Investor Protection and Corporate Performance: Comparing Auditing Issues across countries

D'Agosto, Elena

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Elena D'Agosto
Department of Economics
University of Rome "Tor Vergata"†

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Abstract

This paper focuses on the effect of auditing activity on corporate performance. To this end, an auditing measure is derived for six countries based on their national auditing laws. A study is then made of the impact of this legislation on corporate values in the market. The findings show that auditing rules positivly affect company performance. This link is then confirmed with several robusteness checks.

Keywords: Investor Protection, Auditing, Corporate Performance
JEL : G3; M42.

1 Introduction

Corporate failures involving large and well known companies in the last twenty years have led to renewed discussion on the role of corporate governance in the operating of financial market mechanisms. Scandals [1] have also concerned audit firms failing in their role of monitoring corporate accounts, suggesting that an accurate consideration of the true meaning of auditing is also required. In recent financial literature, a series of studies have applied a legal approach to corporate governance to focus on investor protection and its affects on both development of the financial market and corporate valuation. In this strand of literature, seminal contributions are due to Shleifer and Vishny (1997)[2] and La Porta et al. (1998). In the former work, the authors point out that corporate governance

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†E-mail address: elena.d.agosto@uniroma2.it

[1] In the late of 1990s, numerous corporations were involved in scandals. Notorious cases included : WorldCom, Enron, Tyco.

[2] Henceforth, it is denoted as LLSV.

consists of mechanisms that assure that outside financiers of a company get a return on their investments. This statement entails the possibility that agency problems may arise in the wake of a conflict of interest between managers and shareholders. The authors also document that differences among countries in terms of investors protection laws are due to the legislative bases of a particular country, and that the degree of protection is associated with differences in the development of financial markets across countries. Indeed, LLSV (1998) find that common law countries have stronger laws and enforcement than civil law countries, which in turn are characterized by weaker laws and enforcement mechanisms. As a result of these features, the authors argue that common law countries have more developed financial markets than civil law countries.

Further steps in this strand of literature focus on the effect of investor protection on corporate valuation (Claessens et al.,1999; Johnson et al.,2000; Gorton and Schmid, 2000;La Porta et al., 2002). A common result of these studies is that companies have higher market values in economic systems with reliable rules protecting their investors.

Finance scholars admit the importance of auditing in investor protection. As Jensen and Meckling (1976) hypothesized, auditing is a mechanism for monitoring the parties involved in the management of a firm. Indeed, in agency models, auditing aims to alleviate the asymmetric information between managers (agents) and outside investors (shareholders as principals) in order to align the interests of the agents to those of the principals and to reduce the incentive for an opportunistic behaviour. Auditors' financial reporting intends to prevent that false information from affecting share prices.

In spite of this, scholars attention to the implication of auditing activity on financial markets has been scarce. Conversely, accounting literature has recognized its role in corporate governance as an enforcement mechanism in the verification of accounting data (Watts and Zimmerman, 1986) for some considerable time. Historical evidence on auditing activities has documented that companies previously employed reputable auditors to assure outside investors of the credibility of accounting information and hence mitigate the agency problem (Watts and Zimmerman, 1983).

This paper intends to contribute to the financial literature analysing the role that auditing has (as an investor protection instrument) in determining the corporate market valuation. To this end, this study works in accordance with the legal approach to corporate governance. We recall a few contributions in the area of financial literature devoted to the audit issues, since we refer to them in order to carry out our analysis.

Interestingly, Newman, Patterson and Smith [3] (2005) suggest a simple model to present the auditing issue. The authors extend the model of Shleifer and Wolfenzon[4] (2002) on the role of investor protection, adding auditors services. Their hypothesis is based on the assumption that the ability of legal jurisdiction to protect the interests of investors depends on the enforcement of law in

[3] Henceforth, it is denoted as NPS.
[4] Henceforth, it is denoted as SW.

detecting and detering the violations of their rights. Auditing aims to detect expropriation by insiders (managers or controlling shareholders). NPS (2005) link investor protection to auditors incentives to detect insider expropriation. These incentives take the form of penalties for failure to detect irregularities. The authors find that an increase in the auditor's penalty leads to an increasing external investment of capital. Moreover, increases in the insiders penalty for detecting expropriation lead again to an increase in total investment of capital. NPS (2005) assess the implication of the model empirically. They show that, for instance, countries with higher auditor penalties and insider penalties have higher total investment level and more dispersed ownership.

