NED CHARACTERISTICS, BOARD STRUCTURE AND MANAGEMENT TURNOVER IN THE NETHERLANDS IN TIMES OF FINANCIAL DISTRESS: A THEORETICAL AND EMPIRICAL SURVEY

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Abstract

This paper examines the relationship between corporate governance characteristics and corporate financial distress. There are two main theoretical factors of interest: the structure of the monitoring process, and the personal characteristics of non-executive directors (NEDs). The first approach is basically *agency-theory* oriented, and emphasises relationships that complicate proper control, such as dependents on the board (Jensen, 1993). The second approach refers to the *resource dependency* theory, which focuses on the quality of the director(s) involved (Hillman and Dalziel (2003). The relevant relationships are tested on a newly built database consisting of 52 listed companies in the Netherlands that became financially distressed in the period from 1993 to 2003 and a control sample of 167 listed companies. We collected data on NEDs such as age, education, dependency, other board positions (and chairmanships), workload, and the number of executive and non-executive board members. A positive relationship with financial distress was found to exist if the average workload of NEDs on the board was high, or if there was a foreigner on the board. If one of the NEDs has inside knowledge, this is negatively related to financial distress. As a final conclusion, the hypothesis originating in resource dependency theory, which is that the human characteristics of NEDs are important in avoiding financial distress, cannot be rejected with regard to the Netherlands as examined in the period from 1993 to 2003.

Keywords: financial distress, NED characteristics, board structure, corporate governance, resource dependency theory, agency theory

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By nature, organizations abhor control systems, and ineffective governance is a major part of the problem with internal control mechanisms (Jensen (1993), p. 852)

1. INTRODUCTION

The role of internal monitoring by non-executive directors (NEDs) has been a focus of ongoing international discussion in the corporate governance literature. Two main theoretical factors are of interest: the structure of the monitoring process and the personal characteristics of the NEDs. The first factor is basically *agency-theory* oriented, and stresses relationships that complicate proper control, such as a CEO acting as a chairman, the presumed myopia of insiders and dependents on the board and the presence of insiders in the audit committee (Jensen (1993)). The second factor refers to the *resource-dependency* theory, which focuses on the quality of the director(s) involved (Hillman and Dalziel (2003). Both elements deserve equal attention. Proper monitoring structures without sufficient monitoring capabilities of the board are not effective. This is shown, for example, in the survey of the international literature on NEDs and firm performance carried out by Dalton, Daily, Ellstrand and Johnson (1998). They conclude that board composition and financial performance are not related on a meaningful level.

As Europe doesn't have a system similar to the US Chapter 11, it is impossible to compare companies in a before- and after Chapter 11 (read: financially distressed) state. Research like Gilson (1989), Daily (1995) and Gales and Kesner (1994) therefore cannot be reproduced in a debtor-oriented bankruptcy system,

which is mainstream in Europe. What can be done, however, is to compare composition, management turnover, and characteristics of the board and NEDs between financially distressed companies and non-financially distressed companies. In this paper we apply logit analysis and discriminate between healthy firms and firms in financial distress. The central question in this paper is therefore whether it is possible to identify NED characteristics of board members, or features of board composition in which financially distressed companies differ from non-financially distressed companies.

Gilson (1989), p. 243, defines financial distress as an inability to meet the fixed payment obligations on debt. More specifically, a firm is considered financially distressed within a given year if it is either in default on its debt, is bankrupt, or is privately restructuring its debt to avoid bankruptcy (p. 246). He considers debt to be privately restructured when creditors consent to reduce promised interest or principal payments, extend the debt's maturity, or accept equity securities in the firm (p. 244). In order to be able to apply this definition, we need data that are not always available. This is especially the case with private defaults or private restructurings. This study uses a more workable definition, along the same lines suggested in Hill, Perry and Andes (1996), p. 63. A company is considered in financial distress when it has filed for bankruptcy or suspension of payments, when it is in default on its bond obligations (this default will be known to the public), when it otherwise qualifies for trade suspension on the exchange where it is listed (as mentioned by the company itself or the exchange) or when it has suffered three years of sequential losses. This definition is objective, verifiable and applicable.

This study aims to discover some new openings to the black box of internal control by non-executives in times of financial distress. The two-tier board structure in the Netherlands allows for a specific analysis of the structure, the quality and the role of non-executives in relation to firm performance. The analysis includes a number of questions: what is the relevancy of the number of NEDs on the board, should NEDs be independent from the company and what are important personal characteristics of NEDs? This study adds to literature, as it provides more insight in the characteristics of individual NEDs and the relationship of these characteristics with the incidence of financial distress. While the disciplinary function of monitoring by shareholders and the market of corporate control is certainly acknowledged, its inclusion is beyond the present scope of the paper.

The research explores financial distress of 52 Amsterdam-exchange listed companies in the period 1993-2003. Section 2 first reviews the literature on the supervision and monitoring structure, the composition and turnover of the board and characteristics of NEDs. The data are described extensively in section 3, and the research design and empirical results are subsequently reported in section 4. Section 5 concludes.

2. INTERNAL CONTROL BY NON-EXECUTIVES

The role of NEDs in internal control is at least twofold. A NED is an individual with his[33] own resources, but is also a member of a team, the board. Some corporate governance characteristics of a NED can make the individual extra (that is, more than pro rata) powerful— for instance, if the NED is the only person on the board with a specific characteristic. The NED may thus be the only insider, the only financial specialist or the only foreigner on the board. In certain cases these persons may have more than pro rata influence. From the other side, however, there are also structure-related matters such as board size, the percentage of dependent NEDs, the presence of financial expertise on the board and so on. Because it is not always clear whether a certain characteristic is to be seen as a board- or an individual-relevant characteristic, some of the hypotheses to be tested will be used for both views.

The coming subsections will first elaborate on the theoretical aspects of the task of the non-executives (see 2.1), the characteristics of the structure of the board (2.2) and the personal characteristics of board members (2.3). Then, in section 3, we will present the research design and the empirical results.

2.1. The task of non-executives

2.1.1. Economic theory

Departing from agency theory, Fama (1980), p. 293, states that the board is the mechanism by which top management is disciplined. With competing managers only on the board (as such the most critical environment for a director), there would be a risk that managers decide that collusion and expropriation of shareholder wealth is better than competition among themselves. This risk might be lowered by including outside directors (p. 293):

Outside directors might be regarded as professional referees whose task is to stimulate and oversee the competition among the firm's top management.

Fama and Jensen (1983), p. 311, describe the nucleus of the tasks of boards:

The common apex of the decision control systems of organizations, large and small, in which decision agents do not bear a major share of the wealth effects of their decisions, is some form of board of directors. Such boards always have the power to hire, fire and compensate the top-level decision managers and to ratify and monitor important decisions. (Fama and Jensen, 1983, p. 311).

Likewise, Transaction Cost Economics considers the board principally as an instrument for safeguarding

[33] A NED will be addressed in this paper in the male form, as over 90% of NEDs of Dutch listed companies are men.

equity finance (Williamson (1988), p. 571). For an economist, the board primarily has a monitoring role.

