

EVOLUTION OF CORPORATE GOVERNANCE DURING THE RECENT FINANCIAL CRISES

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ABSTRACT

A domino effect can accelerate the spread of financial crises. Some firms, however, show better resistance than others thereby limiting the spread. Effective governance mechanisms enhance the ability of firms to absorb a stock market crisis. In a sample of Société des Bourses Françaises (SBF) 120 firms, significant changes in corporate governance scores are observed during the financial crises of 2006-2008. We find that most French firms show a fairly satisfactory level of compliance with OECD governance principles. The results also suggest that stronger corporate governance practices should improve the visibility of the firm by the market.

JEL: G01, G30, G34

KEYWORDS: Governance, Corporate Governance, Financial Crises

INTRODUCTION

Without going into the delicate debate of defining crisis, stock market collapses translate into an index reduction. Markets cannot reasonably value the firm and we observe a simultaneous decrease in stock market indexes and especially a considerable increase in price volatility related to the lack of consensus to value firms. Investor confidence is a primary factor that explains this phenomenon. Good corporate governance is increasingly essential to investor confidence and to the ongoing vitality of stock markets.

Most prior governance research examines the relationship between the amounts of expropriation by managers and firm performance (Charreaux 1998, Charreaux and Pitol-Belin 1992, Bowen and al 2007, Core and al 2006, Bebchuk and Ferrel 2004, Bai and al 2003, Mitton 2002). In the case of a decline in performance, good corporate governance mechanisms should reduce expropriation by managers. Bad corporate governance practices bring about an amplifying effect by spreading the financial counter-performance on the markets.

This study is conducted on the largest listed companies in France. Its main purpose is to enrich the financial and economic literature on the effectiveness of corporate governance practices in enhancing the firms' ability to resist and absorb a stock market crisis. We conduct two analyses. First, we construct scores of corporate governance before (2006) and during the crisis (2007 and 2008) for each company. Secondly, we analyze the influence of these practices on price volatility. The remainder of the paper is organized as follows: Section 2 provides a review of the literature. Section 3 is devoted to the research methodology. Section 4 analyses and discusses the results. In the last, we provide concluding remarks.

LITERATURE REVIEW

The disequilibrium of crisis shocks creates power differentials. Managers seek to take advantage of these differentials. They act to neutralize corporate governance mechanisms and strengthen their discretion. The theoretical model of Johnson et al (2000) presented in Appendix A is used to justify the link between the economic downturn and the need, in this case, to have better governance.

Johnson and al (2000) suggested in their model that institutions that protect investors' rights are not important as long as growth lasts, because managers do not want to steal. It may even be possible to attract a great deal of outside capital during a period when the economy expands. But when growth prospects decline, the lack of good corporate governance becomes important. Without effective shareholder protection, a mild shock causes a large increase in theft, which in turn can entail large depreciation. This explains how a country can grow rapidly even if its institutions are flawed. However, the model shows that institutions matter most when an economy experiences a downturn. According to this argument, a country can grow fast for an indefinite period even if it has weak corporate governance mechanisms and a poor protection of shareholders' rights. But weak institutions of this kind make a country vulnerable, in the sense that a small negative shock to expected future earnings can have a large effect on the economy. If this theory is correct, Johnson and al (2000) suggested that institutions affect volatility. Specifically the size of the decline in asset value when there is an adverse shock to expected future earnings. Then, good governance practices may limit the effects of the recent financial crisis (Core and al 2006, Grant 2009, Alen 2009, Ezzine and al 2010, and Ezzine and al 2011).

Assessing the quality of Corporate Governance (CC) of a listed company has become an investment criterion for many French and international managers especially with firms' shortcomings at the beginning of the century. Standard & Poor's (2001) is the first agency to demonstrate an interest in assessing the quality of the CG systems. A company Corporate Governance Score (CGS) reflects Standard and Poor's assessment of a company's corporate governance practices and policies and the extent to which these serve the interests of the company's financial stakeholders, with an emphasis on shareholders' interests. For purposes of the CGS, corporate governance encompasses interactions between a company's management, its board of directors, shareholders and other financial stakeholders.

Moody's later took the initiative to develop a rating service for corporate governance. They responded to strong demand from financial institutions for a better assessment of the ability of firms to communicate transparently and better consideration for their shareholders' interests. Corporate Governance consists of several components: Board of directors, Compensation arrangements and related practices, Public disclosure, Legal/regulatory structure and arrangements by which the public corporate entity exists and Shareholder voting and other ownership prerogatives.