Francis, Khurana and Pereira (2003) argue that the degree of investor protection creates, as a consequence, a consistent demand for timely and transparent accounting and auditing in corporate governance. Their empirical analysis suggests that civil law countries have less demand for auditing than common law ones. Also they find that civil law countries with relatively transparent/ timely accounting procedure have a greater demand for auditing compared with the other civil law countries.

Fan and Wong (2005) study the nexus between auditor choice and company value in emerging markets. These are characterized by high ownership concentration which may be the signal of a weak legal environment (also shown in LLSV, 1998). As a consequence of concentrated ownership, agency problems may arise. Scholars find that firms oppointing high quality auditors are associated with higher firm valuation. From the few contributions proposed in the literature, differences in the peculiarities of economies make the investigation of audit activity effects on financial development an interesting empirical issue.

Our study aims to take a step towards filling this gap in the financial literature namely the implication of auditing activity on financial market. Our contribution is twofold. First we use a new and original measure of auditing quality to document the variation among countries. This original measure provides evidence of how a country's auditing standards are the direct consequence of investor protection laws[5]. Second, we show that investor protection laws, in terms of auditing quality, have an effect on corporate performance.

The paper is organized as follows. In the next section we review prior research about the effect of both corporate governance and investor protection on company value, in order to identify how literature deals with this relationship. In section 3, we present our analysis. We introduce our measure of audit quality, the control variables and the source of data; next, we illustrate the estimation method and econometric findings. Section 4 considers several robustness checks. Section 5 concludes the paper by summarizing the empirical results.

2 Review of theoretical and empirical literature

Prior theoretical and empirical studies on the investor protection and corporate performance relationship do not provide homogenous results. However, there

[5]For detailed indications, see also D'Agosto (2005).

are few contributions and new reaseach should yield further evidence. In this section we provide a short literature review dealing with the issue. The seminal paper of La Porta, Lopez, Shleifer and Vishny (1996) has provided the bases for research on the law and finance nexus. Their main results show that laws concerning investor rights vary a great deal across countries, to some extent as a consequence of differences in legal origin. In turn, the legal environment affects the quality of enforcement of legal rules. They offer empirical evidence which shows that common law countries have stronger enforcement than French civil law countries. The authors find that countries with poor investor protection develop a higher concentration of ownership as a substitution mechanism for the lack of legal rules for defend their rights.

In LLSV (1997), the authors find strong evidence that the legal environment has large effect on the size and breadth of capital markets across countries.

There are few works devoted to theoretically modelling the role of legal environment in corporate finance (Grossman and Hart, 1988; Hart, 1995; Friedman and Johnson, 2000). Through a simple model, LLSV (2002) show the effects of both corporate ownership structure and investor protection on firm valuation. As law and finance literature states, common law countries have better investor protection which, in turn, creates higher corporate valuation. Moreover, they empirically find that companies with controlling shareholders have higher valuations in common law rather than civil law countries. Shleifer and Wolfenson (2002) set up a market equilibrium framework of corporate finance in the presence of weak shareholder protection, in which they demonstrate many empirical regularities. A better legal environment in terms of investor protection gives rise to lower ownership concentration along with more larger and valuable firms. Moreover stock markets are more developed in countries with better protection for shareholders. A similar setting is presented in the empirical work of Jong, Gispert, Kabir and Renneboog (2002). They seek to understand how differences in corporate governance systems lead to differences in corporate performance. Although they find a variation of across countries common corporate governance characteristics (i.e. board size, ownership structure), specific corporate governance features of a country play an important role in determining corporate performance relative to the common characteristics. A different approach is applied by Daines (2001). This paper provides evidence that corporate law in Delaware State results in an improved firm value. Delaware State attracts most of the public firms in the U.S. and this fact revealed particularly convinient conditions for incorporated firms in this State[6]. Daines' original contribution, compared to previous studies, consists of collecting a large sample of US firms. The author provides consistent evidence that state law affects corporate value. Delaware firms show a positive and significant relationship to Tobin's Q, used as a performance measure. These results are robust when measured against a variety of controls.