A second approach that can be used to value the role of the board is identifying the *resource dependency* perspective. In addition to providing access to complementary knowledge, valued resources and information, a NED may also facilitate inter-firm commitments (Fama and Jensen (1983), p. 313; Dalton, Daily, Ellstrand and Johnson (1998), p. 273; Gales and Kesner (1994), p. 272[34]). Daily (1995), p. 1052, deems such access to external resources— otherwise often unavailable for the company— as potentially critical for financially distressed firms. This resource dependency perspective is directly related to the service/expertise/counsel role of the board, which is of a more legal nature and will be discussed in the following sub-section.

2.1.2. The legal system

Delaware Corporate law[35], under which the majority of US listed companies is incorporated, (para. 141) states: *The business and affairs of every corporation organized under this paper shall be managed by or under the direction of a board of directors.*

There are no general provisions as to how the board should do this. In UK law it is similar, and there is no such general provision in the Companies Act of 1989. On the other hand, common law has developed two broad duties: the duty of care and the duty of loyalty (Davies (2002), p. 154). These duties form standards whereupon directors can be judged *ex post*. The judge should not judge with hindsight. Therefore, in the US and in the UK the *business judgement rule* (BJR) has been developed (Davies, 2002, p. 156). A judge does not enter into the decision itself, but only verifies whether the decision was properly informed and in the best interest of the company. In Germany, the BJR was recently inserted in the law.[36]

In the Netherlands, this BJR is unknown. The law guides the behaviour of NEDs as follows:

The duties of the supervisory board shall be the supervision of the policy of the management and the general course of affairs of the company and the enterprise connected therewith. It shall assist the management with advice. In the performance of their duties, the members of the supervisory board shall be guided by the interest of the company and the enterprise connected therewith. (section 2:140 BW)

Dutch law is most explicit in what is generally felt to be the summary of the obligations of a NED: monitoring and advice, the last being identical to the service/expertise/counsel role as described by Dalton, Daily, Ellstrand and Johnson (1998), p. 273. One may wonder whether this advisory role has a separate meaning. If a director monitors, then he is questioning the executive directors with regard to whether or why they have taken (or intend to take) certain measures or decisions. By questioning, by showing why a measure is important or by pointing out the experiences from other companies or in other situations, a NED monitors and advises all at once. This might be the same for strategic discussions, wherein it is generally felt NEDs should participate. Also here, it is the role of the NED to point out flaws, or to indicate other directions or possibilities— never forgetting, however, that it is the management board that should endorse the final proposal.

2.2. Characteristics of the board

2.2.1. The composition of the board

Baysinger and Butler (1985) were among the first to observe that changes in the composition of the board do not necessarily improve its performance. They classified the board tasks into three broad components: executive, monitoring and instrumental. Directors in the *executive* component are closely aligned, either economically or psychologically, with the top management. While they are an important source of expertise from within the firm (p. 109), they may not be effective monitors (p. 110). The *monitoring* component is comprised of truly independent[37] directors (p. 109). Their primary activity is disciplinary: ratifying management decisions and monitoring performance. In addition, these directors may provide advisory services. The *instrumental* component is represented by directors placed for functional reasons: to provide managerial wisdom (consultants), to create liaisons between organizations (bankers, executives) or to act as counsel to inside managers (lawyers, p. 110). Dalton, Daily, Ellstrand and Johnson (1998), p. 275, even identify four types of board members: insiders, affiliated members, outsiders[38] and independent/interdependent directors. Interdependent directors are NEDs appointed by the incumbent CEO, while independent NEDs are appointed by the previous CEO. Gales and Kesner (1994), p. 276, choose in their study for the binary classification between insiders (current and retired officers) and outsiders (all others). Uzun, Szewczyk and Varma (2004), p. 36, analyse the board composition on two levels. They start with the outside-

[34] As well as the literature they cite.

[35] Similar provisions are made by other US states; see Klein (1998), p. 277.

[36] Section 93 lid 1 AktienGesetz: Eine Pflichtverletzung liegt nicht vor, wenn das Vorstandsmitglied bei einer unternehmerischen Entscheidung vernuftigerweise annehmen durfte, auf der Grundlage angemessener Information zum Wohle der Gesellschaft zu handeln.

[37] They consider only public directors, professional directors, private investors and independent (non business related) decision makers as independent directors (p. 113).

[38] Outsiders are not in the direct employ of the corporation.

inside dichotomy, but separate the outsiders into a truly independent and a grey category (directors with actual or potential business ties or family ties). This grey category is more or less identical with the affiliated category and the instrumental component as mentioned before. Dutch law maintains a two-tier supervision structure of the company. This implies that an executive cannot be a member of the supervisory board[39]. There are, thus, no insiders. In the Netherlands, NEDs are always outsiders who can be distinguished as dependent and independent non-executive directors[40].

2.2.2. The size of the board

The resource dependency theory might lead to the conclusion that the larger the board the better the firm performance. According to Jensen (1993), p. 865, this is not the case. Whereas the ability of the board to monitor could increase as more directors are added, board effectiveness may also be attenuated due to any one of the following: a) lack of time (directors of larger boards are not expected to voice their opinions freely and frequently); b) complexity of information (information is better digested when an open exchange is possible) and c) lack of cohesiveness (overly large boards, with directors that are too busy, area cohesive group that works well toward a common purpose). In fact, the norms of behaviour in most boardrooms are dysfunctional (Lipton and Lorsch (1992), p. 66). They discourage directors from speaking out, especially if they are going to be critical regarding management and they inhibit independent directors from asserting leadership among their peers. Ten years later, Epstein, Jones and Roy (2002), p. 7, made a similar assertion. Lipton and Lorsch (1992) p. 67, concluded that the board size should be limited to a maximum of ten (they favour eight or nine). Jensen (1993), on similar grounds (he calls it 'board culture', p. 863), advises a maximum of seven or eight (p. 865), while Epstein, Jones and Roy (2002) cite other sources ranging from eight to thirteen. Baker and Gompers (2003) p.574 report for 1,116 companies around their IPO (between 1978 and 1987) a board-size of six (mean and median), while the vast majority of the boards numbered between four and seven. Yermack (1996) p. 186, found an inverse association between firm value and board size. His panel of major (Forbes-500 listed) US companies shows a mean and median board size of twelve. The greatest incremental costs (in terms of loss of Tobin's Q) arise as boards grow in size from small (under seven) to medium. As for causation, he found no evidence that boards expand or contract in response to performance (p. 200). Andres, Azofra and Lopez (2005), in a sample of 450 companies from ten countries, also found a negative relationship between firm value and board size[41]. They conclude that the disadvantages (on communication, flexibility and coordination[42]) outweigh the potential better manager control by a larger board (p. 208). Beiner, Drobretz, Schmid and Zimmerman (2004), however, do *not* find a significant relationship between board size and firm valuation. They conclude that their sample of Swiss firms (with a median one-tier board size of six) seemed to have chosen their board size precisely optimally; depending on and varying with the underlying environment in which they operated. Moreover, they enquire into the interrelationship of alternative corporate governance mechanisms, such as board size, board composition, leverage and ownership structure (p. 328). Where one mechanism is used more, others may be used less, resulting in the same valuation effects (p. 334). In their view, it turns out that board size is an independent governance mechanism (alongside board composition, ownership structure and leverage, p. 346).