Institutional Shareholder Services (ISS) provided corporate governance solutions that enhance the interaction between shareholders and companies to manage risk and drive value. It developed a Governance Rating consisting of 61 variables related to board of directors, audit, charter and bylaw provisions, the laws of the state of incorporation, executive and director compensation, qualitative factors, ownership and director education (ISS 2004). More recently, ISS launched a classification of the CG system associated with Financial Times Stock Exchange (FTSE) Group. These two companies have joined their efforts to create a transparent range of World Governance Index (WGI).

Governance Metric International (GMI) was formed in April 2000 by a small group of people who recognized the need for a new, easy-to-use tool to monitor corporate governance. The GMI classification criteria are classified into seven categories: board accountability, financial disclosure & internal controls, reputation and social responsibility, executive compensation, market for control, ownership base and the potential for dilution and shareholder rights (Sherman, 2004).

Even if the rating methodologies for assessing the quality of the CG system are increasing, their common goals are to produce a score. The rating agencies use these scores to assess the quality of the CGS: ownership structure, shareholders rights and duties, board accountability, financial disclosure and transparency. The scoring methods are based on public and private information and are used to assess the corporate governance practices.

The objective of good practices codes is to put an end to the problems and concerns about the mode of corporate management, control and accuracy of financial reports and accounting figures. Several codes of good practices have been developed in Europe as in France the Vienot I (1995) Report, Vienot II (1999) Report and Bouton (2002) Report. In the UK, reports by Cadbury (1992) and Hampel (1998) have had an influence on the global corporate governance environment. The Organization for Economic Cooperation and Development (OECD) published a number of principles of CG in 1999. These principles were revised and validated by the World Bank in 2004. Many comparative studies on corporate governance codes proved a high degree of convergence on issues such as accountability, minority shareholder protection, capital structure, director independence, board committees, remuneration policy and transparency.

However, the Enron and WorldCom scandals show that a CG system which adheres strictly to recommendations of good governance codes may be inadequate. This can result in a sudden company collapse regardless of its reputation or size. The recent financial crisis has also shown that several firms were victims of “ineffective” governance systems. Three reports relate to this issue. First, the Financial Stability Forum published the Draghi Report on April 7, 2008. Secondly, the Institute of International Finance produced a Market Best Practices Report dated July 17, 2008. Thirdly, on September 5, 2010, Rene Ricol published a Report on the request of Nicolas Sarkozy, president of the European Council.

Several studies have focused on evaluating CG. Bebchuk and Cohen (2004), Bebchuk and Ferrel (2004) argue that better governance induces better performance. Empirical findings by Brown and Caylor (2005) show that poorly governed firms have achieved lower performance and pay lower dividends. By calculating an index of CG for German companies, Drobetz, Schilhofer and Zimmerman (2003) show the positive effect of the corporate governance score on firm value. In this regard, Bai et al (2003) compared the performance of firms belonging to two groups: well-governed and poorly governed firms. They found that investors place more emphasis on well-governed firms. Investors are willing to pay an additional premium for shares of companies that have adopted good governance practices.

Hypotheses

Our main hypothesis is based on the results of the model of Johnson et al (2000). It is presented as follows: General hypothesis: French listed firms most capable of resisting the current stock crisis are those whose governance practices are most developed. This hypothesis can be separated as follows:

Hypothesis 1: *A well-functioning board has a positive effect on the ability to resist the crisis.*

Hypothesis 2: *The firm's ability to resist the crisis is positively related to the remuneration policy*

Hypothesis 3: *The firm's ability to resist crisis is positively related to the audit process*

Hypothesis 4: *The firms the most capable of resisting a crisis are those with a good ownership structure.*

Hypothesis 5: *The firm's ability to resist a crisis is positively related to the respect of shareholder rights.*

RESEARCH METHODOLOGY

The aim of our empirical analysis is to validate the above hypotheses. We examine if better governed firms are more capable of resisting crisis than others. This is verified when the financial return volatility estimated by the GARCH specifications is weaker for companies that have better governance practices.

The sampling frame includes SBF 120 firms listed during the crisis period (2006/2008). The data was obtained mainly from two sources of information. First, the stock price and dividends paid every week are expressed in the local currencies and were obtained from the yahoo finance Website. Second, all corporate governance and financial data were obtained manually from annual reports.

Panels A and B of Table 1, Table 2 and Figure 1 show that French firms experienced difficulties in 2008. Lower levels for median excess returns are mainly attributable to 2008 (-3.4%). The data shows higher levels of standard deviation and financial returns' conditional volatility especially in 2008. This data confirms the fluctuations of French firm fortunes (18.6% and 56%). The Lehman Brothers Bankruptcy in September 2008 marked a turning point in the financial crisis that emerged in the summer of 2007. The domino effect of the recent financial crisis has an effect on French firms. The deterioration of some financial indicators as return on assets and return on equity is also a consequence of financial crisis effects on the French firms.