Some areas of the literature deal with the relationship with specific aspects

[6] This is because firms are run according to the rules of the state in which they are incorporated.

of corporate governance (mechanisms to control the agency problems between manager and shareholders) and company value. Other empirical papers take into account general measures of corporate governance, such as Black, Jang and Kim (2003). The authors find a positive relationship between a composite corporate governance index and Tobin's Q, a proxy for firm performance, within a sample of Korean public companies. Once more, similar results are provided by Klapper and Love (2003) for a sample of firms in emerging markets. Gompers, Ishii and Metrick (2003) construct an index, at company level, based on the existence or not of provisions, laws or regulations related to the takeovers. Interestingly these authors find that corporate governance and firm value are highly correlated. Stronger shareholder rights are positively associated with higher firm performance, after many robusteness checks.

Drobetz et al. (2004) also focus their analysis on corporate level governance. For a sample of German public listed companies, they create a measure of the firm level governance quality on the basis of survey questions and study its relationship with corporate performance. The results show that better corporate governance is highly correlated with better operating performance, higher stock returns and higher market valuation. A similar approach has been employed by Beiner et al. (2004) in the case of Swiss listed companies. They develop a firm-specific corporate governance index and add other control mechanisms (leverage, outside blockholdings, board size, the fraction of outside directors on the board) in the analysis. The results are consistent with the hypothesis of a positive link between corporate governance and company value.

Each of these papers has focused on specific aspects of legal investor protection but not involving auditing issues. In the next paragragh we present an empirical assessment of the nexus between auditing as an investor protection mechanism and corporate valuation.

3 Auditing quality and corporate performance

In this section we empirically explore whether a country- level auditing measure affects firm valuation, considering our original measure as a proxy for an investor protection mechanism in a given country[7]. We intend to estimate our hypothesis within the legal framework proposed by La Porta et al. (1998).

The auditing quality in a country is obtained by first creating an appropriate database and then adopting a specific statistical methodology to derive the index. We assess our hypothesis by applying two measures of corporate value and different specification methods.

[7] A very preliminary study of this link is suggested in Auci and D'Agosto (2004).

3.1 A measure of auditing quality

In this paragraph we briefly describe how we derived our audit dimension, referring to D'Agosto[8] (2005) for more details.

Firstly, we have sought legal sources for audit regulation in each country investigated. Then we have listed a set of characteristics suitable for representing the audit rules framework operating in a country, basing the selection of attributes on the Sarbanes Oxley Act (2002). This Act, issued by the U.S Parliament in the wake of numerous US corporate failures, estabilished standards for all US. public company boards, management and accounting firms. Using this law, we consider several main auditing characteristics to compare the audit regulations in the other countries. Further we have checked these features over a period of twenty years in order to capture the changes in the regulations. The list of attributes has been grouped into three clusters denoted as: Supervisory Authority, Auditors Independence and Corporate Responsibility. The first group lists key issues concerning the authority that oversees auditing firm activities. The second cluster describes several aspects related to Auditors' Independence and the last group illustrates aspects of Corporate Responsibility in the audit process (see table 7).

To compare audit regulations across countries, we first turn each of the audit rules into qualitative variables. To this end, we create variables which assume value 1 if the specific audit rule is present in the country legislation and zero otherwise. We obtain a matrix of binary variables called the indicator matrix. We repeat this exercise for each year of the sample period from 1980 to 2002 turning out a total indicator matrix which consists of 132 rows (22 years times 6 countries) and 22 columns (qualitative variables). The total matrix represents our auditing database.

We then explore the data collection by mean of a suitable technique: multiple correspondence analysis. This statistical technique allows the reduction of the listed characteristics into a small number of attributes (latent factors).

This multivariate method is accurate for the study of qualitative data and add features of not assuming an underlying distribution and not hypothesising a model for the data (Greenacre, 1984). This procedure allows an overview of the fundamental relationships among the variables and removes irrelevant information. In broad terms, correspondance analysis explores the structure of associations among a set of qualitative variables and brings out underlying dimensions which can be interpreted as latent variables. The dimensions we derived from the analysis identify a profile of the country audit legislation over time. We have derived this measure in D'Agosto (2005) and denoted it as *degree of regulation guarantees*. This represents our assessment of audit quality in the country. The label applied to this measure means that the information it summarizes is related to the definition of rules which specify the supervisory and auditing activities. Indeed, this latent variable includes rules concerning stan-

[8] This paper gives more details on methodological aspects of building audit measure and a detailed procedure on how to perform it. See "Auditing Issues across countries: an explorative approach to the Regulation Framework".

dards of auditing and quality control, others related to powers and duties of the authority and regulations on auditors' independence with respect to the certified firms. There is then a measure for each country over time which expresses how country legislation, compared to other nations, assures investor protection through rules regulating contents and actors involved in auditing activities.

