GOVERNANCE QUALITY AND THE PRICING OF DISCRETIONARY ACCRUALS: AMERICAN FIELD STUDY

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Abstract

The aim of this paper is to examine the relationship between efficient governance structure and the information content of discretionary accruals. To determine governance scores, Data Envelopment Analysis is applied to a sample of 149 American firms for the period 1998 to 2003. The findings indicate that the association between stock return and discretionary accruals is greater for firms having a good corporate governance structure.

Keywords: Corporate governance, data envelopment analysis, information content, discretionary accruals

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1. Introduction

The role of accruals to reflect firm performance has been a subject of accounting research for years. On one hand, previous research shows that accruals could improve the value relevance of earnings if it represents a credible signal of manager's private information about future profitability of the firm. For example, Dechow (1994) argues that accruals are considered superior to cash flows because it mitigates the matching and the recognition problems. The view that accruals improve the ability of earnings to measure firm performance is expressed by the FASB "information about enterprise earnings and its components measured by accrual accounting generally provides a better indication of enterprise performance than does information about current cash receipts and payments". On the other hand, information asymmetry allows managers to manipulate discretionary accruals to maximize self interests so as to increase earnings-based compensations, relax contractual constraints, or avoid debt covenants violations, etc. (e.g., Healy, 1985; Holthausen, Larcker, & Sloan, 1995; Watts & Zimmerman, 1986). To the extent that managers opportunistically manage accruals, reported earnings would be distorted and become a less reliable and informative measure of firm performance than cash flows. The agency theory considers that the corporate governance mechanism has an important role in mitigating agency cost by constraining opportunistic management of accruals. The extant literature documents that sound corporate governance reduces the likelihood of misstatements arising from fraud or errors, as well as helps restrain management opportunism (Beasley, 1996; Dechow, Sloan, & Sweeney, 1996). Corporate control and monitoring

forces, such as quality external auditing, internal auditing, independent board, and audit committee, are found to be effective in restraining managerial opportunism. For example, *Becker, DeFond, Jiambalvo, and Subramanyan (1998)* document that the level of discretionary accruals is significantly lower for Big 6 than for non-Big 6 clients. *Peasnell et al. (2000) and Chtourou et al. (2004)* predict that board independence is also likely to be associated with a reduction in earnings management. While *Peasnell et al. (2000)* find empirical support for their prediction with respect to UK firms; *Chtourou et al.* (2004) fail to find an association between earnings management and board independence for a sample of US firms. For the US market, *Klein (2002)* finds that abnormal accruals are negatively related to audit committee and board independence. This suggests that independent boards and audit committees are effective in monitoring the corporate financial reporting process, deterring opportunistic earnings management.

The literature review allows to take a census that prior studies examine the individual impact of every corporate governance mechanism on the level of discretionary accruals like the board of directors, its composition, the managers' compensation, the ownership structure, the shareholders activism and takeovers mechanisms. Extending on extant literature, this paper examines whether there is a linkage between corporate governance mechanism (developing a synthetic index to evaluate corporate governance firm's practices) and the pricing of discretionary accruals in USA.

Following Subramanyam (1996) I decompose earning into cash flows from operating, discretionary accruals, non discretionary accruals and regress stock return on three components, a dummy variable that

captures the governance structure, and the interaction of governance structure with discretionary accruals. To approach the concept of corporate governance quality that covers several measurements: the board of directors and its committees, we exploited the advantages of data envelopment analysis (DEA). The basic idea of DEA is to determine a production possibility frontier. As a nonparametric technique, DEA does not require an explicit specification of the underlying input-output relationship. This approach is a non parametric application of the linear programming techniques estimates the border of efficiency, by a convex polyhedron enveloping the set of the observations, the efficient firms are on the border. It permits to determine efficiency scores of corporate governance and to classify the firms according to the efficiency of their corporate governance structure.

This paper is organized as follows. Sections 2 present the efficiency measurement with DEA.

Section 3 describes our sample and methodology. Section 4 presents our results and analyses. The last section concludes this paper

2. Efficiency measurement with DEA

Data envelopment analysis *(DEA)* is a mathematical programming approach for estimating the relative technical efficiency of production activities. The term DEA was originally proposed by *Charnes et al. (197*8). It has been used to estimate optimal input utilization, productivity, identify strategic groups, determine benchmarks and total quality management programs, estimate social and private costs of regulating undesirable outputs and capacity *(Kirkley et al. 2000).* The DEA technique may be used to estimate technical efficiency scores or efficient levels of inputs or outputs from either an input or output orientation or from an orientation that allows both input and output levels to simultaneously change. The input-orientation provides estimates of the amount by which inputs could be proportionally reduced and still produce a given output level. The output orientation provides estimates of the amount by which outputs could be proportionally expanded given existing input levels. Both output and input-oriented models will identify the same set of efficient/inefficient producers or DMUs. In this study we use both input and output orientation simultaneously.