Table 1: Summary Atatistics

Panel A: Crisis Statistics

	2006	2007	2008
Stock return (Median)	-0.0026	-0.0320	-0.034
Standard deviation	0.173	0.185	0.186
Financial return's conditional volatility (GARCH effect)	0.381	0.272	0.560

Panel A reports financial statistics for 120 French firms during the period 2006-2008. For market capitalization, return on asset and return on equity, lower median values indicate financial difficulties of French firms especially in 2008.

Panel B: Financial Statistics

Financial Statistics	2006		2007		2008	
	Mean	Median	Mean	Median	Mean	Median
Total asset (10 ⁶ EUR)	76,532,515	8,098	80,434,751	8,398.15	79,483,292	9,319.5
Market capitalization (10 ⁶ EUR)	7,674,952	6,549	8,077,856	6,290.14	8,168,738	3,595.025
Return on asset (%)	7.449	4.54	8.312	5.24	7.824	4.45
Return on equity (%)	15.225	13.88	17.761	13.25	32.721	12.367
Debt ratio (%)	39.052	34.6	37.023	34.25	41.395	36.504

Panel B reports crisis statistics for 120 French firms during the period 2006-2008. The stock returns are dividend inclusive and are expressed in local currencies adjusted for local price index change. The GARCH effect is a measure of stock volatility. For stock return, a lower median value is observed in 2008. For standard deviation and GARCH effect, the lower values are also observed in 2008.

Table 2: Evolution of SBF 120 Index Return

SBF 120 Index Statistics	2006	2007	2008
Mean	0.0006	0.0003	-0.0021
Median	0.0016	0.0004	-0.0023
Max	0.0245	0.0327	0.1118
Min	-0.0318	-0.0326	-0.0904
Standard deviation	0.0098	0.0106	0.0218
Number of observations	200	200	200

Table 2 focuses on evolution of SBF 120 index return from 2006 through 2008. The returns of index are expressed in local currencies adjusted for local price index change. Lower median value is illustrated in 2008. Higher standard deviation value is also observed in 2008.

Variables Measures

The firm's ability to resist the recent financial crisis is assessed by minimizing the financial return's conditional volatility (FRCV). We applied, for every weekly serial of financial return, the ARCH and GARCH models which better model the temporal variation of the first and second moments of the different types of assets and which helps us better understand the dynamics of the investor behavior during the crisis period (Engle 1982 and Bollerssev 1990). The methodology for calculating the GGS, based on the Louizi's study (2007) was developed by relying on: OECD principles of Corporate Governance (1999), Good Governance Codes and Rating Methodologies.

Figure 1: SBF 120 Index Return



This figure shows the trend in SBF 120 index return from 2006 through 2008. Horizontal line delineates the number of observations. The returns of index are expressed in local currencies adjusted for local price index change. A higher fluctuation is observed in 2008.

Five key components of governance were identified in the study: board functioning, internal audit process, ownership structure, remuneration policy and shareholders' rights. Panels A and B of Table 3, Appendices B and C identify the main proposals for each component of CG as well as the measures adopted. In order to enhance the reliability of our empirical results, we use other variables to control for factors that could explain the firm's ability to resist recent stock market crisis including the debt ratio and the firm size. Firm size (FSIZE) is measured by the natural logarithm of the total assets. The debt ratio (DRATIO) is measured as the book value of the total debt divided by the book value of the total asset.

Corporate Governance Scores

Table 4 shows the evolution of CGS for 120 SBF firms from 2006 through 2008. The total score varies from 60.698% in 2006 to 64.406% in 2008. We assert that French firms have a governance quality above the average during the sub-periods of crisis. The total score of CG is increased as a result of an increase in each CG theme. However, even if our results convey an improvement in CGS, this improvement is poor.

On average, higher CGS is attributable to internal audit processes and policy remuneration components. Over the past few years, French firms have made an effort towards improving the functioning of audit process and compensation policy. Shareholders' rights and information components had an average score. However, our results indicate a lower score for ownership structure theme.