2.2.3. Workload of board and committee meetings

According to Lipton and Lorsch (1992), p. 64, time is a serious constraint for outside directors. They thus make a plea (p. 69) for at least a bimonthly meeting (preferably up to 8-12 annually for major companies) taking a full day including committee meetings, and preparing them another full day, including once a year a two- or three-day strategy session.[43] Santen and Beek (2006) report for a sample of Dutch listed companies an average increase in the number of meetings (board and committee taken together) of 160% in ten years (1995-2004) from an average of eight to 21.[44] They

[39] Although this is legally only provided for in section 2:160 BW, which sees on companies who apply the *structuurregime* for large companies under *afdeling 6 boek* 2 BW.

[40] A non-executive director (in Dutch: commissaris) is dependent, when he qualifies as such according to best practise III.2.2. of the Tabaksblat-code. This is the case when he has been employed by the company less than five years ago; when he receives personal benefits from the company; when there has been in the year previous to the appointment a business relationship (consultancy, counsel, banker and the like); when he is or represents a 10% shareholder; when there is a cross directorship with an executive director).

[41] This relationship holds according to the authors after controlling a.o. for board composition, country and industry effect (p. 198, rc).

[42] To which can be added: decision-making, see: Beiner, Drobretz and Zimmerman (2004), p. 354.

[43] This makes more than one hundred hours annually for the minimum number of meetings, not counting special meetings and travel time (Lipton and Lorsch, 1992, p. 69).

[44] As there were virtually no committees in 1995, these figures (for AEX-index listed firms) are hard to compare. Probably board meetings take less time nowadays because all of the preparatory work will have been done in committees. If it would be possible to convene a committee and a board meeting on the same day, this would require eleven days, times two for preparation, or around 200 hours including a two-

associated this increase with more shareholder activism and more legal requirements. Vafeas (1999), p. 140, found (for 307 US firms during the relatively quiet (board-wise) 1990-1994 period) that boards respond to poor performance by raising their level of board activity (number of meetings), which in turn is associated with improved operating performance in later years.

2.2.4. The turnover of board members

An important responsibility of the board is the evaluation of the senior management of the company. Especially outside directors have a specific role in this process, since the career of an inside director is more tied to that of the CEO (Weisbach (1988), p. 433). Outside directors have a reputational incentive (Fama and Jensen (1983), p. 315) for rigorous evaluation. It signals their competence to the market. Weisbach (1988) found that firms with outsider-dominated boards are significantly more likely to remove the CEO on the basis of performance than firms with insider-dominated boards. There is, however, no significant difference in the overall number of resignations between the two board types (p. 454).

Gilson (1989) was among the first[45] to study the relationship between management turnover and financial distress. He first observes the following (p. 241):

Several types of corporate policy decisions seem likely to be influenced by the personal costs that managers incur if their firms default on their debt. To avoid these costs, managers will rationally favour investment and financing policies that reduce the probability of financial distress.

From his study, Gilson (1989) concludes (p. 242) that the default-related losses of managers are significant. These losses were proxied by the turnover of senior managers (CEO, president, and chairman of the board, p. 246). Of all financially distressed firms, 52% experienced a senior-level management change, while for not-distressed (but also highly unprofitable) firms this figure was only 19% (p. 246). None of the departing managers held a senior management position in another exchange-listed firm during the next three years (p. 242). Gilson's (1989) goal was to show that managers *do* incur personal costs when their former firms enter financial distress. Or vice versa: his research also implies that a high turnover of managers during a certain year might be a herald of imminent financial distress. Gilson (1989) describes the relationship between performance and management turnover as follows:

There is evidence that less profitable firms show higher turnover, consistent with firms' poor performance being blamed on managers. (..)Financial distress will independently engender higher turnover if an increased probability of default conveys negative information about managerial performance beyond that conveyed by low profits. (p. 256).

A superficial glance reveals that the first relationship seems to have an *ex post* character, and the second an *ex ante* character. Gilson's (1989, p. 260) results show a significantly higher turnover of managers while a firm is about to default. Daily (1995), p. 1048, describes the years immediately preceding a bankruptcy as typically tumultuous. On the one hand, this could be the result of a voluntary decision of the director to leave the sinking ship in order to avoid the legal, reputational and financial risks of bankruptcy (Daily (1995), p. 1042; Gales and Kesner (1994), p. 279). On the other hand, directors that might be looking for a scapegoat may sacrifice a CEO to show their decisiveness.

2.3. Personal characteristics of board members

2.3.1. Nationality

Nationality is not a common feature of corporate governance research. As it is, there seems to be no literature on the matter. Nationality doesn't seem to be an issue to a firm searching for the best NED. The market for this kind of labour (outside directors of multinationals) is theoretically international. Nationality can make a difference, though. An American NED in a supervisory board of a Dutch firm may bring another culture (including a legal system), other experiences in a different monitoring system, a new (international or other-national) network and, potentially, the trust of shareholders of his own nationality. This does not guarantee that the foreign NED will provide more efficient monitoring performance than local NEDs. In the end, it all depends on the needs of the company and the ability of the board to exploit the NED's special characteristics. There is a downside as well. Higher salaries and expenses, translation and other language-related problems, cultural misunderstandings, less informal contacts between the NEDs and less availability of time, may take their toll and lead to new agency costs.

2.3.2. Independency

Daily (1995 p. 1049) shows that successful reorganizations are characterised by a board which is 65% outsider dominated. It is not clear however whether it is the absolute number of outsiders rather than the proportion of outsiders that matters (Gales and Kesner (1994), p. 276). Klein (1998) showed that it is important to have dependents in the board. A dependent[46] NED is resourceful, knows most of the company and is often privately interested in the outcome. As boards in the Netherlands are collegial forums, decisions will be taken usually by unanimity.

or three-day strategy meeting (and excluding other meetings and travel time). The code-Tabaksblat norm (best practice III.3.4.) of a maximum of five board positions fits within this perspective.

[45] Gilson (1989) cites two earlier studies (p. 248) with smaller samples and less turnover.

[46] An insider is a dependent NED.

Non-independent directors might have decisive influence, because they know the players and the business processes better than the other NEDs. When pressure is high, one might follow their advice. Their influence may therefore be reaching further than their number.

2.3.3 Education

To the extent that NEDs control critical resources and certain other conditions are met, they are in a position to influence the actions of organizations (Pfeffer and Salancik (1978), p. 259). It is clear that education is one of these critical resources. Why else would students strive for a scholarship in one of the Ivy-league universities and are their alumni in high demand? Knowledge, the development of analytical and psychological skills and the experience from case-studies are provided by universities. Educational background is one of the NED characteristics mentioned by Zahra and Pearce (1989), p. 307. It is interesting to see whether better education of a NED makes financial distress less likely. Therefore the question is raised whether a board with higher than average education lowers the probability of financial distress.