3.2 Data sources and Variables description

Our empirical analysis on the relationship between audit quality and corporate valuation is restricted to the six countries for which our audit dimension has been derived. The United States and the United Kingdom (denoted as common law countries) and France, Germany, Spain and Italy (denoted as civil law countries). The corporate data source for these markets is DATASTREAM, from which we have selected 1830 firms listed in national stock exchanges. Our sample is composed of: i) 500 from the New York Stock Exchange (NYSE); ii) 550 from the London Stock Exchange (FTSE index) ; iii) 250 from the French Stock Exchange (FCHI); iv) 250 from the German Stock Exchange (GDAXI); v) 120 from the Spanish Stock Exchange and finally vi) 160 from the Italian Stock Exchange (MIB). The data was collected yearly from 1980 to 2002. We take into account Tobin's Q and Market-to-Book ratio for corporate valuations. Tobin's Q represents the firm's market value divided by its replacement cost. We estimate this ratio as the market value of assets (calculated as book value of assets minus book value of equity plus market value of equity) over book value of assets. Market-to-book ratio has been taken directly from DATASTREAM and is defined as market value of equity over book value of equity. From the main literature on corporate governance, we have selected a list of appropriate control variables as follows: the logarithm of book asset value denoted as ln(ASSETS) is considered as a control for firm size. Our debt-equity ratio is defined as the ratio of total debt to capital, where capital is total debt plus equity. This measure of leverage focuses on the capital employed and best represents the effects of financing decisions, denoted as LEVERAGE. We include BETA as a measure of riskiness of a firm. Return on assets (ROA) is a measure of a firm's profitability and we only consider its current value. To capture the effect of legal origin we introduce a dummy variable (LEGAL) which assumes value one if the firm is in a common law country. Finally, we add our auditing variable (Auditindex). This denotes our original measure of the quality of the audit in the country: the grater the value of the measure, the lower the quality of auditing in that country. Conversely, a decreasing value of the index expresses an increasing country auditing quality.

In table 1 we summarize financial characteristics of the firms in the sample while in tables 2 and 3 we provide descriptive statistics for the sub-samples, respectively common law and civil law countries. The latter two tables show that there are significant differences in the samples. Mean Tobin's Q differs a great deal when we compare common law to civil law countries. Similarly, other variables report higher figures such as Beta, Roa. On the other hand, leverage values are lower in common law than in civil law countries. Table 4 lists the

correlation matrix for our explanatory variables.

3.3 Estimation methods and econometrics findings

This subsection reports the estimation strategies and outcomes of the empirical analysis. Before addressing econometric issues we sum up our estimation hypothesis as follows. According to the framework of La Porta et al. we deem that legal investor protection influences corporate valuations. We also argue that enforcement mechanisms as auditing rules may influence corporate market performance; it is proposed that company valuation will be higher in markets (countries) which are more inclined to put such mechanisms in force.

This hypothesis is tested by using the following equation:

$$ln(fmv)_{ijt} = \beta_0 + \beta_1 ln(asset) + \beta_2 leverage + \beta_3 beta + \beta_4 roa + \beta_5 legal + \beta_6 Auditindex + \epsilon_{ijt} \quad (1)$$

where $ln(fmv)_{ijt}$ is the logarithm of the variables taken into account as firm values respectively Tobin's Q and Market to Book Value(MBV); $ln(asset)$ is the logarithm of book asset value; leverage is a measure of the debt-equity ratio; *beta* is a measure of firm risk; *roa* is the return on assets; *legal* specifies if a firm is in a common law country; *Auditindex* is our audit quality dimension in a country.

In order to test this hypothesis we have to plan suitable estimation techniques. In this respect an important issue is to account for the law varibility over time of the auditing variable. To take advantages of our longitudinal data we control for the existence of unobserved heterogeneity. We apply a random effects model as a consequence of the few changes over time in the auditing rules; this could lead the fixed effect alternative to force the identification of the auditing coefficient or to drop variables due to multicolinearity. The random method uses variation both within and between countries to estimate its effects on valuation, but does not treat firms in a given country as independent observations. Standard errors are adjusted to reflect the cross correlation between observations due to common country components.

