The Impact of Audit Committee Size and Composition on Negative Events in the Life of a Company: The Case of Israel*

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Abstract

We investigate the association between attributes of the audit committee of a firm and the likelihood of negative events occurring in the firm's life in Israel. The mandate of the audit committee in Israel is substantially different from its mandate in the US. The responsibilities of the committee in the US are divided between two committees in Israel, one of which deals with reviewing the financial statements and the other one, titled "audit committee", is in charge of the remaining tasks of the US-type audit committee. This allows us a unique opportunity to focus on the roles of the audit committee other than reviewing the financial statements. Using hand-collected data on firms traded on Tel Aviv stock Exchange in 2010-2014 we find that the larger the audit committee size, the larger the likelihood of negative events, consistent with the cumbersome workings and potential conflicts of interests characterizing a large committee. The percentage of directors with accounting and financial expertise on the audit committee is associated with a lower likelihood of negative events, in line with the value of such experts in tasks beyond reviewing the financial statements. The fraction of independent directors on the audit committee is not found to be significantly related to the likelihood of negative events. This is consistent with the notion that some independent directors are independent in form but not necessarily in substance, which is surprising in light of the comprehensive regulation regarding audit committee independence imposed by the Israeli regulator.

EFM Classification Codes: 150

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1 Introduction

Over the past two decades corporate governance has become an important factor in the operation of a company, and its organs have attracted a lot of attention from researchers, regulators and the media alike. From the Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees (1999): *"Board membership is no longer just a reward for 'making it' in corporate America; being a director today requires the appropriate attitude and capabilities, and it demands time and attention."*

This process escalated by the Enron scandal of December 2001, which led to the enactment of The Sarbanes-Oxley Act of 2002 (henceforth SOX). The SOX act and the ensuing regulation by the SEC laid the basis to many of the corporate governance practices used today.[1] Among other things, SOX led to the strengthening of the gatekeepers. A similar process has occurred in Israel, and was intensified by the financial crisis of 2008 and its aftermath. Following the crisis, many of the largest and most influential Israeli companies, deemed invincible just a short period earlier, fell into significant financial difficulties, revealing weaknesses in corporate governance.

Our paper concentrates on an important gatekeeper, the audit committee, and analyzes some of its attributes using Israeli data.[2] We start by pointing out a key difference between audit committees' responsibilities in the US and Israel. This difference has never been pointed out and exploited, to the best of our knowledge. The audit committee in the US is charged with overseeing the financial reporting process and monitoring the integrity of the company's financial statements and internal controls, the internal audit function, company risk, and compliance with legal and regulatory requirements. In Israel these responsibilities are divided between two committees. The review of financial statements is delegated to a committee entitled "the committee for reviewing the financial statements", henceforth "financial statements committee", that doesn't have a US equivalent. The other responsibilities are delegated to the committee bearing the name "audit committee". We explore the effect of various attributes of the Israeli-type audit committee on the possibility that the firm faces certain types of undesirable outcomes. Given its different role, our

[1] See SEC (2003a), (2003b).

[2] For surveys of the literature on boards of directors see Adams, Hermalin and Weisbach (2010), Hermalin and Weisbach (2003) and John and Senbet (1998). For an examination of the changes in board characteristics, such as board size and independence, between 1997 and 2003 see Chhaochharia and Grinstein (2007). Peel and O'Donnell (1995) provide evidence on the association of board characteristics and firm performance in the UK. For a literature review dedicated to audit committees see Turley and Zaman (2004). For a comprehensive review of issues in corporate governance with an emphasis on board and audit committee research, see Carcello, Hermanson and Ye (2011). For a critique of empirical research on corporate governance see Larcker, Richardson and Tuna (2007).

investigation of the Israeli-type audit committee can be thought of as an examination of the impact of a *new committee* charged with monitoring the firm's internal control processes as a whole without the task of reviewing its financial statements.

We investigate the impact of the (Israeli-type) audit committee along three dimensions: size, financial expertise and independence, using hand-collected data on a sample of firms traded on the Tel Aviv Stock Exchange during the period 2010-2014. Our main explanatory variables are the number of audit committee members, the proportion of members with financial expertise on the committee and the proportion of independent members on the committee. Most commonly, the value of corporate governance organs is measured in terms of the financial performance of the firm (e.g., stock returns or Tobin's Q). Our approach it to measure the effect of the above attributes by looking at the likelihood of undesirable outcomes occurring throughout the life of the company. The negative events we consider, in their order of severity, are warning signs, incidences of emphasis of matter and qualifications in the financial statements, going-concern notices, debt restructurings and appointments of a liquidator.[3] We develop an aggregate measure of negative events by lumping together these outcomes. This performance measure seems as a more direct way for evaluating the results of the audit committee's work, since minimizing the likelihood of negative events through internal control is a key role of the committee.

Our first variable of interest is the audit committee size measured by its number of members. Since the majority of studies investigate board size rather than audit committee size, we start by discussing these studies. Yermack (1996) investigates large US firms and documents an inverse association between board size and firm value, as measured by Tobin's Q. He attributes this inverse relationship to coordination and decision-making problems which exacerbate as board size increases. This result corroborates the prediction in Jensen (1993), who argues that a larger board is not only ineffective but also more prone to be controlled by the CEO, and is in line with the recommendation in Lipton and Lorsch (1992) to limit the number of board members to 10. While Yermack (1996) was conducted on large US firms, similar findings for smaller firms emerge in Eisenberg, Sundgren and Wells (1998) for Finnish firms and in Mak and Kusnadi (2005) for Singaporean and Malaysian firms.