2.3.4. Experience

The bigger the number of relevant issues, situations and people a NED has been exposed to in the past, the more useful a NED will be for the company. This is called experience. As it is impossible to catch this experience in one variable, the most objective measure for experience is age, albeit a somewhat ambiguous one. Age is again one of the relevant characteristics of NEDs in the study of Zahra and Pearce (1989), p. 307. We suggest in this paper a positive (distress avoiding) influence from age. Other possible measures of experience like the number of present directorships or the present workload do not necessarily proxy experience better as these are about present performance and not about (historical) experience. That is why these factors are taken into account separately.

2.3.5. Network

A crucial element of the resource dependency theory is the number of directorships and its power to influence the board. Or, as Pfeffer and Salancik (1978) p. 161 put it:

Interlocking directorates[47] *(..) are one form of a more general tendency to manage the environment by appointing significant external representatives to positions in the organization. (..) this is a strategy for accessing resources, exchanging information, developing interfirm commitments and establishing legitimacy.*

Haunschild and Beckman (1998), p. 838 and 839, show that alternate sources of information affect the influence of interlocking partners, especially for firms of smaller and intermediate size. None of this research reported negative influences of multiple directorships. Harris and Shimizu (2004), p. 791, even report a favourable effect of busy directors on key strategic decisions. Haunschild and Beckman (1998), p. 817, stress that such multiple directorships are valuable sources of information that is inexpensive, trustworthy and credible. More in general, interlocking directorates provide channels of communication and conduits of information between the firm and external organizations (Hillman and Dalziel (2003), p. 387). They serve to reduce the transaction costs of dealing with uncertainties in the environment (p. 387). In this study we expect a positive influence of a multiple directorship based network.

2.3.6. Workload

Kiel and Nicholson (2006) wonder whether the number of directorships should be limited due to the workload they entail. They describe Australian and U.S. limiting guidelines varying from three to five directorships maximum for NEDs, while executives should only take up one or two outside directorships (a chairmanship equals three directorships, p. 531). According to the Australian Shareholders Association, carrying out a director's duties requires at least 360 hours a year (p.536), while Harris and Shimizu (2004), p. 776, cite a NACD[48] recommendation of 1986 that requires at least 160 hours a year. This is in line with the Dutch situation, wherein a calculation is made of 200 hours a year for each directorship[49]. Clearly, the advantage of being exposed to various experiences from directorships and jobs might have the disadvantage of becoming overboarded: the NED is too busy to properly meet all the requirements of his responsibilities. While Lipton and Lorsch (1992) argue that NEDs have lack of time to carry out their duties, Harris and Shimizu (2004) find that overboarded directors are important sources of knowledge, enhance acquisition performance and are an important complement for a board. In itself this finding is unclear, as in our view these elements should be separated: experience (proxied by age) and network (proxied by multiple directorships) as positive influences, and a high workload (calculated in terms of Full Time Equivalent, FTE) as a negative influence.

3. Description of the data

3.1. Composition of control sample and financially distressed sample

Of all companies, listed on the Amsterdam Stock Exchange during three or more years in the 1993-2003

[47] Pfeffer and Salancik (1978), p. 161, define interlocking directorates as 'the placing of representatives from environmental groups or organizations on advisory committees or boards of directors.'

[48] National Association of Corporate Directors (U.S.).

[49] See footnote 13.

period, 58 became financially distressed. Of these, 34 were cases of bankruptcy, suspension of payments or (qualifying for) suspension of listing (code 1). For four companies it was impossible to retrieve[50] data. Thirty bankrupt companies remained in the distressed sample. In 24 other cases, an unintended[51] period of (at least three years of) sequential losses was found (code 2). A company with that record normally faces serious financial difficulties and therefore such a company is considered to be in financial distress as well in this study. Of these 24 cases, two companies were excluded as they did not meet the additional requirement of being listed at least three years before getting into distress. This requirement was formulated in order to avoid including not yet adequately functioning start ups in the sample. Consequentially the sample consists of 30 bankrupt and 22 otherwise distressed companies. Table 1 shows the composition of both the distress and the control sample per year.

The control sample consists of 167 companies[52] that were listed during five or more years in the 1993-2003 period. The criteria of five years is set in order to have stable and well functioning companies in the control sample. Companies from the control sample were randomly assigned to the years. If a company merged or has been delisted after two years of consecutive losses it fell out of the control sample because this merger or delisting could indicate financial distress. In case of a merger between listed companies, either the new or the merged company could qualify for the control sample. Financial data were retrieved from Thomson Worldscope for t = -2 through t = -3 (t = 0 is the year wherein financial distress actually happens). Data on NEDs and on industry were (in order of preference) taken from the annual accounts, the publication *Bestuurders en commissarissen*[53], the Trade register, newspapers and in the last resort from reliable internet sources. Size and turnover data for the boards as well as personal data on NEDs are available for t = -2 and t = -3.

3.2 Mean differences in board structure

In this study we collected information on eight different characteristics of board structure. Table 2 summarizes the means and median values of both the distressed sample and the control sample. The *board size* is represented by both the number of NEDs in the supervisory board (SB) as well as the sum of NEDs and executive directors (MBSB). *Board turnover* is measured as the number of resignations[54] in the supervisory board (DSB) and the *de facto* board (DMBSB). The similar aspect is also calculated as the percentage of resignations (SBTO and MBSBTO) in order to measure the relative change. As the percentage approach might show an undervaluation of the actual impact in case of large boards, the number of changes (causing press attention and reputational damage) is used as an additional indicator of glimmering financial distress. Then, two *board composition* items are tested: the ratio of dependent NEDs in the supervisory board (DEPR) and the presence of financial knowledge as required for the audit committee (AUD). Financial knowledge in the board is proxied[55] by the financial education of at least one board member, through the dummy variable AUD (being 1 if at least one NED graduated in economics or in accountancy, or has an MBA). To avoid problems of reversed causality (Gales and Kesner (1994), p. 279 and 281) or endogeneity (Andres, Azofra and Lopez (2005), p. 208) t = -2 and t = -3 data were used. Although it cannot be excluded that decisions taken before t = -3 might cause financial distress, we assume that the quality of the board of financially distressed firms at the moments t = - 3 and t = -2, turned out to be insufficient to avoid financial distress. Table 2 presents an overview of all the board structure variables.

[50] Either electronically or by archive-work.

[51] Unintended: if a company predicted a long period of losses in its IPO-prospectus, it was excluded from the sample (Crucell N.V.).

[52] As one of these 167 companies did not have a supervisory board, all data on NEDs are for 166 companies.

[53] A Dutch guide for data on directors. Taken as close as possible to the year the data were needed for.

[54] Because of a lack of objective information, all resignations are counted irrespective of the causes of resignation. As the control group companies are generally older than the others, a relative high number of regular retirements can be expected in the control group. The results however show that the number of resignations in the financially distressed group is significantly higher than for the control group.

