

The role of board chair in the relationship between board human capital and firm performance

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Abstract: This study aims to investigate the moderating effect of the board chair's role on the relationship between board human capital and firm performance. Board human capital has been regarded as a valuable asset that enhances firm performance. Especially, the board chair plays a crucial role in developing this high-echelon human capital. This study utilises a set of longitudinal data to examine 275 firms in Taiwan. The result indicates that board human capital is positively related to firm performance, and the individual human capital of the board chair represents a moderating effect on the relationship between board human capital and performance.

Keywords: board human capital; board chair human capital; the board of directors; board chair; human capital; firm performance.

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1 Introduction

Corporate governance has become a more and more important issue among academics and business practitioners. There has been much empirical research on the influence of corporate governance variables, such as board structure, on firm performance (Abdullah, 2004; Bonn, 2004; Hillman *et al.*, 2001; van Ees *et al.*, 2003). From a resource-based view, the board is a very important resource to lead companies in creating competitive advantages because the board plays a valuable role and the members should be knowledgeable about the corporation's business; engaged in the high-level activities of the board, such as strategic planning and CEO accountability; and aware of the activities of senior management in pursuit of the corporation's goals and enhancement of shareholder value (Hall *et al.*, 2005). That means, the board has to establish a system of healthy checks and balances on management power, which ensures the CEO can meet the obligations to the shareholders.

Despite the increased interest in the topic of governance, our understanding of how boards impact on firm performance from the human capital perspective is relatively undeveloped. According to the resource-based view of the firm, performance differences across firms can be attributed to the variance in the firms' resources and capabilities. The role of the board in today's business environment is getting more and more important because the collective intelligence and experience of its members could provide executives helpful advances in a rapidly changing world.

Intangible assets, *e.g.*, knowledge and experience, could improve operational quality, are valuable, unique, and difficult to imitate and thus can provide the basis for firms' competitive advantages (Barney, 1991). These human capital attributes, including education, experience and skills, have been examined to affect firm performance (Finkelstein and Hambrick, 1996; Huselid, 1995; Pennings *et al.*, 1998; Wright *et al.*, 1995). In many previous researches, human capital has been regarded as a critical resource in most firms (Pfeffer, 1994).

Hence, an investigation of the influence of board human capital on firm performance will help to gain a better understanding of the importance of a better understanding of the importance of board members. In addition, such investigation will help the authorities and shareholders who take care of operations to understand the critical role that the board chair plays in the development of firms. The purpose of this article is to propose and test a model that examines the relationships among board human capital, individual board chair human capital and firm performance.

This study proceeds as follows: Section 1 reviews the relevant literature and theory to develop our hypotheses. Then, Section 2 provides the details of the operational measures, data and research method. The last section presents the results of the data analysis, a discussion of the findings and the conclusion.

2 Theory background and hypotheses

In a rapidly changing era, people are acknowledged as the most important asset and the key determinant of competitive advantage in firms. A large number of scholars have examined the relationship of human capital and firm performance (Hitt *et al.*, 2001; Pennings *et al.*, 1998; Sáenz, 2005). We argue that the board of directors is an important resource of the firm's human capital. Board human capital refers to the knowledge, skills and experience present on the board (Nicholson and Kiel, 2004). According to the resource-based view, intangible assets with rare, valuable, and unique characteristics can provide the bases for firms' competitive advantages (Barney, 1991).

Boards of directors play important roles in the corporate governance system of large organisations (Fama and Jensen, 1983). For example, the board should create or approve a cogent and deliverable people strategy. Finn (2003), however, criticises that boards usually create a business strategy without considering how their people can support it. Moreover, one of most important tasks of boards is they have the responsibility and authority to decide who the succeeding Chief Executive Officers (CEOs) would be and when he or she would be replaced. According to the agency theory, the main task of the board is to monitor and control management on behalf of the organisational shareholders.

Having the right people in the right place at the right time is not very easy. The board has to know which candidate is qualified to be the CEO and can contribute to the firm. Therefore, the board has to understand the competence and capability requirements of the business now and in the future. In short, the competence of the board is very likely related to the board effectiveness.