In table 5 we present comparative results for both firm valuation variables (Tobin's Q and MBV) of the random estimates, where we also account for sector dummies. In the same table we also show pooled estimates. The Breusch-Pagan test rejects the null hypothesis that errors are independent within countries, that is individual effects are important. As far as the explanatory variables are concerned we obtain the following findings. The logarithm of ASSETS is positive and significant when either Tobin's Q or the MBV ratio is used as the independent variable. The coefficient on LEVERAGE is positive but only significant in the case of MBV as the independent variable, as found in Black, Jang, and Kim (2003). The LEGAL dummy variable captures the valuation effect for firms belonging to common law countries. The LEGAL coefficient is always positive and significant in both dependent variables. To be a firm in a common law country appears to assure better performance than in civil law

nations. Turning to the auditing variable, its significant coefficient shows that an increase in the quality of auditing (that is, a reduction in the auditing measure) positively affects both Tobin's Q and Market to Book Value. This result is slightly more pronounced if Tobin's Q is used as the dependent variable. We also take sector dummy into account in both specifications. We confirm all results for the previous models even though slightly less accentuated. For our purpose it is interesting that the audit rating is robust once these control variables are considered.

From the outcomes of this preliminary examination we deduce that country audit characteristics seem to affect market valuation of the firms, a fact which remains true, after also controlling for country legal origin.

4 Robustness check

In this section we examine whether the previous results concerning our key variable are robust when compared to other alternative econometric specifications. The first of these concerns a recent methodology developed by Plumper and Troeger [9] (2004) to treat comparative political variables which present law time variation. There are no standard methods in the econometric literature to deal with the problem of time-invariant variables. Usually, it is avoided by controlling for fixed effects because the unit effect dummies and the time-invariant variables are perfectly collinear. An alternative procedure is to run random effects (in spite of inconsistant estimates) [10], as we have done; otherwise, disregarding individual effects, a pooled OLS model can be run . All these procedures, in the presence of time-invariant variables and unit effects, suffer from drawbacks. Plumper and Troeger (2004) suggest a method for treating time invariant variables which comes out less biased than others listed above. We apply this technique, the results for which are summarized in the first column of Table 6. The coefficient for our key regressor, the auditing variable, is confirmed in its sign and significance. Also the coefficient related to country

[9] The technique developed by Plumper and Troeger consists of a vector decomposition procedure that allows us to estimate time-invariant variables in an augmented fixed effects approach. The model consists of three stages: in the first stage we run a fixed-effects model, in the second stage the unit-effects vector is decomposed into a part explained by the time-invariant variables and an error term and in the third stage we re-estimate the first stage including the time invariant variables and the error term obtained in stage 2 by pooled-OLS.

The authors assess the small-sample properties of the procedure and compare them to the pooled OLS, random effects and Hausman-Taylor. Monte Carlo simulations demonstrate that xtfevd is on average less biased than the available alternatives. Moreover, xtfevd has better small sample properties than Hausman-Taylor. At the same time it is less biased than random effects and pooled OLS when unit effects are correlated with time-variant variables. xtfevd outperforms pooled OLS and random effects in estimating timevariant variables that are correlated with the unit effects (ui) and it is more adequate than Hausman-Taylor in calculating the effect of time-variant variables that are correlated with the unit effects. Thus, employing the unit fixed effects vector decomposition technique appears to be superior for the analysis of data generating processes typical for panel data in comparative politics.

[10] Another alternative procedure is to apply the Hausman - Taylor technique but its results are strictly related to control variables employed.

legal origin validates the previous outcomes. Moreover, we control for cross-sectional heteroskedasticity using the Huber-White Sandwich estimator. As a further check we apply (see Table 6, column 2) a Generalized Estimating Equation (GEE) which corrects for error term correlation over time without reducing the number of observations in the case of unbalanced data. It is also the case here that country auditing quality seems to affect Tobin's Q.