The above evidence is consistent with research from the discipline of organizational behavior. For example, Hackman (2011) writes "... *Excessive size is one of the most common - and also one of the worst - impediments to effective collaboration ... Small teams are more efficient and far less frustrating ...*".

Coles, Daniel and Naveen (2008) challenge the notion of a negative association between

[3]Warning signs are a list of "red flags" based on financial statements and auditor's incidences of emphasis of matter (a note in the auditor's report withdrawing attention to a potential problem). There is no US equivalent to warning signs.

board size and Tobin's Q for all firms. They find that this relationship changes as a function of the complexity of a firm, so that for complex firms Tobin's Q increases in board size. Furthermore, they show that complex firms require not only larger boards but specifically boards with more outside directors. This result draws on the board's dual role as a monitor and advisor to top management. Outside directors are presumed to have more experience and expertise, thus offering advice concerning business strategy that is more valuable to the management of complex firms. To illustrate this point, the paper cites the case of the board of Gulfstream Aerospace that included Henry Kissinger, Donald Rumsfeld, and Colin Powell as directors, selected most likely due to their experience regarding defense contracts. The results in Coles, Daniel and Naveen (2008) are in the same spirit as those in Boone, Field, Karpoff and Raheja (2007), Linck, Netter and Yang (2008) and Lehn, Patro, and Zhao (2009).

The effect of audit committee size on firm performance was little explored. Anderson, Mansi and Reeb (2004) find that the cost of debt is negatively related to audit committee size. For a sample of companies experiencing financial distress, Carcello and Neal (2000) find no association between audit committee size and the likelihood of receiving going-concern reports, and Carcello and Neal (2003) find no association between audit committee size and the optimism of disclosure by management.

The above evidence taken as a whole does not provide a clear prediction as to the direction of the association between audit committee size and the likelihood of negative events. To develop such a hypothesis we consider aspects of the Israeli market which could point at either direction. As will be elaborated on below, the Israeli market is small and is characterized by concentrated ownership and influential business groups. Therefore, the larger the audit committee, the more likely it is for committee members to have connections to one another on multiple dimensions. This creates the potential for conflicts of interests, which could compromise the quality of the committee's work. This fact, coupled with the aforementioned communication difficulties, leads us to hypothesize the existence of a positive association between audit committee size and negative events. Indeed, we find such an association at a high level of significance.

Our second variable of interest is the fraction of members with financial expertise on the audit committee. Most of the work on the value of directors with financial expertise, both on the board of directors and on the audit committee, has been conducted after the SEC issued its final rule requiring firms to disclose whether they have financial experts on their audit committees (see SEC 2003b). Regarding the board, it has been argued by Guner, Malmendier and Tate (2008) that directors with financial expertise, specifically commercial and investment bankers, devote much of their time on the board to advising rather than to

monitoring, and that misalignment of incentives might hamper their advisory role. Similar evidence is presented in Dittmann, Maug, and Schneider (2010) regarding bankers serving on boards of directors in Germany. Both papers find little evidence that bankers on the board of directors monitor top management.[4]

Given the aforementioned SEC Final Rule, it is not surprising that most research on directors with financial expertise pertains to audit committees. Most papers in this extensive literature find that audit committee members with financial expertise perform a valuable service for the firm. A detailed description of this literature can be found in Hayes (2014). To name a few studies, Abbott, Parker and Peters (2004) find that audit committee financial expertise is negatively and significantly associated with the likelihood of restatements. Krishnan (2005) and Zhang, Zhou and Zhou (2007) document a positive association between audit committee expertise and the quality of internal control for the period before and the period after the enactment of SOX, respectively.

Contrary to the findings of most papers, Anderson, Mansi and Reeb (2004) find that audit committee financial expertise is not associated with the cost of debt. Badolato, Donelson and Ege (2014) find that in order for financial expertise in audit committees to be associated with a lower level of earnings management, it has to be supplemented with a higher status relative to management, where the status measure is based upon numbers of public and private directorships and degrees from elite institutions.[5]

As mentioned earlier, there is a difference between the mandate of the audit committee in Israel as opposed to the mandate of the committee in the US. Given that the mandate of the US-type committee includes review of the financial statements, it is quite obvious why the percentage of members with financial expertise on the audit committee in the US is positively related to firm performance, and indeed this is consistent with the body of extant literature, as noted above. Even though review of the financial statements is not within the scope of responsibilities of the Israeli-type audit committee, we believe that financial expertise has a valuable contribution in fulfilling the scope of duties of the Israeli-type audit committee since many of these duties involve financial aspects. For example, the sensitive task of examining related party transactions often involves significant financial considerations. Therefore we conjecture that the fraction of directors with financial expertise on the audit committee is negatively associated with the likelihood of negative events. This conjecture is upheld by the data at a high level of significance.

Our third variable of interest is the fraction of independent members on the audit

[4]On conflicts of interest arising when bankers are members of boards of directors see also Kroszner and Strahan (2001).