3 Human capital of board committees

The strategic role of board committees has been discussed with a focus on maintaining corporate legitimacy and contributing to the development of corporate strategy (Harrison, 1987). Although the CEOs are in the main position of operation and management, they often involve the board of directors in their strategic planning and important decision-making. In other words, the board is an important source of firms' human capital, thus its strategic position should not be ignored. However, prior research rarely manifested the effect of board commitment on performance. In the next section, we will demonstrate the relationship between board human capital and firm performance from capability-oriented and commitment-oriented perspectives.

According to the human capital theory, the experience, competence and size of the board will have an impact on firm performance. In this study, we include board rewards, board size, and outsider board size as components of board capability-oriented human capital. The amount of payment represents the appropriate value of the board's knowledge and experience that could transfer advantages to the company. Numerous studies indicated that there is a positive relationship between CEO pay and firm performance (Buchholtz *et al.*, 1998), yet few studies have been seen on board pay.

Goodstein *et al.* (1994) indicated that larger boards may provide an increased pool of expertise and a better ability to form external links. A very small board lacks the advantage of the pool of experience, counsel and advice of a larger board. These benefits emerge when the board becomes larger, irrespective to the potential lack of cohesiveness, coordination difficulties and fractionalisation, a very small board also lacks the advantage of the pool of expertise, counsel and advice of a larger board; these benefits emerge when the board becomes larger. Therefore, expanding board size is very likely to have a positive effect on firm performance. We also argue that the number of external board members is also an important component of board's human capital. A large number of studies found that there is a positive relation between external board ratio and organisational performance (*e.g.*, Bonn, 2004; Kosnik, 1987; Pearce and Zahra, 1992). External board members are more likely to care about the interests of shareholders. In addition, they will more certainly implement monitor and control functions, including replacing the poor-performing CEO and reviewing managerial decisions and organisational effectiveness (Daily *et al.*, 1999). Consequently, this study claims that outside directors can have a positive impact on firm performance.

Organisational commitment has been given considerable attention in management research over the past few decades and has been conceptualised in terms of behaviour and attitudes (Goulet and Frank, 2002). Commitment was defined as "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday *et al.*, 1979). Therefore, we argue that when the board of directors has higher shareholding, it will pay more attention to the managerial behaviours of the CEO and other executives, and it will more likely be involved in the monitoring task. Based on the above arguments, we hypothesise that:

Hypothesis 1 Board human capital is positively related to firm performance.

4 The role of the board chair

Although human capital appears to be an important resource of the board chair, there is relatively little direct empirical investigation on the effect of board chair human capital on firm performance. Using the same argument with prior description about board human capital, we claim the payment to the board chair could exhibit the value of his or her competence. According to the resource-based view, the intangible resource will have a positive impact on firm performance. In addition, we consider that educational

background and age are also important components of board chair human capital. People gain knowledge through formal education and through learning on the job. Individuals who receive their education from formal education are assumed to have more and better knowledge and to have high intellectual potential to learn and accumulate tacit knowledge.

The age of the board chair is also an important characteristic of board chair human capital. Older board chair has an advantage in terms of accumulated experiences, and the directors possess valuable industry-specific and firm-specific knowledge, which is often tacit. Therefore, the experience could contribute to competitive advantage.

From commitment perspectives, a bigger share of ownership affects board chair's concern over managerial effectiveness and decision involvement. Hence, combining organisational behaviour theory and Ulrich's (1998) argument, we consider that the board chair's shareholding will be positively related to firm performance. Thus, we hypothesise:

Hypothesis 2 Board chair human capital is positively related to firm performance.

The board chair is the leader of the board. Within the leadership literature, there is generally a clear recognition of the linkage between leadership and followers' behaviours, particular in a small group, much like the board organisation. In the past few years, interest in the topic of team leadership has been increasing. The literatures claimed that the team can influence each member just as the individual leader can influence his or her followers. Leadership, viewed as a social influence process, goes beyond a single leader when observed at multiple levels and can be vested in an individual or a group (Avolio and Bass, 1995). Consequently, we argue that the board chair will enhance the influence of board human capital on firm performance. Thus:

Hypothesis 3 The interaction of board and board chair human capital has a positive effect on firm performance.