2.1. Variables constructions

We assume that each firm, mindful of its corporate governance structure, uses several inputs to generate outputs improving its performance.

2.1.1. The inputs
In this study, we assume that the board of director, the board committee (audit, remuneration and nomination) and the reputation of auditor characterize a firm's governance structure.

Board directors characteristics
Board size
The size of the board has been shown to have a material impact on the quality of corporate governance. Several studies support the idea that large boards can be dysfunctional. Hermalin and *Weisbach (2003)* believe that board size proxies for the board's activity, explaining why smaller board sizes are better than larger ones that may be plagued with free rider and monitoring problems. For example, *Yermack (1996) and Eisenberg et al. (1998)* find a negative relation between board size and firm value, indicating that smaller boards are more effective since they experience fewer communication and coordination problems.

Independent directors
The focus on board independence is grounded in agency theory *(Fama and Jensen, 1983)*. In fact, it has long been argued in the finance literature that boards with a majority of independent directors are more effective in monitoring management (Baysinger and Butler, 1985; Rosenstein and Wyatt, 1990; Byrd and Hickman, 1992; Morck and Nakamura, 1994; Kaplan and Minton, 1994; Bhagat and Black, 2002) and are more likely to replace poorly performing CEOs (Weisbach, 1988). More independent boards are also more likely to opt for a clean slate when company performance deteriorates significantly, and to hire a replacement CEO from outside the firm rather than promote an internal candidate (Borokhovich et al., 1996; Huson, 2001).

Board meetings
Boards should be ready to increase meetings frequency if the situation requires a high supervision and control (Shivdasani and Zenner, 2004). Other studies suggest that boards should balance the costs and benefits of frequency. For example, if the board increases the frequency of its meetings, the recovery from poor performance is faster (Vafeas, 1999).

Split chairman/CEO roles
The question of whether the chairman and CEO positions should be separate has been controversial. The advantages and the drawbacks of separating the chairman and CEO positions have been studied extensively. Jensen (1993) argues that separating CEO and chairman roles is in the shareholders' interest. Similarly, large firms that separate the two functions trade at higher price-to-book multiples (Yermack, 1996) and have higher return on assets and cost efficiency ratios (Pi and Timme, 1993) than firms where the same person holds both titles. In addition, bestowing the CEO and chairman duties on one individual makes it harder for a board to replace a poorly performing CEO (Shivdasani and Zenner, 2004), which can reduce the flexibility of a board to address sizable declines in performance (Goyal and Park, 2002). On the other hand, Brickley et al. (1997) find no evidence that separating these roles improve

firm performance. More precisely, combining the positions of chairman and CEO confers greater power to the CEO, who gains the title of chairman after having outperformed his/her peers (Brickley et al., 1997). So the chairman title serves as a reward to a new CEO who has demonstrated superior performance and represents an implicit vote of confidence by outside directors. Then, requiring companies to separate the positions of CEO and chairman would deprive boards of an important tool to motivate and reward new CEOs (Brickley et al., 1997).

Committee characteristics
Independence of committees

Similarly, independence is also considered important for a board committee to be an effective monitor (Klein, 1998). John and Senbet (1998) report empirical evidence showing that the presence of monitoring committees (audit, nomination, and remuneration committees) is positively related to factors associated with the benefits of monitoring.

Committee meetings

To carry out its function the committees must maintain a certain level of activity through increased frequency of meetings (Bedard et al., 2004), especially in the case of firms that wish to avoid Securities and Exchange Commission enforcement actions (McMullen and Raghunandan, 1996; Abbott et al., 2004).

Reputation of auditors

The selection of an auditor with a global reputation (a Big 4 auditor) may convey better disclosure practices. For instance, Michaely and Shaw (1995) find that more prestigious auditors are associated with US IPOs that are less risky and that perform better in thelong run.

2.1.2. The outputs

We assume corporate performance to have three dimensions: investment, firm growth, and profitability. We measure firm profitability by the return on total assets (ROA), defined as gross profits (calculated as turnover minus expenses for personnel and materials) over total assets. Investment is defined as the annual expenditures for tangible assets scaled by total assets. Firm growth is calculated as the log change in annual turnover.

