruals. The variable LCAP*SME is negative and nearly significant (p = 0.108). When comparing its value to LCAP, larger companies seem to have significantly larger discretionary accruals than smaller companies when there is a liability cap in place and the companies are audited by non-Big 4 auditors. LCAP*BIG4 also is almost significant with a p-value of 0.115, its negative value suggesting that clients of Big 4 auditors have lower accruals compared to non-Big 4 auditors, when the company is large and there is a liability cap. None of the other variables related to auditor type are even close to being statistically significant.

The control variables FRENCH, LOSS, OPCF, and SALESG are all significant as expected based on prior literature, and their signs are in the expected direction. GERMAN, LNASSETS, and LEV are not significant, as are not any the industry dummies. The model has an adjusted R squared value of 13.9%, which is low, but typical for models aiming not to explain earnings management but rather to examine the impact of the liability environment on it[18].

In conclusion, the parameter estimates in Table 6 indicate that large companies audited by non-Big 4 auditors and coming from countries with a liability cap have significantly higher discretionary accruals than large companies audited by non-Big 4 auditors in countries without a cap.

Table 7. OLS regression results for samples with and without a Big 4 auditor.

DEPENDENT VARIABLE: LNABSAWCA = NATURAL LOGARITHM OF ABSOLUTE VALUE OF ABNORMAL WORKING CAPITAL ACCRUALS SCALED BY SALES						
	COMPANIES WITH A BIG 4 AUDITOR			COMPANIES WITH A NON-BIG 4 AUDITOR		
INDEPENDENT VARIABLE	PARAMETER ESTIMATE	T-VALUE	SIGNIFICANCE	PARAMETER ESTIMATE	T-VALUE	SIGNIFICANCE
Constant	-3.234	-5.148	.000	-3.711	-4.528	.000
LCAP	.095	.523	.601	.539	3.056	.002
SME	.809	4.564	.000	.794	3.549	.000
LCAP*SME	-.460	-1.628	.104	-.412	-1.653	.099
FRENCH	.247	2.007	.045	.483	1.594	.112
GERMAN	.005	.022	.983	.005	.014	.989
LOSS	.605	.120	.187	.593	4.557	.000
LNASSETS	-.022	-.776	.438	-.041	-.847	.397
LEV	-.364	-1.620	.106	-.011	-.077	.938
OPCF	-.204	-.767	.444	-.785	-2.225	.027
SALESG	.340	3.869	.000	.476	3.300	.001
SIC10-17	-.273	-.495	.621	.256	.425	.671
SIC20-39	-.121	-.234	.815	-.154	-.292	.770
SIC50-59	-.434	-.815	.415	-.157	-.290	.772
SIC70-89	-.279	-.536	.592	.107	.201	.841
Adjusted R^2	11.8 %			15.2 %		
F-value	8.544		.000	7.527		.000
N	794			512		

Variable definitions: See Table 6.

18 See e.g. Becker et al. 1998 and Maijoor and Vanstraelen 2006.

To examine the effect of auditor type more closely, the regression is estimated for Big 4 and non-Big 4 auditor samples separately. The results of the regression are presented in Table 7. The main variable of interest LCAP is not statistically significant in the Big 4 sample, but is positive with a p value of 0.002 in the non-Big 4 sample. This suggests that the existence of a liability cap has an effect on the financial reports of clients of non-Big 4 auditors, whereas the clients of Big 4 audit firms are not affected. This further supports the conclusion that auditor type matters. Consistent with Table 6, SME is positive and significant in both samples, meaning that smaller companies tend to have larger abnormal accruals in proportion to their sales. LCAP*SME is borderline significant (p = 0.104 and 0.099) and negative in both samples, and consistent with the pooled sample regression. This provides further support to the hypothesis that only companies large enough are affected by liability caps.

5.3. Summary of the main findings

To conclude the empirical results, the existence of a liability cap limiting auditor liability is positively related to the magnitude of discretionary accruals of large companies, as hypothesised. As liability caps are high and fixed, they affect the audits of larger companies relatively more than those of smaller companies. The liability risk related to an audit client or engagement has to be higher than the monetary cap for the cap to have an effect on auditor's decisions on audit effort and thus, audit quality. This explains why the effect depends on company size. These findings provide support for hypothesis $_{H1}$. The relation seems to be dependent also on auditor type, which can be explained by higher and more consistent audit quality pro-

Table 8. OLS regression results with total and current accruals.

DEPENDENT VARIABLE	LNABSTACC = NATURAL LOGARITHM OF ABSOLUTE VALUE OF TOTAL ACCRUALS			LNABSCACC = NATURAL LOGARITHM OF ABSOLUTE VALUE OF CURRENT ACCRUALS		
SAMPLE	POOLED	BIG 4 AUDITOR	NON-BIG 4 AUDITOR	POOLED	BIG 4 AUDITOR	NON-BIG 4 AUDITOR
Constant	-3.242***	-3.523***	-2.686***	-2,815	-2.997***	-2,609***
LCAP	-.011	.079	-.048	.226	.089	.236
SME	.154	.192	.146	.437**	.191	.503**
BIG4	.177			.170		
LCAP*SME	.225	-.105	.250	-.433*	-.524**	-.436*
LCAP*BIG4	-.016			-.144		
SME*BIG4	.066			-.196		
LCAP*SME*BIG4	-.372			-.124		
FRENCH	-.101	-.068	-.207	-.026	.002	-.121
GERMAN	.089	-.058	.067	.056	.036	-.003
LOSS	.643***	.773***	.509***	.272***	.362***	.137
LNASSETS	-.055**	-.048**	-.061	-.119***	-.127***	-.090*
LEV	.475***	.312*	.568***	.336***	.311	.383***
OPCF	1.350***	1.421***	1.364***	.471**	.490**	.472
SALESG	.138**	.058	.333**	.127*	.138*	.071
SIC10-17	.033	.306	-.042	.217	.621	-.126
SIC20-39	.059	.512	-.432	.218	.697	-.315
SIC50-59	-.033	.473	-.547	.187	.614	-.258
SIC70-89	0.226	.580	-.110	.134	.499	-.220
Adjusted R^2	10.4 %	12.5 %	9.1 %	5.6 %	6.7 %	2.4 %
F-value	9.458***	9.114***	4.661***	5.323***	5.052***	1.913**
N	1,306	794	512	1,306	794	512