[55] As more detailed data on the subject at the time were not available.

Table 1. Composition of control sample and financially distressed sample

year	distressed firms				control sample	
	code 1	*code 2*	*total*	*%*		*%*
1993	5	1	6	11,5	19	11,4
1994	0	2	2	3,8	6	3,6
1995	1	0	1	1,9	3	1,8
1996	2	0	2	3,8	7	4,2
1997	1	0	1	1,9	3	1,8
1998	1	0	1	1,9	3	1,8
1999	1	2	3	5,8	10	6,0
2000	2	5	7	13,5	23	13,8
2001	7	2	9	17,3	29	17,4
2002	9	3	12	23,1	39	23,4
2003	1	7	8	15,4	25	15,0
total	30	22	52	100	167	100

Code 1: a company in bankruptcy, suspension of payments or (qualifying for) suspension of listing
Code 2: a company with three years of sequential losses

Table 2. An analysis of size-, composition- and turnover-related variables for the control sample and the financially distressed sample, two years before the financial distress event happens (t = -2)

t = -2	control sample			financially distressed sample			difference	p-value significance difference of mean (median)
	number	min (max)	mean (median)	Number	min (max)	mean (median)	of mean (median)	
SB	166	2	5,16	52	2	4,21	0,95	0,00***
		(15)	(5)		(10)	(4)	(1)	(0,00)***
DSB	166	0	0,56	52	0	0,73	-0,17	0,23
		(8)	(0)		(3)	(1)	(-1)	(0,10)*
SBTO	166	0	0,11	52	0	0,22	-0,11	0,00***
		(1)	(0,00)		(1,50)	(0,11)	(-0,11)	(0,03)**
MBSB	166	3	8,31	52	3	7,08	1,23	0,02**
		(25)	(8)		(18)	(6)	(2)	(0,01)***
DMBSB	166	0	1,08	52	0	1,67	-0,59	0,01***
		(9)	(1)		(6)	(1)	(0)	(0,03)**
MBSBTO	166	0	0,14	52	0	0,27	-0,13	0,00***
		(2,00)	(0,11)		(1,25)	(0,20)	(-,09)	(0,00)***
AUD	131		78%	41		79%	-1%	0.99
			(1)			(1)		(0,99)
DEPR	166	0	0,19	52	0	0,139	0,04	0,16
		(1,00)	(0,13)		(,89)	(0,00)	(0,13)	(0,05)**

***, ** and * indicate reliability on a 1%, 5% and 10% level.

SB the number of members of the supervisory board at the end of t = -2
DSB the number of resignations on SB during t = -2
SBTO the percentage of resignations on SB during t = -2
MBSB the total number of members of the management and supervisory board at the end of t = -2
DMBSB the number of resignations on MBSB during t = -2
MBSBTO the percentage of resignations on MBSB during t = -2
AUD a dummy variable valued 1 if there is a NED in the supervisory board with financial education
DEPR the percentage of NEDs that is considered dependent according to the definition of the Tabaksblat-code (best practice III.2.2.)

In table 2 can be read that the size of the supervisory board (SB) as well as the total board size (MBSB) differs significantly between both samples. The supervisory board (SB) in the distressed sample is almost one person smaller in the mean and median, where the median for the total board MBSB differs two persons. The board turnover percentages for SB (SBTO) and MBSB (MBSBTO) are twice as high in the distressed sample (the mean and median are statistically significant different by over 5 percent point). This is in line with the results reported by Gilson (1989). The absolute number of board changes signals statistically significant differences in mean and median at a 5% level for the total board (DMBSB), but this is not the case for the supervisory board (DSB), although the number of changes in SB is higher in the financially distressed group.

3.3 Mean differences of human resources of NEDs

Table 3 focuses on the human resource characteristics of NEDs. Six resource related variables are tested: DEPNED (a dummy variable indicating the presence of a dependent NED in the board as a proxy for available insiders knowledge), COMNED (the average number of cross NED positions in public or private companies per NED, as a proxy for the network the NED can rely on), AGENED (average age of the NEDs in the board as a proxy for experience), and EDUNED (average education level per NED). Other characteristics, FORNED (a dummy variable if there is a foreigner on the board) and WLNED (the workload of a NED) are tested as well. In order to reduce dimensional problems, all (non-dummy) NED characteristic related variables have been scaled between the first and the tenth decile[56]. COMNED is scored based on the number of board positions in public or private companies an average NED occupies. As this variable represents a board members' networking capacity, there is no different weight attached to a position in a public or private company. However, according to the Tabaksblat code, a chairmanship gets double the weight of an ordinary NED position, which reflects the bigger network and influence a chairman is supposed to have. This can be attributed to a more intensive relationship with CEO's, as well as contacts with banks, shareholders, colleagues and other stakeholders. AGENED is scored on a similar decile basis, after calculation of the average age of the NEDs on the SB. EDUNED is scored based on the average education level of a NED. One masters degree[57] is rewarded with one point, two masters degrees with two points, and a PhD or professorship brings three points. The average educational level of a supervisory board then is rescaled again at the regular decile basis. WLNED indicates the workload of the average NED, consisting of other regular jobs and NED positions in public and private companies. An average NED position in a public company is considered to take 200 hours a year[58] which burden is doubled for the chairman. For a private company the workload of NEDs is halved. A fulltime job is calculated to take 1800 hours a year. Along these lines an average workload is calculated, which is scored later on according to the decile wherein the observation is classified. Table 3 shows the analysis of the NED-characteristic variables.

[56] The actual value of some of the variables and the analysis of their differences is shown in appendix 1.

[57] A university grade, a RA, MBA or ing grade.

[58] See footnote 13.

Table 3. An analysis of NED characteristic variables for the control sample and the financially distressed sample of listed Dutch companies, 1993-2003, two years before the financial distress event happens (t = -2)

t = -2	control sample			financially distressed sample			difference	p-value significance difference of
independent variables	number	min (max)	mean (median)	number	min (max)	mean (median)	of mean (median)	mean (median)
WLNED	166	10 (100)	52,35 (50)	52	10 (100)	62,69 (70)	-10,34 (-20)	0,03** (0,02)**
FORNED	166	0 (100)	36,14 (0)	52	0 (100)	40,38 (0)	-4,24 (0)	0,58 (0,58)
DEPNED	166	0 (100)	55,42 (100)	52	0 (100)	38,46 (0)	16,96 (100)	0,03** (0,03)**
COMNED	166	10 (100)	56,63 (60)	52	10 (100)	46,15 (40)	10,47 (20)	0,02** (0,03)**
AGENED	166	10 (100)	59,04 (60)	52	10 (100)	39,42 (30)	19,61 (30)	0,00*** (0,00)***
EDUNED	166	10 (100)	56,05 (55)	52	10 (100)	48,94 (55)	7,11 (0)	0,12 (0,12)
RESOURCE	166	0 (95)	56,44 (57,5)	52	8 (84)	43,25 (42,50)	13,54 (15,00)	0,00*** (0,00)***
OVERBOARD	166	0 (100)	43,98 (40)	52	5 (100)	51,54 (50)	-7,291 (-10)	0,11 (0,09)*

***, ** and * indicate reliability on a 1%, 5% and 10% level.

WLNED Decile score on the average workload of the NEDs per board .