[5]Hayes (2014) offers a critique of this paper's research design and suggests its results be viewed with caution.

committee. Conventional wisdom suggests that independent directors perform better monitoring and represent shareholders' interests better than directors who are not independent. As a result of growing regulation and pressure from institutional investors, there has been a worldwide trend towards greater board independence, a trend embraced by institutional investors. From California Public Employees' Retirement System (CalPERs) Statement of Investment Policy for Global Governance, March 16, 2015: "... *Independence is the cornerstone of accountability... At a minimum, a majority of the board consists of directors who are independent. Boards should strive to obtain board composition made up of a substantial majority of independent directors ...*".

An extensive body of evidence examines the value of independent directors, yielding mixed results. With respect to the board of directors, a partial list includes Agrawal and Knoeber (1996), Armstrong, Core and Guay (2014), Beasley (1996), Bhagat and Black (1999), Bhagat and Black (2002), Brickley, Coles and Terry (1994), Byrd and Hickman (1992), Coles, Daniel, and Naveen (2014), Cotter, Shivdasanil and Zenner (1997) and Nguyen and Nielsen (2010).

Klein (1998) examines the role of independent directors on the board as well as on board committees. Although she finds no association between firm performance and board independence, she documents a positive relation between firm performance and the percentage of inside directors on the investment and finance committees, which she classifies as "decision making" committees, as opposed to the audit committee which she classifies as a "monitoring committee".[6] Klein (2002a) points out that the audit committee is a subset of the board of directors and documents that audit committee independence is increasing with board size and board independence, implying that a larger board might lead to a more effective audit committee. A number of papers document the positive effect of audit committee independence on the quality of accounting outcomes. Klein (2002b) finds a negative association between earnings management and audit committee independence as well as board independence, and Krishnan (2005) finds that audit committee independence is negatively related to the incidence of internal control problems. Using a sample of companies experiencing financial distress, Carcello and Neal (2000) find that a larger proportion of affiliated directors on the audit committee is associated with a lower likelihood of the auditor issuing a going-concern report, and Carcello and Neal (2003) find that there is a positive association between the fraction of affiliated directors on the audit committee and the optimism of disclosures by management. In a multi-country study focusing on financial institutions during the 2007-2008 financial crisis, Yeh, Chung and Liu (2011) find that the performance during the crisis period is higher for institutions with more independent direc-

[6]The finance committee should not be confused with the financial statements committee. Finance committees are charged with issues such as dividend policy and financing.

tors on the audit (as well as risk) committees. They also find that the association between independence and performance varies across different corporate governance environments.

By and large, existing literature, especially on the board, does not yield a clear prediction regarding the association between independent directors and various performance measures. There are two additional confounding factors pertaining to the Israeli economy. Recall that the role of the audit committee (whether Israeli or otherwise) is a supervisory one, as opposed to the dual role - advisory as well as supervisory - of the board of directors (see, e.g., Klein 1998). The first confounding factor is that Israel Securities Authority imposes on the Israeli audit committee an additional independence requirement which is not imposed on the financial statements committee. Specifically, in Israel there is a type of independent directors designated as directors representing the public and denoted "external directors". Each firm should appoint at least two such directors to its board. The independence requirements for both committees are that the majority of its members be independent and that the committee chairperson be an external director. The additional requirement imposed on the Israeli audit committee, on top of the stringent independence requirements already in place, is that all external directors on the board be members of the committee. We thus conclude that the Israeli audit committee is meant to be the most supervisory of all committees, including the board itself. Having such an important supervisory role makes independent directors especially valuable and one would expect firms to be extra cautious in selecting them. This could lead one to predict a negative association between the percentage of independent directors on the audit committee and the likelihood of negative events. The second factor, however, is the small size and concentrated nature of the Israeli economy, which give rise to familial, social and professional ties between directors, controlling shareholders and managers. This factor indicates that independent directors in Israel may not always be truly independent. Given the literature and these conflicting factors we do not have a clear prediction as to the direction of this variable. We find that there is no association between the percentage of independent directors and the likelihood of negative events.

We contribute to existing literature in several respects. First, in light of the different scope of responsibilities of audit committees in Israel versus the US as described above, existing literature on audit committees is focused on the role of the audit committee in reviewing the financial statements. By contrast, the focus of our work is the role of the audit committee as a monitor of the internal control processes as a whole. Given its set of tasks, our investigation can be thought of an exploration of the association between firm performance and attributes of a new committee charged with monitoring the firm's internal control processes as a whole, without being charged with the task of reviewing the financial

statements. We believe that our results are due, at least in part, to the aforementioned scope of duties of the Israeli audit committee and that they are interesting, as follows. Consider our finding that the fraction of directors with financial expertise on the audit committee is negatively associated with the likelihood of negative events. Given that the audit committee we consider in this study is not charged with reviewing the firm's financial statements, this finding indicates that financial expertise may be a valuable asset to a firm in a more general context. We now turn to the finding that the fraction of independent directors on the audit committee is unrelated to the likelihood of negative events. This finding demonstrates that rules stipulating additional independence requirements may not be useful if true independence cannot be ascertained.

Second, previous studies (see, e.g., Badolato, Donelson and Ege 2014 and Beasley 1996) use a specific accounting outcome, such as financial statement fraud or earnings management, as their performance measure. We develop an aggregate measure by lumping together several such outcomes of different degrees of severity to form a variable representing negative events. The paper closest to ours in this respect is Krishnan (2005), who takes as performance measure the likelihood of internal control problems, consisting of reportable conditions and material weaknesses.