3. Data sample and methodology

3.1. Data sample

The study explores a sample of 149 large Americans firms (belonging to Frotune 500) for a period of 6 years from 1998 to 2003. The accounting data and those related to governance variables were collected from the site www.edgarscan.com. The stock data was extracted from the site www.yahoofinances.com.

Firms belong to eleven different sectors. Indeed, 14.76% of them belong to the hightechnology sector and electronic engineering. The cosmetics, health and pharmaceuticals, and metals, chemicals, manufacturing and energy (11.41%) are the most present sectors in the sample. However, the building and construction materials sectors, as well as computers, multimedia, telecommunications and the internet sector are the less present in the final sample.

3.2. Accruals measurement

We use the cross-sectional version of the modified-Jones model (DeFond and Jiambalvo, 1994; Becker et al., 1998; Bartov et al., 2000). Under this model, the level of discretionary accruals for a particular firm is calculated as the difference between the firm's total accruals and its non-discretionary accruals (*NDAC*), as estimated with equation (1):

$$NDAC_{ij}\, t = [\ \alpha j\ [1/A_{ij}\, t{-}1] + \beta 1j\ [\Delta REV_{ij}\, t\ /A_{ij}\, t{-}1 - \Delta REC_{ij}\, t/A_{ij}\, t{-}1] + \beta 2j\ [PPE_{ij}\, t/A_{ij}\, t{-}1]\ (1)$$

Where αj , $\beta 1j$ and $\beta 2j$ are industry-specific coefficients estimated from the following Cross-sectional regression:

$$TAC_{ij}\, t/A_{ij}\, t{-}1 = [\ \alpha j\ [1/A_{ij}\, t{-}1] + \beta 1j\ [\Delta REV_{ij}\, t\ /A_{ij}\, t{-}1 - \Delta REC_{ij}\, t/A_{ij}\, t{-}1] + \beta 2j\ [PPE_{ij}\, t/A_{ij}\, t{-}1] + \varepsilon_{ij}\, t\ (2)$$

Where:
TAC_{ijt} = total accruals for firm i in industry j in year t,
ΔREV_{ijt} = change in revenue for firm i in industry j between year $t - 1$ and t,
PPE_{ijt} = gross property, plant and equipment for firm i in year t,
$A_{ijt}{-}1$ = total assets for firm i in industry j at the end of the previous year,
ΔREC_{ijt} = the change in receivables for firm i in industry j between year $t - 1$ and t.

The $\beta 1$ coefficient (change in revenues) is predicted to be positive, as changes in revenues are expected to be positively related to changes in working capital accounts. The expected sign on $\beta 2$ (property, plant and equipment) is negative, as the level of fixed assets is expected to drive depreciation expenses and deferred taxes (Klein, 2002a). Having estimated non-discretionary accruals (*NDAC*) from equation (1) above, the amount of discretionary accruals (*DAC*) for firm i in industry j for year t is calculated as the residual value from equation (3):

$$DAC_{ij}\, t = TAC_{ij}\, t - NDAC_{ijt}.\ (3)$$

We use a cash-flow approach to estimate total accruals as this is considered superior to the balance sheet approach (Hribar and Collins, 2002). This approach involves deducting the cash flow from operations obtained from the statement of cash flows from the amount of net income (before extraordinary items) from the income statement.

4. Results and analyses

4.1. Descriptive statistics

Table 2 summarizes the descriptive statistics of corporate governance variables. The sample meets on

average the criteria of good corporate governance mechanism. Indeed, Table 2 reports that the boards in our sample have, on average, 84.6% independent directors. Audit committees and remuneration committees are 95% independent on average. Nomination committees have, on average, 94.5% independent directors. Globally, results show that audit committees, nomination committees and remuneration committees are characterized by a concentration of independent board members. Board, audit committee, nomination committees and remuneration committees average sizes are 10.96 members, 4.85 members, 4.85 members and 5.05 members respectively.

The board and committee activity, are captured by the number of meetings that each holds, are potentially relevant to the information content of earnings. Table 1 report that board meets an average of 7.6 times per year. Audit committees, nomination committees and remuneration committees meet less frequently with the average number of meetings respectively 8 meeting, 3.86 meeting and 4.4 meeting. Finally, Nearly 78% of firms have different individuals occupying the CEO and Board Chair positions. Previous research suggests that separation of the CEO and Chairman of the Board positions may affect firm value [Jensen (1993) and Goyal and Park (2002)].