Table 5 shows in 2006, 41.758% firms separate the roles of chair and CEO compared to 45.054% in 2007. In 2008, 67.088% of firms have an independent board of directors compared to 73.863% in 2007 and 69.663% in 2006. More than 93% of firms hold meetings more than three times a year. Our results show the existence of foreign directors. They are present on 61.363% of boards in 2006, and 64.772% in 2007 and 2008. More than three of four firms have a nomination committee 82.7% in 2006 and 90% in 2008. All sample firms indicate the number and the nature of other mandates held by board members. Almost 28% of boards exhibit between 0 and 4 mandates of directors during the recent financial crisis.

The audit committee is established to enhance confidence in the integrity of an organization's processes and procedures relating to internal control and corporate reporting including financial reporting. Table 6 shows that almost all firms in the sample have an audit committee. The percentage of firms with an audit committee varies from 89.010% in 2006 to 94.505% in 2008. Moreover, the audit committee size of 88.372% in 2006 is between 3 and 5 members (93.181% in 2008). Our results also show that independent directors account for at least a third of all audit committee members. A large number of recommendations by the Vienot II (1999) Report have been voluntarily implemented by a majority of sample firms.

Table 3: List of CG Proposals

Panel A: Criteria for Board Functioning, Shareholders' Rights and Information		
Board Functioning Criteria	Shareholders' Rights and Information Criteria	
Board composition	One-share one-vote rule	
Leadership structure	Shareholders power	
Existence of independent directors	Cumulative voting	
Number of independent directors	Proxy voting	
Number of meetings of board	Voting by mail	
Nomination committee	Double voting rights	
Number of independent directors on nomination committee	Anti-takeover	
Number of meetings of nomination committee	Information about the firm's debt policy	
Definition of independent directors	Information about the firm's strategic orientation	
Mandate of directors	Board charter	
Existence of foreign directors on board	Information about the officers' remuneration	
Number of Foreign Directors on board	General meeting	
Average age of directors	Shareholder proposals in general meetings	
Directors' training	Publication dates of results	
	Number of stock markets	
	American listing	
	Application of Social Responsibility Index (SRI)	
Panel B: Criteria for Internal Audit, Remuneration Policy and Ownership Structure		
Internal Audit Process Criteria	Remuneration Policy Criteria	Ownership Structure Criteria
Audit committee	Remuneration committee	Ownership structure
Audit Size	Committee size	Fraction held by officers
Number of independent directors	Number of independent directors	Fraction held by institutional investors
Number of meetings of audit committee	Number of meetings	Fraction held by employees
Missions of audit committee	Variable part	Fraction held by directors
	Composition of variable part	
	Directors' fees	
	Stocks options	
	Missions of remuneration committee	

Panel A lists the 14 criteria for functioning of board and the 17 criteria for shareholders' rights and information. Panel B lists 5 criteria for Internal Audit Process, 9 criteria for remuneration policy and 5 criteria for ownership structure. The measure for each criterion is detailed in Appendices B and C.

Table 4: Evolution of Corporate Governance Scores

Scores	CGS (%) 2006	CGS (%) 2007	CGS (%) 2008
Board functioning	56.235	59.591	59.645
Internal audit process	83.568	85.679	89.460
Remuneration policy	66.526	70.219	73.503
Ownership structure	42.910	42.444	42.787
Shareholders' rights and information	54.251	55.100	56.637
Total (Average Score)	60.698	62.606	64.406

Table 4 reports evolution of corporate governance scores for 120 French firms from 2006 through 2008. The sample of firms proved an average quality of corporate governance for each sub-period of crisis.

Table 7 presents evolution of remuneration policy scores. Lower scores are observed for composition of variable parts, directors' fees and option stocks. These scores did not exceed 48% during the sub-periods of crisis. Most of firms use annual criteria to determine the variable part. These criteria are more broadly focused on profitability. The results show, 93.258% of firms in 2008 have five or fewer remuneration committee members, compared with 87.777% in 2007 and 86.363% in 2006.

Table 5: Evolution of Board Functioning Score

Criteria	Score (%) 2006	Score (%) 2007	Score (%) 2008
Board composition	86.666	86.666	92.222
Leadership structure	42.85	45.054	41.758
Existence of independent directors	90.90	95.454	95.454
Number of independent directors	69.662	73.863	67.088
Number of board meetings	93.023	93.181	95.348
Nomination committee	65.555	68.888	73.033
Number of independent directors on nomination Committee	64	64.556	67.088
Number of meetings of nomination committee	40	51.25	48.75
Definition of independent directors	68.181	76.404	78.651
Mandate of directors	28.089	28.089	26.666
Existence of foreign directors on board	61.363	64.772	64.772
Number of Foreign Directors on board	16.666	23.077	23.376
Average age of directors	28.888	27.472	25.274
Directors' training	31.460	35.555	35.555
TOTAL	56.235	59.591	59.645

Table 5 reports evolution of board functioning scores. Higher scores observed are for the number of board meetings, board composition and existence of independent directors criteria. Low scores appear for number of foreign directors on board and number of foreign directors criteria.