Third, most papers on corporate governance analyze the US market. Of those which analyze markets other than the US, very few deal with the Israeli market which is small and characterized by concentrated ownership and existence of powerful business groups, as opposed to the dispersed ownership structure in the US.[7] We contribute to this scant literature.

And lastly, the committees of the board have not been explored as extensively as was the board of directors. This was pointed out by Adams, Hermalin and Weisbach (2010) who attribute it to the lack of a readily available data set and suggest that the topic of committees and their relation to the board merits further research. Our paper contributes to the existing body of literature on this topic.

The remainder of the paper is organized as follows. Section 2 describes our data and methodology. Section 3 presents the results including various robustness checks. The final

[7] A detailed history and analysis of the ownership structure of Israeli companies can be found in Kosenko (2008). For an analysis of ownership structures and business groups throughout the world, including Israel, see Khanna and Yafeh (2007). Existing analyses on Israeli boards of directors include Lauterbach and Shahmoon (2010) and Schwartz-Ziv and Weisbach (2013). Lauterbach and Shahmoon (2010) construct an index of 19 variables for ranking the corporate governance of Israeli firms, and find that there is a positive association between the quality of a firm's corporate governance, as measured by the index, and its Tobin's Q. Board-related and audit committee-related variables (with the exception of the proportion of employees on the board) had no effect on Tobin's Q. Schwartz-Ziv and Weisbach (2013) study the workings of boards of directors in Israel using a unique dataset consisting of actual minutes of board meetings and board committee meetings of companies in which the government owns a substantial stake. They find that boards spend most of their time on supervisory, rather than managerial, activities.

section presents concluding remarks.

2 Data and Summary Statistics

The research is conducted on companies that were members of the index TA-100, an index comprised of the largest 100 companies traded on Tel Aviv Stock Exchange (TASE). Each company in our sample was a member of the index at the end of at least one of the years 2009-2014.[8] As is customary, we exclude from the sample companies subject to a special regulatory regime. Those are dual-listed companies (companies traded in the TASE as well as in another market, mostly in the US), banks, insurance companies and gas & oil partnerships. This results in 68 companies and 327 observations. For each company we collect data on the audit committee and board of directors, various control variables and data regarding negative events that the company underwent over the period. For the audit committee we collect its size, number of members with financial expertise on the committee and number of independent audit committee members.[9] The board data includes board size, number of board members with financial expertise and number of independent board members. These data items were hand-collected from the annual financial reports that each company files with Israel Securities Authority (ISA). ISA requires companies to classify (according to ISA guidelines) directors as independent or not independent and as having or not having financial expertise and to report it in the annual financial reports. We use this classification. We also hand-collect from the reports the name of the accounting firm acting as the external auditor, and use it to form a control variable indicating whether the external auditor is a member of the Big 4 accounting firms. The other variables that are included in at least one of the regressions are obtained from two sources: the commercial database Super-Analyst and Maya, the on-line reporting system of ISA. From Super-Analyst we obtain the following items for each firm in each of the years: sales, income from operations, current liabilities, long-term liabilities, total assets, market capitalization, sales multiplier and Altman Z-score. We use these data items as control variables or to construct additional control variables. From Maya we retrieve for each firm in each of the years the percentage

[8]TASE started publishing historical data regarding index composition in 30.6.2010, so the index with respect to the end of 2009 is from that date.

[9]Israeli law sets the minimum number of audit committee members at three and requires that a majority of them be independent. While there is no explicit requirement for the committee to have members with accounting and financial expertise, other requirements imposed on the board effectively produce the requirement of at least one financial expert on the committee. Specifically, as mentioned earlier, in Israel there is a type of independent directors designated as directors representing the public. Each firm should appoint two such directors, one of them with accounting and financial expertise. Both of these directors should be members of the audit committee. Thus, one of the audit committee members necessarily is a financial expert.

of shares of the company held by the largest shareholder and the percentage of shares held by related parties. We also hand-collect from Maya information regarding negative events the firm underwent throughout the year. This information is used to form our dependent variable.

The negative events we consider are, in their order of severity, warning signs, incidences of emphasis of matter and qualifications in the financial statements, going-concern notices, debt restructurings and appointments of a liquidator. From this data we construct our dependent variable as an indicator variable taking the value 1 if at least one negative event of the aforementioned types occurred during the year. Throughout the sample period, 17 companies (25% of our sample) underwent a total of 37 negative events.

Table 1 provides the names and definitions of the variables appearing in our regressions.

Table 1: Variable definitions

Variable Name	Variable Description
Negative Events	An indicator variable taking the value 1 if at least one of the following events occurred during the past year: warning signs, emphasis of matter and qualifications in the financial reports, going-concern notices, debt restructurings and appointments of a liquidator.
# Audit	Number of audit committee members.
% Ind Audit	Percentage of independent directors on the audit committee.
% Exp Audit	Percentage of members with financial expertise on the audit committee.
# Board	Number of members on the board of directors.
% Ind Board	Percentage of independent directors on the board of directors.
% Exp Board	Percentage of members with financial expertise on the board of directors.
Lsales	Natural logarithm of sales in thousands of New Israeli Shekels.
Lever	Ratio of total liabilities (defined as current liabilities plus long-term liabilities) to total assets.
ROA	Return on assets (defined as the ratio of income from operations to previous year's total assets).
MTB	Ratio of market capitalization of equity plus total liabilities to total assets.
Big-4	Dummy variable taking the value 1 if the external auditor is a big-4 firm.
% Large Share	Percentage of shares held by the largest shareholder.
% Rel Parties	Percentage of shares held by related parties (including institutional investors).