An important issue that arises in the analysis of corporate governance and firm valuations nexus is the endogeneity problem. If corporate governance, in our case at country level, was endogenously determined, we could not make an assessment of the causal link. Countries which have higher firms market values, e.g. more developed stock markets, could simply be more likely to define better auditing rules. Accordingly, there is a causal relationship, but ordinary least square coefficients will tend to overstate the actual connection.

One way to mitigate the problem of causality is to add appropriate control variables. Specifically, to test whether the relationship between our auditing dimension and corporate valuation could be spuriously caused by some omitted variables, we added variables which are supposedly associated higher auditing rankings. Our auditing variable has a low variation over time but allows us to address the issue of causality using the instrumental variable method. There is a strand of the financial literature which links financial market development with economic growth (see i.e. Levine and Zervos, 1998). We adopt the gross national product per capita as an instrument. In table 7, we show the results of this specification. Econometric outcomes show the existence of a significant and positive relationship between auditing quality and firm performance, confirming the validity of the previous analysis.

5 Conclusion

This paper investigates the effect of national auditing rules on corporate performance. We analyzed yearly company observations in six countries during the period 1980-2002. We derived an original auditing measure that allows us to assign an audit quality score to each country within the sample. We have shown that quality auditing rules positivily affect company performance. We have shown that this link is confirmed even when the endogeneity is taken into account. Furthermore, the overall results are consistent across the different specifications. Thus, the findings suggest the importance of considering institutional factors such as auditing rules when formulating policies in investor protection.

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Table 1 Descriptive Statistics on the overall sample

Variables	N	Mean	Std. dev	Min	Max
TOBIN'S Q	17338	377.8592	5423.347	-6808.846	536125.7
BETA	41538	0.8900905	0.2786561	0.2050008	8.221819
ROA	16365	3.009591	95.61497	0	11655.18
MVB	23288	5709.231	155873.8	-594.29	7415316
MVTOT	23861	4.14E+09	7.74E+10	6.24	7.28E+12
BVSTOT	19582	2.05E+07	1.82E+08	-1.39E+08	1.44E+10
TOTAL ASSET	21947	1.23E+07	4.74E+07	37	1.10E+09
TOTAL DEBT	21932	3947419	2.15E+07	0	8.51E+08
TOT.SH.CAP. RES	21938	1817236	4519667	-9951000	1.45E+08
LEVERAGE	21919	0.3923619	1.437953	-94.28176	175.4943
LEGAL	42090	.5737705	0.4945338	0	1
AUDITINDEX	42090	0.1825548	0.6426865	-1.1035	0.8285

Table 2 Descriptive Statistics Common law Sample

Variables	N	Mean	Std. dev	Min	Max
TOBIN'S Q	10931	527.1521	6750.516	-6808.846	536125.7
BETA	23874	0.9024002	0.2200128	0.2050008	2.004893
ROA	10989	4.451394	116.6562	0	11655.18
MVB	15454	8166.095	186221	-594.29	7415316
MVTOT	15135	5.51E+09	9.61E+10	64	7.28E+12
BVSTOT	12561	3.16E+07	2.26E+08	-1.39E+08	1.44E+10
TOTAL ASSET	12736	1.21E+07	4.65E+07	376	1.10E+09
TOTAL DEBT	12724	3762033	2.27E+07	0	8.51E+08
TOT. SH. CAP. RES.	12727	2195143	5212378	-1670000	1.45E+08
LEVERAGE	12711	0.3782553	1.870126	-94.28176	175.4943
LEGAL	24150	1	0	1	1
AUDITINDEX	24150	0.5062076	0.4157277	-1.1035	0.8285

Table 3 Descriptive Statistics Civil law Sample

Variables	N	Mean	Std. dev	Min	Max
TOBIN'S Q	6407	123.1503	1321.917	-3.789874	47461.74
BETA	1766	0.8734532	0.3416095	0.4484704	8.221819
ROA	5376	0.0624235	0.5640196	0	34.49863
MVB	7834	862.616	61509.51	-88.43	5318500
MVTOT	8726	1.75E+09	1.87E+10	6.24	6.86E+11
BVSTOT	7021	791125.2	3429937	-9107196	8.11E+07
TOTAL ASSET	9211	1.25E+07	4.86E+07	37	9.26E+08
TOTAL DEBT	9208	4203592	1.99E+07	0	4.24E+08
TOT. SH. CAP. RES	9211	1295075	3262582	-9951000	6.10E+07
LEVERAGE	9208	0.4118351	0.3060643	-7.687813	5.722189
LEGAL	17940	0	0	0	0
AUDITINDEX	17940	-0.2531316	0.6368592	-1.0482	0.8285