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Insert Table 2 here

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4.2. Measuring efficiency

The determination of the frontier represented by the best practices allow to evaluate corporate governance firms efficiency. The proposed Governance index is an efficiency score which reflects, for every firm, the distance that separate it from an efficiency frontier expressing corporate governance best practices. After calculating efficiency score, we obtain the following results:

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Insert Table 3 here

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According to this table, we can notice a net increase of the efficiency index during the time. This increase occurs between 1998 and 2003 and can be explained by spectacular falls of American large firms. Indeed, most of these bankruptcies are attributed to a governance systems weakness and precisely to a dangerous management strategy, for manager benefice and often fraudulent like in Enron and WorldCom. Concerning the number of efficient firms, we noted that it also increases during the time. Indeed, during 1994, we have 69 firms efficient while in 2003 the number increased considerably to 95 firms. According to these results, we can argue that companies are increasingly aware of the role of governance quality nowadays and therefore they try to improve it.

4.2. Pricing of discretionary accruals

Subramanyam (1996) find that the stock market attaches value to discretionary accruals. His finding is consistent with the notion that discretionary accruals, which reflect managers' private, inside information, improve the ability of earnings to reflect economic value of firm. I build upon Subramanyam's model that decomposes earnings into three componentsoperating cash flows, nondiscretionary accruals, and discretionary accruals, by including corporate governance quality:

$$Re_t = B_0 + B_1 CF_t + B_2 NDAC_t + B_3 DAC_t + B_4 CG_t + B_5 DAC_t * CG_t + \varepsilon_t$$

Where Re is the stock return calculated over a twelve-month period ending three months after the fiscal end for yeart; CF is cash flows from operations divides by total assets at the beginning of the year; NDAC is nondiscretionary accruals; DAC discretionary accruals; nondiscretionary accruals and discretionary accruals are determined using the cross sectional modified Jones model (1991), CG equals 1 if the efficiency index calculated with DEA is1 and 0 other.

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Insert Table 4 here

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Consistent with Dechow (1994) and Subramanyam (1996) findings, Table 4 reports that discretionary accruals are significantly positively associated with prices, indicating that the American market incorporates information conveyed via discretionary accruals when valuing equity shares. B3 + B5 represents the association between discretionary and stock return for firms with a good corporate governance mechanism. Thus, observing B5>0 is consistent with the nation that corporate governance quality influences the pricing of discretionary accruals and the association between discretionary accruals and return is greater for firms having a good corporate governance structure. Overall, the results indicate that while discretionary accruals of good and not corporate governance structure firms are associated with stock return, the magnitude of association is greater for firms having a good corporate governance structure. In light of these results, we retain the conviction of the superiority of discretionary accruals of firms having a good corporate governance mechanism.

5. Conclusion

The objective of the study is to examine the relationship between governance quality and the information content of discretionary accruals. The main contributions of the study rely on the methodological front while measuring efficient governance structure with DEA. As such, this study highlights the potential of applying tools and methods developed in the operational research field to analyze untraditional sets of problems. Our analysis shows that a net increase of corporate governance quality during

the time. This increase occurs between 1998 and 2003 and can be explained by spectacular falls of American large firms. Indeed, most of these bankruptcies are attributed to a governance systems weakness and precisely to dangerous management strategy, for favor manager and often fraudulent like in Enron and WorldCom.

The findings indicate the association between stock return and discretionary accruals is greater for firms having a good corporate governance structure. These results lead to advance that the quality of corporate governance the mechanism affects the informational content of discretionary accruals.

Like all research works, our study is not exempt from some limits. Indeed, several studies have shown that the use of the modified Jones model (1991) estimated with error nondiscretionary accruals.