5 Method

5.1 Sampling and data collection

The data for this study were drawn from firms incorporated in Taiwan and traded on the Taiwan Stock Exchange during the period 2002–2004. All measures were drawn from the Taiwan Economic Journal (TEJ) Data Bank, which conducts evaluation of companies by a credible and renowned institution in Taiwan. The total sample consisted of 275 manufacturing and service firms, which were selected because complete data were available from published sources. We used the 2002 data for the independent variables and the 2004 data for the dependent variables, and there was a two-year time lag between them.

5.2 Measurement

5.2.1 Dependent variables

In this study, productivity and average net value per stock were used to measure firm performance. Productivity was calculated with the total sales divided by the number of employees. Average net value per stock is also a popular index to evaluate performance of a firm.

5.2.2 Independent variables

The first set of independent variables is board human capital. We used three indicators to measure capability-oriented board human capital, which was the first subconstruct of board human capital. The indicators were rewards of board, board size, and external board size. Owing to the different units, we calculated the standardised score and summed them up to a score. Then, we used the ratio of board ownership holding to be another subconstruct of board human capital, named commitment-oriented board human capital. This study also used four indicators to collect data for board chair human capital. The

capability-oriented human capital for board chair includes rewards, age, and educational background. We also calculated the standardised score and summed them up to a score. And the board chair's ownership was collected to be the commitment-oriented human capital.

5.2.3 Control variables

Several measures were used as control variables in this study. These included firm size, age and industry. Two measures of firm size are total assets and number of employees in 2002. There are two competing theories regarding the effect of firm size and age on organisational firm. Given the contradictory arguments regarding whether the relationship is positive or negative, we made no attempt to hypothesise their main effect but consider firm size and firm age as control variables. A common control variable, industry, was also collected. In addition, we included two other variables to control for their potential effects on firm performance, our dependent variable. These were board chair's network and board duality (board chair in the CEO position). According to the social capital theory and agency theory, they are likely related to firm performance (Abdullah, 2004; Bonn *et al.*, 2004; Desai *et al.*, 2003; Rechner and Dalton, 1989), thus we involve them for controlling.

6 Result

Table 1 shows the means, standard deviations, and zero-order correlations for all independent variables and firm performance variables. We first examined the correlations among the variables (see Table 1) to test the main effects of the board human capital and board chair individual human capital on firm performance. In general, these results were consistent with previous findings. The capability-oriented and commitment-oriented types of human capital of board were related to net value per stock ($r = .24$ and $.32$, $p < .001$). The commitment-oriented board chair human capital was also related to net value per stock ($r = .29$, $p < .001$).

We used hierarchical regression analysis to test all our hypotheses. In our study, Hypothesis 1 suggests a positive relationship between board human capital and firm performance. As shown in Table 2 Models 1 and 4, there is a positively significant relationship between board human capital and performance. Thus, these results support Hypothesis 1. Hypothesis 2, which stated that the board chair with higher human capital will enhance higher levels of firm performance, was not supported.

For testing Hypothesis 3, the moderating effect of board chair human capital on the relation between board human capital and performance, we conducted a hierarchical regression analysis. In Step 1, the main effects of board human capital and control variables were entered in the model. Following Aiken and West (1991), these variables were centred, and the interaction term was based on these centred scores. The hypothesis is tested by examining the incremental gain predicted in Step 2, when the interaction term between board human capital and board chair human capital is entered in each regression.

As reported in Table 2 Models 3 and 6, the results revealed a significant interaction between board human capital and board chair individual human capital in predicting firm performance: capability-oriented human capital of board chair (Model 3, $\Delta R^2 = .03$, $p < .05$). In Model 6 of Table 2, we found that the interactive effect of board human capital and board chair human capital on firm performance is statistically significant at the 10% level ($\Delta R^2 = .023$, $p < .1$). These results provided partial support for Hypothesis 3. A graphical representation of the interaction between board human capital and board chair human capital is provided in Figure 1. The graph shows that the board chair human capital significantly and positively moderates the relationship between capability-oriented board human capital and firm performance (see Figure 1(A) and (C)). On the contrary, capability-oriented human capital of board chair significantly moderates the relationship between board commitment-oriented human capital and performance, however, the moderating effect is negative (see Figure 1(B) and (D)). We will discuss these results in the following section.