Table 2 provides descriptive statistics for the independent variables.

The average audit committee (board) size in our sample is 3.27 (8.09), with a median of 3 (8) directors and a range of 2-7 (4-15). As a comparison of board sizes, the mean (median) board size in the US is 9.6 (9) (see Coles, Daniel and Naveen 2014), in Finland 3.7 (3) (see Eisenberg, Sundgren and Wells 1998) and in Malaysia and Singapore 7.27 (7) (see Mak and Kusnadi 2005).

The mean percentage of independent audit committee members (board members) is 0.80 (0.37) with a median of 0.67 (0.33) and a range of 0.2-1.0 (0.07-0.75). The mean percentage of audit committee members with financial expertise (board members with financial expertise) is 0.76 (0.61) with a median of 0.67 (0.60) and a range of 0.2-1.0 (0.22-1.0). Firm size, proxied by the natural log of sales (in thousands of New Israeli Shekels), has a mean of 14.07, a median of 13.86 and a range of 8.1-17.9 (corresponding to sales of 1,289,803, 1,045,494 and 3,295-59,411,597 thousands of New Israeli Shekels). The mean leverage is 0.65 with a median 0.68 and a range of 0.07-2.73.[10] The mean percentage of shares held by the largest shareholder is 0.54 with a median of 0.57 and a range of 0.09-0.88. The mean percentage of shares held by related parties is 0.73 with a median of 0.74 and a range of 0.30-0.97.[11]

In Table 3 we provide a breakdown of our sample according to industry. As can be seen, the largest sector in our sample is Real Estate & Construction, followed by Investment & Holding companies.[12]

Since our dependent variable is an indicator variable we use logistic regression. Our general regression model is

$$\begin{aligned} logit(NegativeEvents_{i,t}) = b_0 + b_1 \cdot (\#Audit_{i,t-1}) + b_2 \cdot (\%IndAudit_{i,t-1}) + \\ b_3 \cdot (\%ExpAudit_{i,t-1}) + \sum_j b_j \cdot (Control_{i,t-1,j}) + \epsilon_{i,t} \end{aligned}$$

where the first subscript represents the company and the second subscript represents the year. Note that all our explanatory variables (including control variables) are lagged, thus eliminating one year of data and two companies that did not have data for two consecutive years. We employ White heteroskedastic-consistent standard errors adjusted for clustering by firm and use year dummies in all regressions to control for specific year effects.

[10] With the exception of one firm, leverage in our sample is below 1.0. Removing this firm did not materially alter our results.

[11] Out of the 0.97 held by related parties for the company with maximal value, 0.43 were held by institutional investors.

[12] Recall that in the sample selection process we exclude banks, insurance companies, dual-listed firms and gas & oil partnerships. Thus, the single company in the Financial Services sector in our sample is not a bank or an insurance company and the single company in the Gas & Oil Exploration industry is not a partnership. These two companies were therefore not excluded from our sample.

Table 2: Summary statistics for selected variables

	# observations	mean	median	sd	min	max
# Audit	327	3.269	3.000	0.627	2.000	7.000
% Exp Audit	327	0.762	0.667	0.198	0.200	1.000
% Ind Audit	327	0.796	0.667	0.179	0.200	1.000
# Board	327	8.095	8.000	2.427	4.000	15.000
% Exp Board	327	0.614	0.600	0.184	0.222	1.000
% Ind Board	327	0.373	0.333	0.141	0.071	0.750
Lsales	327	14.068	13.864	1.629	8.100	17.896
Lever	327	0.655	0.683	0.221	0.068	2.735
ROA	327	0.089	0.074	0.108	-0.083	1.308
MTB	327	1.189	0.987	0.584	0.637	5.438
Big-4	327	0.872	1.000	0.335	0.000	1.000
% Large Share	327	0.537	0.568	0.168	0.092	0.884
% Rel Parties	327	0.732	0.745	0.119	0.303	0.967

Audit is the number of audit committee members. % Ind Audit is the percentage of independent directors on the audit committee. % Exp Audit is the percentage of members with financial expertise on the audit committee. # Board is the number of members on the board of directors. % Ind Board is the percentage of independent directors on the board of directors. % Exp Board is the percentage of members with financial expertise on the board of directors. Lsales is the natural logarithm of sales in thousands of New Israeli Shekels. Lever is the ratio of total liabilities (defined as current liabilities plus long-term liabilities) to total assets. ROA is the return on assets (defined as the ratio of income from operations to previous year's total assets). MTB is the ratio of market capitalization of equity plus total liabilities to total assets. Big-4 is a dummy variable taking the value 1 if the external auditor is a big-4 firm. % Large Share is the percentage of shares held by the largest shareholder. % Rel Parties is the percentage of shares held by related parties.