Table 4 Correlation Coefficients Matrix

	TOBIN's Q	ASSET	MVB	ROA	BETA	LEVERAGE	LEGAL	AUDITINDEX
TOBIN's Q	1							
ASSET	0.0027	1						
MVB	0.0175	-0.0049	1					
ROA	0.5644	-0.0075	0.0013	1				
BETA	0.0445	0.0865	-0.0054	0.0076	1			
LEVERAGE	0.0049	0.0467	-0.001	-0.0021	0.0017	1		
LEGAL	-0.0038	0.0360	0.0221	0.0216	0.0514	-0.0115	1	
AUDITINDEX	0.0074	-0.001	-0.0026	-0.0003	0.0498	-0.0039	0.5843	1

Table 5. Pooled and Random Estimation Methods: coefficients for Tobin's Q and Market Value to Book (MVB)

Annual data for the period 1980- 2002. Dependent variable (Tobin's Q or MVB). Tobin's Q represents the firm's market value divided by its replacement cost. We estimate this ratio as the market value of assets (calculated as book value of assets minus book value of equity plus market value of equity) over book value of assets. Market-to-book ratio has been taken directly from DATASTREAM and is defined as market value of equity over book value of equity; ln(ASSETS) is the logarithm of book asset value; LEVERAGE is defined as the ratio of total debt to capital; BETA is a measure of riskiness of a firm; ROA, Return on assets is a measure of a firm's profitability (current value); LEGAL is a legal origin dummy which assumes value one if the firm is in a common law country; Auditindex denotes our original measure of the quality of the audit in the country: the grater the value of the measure, the lower the quality of auditing in that country. Conversely, a decreasing value of the index expresses an increasing country auditing quality.

POOLED indicates pooled OLS; RANDOM states for random effect model; RANDOM Adj. states for random effect model adjusted for sector dummies.

	TOBIN'S Q			MVB		
	POOLED	RANDOM	RANDOM Adj	POOLED	RANDOM	RANDOM Adj
ASSET	0.12995***	0.49413***	0.50203***	-0.00682**	0.04002***	0.04675***
	(0.00803)	(0.01233)	(0.01244)	(0.00339)	(0.00738)	(0.00739)
LEVERAGE	-0.01358	0.00149	0.00157	-0.14401***	0.28374***	0.29212***
	(0.02407)	(0.00652)	(0.00626)	(0.02749)	(0.06632)	(0.06659)
BETA	1.70506***	1.75042***	1.72904***	0.59186***	0.74231***	0.66335***
	(0.07203)	(0.24141)	(0.23916)	(0.03183)	(0.09993)	(0.09691)
ROA	0.00098***	0.00040	0.00040	0.00002	0.00004	0.00004
	(0.00022)	(0.00030)	(0.00030)	(0.00006)	(0.00003)	(0.00003)
LEGAL	2.57863***	2.38043***	2.25411***	0.36662***	0.41719***	0.36518***
	(0.03843)	(0.09373)	(0.09395)	(0.01770)	(0.04132)	(0.04056)
AUDITINDEX	-0.37857***	-0.21113***	-0.20611***	-0.08001***	-0.09741***	
	(0.02809)	(0.02304)	(0.02319)	(0.01269)	(0.01303)	
Sector dummies	NO	NO	YES	NO	NO	YES
Constant	-1.19795***	-6.29017***	-6.31717***	0.17001***	-0.75680***	-1.01192**
	(0.12993)	(0.25637)	(0.29515)	(0.05247)	(0.12080)	(0.13433)
Observations	14502	14502	14501	15819	15819	15818
R^2	0.32	0.24	0.06	0.03		

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 6 Robustness checks

Annual data for the period 1980- 2002. Dependent variable (Tobin's Q or MVB). Tobin's Q represents the firm's market value divided by its replacement cost. We estimate this ratio as the market value of assets (calculated as book value of assets minus book value of equity plus market value of equity) over book value of assets. Market-to-book ratio has been taken directly from DATASTREAM and is defined as market value of equity over book value of equity; ln(ASSETS) is the logarithm of book asset value; LEVERAGE is defined as the ratio of total debt to capital; BETA is a measure of riskiness of a firm; ROA, Return on assets is a measure of a firm's profitability (current value); LEGAL is a legal origin dummy which assumes value one if the firm is in a common law country; Auditindex denotes our original measure of the quality of the audit in the country: the grater the value of the measure, the lower the quality of auditing in that country. Conversely, a decreasing value of the index expresses an increasing country auditing quality.