| <i>Variables</i> | <i>Mean</i> | <i>S.D.</i> | <i>1</i> | <i>2</i> | <i>3</i> | <i>4</i> | <i>5</i> | <i>6</i> | <i>7</i> | <i>8</i> | <i>9</i> | <i>10</i> | <i>11</i> |
|---------------------------------------|-------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|-----------|
| 1 Log assets | 6.89 | 0.50 | - | | | | | | | | | | |
| 2 Employee number | 1112 | 2437 | 0.624 | - | | | | | | | | | |
| 3 Firm age | 31.91 | 11.07 | 0.086 | -0.075 | - | | | | | | | | |
| 4 Industry | 9.46 | 4.56 | 0.142 | 0.107 | -0.365 | - | | | | | | | |
| 5 Board chair's network | 1.76 | 1.36 | 0.176 | 0.052 | -0.065 | -0.062 | - | | | | | | |
| 6 Board duality | 0.28 | 0.45 | -0.176 | -0.109 | -0.094 | 0.034 | -0.152 | - | | | | | |
| 7 Board capability-oriented HC | 0.00 | 1.95 | 0.409 | 0.393 | 0.115 | -0.065 | 0.100 | -0.138 | - | | | | |
| 8 Board commitment-oriented HC | 0.00 | 1.00 | 0.037 | 0.224 | -0.052 | 0.014 | 0.020 | -0.071 | 0.079 | - | | | |
| 9 Board chair capability-oriented HC | 0.00 | 1.59 | 0.207 | 0.185 | 0.009 | -0.045 | -0.006 | -0.079 | 0.314 | 0.028 | - | | |
| 10 Board chair commitment-oriented HC | 0.00 | 1.00 | 0.063 | 0.304 | -0.050 | 0.108 | -0.100 | 0.041 | -0.046 | 0.657 | 0.021 | - | |
| 11 Productivity | 15 604 | 20 074 | 0.210 | -0.071 | -0.102 | 0.199 | 0.076 | -0.043 | 0.094 | 0.070 | 0.057 | 0.042 | - |
| 12 Net value per share | 13.89 | 5.64 | 0.485 | 0.362 | -0.008 | 0.144 | 0.036 | 0.020 | 0.243 | 0.324 | 0.046 | 0.287 | 0.199 |

Note: The absolute values of correlation coefficient > .138 are significant at $p < .05$

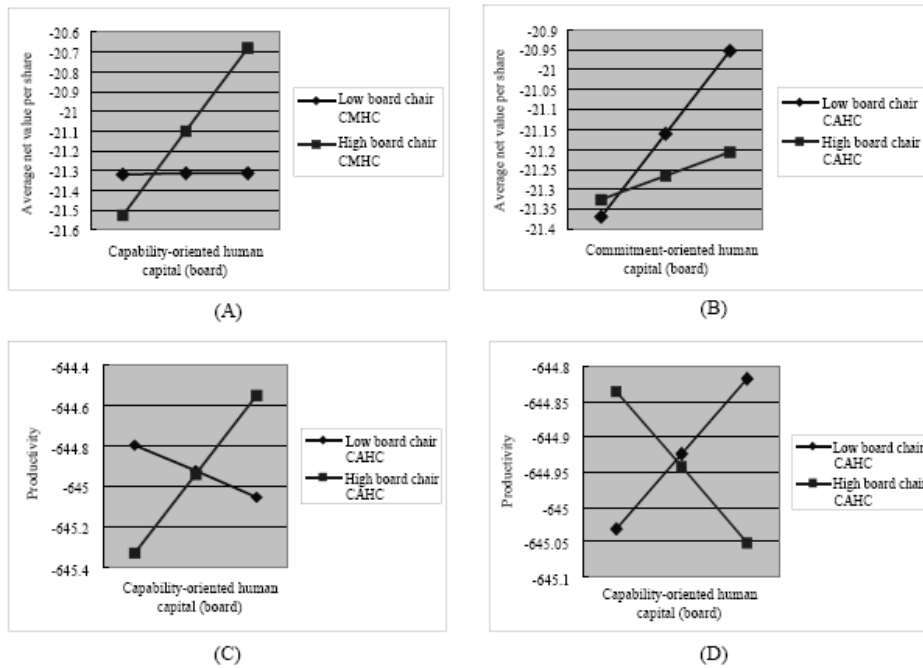
Table 2 Results of hierarchical regression analysis of board and board chair human capital on performance (N = 275)