Table 3: Industry statistics

	#	%
Real Estate & Construction	26	38.24
Investment & Holding	13	19.12
Wholesale & Retail Trade	6	8.82
Food	5	7.35
Fashion & Clothing	3	4.41
Chemistry, Rubber & Plastics	3	4.41
Communication & Media	3	4.41
Timber, Paper & Printing	2	2.94
Electronics & Optics	1	1.47
Gas & Oil Exploration	1	1.47
Metal & Construction Materials	1	1.47
Information Services	1	1.47
Financial Services	1	1.47
Software & Internet	1	1.47
Services	1	1.47
Total	68	100.00

Table 4: Correlations between independent variables

	# Audit	% Exp Audit	% Ind Audit	Lsales	Lever	ROA	MTB	Big-4	% Large Share	% Rel Parties
# Audit	1.000									
% Exp Audit	0.022	1.000								
% Ind Audit	-0.159	0.122	1.000							
Lsales	0.373	0.219	-0.112	1.000						
Lever	0.091	-0.014	0.053	0.312	1.000					
ROA	-0.067	0.141	-0.045	-0.074	-0.266	1.000				
MTB	0.028	0.110	-0.028	0.015	-0.170	0.689	1.000			
Big-4	0.121	-0.047	-0.072	0.182	0.070	0.019	-0.003	1.000		
% Large Share	-0.117	-0.192	-0.040	0.016	0.098	-0.197	-0.132	0.122	1.000	
% Rel Parties	-0.219	-0.172	0.004	-0.295	0.086	-0.248	-0.250	0.032	0.431	1.000

Audit is the number of audit committee members. % Ind Audit is the percentage of independent directors on the audit committee. % Exp Audit is the percentage of members with financial expertise on the audit committee. Lsales is the natural logarithm of sales in thousands of New Israeli Shekels. Lever is the ratio of total liabilities (defined as current liabilities plus long-term liabilities) to total assets. ROA is the return on assets (defined as the ratio of income from operations to previous year's total assets). MTB is the ratio of market capitalization of equity plus total liabilities to total assets. Big-4 is a dummy variable taking the value 1 if the external auditor is a big-4 firm. % Large Share is the percentage of shares held by the largest shareholder. % Rel Parties is the percentage of shares held by related parties.

3 Results

Table 4 presents the correlations between the independent variables.[13] Not surprisingly, the correlation between the percentage of shares held by the largest shareholder and the percentage of shares held by related parties is high (r=0.43). The correlation between the size of the company (as represented by the log of its sales) and the size of its audit committee is 0.37, indicating that larger firms tend to have larger audit committees. The correlation between the company's leverage and its size is 0.31, indicating that large companies have more debt in their capital structure, and the correlation between leverage and ROA is negative (-0.27) as documented in prior literature.

Table 5 describes the results of our first set of regressions. All 6 regression models in this set include the three variables pertaining to the audit committee. Following the literature, we include in all regressions three control variables - Lsales, the natural logarithm of sales, as a proxy for company size; Lever, the company's leverage, measured as the ratio of total liabilities to total assets; and ROA, Return on Assets, computed as the ratio of income from operations to previous year's total assets, as a measure of firm profitability. Model 1

[13] We present correlations and results pertaining to the board of directors later in this section.

is the most parsimonious, including no additional variables. Growth opportunities have been shown to be related to various corporate governance variables (see, e.g., Linck, Netter and Yang 2008). We thus include in Model 2 as an additional variable MTB, the ratio of market capitalization of equity plus total liabilities to total assets, as a proxy for growth opportunities. Carcello, Hollingsworth, Klein and Neal (2006) suggest that audit committee financial expertise works in conjunction with alternate corporate governance mechnisms, and that the different mechanisms can act as substitutes. It can thus be argued that Big 4 accounting firms offer a higher quality of external auditing relative to non Big 4 accounting firms. Thus we include in Model 3 a dummy variable for Big 4 accounting firms.

In models 4 and 5 we include % Large Share, percentage of shares held by the largest shareholder, and % Rel Parties, percentage of shares held by related parties, respectively. These two variables are potentially important controls in the Israeli economy, where the vast majority of public companies have controlling shareholders, with mean values of 0.54 and 0.73, respectively, as shown in Table 2. Indeed, one of these variables - % Large Share - comes out significant in the models where it is included at the 5% or 10% level. Model 6 includes all of our control variables.

Our first result is that the higher the audit committee size, the higher the likelihood of negative events. This result is significant at the 1% level in all 6 models. Our result is consistent with those obtained with respect to board size in Yermack (1996) and others. That is, the communication and coordination costs of a larger group of people (be it the board of directors or the audit committee) could hamper its workings. As previously mentioned, while the board has a dual role of advising and monitoring, the audit committee is focused on monitoring (see, e.g., Klein 1998). A board member who is an excellent advisor might not contribute as much as an audit committee member and would still impose the added costs of communication and coordination. Thus, our results are not at odds with the findings of Coles, Daniel and Naveen (2008), Boone, Field, Karpoff and Raheja (2007) and others pertaining to complex firms that have an enhanced need for advising and hence do not exhibit the negative association between board size and firm performance.