Statistical significance is flagged as * (p < .10), ** (p < .05), and *** (p < .01). Variable definitions: See Table 6.

duced by Big 4 auditors when compared to non-Big 4 auditors. This finding supports earlier evidence on clients of Big 4 auditors reporting lower discretionary accruals[19].

5.4. Sensitivity analyses

To test the robustness of the results, the following sensitivity analyses have been performed. Table 8 presents the OLS regression results from models using alternative earnings management measures. Following Maijoor and Vanstraelen (2006), total and current accruals are used as alternative measures. Current accruals are calculated following Myers et al. (2003) as (change in current assets – change in cash) - (change in current liabilities – change in short-term debt) and scaled by average total assets. Total accruals are calculated following Dechow et al. (1995) as current accruals - depreciation expense and scaled by total assets in the end of previous year. The absolute values of both measures are log-transformed to get the dependent variables LNABSTACC and LNABSCACC. The regressions are run for the pooled sample as well as the Big 4 and non-Big 4 samples.

When using total accruals as the dependent variable, the results of the OLS regressions differ from those obtained earlier. Table 8 indicates that none of the test variables are statistically significant. In the current accruals regressions LCAP is significant at the 0.1 level in the pooled and the non-Big 4 samples. This is consistent with the results obtained from the main regression models. SME and LCAP*SME are also significant or weakly significant, with the exception of SME in the Big 4 sample.

The regression models were also run without the variables FRENCH and GERMAN and without observations from France to ensure they were not driving the results. The French legislation demands publicly traded companies to appoint two auditors, who are both engaged in auditing the company at the same time. These results are not reported as they are essentially similar to the results including France.

19 See e.g. Becker et al. 1998, Francis et al. 1999, Francis 2011.

6. Conclusions

The European Commission recommendation 2008/473/EC seeks to promote competition in the audit markets and to secure the availability of audit services. It recommends that civil liability of auditors should be limited in all EU member countries, and suggests alternative methods for doing so, one being liability caps. This paper examines the effect of such caps on financial reporting. It is argued that lower liability risk affects audit effort, leading to lower information quality in audited financial statements. If there is such an effect, financial reporting quality should be lower in countries with limited liability regimes compared to countries with unlimited liability. As liability caps are fixed monetary thresholds and quite high, the expected liability cost of an individual client or audit engagement has to be larger than the liability cap for it to have an effect. The presumption is that the larger the audit client in size, the higher the liability risk, and the more the expected liability costs are relatively affected by a liability cap. The quality of the financial reports of large companies should be more likely to be affected by liability caps than small and medium size companies.

Liability caps have already been in use in some EU countries before the recommendation, and samples comprising company observations from three countries with and three without a liability cap in 2008 are compared. Financial reporting quality is measured as the magnitude of absolute discretionary accruals, i.e. earnings management, in audited financial statements.

The empirical results suggest that financial reporting quality is affected by liability caps, and that this effect is dependent on company size, as hypothesised. The results also provide some support to the presumption that the effect is dependent on auditor type. It seems that liability caps to lead to lower financial reporting quality as measured by the magnitude of earnings management only in the case of large companies audited by non-Big 4 auditors. This is due to Big 4 auditors producing more consistent audit quality regardless of liability risk, as documented in earlier liter-

ature[20]. The empirical results providing evidence that liability caps do affect audit quality contradict the results of the London Economics (2006) study which found no evidence of such an effect. In light of these conflicting results, more research on the subject is warranted. As several more EU countries either have implemented liability limitations after the recommendation or are planning to do so, it should now be possible to examine the implications of moving from unlimited to limited liability on financial reporting quality, audit quality, as well as other aspects of audit markets.

The findings in this paper should be useful when assessing the implications of introducing similar liability limitations. However, the following limitations should be noted. First, the limitations of working capital accruals as earnings management measure have been acknowledged earlier[21]. By changing the measure to total accruals, the results of the OLS regression change. This is consistent with the London Economics (2006) study, which stated that its results may be model specific. This should be taken into account when assessing the results of this study. Second, as always with studies comparing several countries, it is possible that underlying factors other than those already taken into account either cause differences in results between countries or diminish them. Earnings quality may be driven by other economic or institutional differences between the countries than liability regime or legal tradition. Third, the effects of earnings management incentives such as company size, leverage and performance have been taken into account by controlling for them, but there may be many other incentives that are not considered. Fourth, auditor's liability risk does not only affect audit effort decisions, but auditor reporting as well. This paper does not take reporting into account. Finally, as the data consists of financial information for only one year, namely fiscal years ending in 2008, there is a possibility that the conditions in that particular year, e.g. the global financial crisis, may affect the results.

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20 See e.g. DeAngelo 1981, Krishnan 2003, Lennox 1999, and Palmrose 1998.
21 See e.g. Maijoor and Vanstraelen 2006: 51.

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