| Variables | Productivity | | | Net value per stock | | |
|--|--------------|----------|----------|---------------------|----------|----------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Control variables | | | | | | |
| Assets | .437*** | .437*** | .499*** | .447*** | .489*** | .503*** |
| Employee number | -.431*** | -.460*** | -.581*** | -.018 | -.045 | -.028 |
| Firm age | -.125* | -.129* | -.115+ | -.008 | -.014 | -.004 |
| Industry | .137* | .131* | .117+ | .085 | .065 | .071 |
| Board chair's network | | .017 | .024 | | -.033 | -.033 |
| Board duality | | -.015 | -.028 | | .116* | .111* |
| Board human capital | | | | | | |
| Capability-oriented human capital (CBHC) | .104+ | -.115+ | .067 | .043 | .085 | .109+ |
| Commitment-oriented human capital (CMHC) | .111+ | .041 | -.001 | .323*** | .287*** | .268*** |
| Board chair human capital | | | | | | |
| Capability-oriented human capital (CBHC) | | .023 | -.006 | | -.075 | -.033 |
| Commitment-oriented human capital (CMHC) | | .110 | .129 | | .073 | .107 |
| Interaction | | | | | | |
| Board CBHC × Board chair CBHC | | | .192* | | | -.053 |
| Board CBHC × Board chair CMHC | | | .084 | | | .107+ |
| Board CMHC × Board chair CBHC | | | -.134* | | | -.094+ |
| Board CMHC × Board chair CMHC | | | .051 | | | -.069 |
| R2 | .182 | .189 | .219 | .343 | .367 | .390 |
| Adjusted R2 | .164 | .158 | .176 | .328 | .343 | .357 |
| F | 9.96*** | 6.15*** | 5.19*** | 23.33*** | 15.32*** | 11.86*** |
| ΔR2 | .02 | .007 | .03 | .099 | .024 | .023 |
| ΔF | 3.34* | 0.54 | 2.46* | 20.28*** | 2.52* | 2.40+ |

Notes: Standardised regression coefficients are shown.

+ $p < .1$, * $p < .05$, *** $p < .001$

Figure 1 Hypothesised board and board chair human capital interaction plot



7 Discussion and conclusion

7.1 Board human capital

This study aimed to examine the effects of board and board chair human capital on firm performance. We found that board human capital, particular in commitment-oriented human capital, is positively related to firm performance. In the prior research of human capital, very few scholars discussed the effect of human capital on organizational effectiveness from the angle of commitment (Stephens *et al.*, 2004). However, a large number of organisational behaviour studies pointed out that commitment would have a positive impact on individual work attitude and job performance (Cohen, 1991; Randall, 1990; Siders *et al.*, 2001). Ulrich (1998) claimed that commitment of workers is a critical part of intellectual capital (in fact, it means human capital in his description). Hence, this result obtains the similar argument with Ulrich.

7.2 The role of board chair

Contrary to our argument, we could not find an immediately significant relation between two kinds of board chair human capital and firm performance. However, the result also pointed that the board chair role would be heightened when considering the operation effectiveness of the whole board of directors. It is possible because the education and age of the board chair could not directly influence organisational performance, but would influence other board members' decisions. In managerial procedures, some strategic planning and vital decisions should be agreed and approved by the board of directors. The board chair or CEO could get the board's approval and support if he or she is older or has higher seniority, or with higher educational background. Those characteristics will convince other board members towards his or her preferred operational direction and his or her behaviours will attract the board members to become followers. Our research verifies the special and essential role of the board chair in the governance and organisational performance.