FORNED Dummy variable representing a foreigner in the board.

DEPNED Dummy variable indicating the presence of a dependent NED in the board.

COMNED Decile score on the average number of cross NED positions in public or private companies of the NEDs per board.

AGENED Decile score on the average age of the NEDs per board

EDUNED Decile score on the average education level of the NED per board.

RESOURCE Constructed variable is built up of the DEPNED, COMNED, AGENED and EDUNED score, each for 25%.

OVERBOARD Constructed variable consisting of FORNED and WLNED, each for 50%.

The table shows that (mean and median of) FORNED and EDUNED do not differ between the samples, while all other variables do statistically significant differ at a 5% level of reliability (for AGENED even on a 1% level). NEDs of the financially distressed sample have a statistically higher workload, have a smaller network and are younger on average. Such firms also statistically significant lack more often dependents on the board. The RESOURCE and OVERBOARD variables were constructed to combine respectively the positive (average in the control group is higher) and the negative elements of human resources in one testable variable. The RESOURCE variable is built up of the DEPNED, COMNED, AGENED and EDUNED score, each for 25%. As such, RESOURCE describes the resources a NED can rely on:

- insider knowledge of the firm, implying a better historical, cultural and organizational knowledge of the company than independent NEDs (DEPNED);
- a network for external expertise, for business relationships and for sound-boarding on views and worries on the firm (COMNED)
- lifelong exposure to all kinds of relevant experiences, business cases and decision processes which enables better informed judgements (AGENED)
- theoretical knowledge, insights and analytical skills taught at a university, to go about and solve forthcoming problems (EDUNED).

The OVERBOARD variable consists of FORNED and WLNED, each for 50%. As an acronym for overboarded, OVERBOARD describes some of the constraints of a NED:

- With a foreigner on the board increases the possibility of miscommunication, as a result of a language- and a cultural gap. When NEDs meet, communication will be more formal. Travelling distances cause scheduling problems, or even a jet lag. These circumstances are approached as negative

elements of a foreigner on the board (FORNED). The positive elements are comprised in the RESOURCE variable.

- Time constraints as a result of a range of NED positions, or a regular job elsewhere and some NED positions, might inhibit a NED to adequately fulfil the position (preparation, attendance, availability). If a NED is overboarded, this is considered to have a negative influence on the potential use of RESOURCE abilities.

3.4 Description of control variables

Apart from the board structure and human resource variables, control variables are needed in order to create a statistically robust model. Daily (1995), p. 1047, argues that effectively controlling for financial considerations may be particularly relevant for bankruptcy research. Mossman (1998) discerns and compares bankruptcy prediction models that are based on financial statement ratios, cash flows, stock returns, and return standard deviations. While the cash flow model most consistently discriminates (in the three years prior to bankruptcy) between distressed and healthy firms, the ratio model turns out to be most effective in explaining the likelihood of bankruptcy (p. 36). Ohlson (1980), p. 123, in a ratio based logit analysis, shows that four factors are statistically significant, namely those related to size, leverage, performance and liquidity. Sixteen years later, Hill, Perry and Andes (1996), p. 63, still use the same kind of variables[59]. Furthermore, most studies account for (possible) industry differences. This is also applied in this study and tests whether financial distress is systematically higher in certain industries. This might go as detailed as the two-digit Standard Industrial Classification (SIC) by Gilson (1989), p. 244 and 260, or as broad as a the two industry classification by Hill, Perry and Andes (1996), p. 61 lc. In our study, it turns out that an industry classification based on the SBI'93 (*Standaard Bedrijfsindeling*; Standard Industrial Classification)[60] of CBS does not produce any statistically significant results at all. However, a classification in old and new-economy companies (ONECON), turned out to fit the model much better and is in line with literature as referred to in the beginning of this section. The applied dummy-variable is assigned 0 for old-economy companies and 1 for new-economy companies, which are defined as companies with more than 50% of turnover in t = -2 in trade, production or service-delivery of ICT related hardware and software (communication-technology thus included). Intuitively it is felt an important variable, as the period of research showed various IPO's and bankruptcies of such companies as well as the market-introduction of various computer related technical innovations. The descriptive statistics of these variables are shown in table 4.

[59] A more elaborate history of bankruptcy description models and their assessment can be found in Luckerath, 2006, p. 218.

[60] As constructed by the authors on a 2 digit-level: industry (15-23); construction (45); trade (50-55); transport, airlines and storage (60-64); financial (65-67), leasing, employment agencies, ICT (70-75).

Table 4. An analysis of the financial control variables and the industry classification for the control sample and the financially distressed sample of listed Dutch companies, 1993-2003, two years before the financial distress event happens (t = -2)

independent variables t = -2	control sample			financially distressed sample			difference	p-value significance difference of mean (median)
	number	min (max)	mean (median)	number	min (max)	mean (median)	of mean (median)	
LNSIZE	167	1,033 (13,201)	5,847 (5,599)	52	0,316 (9,376)	4,591 (4,321)	1,256 (1,278)	0,00*** (0,00)***
DEBTTA	167	0,000 (0,759)	0,236 (0,235)	52	0,000 (0,855)	0,333 (0,318)	-0,097 (-0,083)	0,00*** (0,00)***
NICE	167	-0,187 (1,648)	0,209 (0,161)	52	-16,483 (0,880)	-1,218 (-0,131)	1,427 (0,300)	0,00*** (0,00)***
CASHTA	155	-0,025 (0,362)	0,120 (0,106)	52	-2,945 (0,299)	-0,104 (0,003)	0,224 (0,103)	0,00*** (0,00)***
ONECON	17		10% (0)	22		42% (0)	-32%	0,00*** (0,00)***

***, ** and * indicate reliability on a 1%, 5% and 10% level.

LNSIZE the natural logarithm of total assets in million Euros (see on this Daily (1995), p. 1048)
DEBTTA total debt divided by total assets
NICE net income divided by common equity
CASHTA cash flow divided by total assets
ONECON a dummy variable with a value of 0 for old-economy and 1 for new-economy (ICT related) companies.

Table 4 reads that financially distressed companies are in general smaller, more leveraged, less profitable, less cash generating companies, which are mostly operating in the new-economy. This goes for minimum, maximum, mean and median. Mean as well as median of all variables differ statistically significant between both samples on a 1% level. As cash flow data are not available for the bank-assurance industry, the number of observations in the control sample is down by 12 to 155. In fact this implies that all logit analyses presented in this study could not make use of available data on the bank-assurance industry due to the choice for CASHTA[61]. Finally, in appendix 2. the correlation table is shown as preparation for modeling.