Our second result is that the association between the percentage of members with financial expertise on the audit committee and negative events is negative and significant at the 1% level in all models, implying that as the percentage of such members on the committee increases, the firm is less likely to have negative events. Our result agrees with the results in most studies analyzing the value of directors with financial expertise both on the board and on the audit committee (see, e.g., Carcello, Hollingworth, Klein and Neal 2006 and Krishnan 2005). However, a few studies present different evidence. Examples include the negative value of directors with financial expertise on the board in the context of

Table 5: Impact of audit committee characteristics on negative events

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
# Audit	1.268***	1.308***	1.407***	1.183***	1.263***	1.216***
	(0.377)	(0.363)	(0.415)	(0.381)	(0.385)	(0.450)
% Exp Audit	-4.164***	-4.044***	-4.449***	-4.733***	-4.161***	-4.940***
	(1.385)	(1.320)	(1.518)	(1.445)	(1.379)	(1.449)
% Ind Audit	1.418	1.449	1.505	1.178	1.402	0.948
	(2.064)	(2.148)	(2.045)	(2.085)	(2.046)	(2.089)
Lsales	-0.233	-0.245	-0.196	-0.191	-0.209	-0.080
	(0.331)	(0.337)	(0.372)	(0.299)	(0.331)	(0.341)
Lever	0.469	0.573	0.760	0.774	0.318	0.513
	(1.432)	(1.891)	(1.559)	(1.457)	(1.276)	(2.032)
ROA	-19.594**	-18.725*	-19.991**	-21.361**	-19.497**	-20.697**
	(9.716)	(10.328)	(10.021)	(9.450)	(9.837)	(10.385)
MTB		-1.188				-1.370
		(1.212)				(1.445)
Big-4			-1.412**			-1.147
			(0.712)			(0.774)
% Large Share				-2.927*		-3.012*
				(1.775)		(1.779)
% Rel Parties					0.942	3.335
					(2.785)	(2.659)
Constant	-0.183	0.855	-0.067	1.529	-1.084	0.290
	(5.022)	(5.100)	(5.051)	(4.362)	(5.325)	(4.526)
# Observations	259	259	259	259	259	259
McFadden R^2	0.274	0.281	0.301	0.295	0.275	0.328
P-value	0.000	0.000	0.000	0.000	0.000	0.000
# Companies	66	66	66	66	66	66

Negative Events is an indicator variable taking the value 1 if at least one of the following events occurred during the past year: warning signs, emphasis of matter and qualifications in the financial reports, going-concern notices, debt restructurings and appointments of a liquidator. # Audit is the number of audit committee members. % Ind Audit is the percentage of independent directors on the audit committee. % Exp Audit is the percentage of members with financial expertise on the audit committee. Lsales is the natural logarithm of sales in thousands of New Israeli Shekels. Lever is the ratio of total liabilities (defined as current liabilities plus long-term liabilities) to total assets. ROA is the return on assets (defined as the ratio of income from operations to previous year's total assets). MTB is the ratio of market capitalization of equity plus total liabilities to total assets. Big-4 is a dummy variable taking the value 1 if the external auditor is a big-4 firm. % Large Share is the percentage of shares held by the largest shareholder. % Rel Parties is the percentage of shares held by related parties. Independent variables are calculated at the beginning of the period while the dependent variable is calculated at the end of the period. Year dummies are included in all regressions. Standard errors adjusted for clustering by firm are included in parentheses. ***, ** and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively, based on a two-tailed test.

a divergence of interests in Guner, Malmendier and Tate (2008) and the lack of association between audit committee financial expertise and the cost of debt in Anderson, Mansi and Reeb (2004).

Recall that the role of the audit committee in Israel does not include review of the financial statements. It is thus interesting to see that our result is consistent with most studies pertaining to the US, indicating that the value of financial experts extends beyond reviewing the financial statements.

The third result is that there exists no significant association between the percentage of independent members on the audit committee and negative events. Indeed, in Table 5, the coefficients for this variable are positive and insignificant in all models. Recall that we had no clear prediction regarding this variable in light of the two confounding factors mentioned earlier: the stringent independence requirements imposed on the Israeli audit committee on the one hand, and the characteristics of the Israeli market on the other hand. Our finding is in line with the latter factor. It is thus consistent with the common critique about independent directors not always being truly independent, particularly in a small market such as the Israeli market which is characterized by concentrated ownership. Such a structure could give rise to ties among directors and between directors and the CEOs along multiple dimensions, in the spirit of the findings in Brick, Palmon and Wald (2006), He, Pittman, Rui and Wu (2016) and Krishnan, Raman, Yang and Yu (2011). Furthermore, Bhagat and Black (1999) argue that independent directors are "lapdogs" rather than "watchdogs", and Coles, Daniel, and Naveen (2014) document that directors appointed during the tenure of the current CEO, though legally defined as independent, are not truly independent because of their allegiance to the CEO.[14]

It is worthwhile noting that the explanatory power of all 6 regressions is very high. The p-value of each of the regressions is below 0.001 as can be seen in Table 5.

Now we turn to examine the possibility that our results are driven by the board of directors as a whole rather than by the audit committee. We start by examining the correlations between board variables and audit committee variables (results not tabulated). The correlation between board size and audit committee size is 0.39, and the correlation between the percentage of independent board members (percentage of board members with financial expertise) and the percentage of independent audit committee members (percentage of audit committee members with financial expertise) is 0.64 (0.47), in line with Klein (2002a) regarding board and audit committee independence. We also find that larger firms have larger boards (r=0.43), and that as boards grow large the fraction of

[14]This is in line with evidence presented in Shivdasani and Yermack (1999) documenting that market reaction to the appointment of new independent directors is lower when the CEO is involved in the selection process.

independent board members declines (r=-0.56). Next we examine the association between board variables, with and without audit committee variables, and negative events. We run our regressions first with board variables and then with both board and audit committee variables. Table 6 describes the results of two of these regressions. In the regression where audit committee variables are excluded, board variables are insignificant. In the regression containing both board and audit committee variables, the association between audit committee size (percentage of members with financial expertise) and negative events is positive (negative) and significant at the 1% level, whereas board variables are insignificant. The results of these regressions imply that it is audit committee variables and not board variables that drive the association with negative events. The explanatory power of the regression that includes both audit committee variables and board variables is again very high (p-value below 0.001) whereas the explanatory power of the regression pertaining to the board only is weaker (p-value=0.037).