Surprisingly, our predictions for the positive effects from board chair human capital were not totally supported by the data. However, the unexpected result is consistent with Bonn *et al.*'s (2004) findings. They found that board size and age of directors were negatively associated with organisational performance. Their explanation is that a younger board chair is more likely to have innovative ideas and is easier to adopt

to change. Regarding the board size, they indicated that the smaller board could make flexible and fast decisions. Hence, we encourage the future studies to further investigate such relationship in a different context.

7.3 CEO and board chair roles held jointly

The different forms of board governance are based on different perceptions of whether a firm is best served by strong leadership or effective monitoring (Daily and Dalton, 1997). According to the organisational theory, CEOs with the role of board chair, could build up a strong leadership and make the operation consistent and fast. However, the agency theory argues that the joint role of CEO and board chair will reduce the monitoring effect. It will even cause an operational risk if CEOs are highly self-interested. In the past numerous researches, there was no consistent conclusion about the relationship between board chair duality and firm performance. In our research, we found that the board chair duality is significantly related to firm performance. Although it is only a control variable in our study, the result also provides readers extra understanding.

From a practical standpoint, this research suggests that if the board has higher capability-oriented human capital, they need a board chair with higher human capital to lead. That means higher capability-oriented board human capital and higher board chair human capital will get better firm performance. On the other hand, when the board has higher commitment-oriented human capital, the board members will have spontaneous involvement in operational monitoring task and managerial decisions. Thus, the board chair's role will be reduced.

References

- Abdullah, S.N. (2004) 'Board composition, CEO duality and performance among Malaysian listed companies', *Corporate Governance*, Vol. 4, No. 4, pp.47–61.
- Aiken, L.S. and West, S.G. (1991) *Multiple Regression: Testing and Interpreting Interactions*, New York: Sage.
- Avolio, B.J. and Bass, B.M. (1995) 'Individual consideration viewed at multiple levels of analysis: a multi-level framework for examining the diffusion of transformational leadership', *Leadership Quarterly*, Vol. 6, pp.199–218.
- Barney, J.B. (1991) 'Firm resources and sustained competitive advantage', *Journal of Management*, Vol. 17, pp.99–129.
- Bonn, I. (2004) 'Board structure and firm performance: evidence from Australia', *Journal of the Australian and New Zealand Academy of Management*, Vol. 10, No. 1, pp.14–24.
- Bonn, I., Yoshikawa, T. and Phan, P.H. (2004) 'Effects of board structure on firm performance: a comparison between Japan and Australia', *Asian Business and Management*, Vol. 3, No. 1, pp.105–125.
- Buchholtz, A.K., Young, M.Y. and Powell, G.N. (1998) 'Are board members pawns or watchdogs? The link between CEO pay and firm performance', *Group and Organization Studies*, Vol. 23, No. 1, pp.6–26.
- Cohen, A. (1991) 'Career stage as a moderator of the relationships between organizational commitment and its outcomes: a meta-analysis', *Journal of Occupational Psychology*, Vol. 64, pp.253–268.
- Daily, C.M. and Dalton, D.R. (1997) 'CEO and board chair roles held jointly or separately: much ado about nothing?', *The Academy of Management Executive*, Vol. 11, No. 3, pp.11–20.
- Daily, C.M., Johnson, J.L. and Dalton, D.R. (1999) 'On the measurements of board composition: poor consistency and a serious mismatch of theory and operationalization', *Decision Sciences*, Vol. 30, No. 1, pp.83–106.
- Desai, A., Kroll, M. and Wright, P. (2003) 'CEO duality, board monitoring, and acquisition performance: a test of competing theories', *Journal of Business Strategies*, Vol. 20, No. 2, pp.137–156.
- Fama, E.F. and Jensen, M.C. (1983) 'Separation of ownership and control', *Journal of Law and Economics*, Vol. 26, No. 2, pp.301–325.
- Finkelstein, S. and Hambrick, D. (1996) *Strategic Leadership*, West St. Paul.
- Finn, R. (2003) 'Human-Capital Management (HCM): A three-letter acronym too far for HR or the way to get the people agenda on to that of the board?', *Human Resource Management International Digest*, Vol. 11, No. 5, pp.2–4.
- Goodstein, J., Gautam, K. and Boeker, W. (1994) 'The effects of board size and diversity on strategic change', *Strategic Management Journal*, Vol. 15, pp.241–250.
- Goulet, L.R. and Frank, M.L. (2002) 'Organizational commitment across three sectors: public, non-profit and for-profit', *Public Personnel Management*, Vol. 31, No. 2, pp.201–210.
- Hall, R.F., Keane, T.P., McConnell, C. and Becker, S. (2005) 'The 21st century board: structure, responsibility, assessment', *Journal of Leadership and Organizational Studies*, Vol. 11, No. 3, pp.62–71.
- Harrison, J.R. (1987) 'The strategic use of corporate board committees', *California Management*