4. Empirical results of logistic modelling

4.1. Board structure and the probability of financial distress

As Ohlson (1980), p. 112, argues, logit analysis is considered superior to Multi Discriminant Analysis (MDA), as previously used by, among others, Altman (1968). Ohlson (1980) states:

> *(With logit analysis) the fundamental estimation problem can be reduced simply to the following statement: given that a firm belongs to some prespecified population, what is the probability that the firm fails within some prespecified time period? (p. 112)*

Logit analysis is ever since a main method used in literature. In table 5, only those variables are modeled of which the mean and median in table 4 showed statistically significant different coefficients.

INSERT TABLE 5 HERE

[61] Logit-analysis on the complete sample with the omission of CASHTA gives only slightly less significant results.

The results of table 5 show that board structure matters. In the pooled regression, the third panel of the table, it can be read in model 2, model 3 and model 4 that the size of the total board, the number of resignations and the board turnover each influence the prediction of defaults. Especially the number of board resignations shows a high statistical significance (in the pooled regression as well as in t = -2). A high number of directors is inversely related to the health of the company as indicated by Yermack (1996) and Andres, Azofra and Lopez (2005). The logit analyses on the percentage of dependents and on the presence of financial education on the SB have not been reported, because they produced, as might be expected from the analysis of mean and median given in table 4, no statistically significant results. In accordance with economic intuition, the analysis shows that the predictive power of period t = -2 is stronger than that of period t = -3. Model 2 shows slightly better results than model 3, as the R^2 and LR-statistics show higher values as well as the percentage correct score. It seems the addition of resignation data of t = -2 to model 1 improves the prediction results. While the percentage correct score remains almost the same, the percentage correct II improves by 2 percent point. The addition of DMBSB improves the prediction capabilities for financial distress.

4.2 Human resources and financial distress

A similar analysis as performed on board structure is repeated here by estimating the influence of the human resource variables on financial distress. Table 6 presents the results.

Table 6. Logit analyses based on data for t = -2 and t = -3, relating financial distress to financial control variables, industry classification and NED-characteristic related variables. Data for listed Dutch companies, 1993-2003

Model 5: DISTRESS = $\alpha + \beta_1$ LNSIZE + β_2 DEBTTA + β_3 NICE + β_4 CASHTA + β_5ONECON + β_9WLNED + β_{10}FORBED + β_{11}DEPNED + β_{12}COMNED + β_{13}AGENED + β_{14}EDUNED + ε
Model 6: DISTRESS = $\alpha + \beta_1$ LNSIZE + β_2 DEBTTA + β_3 NICE + β_4 CASHTA + β_5ONECON + β_{14}RESOURCE + β_{15}OVERBOARD + ε

dependent variables	sign expected	t = -2		t = -3		pooled analysis t = -2 through t = -3	
		MODEL 5	MODEL 6	MODEL 5	MODEL 6	MODEL 5	MODEL 6
LNSIZE	-	-0,35	-0,37	-0,20	-0,25	-0,30	-0,32
		(0,04)**	(0,02)**	(0,16)	(0,06)*	(0,00)***	(0,00)***
DEBTTA	+	1,89	2,03	0,88	0,88	1,33	1,55
		(0,20)	(0,16)	(0,50)	(0,49)	(0,16)	(0,09)*
NICE	-	-3,82	-3,78	-0,93	-0,91	-1,37	-1,36
		(0,04)**	(0,04)**	(0,25)	(0,27)	(0,08)*	(0,09)*
CASHTA	-	-9,20	-9,05	-8,51	-8,45	-10,03	-9,67
		(0,05)**	(0,04)**	(0,03)**	(0,03)**	(0,00)***	(0,00)***
ONECON	+	1,32	1,44	1,72	1,72	1,62	1,67
		(0,04)**	(0,01)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***
WLNED	+	0,01		0,01		0,01	
		(0,29)		(0,18)		(0,07)*	
FORNED	+	0,01		0,01		0,01	
		(0,40)		(0,20)		(0,08)*	
DEPNED	-	-0,01		-0,01		-0,01	
		(0,09)*		(0,14)		(0,02)**	
COMNED	-	-0,01		-0,01		-0,01	
		(0,47)		(0,50)		(0,42)	
AGENED	-	-0,01		-0,01		-0,01	
		(0,32)		(0,15)		(0,09)*	
EDUNED	-	-0,01		-0,01		-0,01	
		(0,46)		(0,16)		(0,10)*	
RESOURCE	-		-0,03		-0,03		-0,03
			(0,03)**		(0,02)**		(0,00)***
OVERBOARD	+		0,01		0,02		0,02

			(0,15)		(0,01)***		(0,00)***
Constant		1,671	1,836	1,13	1,17	1,464	1,254
		(0,15)	(0,07)*	(0,27)	(0,20)	(0,05)**	(0,05)**
number		206	206	206	206	412	412
Nagelkerke R^2		0,614	0,611	0,45	0,45	0,518	0,509
LR statistics χ^2		110,601	110,058	75,60	74,20	177,911	174,507
Percent correct		90,3	90,3	81,1	81,1	85,0	84,5
Percent correct II		73,1	73,1	44,2	44,2	56,7	55,8

***, ** and * indicate reliability on a 1%, 5% and 10% level.
The variables used are defined below tables 3 and 4.
Percent correct II means (100-type II error).

In model 5 all scored NED-characteristic variables as well as the financial variables and the industry variable are linked to financial distress. All financial control variables, except DEBTTA, are statistically significant on at least a 10% level. LNSIZE, CASHTA and ONECON turn out to be the main predictors. Of the NED characteristic variables, for t = -2 only DEPNED appears significant (on a 10% level), but in the pooled analysis all variables (with the exception of COMNED) are statistically significant on a 10% level (with DEPNED on a 5% level). This implies that having one or more dependent board members, favours the chances of not becoming financially distressed. This result is in line with Klein (1998). But apparently, at least for the pooled analysis, all NED characteristics (with the exception of the network variable COMNED) are statistically relevant. Furthermore the analysis on the constructed variables shows, that having RESOURCEful NEDs on the board relates statistically significant to healthy companies (on a 1% level of significance), while OVERBOARDed NEDs signal imminent financial distress (on a 1% level as well). Applying NED-characteristic variables improves the percentage correct for t = -2 by 1.9 percent point, while increasing the percentage correct for financially distressed companies by almost 6 percent points. For the pooled analysis, the improvement is less: while the percentage correct remains approximately the same, the correct prediction of the percentage distressed companies goes up by almost 3 percent point.

5. CONCLUSION

First of all we find that financial ratios are dominant factors in predicting financial distress. This conclusion holds ever since the research of Beaver (1967) and Altman (1968). Our study confirms the strengths of the financial ratio model. However, the central question of this study is whether the *agency theory* and the *resource dependency theory* could provide us with additional insights in-, and additional predicting power for financial distress. Along the lines of Gilson (1989) and Hillman and Dalziel (2003) we tried to identify features of board behavior (turnover), of board composition (size, dependency), and of individual NED characteristics of board members (resource- and overboarded characteristics) in which financially distressed companies differ from non-financially distressed companies. As could be expected from Gilson (1989) and others, Dutch financially distressed firms show higher senior-management turnover in the process towards financial distress than others. While such distressed firms have smaller boards than the control group of listed firms, the panel analysis shows that larger boards and financial distress are positively related. This is in line with research done on the relationship between performance and size (among others: Yermack, 1996).