In addition to being robust to inclusion of board-related variables, our results are robust to many other specifications (not tabulated). We include in our regressions additional control variables such as Altman Z-Score, $\frac{\text{P}}{\text{Sales}}$ and Return on Equity (ROE). We also ran our regressions using leverage expressed in terms of market value of equity rather than book value of equity. To conform to previous studies (e.g., Yermack 1996), we also replaced the number of audit committee members with its log. Additionally, we ran the regressions without several types of outliers (for example, without 5 observations where the firms had two audit committee members instead of three as required by law). For the regressions with board variables we examined many model specifications such as those presented in Table 5 and the respective aforementioned robustness tests. We also include in those regressions the percentage of employees on the board.

The results didn't materially change under any of the above specifications, with the exception of the fraction of independent audit committee members which in a small number of our robustness tests is somewhat significant and positive.

In unreported analysis we examined the effect of the industry in which a firm operates on the results. We looked at the two industries - Real Estate & Construction and Investment & Holding - to which most of companies belong (see Table 3) and found that industry has no significant effect on our results.

Additional robustness tests include averaging across years instead of clustering by year and examining additional lags. Again, the results did not materially change.

Table 6: Impact of board characteristics on negative events

	Board	Board & Audit Committee
# Audit		1.598***
		(0.584)
% Exp Audit		-4.340***
		(1.521)
% Ind Audit		2.789
		(2.608)
# Board	0.033	-0.152
	(0.239)	(0.311)
% Exp Board	-1.338	0.866
	(1.682)	(1.892)
% Ind Board	1.319	-3.500
	(3.108)	(4.962)
Lsales	-0.154	-0.239
	(0.268)	(0.320)
Lever	0.420	0.514
	(1.274)	(1.415)
ROA	-20.917***	-19.521**
	(7.931)	(9.218)
Constant	1.288	-0.134
	(4.525)	(5.072)
# Observations	259	259
McFadden R^2	0.176	0.280
P-value	0.037	0.000
# Companies	66	66

Negative Events is an indicator variable taking the value 1 if at least one of the following events occurred during the past year: warning signs, emphasis of matter and qualifications in the financial reports, going-concern notices, debt restructurings and appointments of a liquidator. # Audit is the number of audit committee members. % Ind Audit is the percentage of independent directors on the audit committee. % Exp Audit is the percentage of members with financial expertise on the audit committee. # Board is the number of members on the board of directors. % Ind Board is the percentage of independent directors on the board of directors. % Exp Board is the percentage of members with financial expertise on the board of directors. Lsales is the natural logarithm of sales in thousands of New Israeli Shekels. Lever is the ratio of total liabilities (defined as current liabilities plus long-term liabilities) to total assets. Independent variables are calculated at the beginning of the period while the dependent variable is calculated at the end of the period. Year dummies are included in all regressions. Standard errors adjusted for clustering by firm are included in parentheses. ***, ** and * denote significance at the 0.01, 0.05, and 0.1 levels, respectively, based on a two-tailed test.

4 Summary and concluding remarks

In this paper we examine the effect of audit committee characteristics on the likelihood of negative events of varying degrees of severity. Using hand-collected data on firms traded on the Tel Aviv stock Exchange in 2010-2014, we document a positive association between audit committee size and the likelihood of negative events. This association is consistent with communication and decision-making difficulties, as well as with the potential for conflicts of interests, inherent in the workings of a large committee. We also find that the fraction of directors with financial expertise on the audit committee is associated with a lower likelihood of negative events, but that the fraction of independent directors on the audit committee is not, consistent with the notion that not all independent directors are truly independent. We find no significant effect of board characteristics on the likelihood of negative events, consistent with the dual role of the board vis-à-vis the supervisory role of the audit committee.

In light of the difference between the tasks of audit committees in Israel and the US, our investigation is novel and leads to interesting results. One such result is that financial expertise has a negative and significant effect on our performance measure even in the context of a committee not charged with the review of financial statements. This implies that financial expertise is a valuable asset not only for the specific task of reviewing the financial statements but also in monitoring the internal control processes as a whole. It is also interesting that no association exists between audit committee independence and the likelihood of negative events given the comprehensive regulation regarding committee independence imposed by Israel Securities Authority.

A few policy implications emerge from our study. The first is to limit the size of the audit committee in order to minimize the potential for conflicts of interests and communication difficulties. The second is to require a higher minimum percentage of members with financial expertise on the committee. The third is finding ways to strengthen the independence of the committee. While there has been emphasis on this issue recently, so far success was limited.

To the best of our knowledge, the difference in the roles of the audit committees in Israel and the US has not been examined, from neither a financial, nor an accounting nor a legal standpoint. It would be interesting to examine which of the two models, the Israeli one or the US one, is preferable. Our paper, investigating the Israeli-type audit committee, is a step in this direction.

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