- Review*, Vol. 30, No. 1, pp.109–125.
- Hillman, A.J., Keim, G.D. and Luce, R.A. (2001) 'Board composition and stakeholder performance: do stakeholder directors make a difference?', *Business and Society*, Vol. 40, No. 3, pp.295–313.
- Hitt, M.A., Bierman, L., Shimizu, K. and Kootchar, R. (2001) 'Direct and moderating effects of human capital on strategy and performance in professional service firms: a resource-based perspective', *Academy of Management Journal*, Vol. 44, No. 1, pp.13–28.
- Huselid, M.A. (1995) 'The impact of human resource management practices on turnover, productivity and corporate financial performance', *Academy of Management Journal*, Vol. 38, pp.635–672.
- Kosnik, R.D. (1987) 'Greenmail: a study of board performance in corporate governance', *Administrative Science Quarterly*, Vol. 32, pp.163–185.
- Mowday, R.T., Steers, R.M. and Porter, L.W. (1979) 'The measurement of organizational commitment', *Journal of Vocational Behavior*, Vol. 14, pp.224–247.
- Nicholson, G.J. and Kiel, G.C. (2004) 'Breakthrough board performance: how to harness your board's intellectual capital', *Corporate Governance*, Vol. 4, No. 1, pp.5–23.
- Pearce, J.A. and Zahra, S.A. (1992) 'Board composition from a strategic contingency perspective', *Journal of Management Studies*, Vol. 29, pp.411–438.
- Pennings, J.M., Lee, K. and van Witteloostuijn, A. (1998) 'Human capital, social capital and firm dissolution', *Academy of Management Journal*, Vol. 41, pp.425–440.
- Pfeffer, J. (1994) *Competitive Advantage Through People*, Boston: Harvard Business School Press.
- Randall, D.M. (1990) 'The consequences of organizational commitment: methodological investigation', *Journal of Organizational Behavior*, Vol. 11, pp.361–378.
- Rechner, P.L. and Dalton, D.R. (1989) 'The impact of CEO as board chairperson on corporate perform', *The Academy of Management Executive*, Vol. 3, No. 2, pp.141–143.
- Sáenz, J. (2005) 'Human capital indicators, business performance and market-to-book ratio', *Journal of Intellectual Capital*, Vol. 6, No. 3, pp.374–384.
- Siders, M.A., George, G. and Dharwadkar, R. (2001) 'The relationship of internal and external commitment foci to objective job performance measures', *Academy of Management Journal*, Vol. 44, No. 3, pp.570–579.
- Stephens, R.D., Dawley, D.D. and Stephens, D.B. (2004) 'Commitment on the board: a model of volunteer directors' levels of organizational commitment and self-reported performance', *Journal of Managerial Issues*, Vol. 16, No. 4, pp.483–504.
- Ulrich, D. (1998) 'Intellectual capital = competence × commitment', *Sloan Management Review*, Vol. 39, No. 2, pp.15–26.
- van Ees, H., Postma, T.J.B.M. and Sterken, E. (2003) 'Board characteristics and corporate performance in The Netherlands', *Eastern Economic Journal*, Vol. 29, No. 1, pp.41–58.
- Wright, P.M., Smart, D.L. and McMahan, G.C. (1995) 'Matches between human resources and strategy among NCAA basketball teams', *Academy of Management Journal*, Vol. 38, pp.1052–1074.