FEVD indicates Plumper and Troeger method; GEE states for Generalized estimating equation model; IV states for instrumental variable model : instrument: GDP per capita

	TOBIN'sQ		
	FEVD	GEE	IV
ASSET	0.59896***	0.49074***	0.49981***
	(0.00315)	(0.02349)	(0.00987)
LEVERAGE	0.00190	0.00148	0.00158
	(0.00289)	(0.00458)	(0.00490)
BETA	1.48048***	1.75205***	1.72255***
	(.026316)	(0.22853)	(0.19651)
ROA	0.00011***	0.00041**	0.00043***
	(0.00003)	(0.00017)	(0.00010)
LEGAL	2.78364***	2.38324***	2.26862***
	(0.01259)	(0.10508)	(0.09053)
AUDITINDEX	-.675890***	-0.21387***	-0.08044***
	(0.00957)	(0.02789)	(0.02502)
Constant	-7.84854***	-6.24551***	-6.28358***
	(0.050238)	(0.35948)	(0.22171)
Observations	14502	14502	14502
R^2	0.85		

Table 7: List of audit characteristics

SUPERVISORY AUTHORITY INDICATOR	AUDITORS INDEPENDENCE INDICATOR	CORPORATE RESPONSIBILITY INDICATOR
~ Juridical nature of authority	~ Prohibited Activities	~ Audit Committees: responsibility and independence
~ Duties of the Board	~ Audit Partner Rotation	~ Corporate Responsibility for Financial Reports of National and Foreign Firms
~ Composition	~ Conflicts of Interest	~ Improper influence on Conduct of Audits
~ Members Independence		~ CEO and CFO reimburse the Issuer due to non-compliance of financial reports
~ Vacancies		
~ Powers and Rules of Authority		
~ Registration with the Authority		
~ Auditing Standards		
~ Quality Control Standards		
~ Independence Standards and Rules		
~ Inspections of Registered Public Accounting Firms		
~ Authority Review		
~ Investigations and Disciplinary Proceedings		
~ Applicability to Foreign Public Accounting Firms		
~ Oversight of Supervision Authority		

Table 8: Values of the audit indicator by country

Anni	USA	France	Germany	Italy	Spain	UK
1980	0.84	0.62	-0.85	0.32	0.83	0.83
1981	0.84	0.62	-0.85	0.32	0.83	0.83
1982	0.84	0.62	-0.85	0.32	0.83	0.83
1983	0.84	0.62	-0.85	0.32	0.83	0.83
1984	0.84	0.62	-0.85	0.32	0.83	0.83
1985	0.84	0.43	-0.85	0.32	0.83	0.42
1986	0.84	0.23	-0.85	0.32	-0.96	0.09
1987	0.84	0.43	-0.85	0.32	-0.57	0.42
1988	0.84	0.23	-0.85	0.32	-0.96	0.09
1989	0.84	0.23	-0.85	0.32	-0.96	0.09
1990	0.84	0.23	-0.85	0.32	-0.96	0.24
1991	0.84	0.23	-0.85	0.32	-0.96	0.24
1992	0.84	0.23	-0.85	0.32	-0.96	0.09
1993	0.84	0.23	-0.85	0.32	-0.96	0.09
1994	0.84	0.23	-0.85	0.32	-0.96	0.09
1995	0.84	0.23	-0.85	0.32	-0.96	0.09
1996	0.84	0.16	-0.85	0.32	-0.96	0.09
1997	0.84	0.16	-0.85	0.32	-0.96	0.09
1998	0.84	0.03	-0.85	-0.83	-1.05	0.09
1999	0.84	0.03	-0.85	-0.98	-1.05	0.09
2000	0.84	0.03	-0.85	-0.98	-1.05	0.09
2001	0.84	0.03	-1.01	-0.98	-1.05	0.09
2002	-1.09	0.03	-1.01	-0.98	-1.05	0.09