References

1. Bédard J., Chtourou S., Courteau L. [2004], «The Effects of Audit Committee Expertise, Independence, and Activity on Aggressive Earnings Management», *Auditing, A Journal of Practice and Theory*, vol. 23 n° 2, pp.13-36.
2. Beasley, M. S. [1996], «An Empirical Analysis of the Relation Between the Board of Director, Composition and Financial Statement Fraud», *The Accounting Review* 71, pp. 443–465.
3. Biao Xie, Wallace N. Davidson, Peter JDaDalt. [2002], «Earnings Management and Corporate Governance: The Role of the Board and the Audit Committee», *Southern Illinois University,Working paper www.ssrn.com.*
4. Blue Ribbon Committee. [1999], « Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees, NYSE and National Association of Securities Dealers».
5. Davidson Ryan, Jenny Goodwin-Stewartb, Pamela Kenta [2005], «Internal Governance Structures and Earnings Management», *Accounting and Finance* pp. 241-267.
6. Dechow P., Sloan R., Sweeney A. [1995], «Detecting Earnings Management», *the Accounting Review,* Vol. 70, N°2, April, pp. 193-225.
7. Drobetz,W., Schillhofer, A., Zimmermann, H. [2004], «Corporate Governance and Expected Stock Returns: Evidence from Germany», *European Financial Management*, vol 10, pp.267–293.
8. Holthausen R.W., Larcker D., Sloan R. [1995], «Annual Bonus Schemes and the Manipulation of Earnings», *Journal of accounting and economics*, volume 19, n° 1, pp. 29-74.
9. Jones, J. [1991], «Earnings Management During Import Relief Investigations», *Journal of Accounting Research*, volume 29, pp.193-228.
10. Klein A. [2002], «Audit Committee, Board of Directors and Earnings Management», *Journal of accounting and economics*, volume33, pp.375-400
11. Lehman, E., Warning, S. Weigand, J. [2002], «Efficient Governance Structures, Corporate Investment and Profitability: A Combined DEA and Panel Regression Approach», *Working paper www.ssrn.com* .
12. Peasnell K., Pope P.,Young S [2000], «Board Composition and Earnings Eanagement: do Outside Directors Constrain Abnormal Accruals?», *Working paper [University of Lancaster, Lancaster, UK) www.ssrn.com.*
13. Peasnell K., Pope P.,Young S. [2000], «Detecting earnings management using cross-sectional abnormal accruals models» *Accounting and Business Research*, Vol. 30, Issue 4, pp. 313-326.
14. Subramanyam K.R.[1996], «The Pricing of Discretionary Accruals», *Journal of accounting and economics,* volume 22, pp. 249-281.
15. Vafeas, N. [2000], «Board Structure and the Informativeness of Earnings», *Journal of Accounting and Public Policy*, 19, pp.139-160.
16. Xie B., Davidson W., DaHalt. [2002], «Earnings Management and Corporate Governance: the Role of the Board and the Audit Committee», Journal of corporate finance, pp. 295-316.

Appendices

Table1- Description of variables	
Board size	Total number of directors
% Outside directors	Ratio of outside directors to total members of board
Board meetings	Number of the board meetings
Audit quality	Indicator variable with value of 1 if the auditor is a Big 4
Existence of an audit committee	Indicator variable with value of 1 if the audit committee exist
Audit committee size	Size of the audit committee
% Outside directors	Ratio of outside directors to total members of audit committee
Audit committee meetings	Meetings of the audit committee
Existence of a nominating committee	Indicator variable with value of 1 if the nominating committee exist
nominating committee size	Size of the nominating committee
% Outside directors	Ratio of outside directors to total members of nominating committee
Meetings of the nominating committee	Number of the nominating committee's meetings
Existence of a remuneration committee	Indicator variable with value of 1 if the remuneration committee exist
remuneration committee size	Size of the remuneration committee
% Outside directors	Ratio of outside directors to total members of remuneration committee
Meetings of the remuneration committee	Number of the remuneration committee's meetings
DAC	discretionary accruals calculated from the modified-Jones model
NDAC	non-discretionary accruals calculated from the modified-Jones model
CF	cash flows from operation
CG	Indicator variable with value of 1 if the governance index is 1(calculated with DEA method)
Re	Where Re is the stock return calculated over a twelve-month period ending three months after the fiscal end for year$_t$

Table 2- descriptive statistics of corporate governance[a]

Panel A descriptive statistics for quantitative variables					
	N	Minimum	Maximum	Mean	SD
Board size	894	4	23	10,96	2,93
% Outside directors	894	8	100	84,6	,84
Number of meetings	894	2	13	7,8	1,78
Size of the audit committee	894	0	7	4,85	2,18
% Outside directors	894	0	100	95	2,35
Number of meetings	894	2	13	8	2,18
Size of the nomination committee	894	0	7	4,85	2,18
% Outside directors	894	0	100	94,5	3,18
Number of meetings	894	2	9	3,68	1,78
Size of the remuneration committee	894	0	9	5,05	1,18
% Outside directors	894	0	100	95	3,18
Number of meetings	894	2	11	4,4	2,5

Panel B descriptive statistics for qualitative variables			
		Frequency%	
	N	0	1
Audit quality	894	6	94
Existence of the audit committee	894	0	100
Existence of a nominating committee	894	42	58
Existence of the remuneration committee	894	6,2	92,8
Separate chair dummy	894	22	78

[a]Sample of 149 Americans firms from fortune 500 for a period 1998-2003.