The new aspect of this paper is the discussion of six NED characteristics and their relationship to financial distress. It turns out that having older, well educated NEDs on the board, whereof at least one has insider knowledge, is negatively related to financial distress. On the other hand, if the NEDs on the board are overloaded or if there is a foreigner on the board, this is positively related to financial distress. We do not find a relevant relationship between the network (expressed in the number of directorships) and financial distress. The constructed variable RESOURCE comprising positive elements of board characteristics (a dependent NED of higher age with more cross board positions and well educated) and the other constructed variable OVERBOARD that comprises negative factors (in the Dutch case: a foreign NED with an overload of work) both present statistical significant results. In other words: in the Netherlands NED characteristics *do* matter. This confirms the resource dependency theory. While these results are firm, the improvement on the prediction side is weak as can be read in the increased predictive power of financial distress with 6 percent point (for t = -2) to 2 percent point (for the pooled data). As a final conclusion, though, the hypothesis originating in resource dependency theory, that human characteristics of NEDs matter for the financial performance of companies, cannot be rejected for the Netherlands in the 1993- 2003 period.

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Appendix 1

Table 7. An analysis of the values of NED characteristics for the control sample and the financially distressed sample of listed Dutch companies, 1993-2003, two years before the financial distress event happens (t=-2)

t = -2	control sample			financially distressed sample			difference	p-value significance
	number	min (max)	mean (median)	number	min (max)	mean (median)	of mean (median)	difference of mean (median)
WLNED#	166	0,15	0,89	52	0,20	0,98	-0,09	0,05**
		1,58	(0,90)		(1,57)	(0,99)	(-0,09)	(0,02)**
FORNED#	166	0	0,82	52	0	1,02	-0,20	0,40
		9	(0)		5	(0)	(0)	(0,40)
DEPNED#	166	0	0,99	52	0	0,83	0,16	0,47
		7	(1)		8	(0)	(1)	(0,08)*
COMNED#	166	1,17	4,36	52	1,00	3,97	0,39	0,22
		(13)	(4,20)		(12)	(3,33)	(0,87)	(0,02)**
AGENED#	166	45,00	(59,51)	52	40,67	56,38	3,13	0,00***
		(68,33)	(60)		(68,00)	(56,10)	(3,90)	(0,00)***
EDUNED#	166	0,00	1,03	52	0,00	0,93	0,10	0,24
		(2,5)	(1)		(3)	(1)	(0)	(0,12)

WLNED# average workload of NEDs on the board expressed in full time equivalents (FTEs) of 1800 hours/year
FORNED# average number of NEDs with a non-Dutch nationality on the board
DEPNED# average number of dependent NEDs on the board
COMNED# average number of cross NED positions in public or private companies of the NEDs on the board
AGENED# average age of NEDs on the board
EDUNED# average education level of NEDs on the board expressed in number of academic grades.

Table 5. Logit analyses based on panel data for t = -3 to t = -2, relating financial distress to financial control variables, industry classification and size-, composition- and turnover-related variables. Data for listed Dutch companies, 1993-2003

Model 1: DISTRESS = $\alpha + \beta_1$ LNSIZE + β_2 DEBTTA + β_3 NICE + β_4 CASHTA+ β_5ONECON + ε
Model 2: DISTRESS = $\alpha + \beta_1$ LNSIZE + β_2 DEBTTA + β_3 NICE + β_4 CASHTA+ β_5ONECON + β_6MBSB + ε
Model 3: DISTRESS = $\alpha + \beta_1$ LNSIZE + β_2 DEBTTA + β_3 NICE + β_4 CASHTA + β_5ONECON + β_7DMBSB + ε
Model 4: DISTRESS = $\alpha + \beta_1$ LNSIZE + β_2 DEBTTA + β_3 NICE + β_4 CASHTA + β_5ONECON + β_8MBSBTO+ ε

	PANEL 1				PANEL 2				PANEL 3			
	t = -2				t = -3				pooled analysis t = -3 through t = -2			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
LNSIZE	-0,34	-0,49	-0,48	-0,38	-0,22	-0,36	-0,26	-0,23	-0,28	-0,45	-0,35	-0,30
	(0,01)***	(0,01)***	(0,00)***	(0,01)***	(0,04)**	(0,02)**	(0,02)**	(0,04)**	(0,00)***	(0,00)***	(0,00)***	(0,00)***
DEBTTA	2,24	2,23	2,37	2,22	1,03	1,24	1,09	0,98	1,55	1,67	1,60	1,49
	(0,10)**	(0,11)	(0,10)*	(0,11)*	(0,39)	(0,32)	(0,37)	(0,42)	(0,08)*	(0,07)*	(0,08)*	(0,10)*
NICE	-3,82	-3,65	-3,17	-3,30	-0,65	-0,61	-0,50	-0,46	-1,26	-1,19	-0,99	-1,02
	(0,03)**	(0,04)**	(0,07)*	(0,06)*	(0,39)	(0,42)	(0,50)	(0,54)	(0,10)*	(0,11)	(0,16)	(0,15)
CASHTA	-9,41	-9,88	-11,47	-11,09	-9,68	-9,93	-9,53	-9,70	-10,63	-10,99	-11,09	-11,19
	(0,03)**	(0,03)**	(0,01)***	(0,01)**	(0,01)***	(0,01)***	(0,01)***	(0,01)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***
ONECON	1,81	1,82	1,63	1,66	2,11	2,10	2,07	2,09	2,02	2,02	1,95	1,95
	(0,00)***	(0,00)***	(0,01)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***	(0,00)***
MBSB		0,10				0,12				0,12		
		(0,37)				(0,23)				(0,09)*		
DMBSB			0,49				0,19				0,29	
			(0,01)***				(0,20)				(0,02)**	
MBSBTO				1,29				1,33				1,15
				(0,16)				(0,18)				(0,09)*
Constant	-0,58	0,64	0,84	0,66	0,22	-0,08	0,21	0,09	0,49	0,41	0,55	0,45
	(0,43)	(0,42	(0,29)	(0,40)	(0,75)	(0,91)	(0,77)	(0,90)	(0,35)	(0,45)	(0,29)	(0,39)
Number	206	206	206	206	206	206	206	206	414	412	412	412
Nagelkerke R^2	0,57	0,58	0,61	0,59	0,38	0,39	0,39	0,39	0,46	0,47	0,48	0,47
LR statistics (χ^2)	101,60	103,34	109,16	104,74	61,09	62,46	62,64	62,90	154,64	158,32	161,39	158,69
Percent correct	88,40	88,3	89,80	88,80	82,60	82,00	81,10	81,10	85,02	86,17	84,70	84,70
Percent correct II	67,30	65,40	69,20	69,20	46,20	44,20	44,20	44,20	53,85	58,65	55,77	55,77

The variables used are defined below tables 2. and 4.
***, ** and * indicate reliability on a 1%, 5% and 10% level.
% correct II means (100-type II error).