Table 6: Evolution of Audit Process Score

Criteria	Score (%) 2006	Score (%) 2007	Score (%) 2008
Audit committee	89.010	90.109	94.505
Size of audit committee	88.372	89.772	93.181
Number of independent directors	76.190	79.069	82.558
Number of meetings of audit committee	77.906	80.681	86.046
Missions of audit committee	86.363	88.764	91.011
TOTAL	83.568	85.679	89.460

Table 6 reports evolution of audit process score for 120 listed French firms during the period 2006-2008. Higher scores are observed for each criterion retained for audit process during every sub-period of crisis.

An effective governance system ensures a strong relationship between investor protection and ownership concentration. However, Table 8 shows a lower score for the ownership structure component. This score is typically between 42.444% in 2007 and 42.910% in 2006. More than 90% of firms during the recent financial crisis are dominated by institutional investors who hold more than 5% of capital. However, fewer firms in the sample are dominated by officers and directors from 2006 through 2008.

Table 7: Evolution of Remuneration Policy Score

Criteria	Score (%) 2006	Score (%) 2007	Score (%) 2008
Remuneration committee	92.307	94.505	97.802
Size of remuneration committee	86.363	87.777	93.258
Number of independent directors	79.069	79.310	82.751
Number of meetings	61.176	71.264	68.695
Variable part	83.146	86.666	90
Composition of variable part	37.078	41.111	44.444
Directors' fees	36.263	43.956	47.252
Stocks options	32.222	35.164	40.659
Missions of remuneration committee	91.111	92.222	96.666
TOTAL	66.526	70.219	73.503

Table 7 shows evolution of remuneration policy scores for 120 listed French firms from 2006 through 2008. Higher scores observed are for remuneration committee and committee size criteria. Lower scores observed are for stocks option and composition of variable part criteria.

Less than 42% of boards set up anti-takeover devices that constitute an important element of corporate governance and of capital market development. To assess shareholder rights and the information component, we also used American Listing and Application of the Social Responsibility Index criteria. Our results show application of the American listing mechanism is not important in our sample. It did not

exceed 35% during the recent financial crisis. For the involvement of the Corporate Social Responsibility (CSR), we find more than 53% of firms were provided with an extra-finance committee dealing specifically with non-financial issues. This score is between 53.086% in 2006 and 58.536% in 2008.

Table 8: Evolution of Ownership Structure Score

Criteria	Score (%) 2006	Score (%) 2007	Score (%) 2008
Ownership structure	31.460	31.111	31.111
Fraction of capital held by institutional investors	91.025	89.610	91.025
Fraction of capital held by officers	18.666	18.181	17.105
Fraction of capital held by employees	36.734	37.254	39.215
Fraction of capital held by directors	36.666	36.065	35.483
TOTAL	42.910	42.444	42.787

Table 8 reports evolution of ownership structure scores for 120 listed French firms. During the sub-periods of crisis, we observe lower scores for each criterion, except that fraction of capital held by officers.

Table 9 reports an average score of shareholders' rights and information between 54.25% in 2006 and 56.637% in 2008. If the one share one vote rule is respected by all firms in the sample, the cumulative vote principle is respected for only 15% of firms in 2006, compared with 17.5% in 2008. Our results show also that shareholder power and shareholder proposals in general meetings are limited in our sample of firms. These scores did not exceed 47% during the recent financial crisis. For anti-takeover criteria, we observe the market for corporate control in France is not powerful.

Table 9: Evolution of Shareholders' Rights and Information Score

Criteria	Score (%) 2006	Score (%) 2007	Score (%) 2008
One-share one-vote rule	80.898	82.022	82.222
Shareholders power	45.977	44.943	46.590
Cumulative voting	15	16.049	17.5
Proxy voting	82.758	82.954	83.720
Voting by mail	48.909	51.190	53.571
Double voting rights	56.666	57.142	56.666
Anti-takeover	39.505	38.554	41.975
Information about the firm's debt policy	75.555	76.923	76.923
Information about the firm's strategic orientation	93.333	93.406	94.444
Board charter	69.662	70	73.333
Information about the officers' remuneration	92.222	94.505	94.505
General meetings	35.555	37.362	37.362
Shareholder proposals in general meetings	39.759	37.349	41.666
Publication dates of results	51.250	53.086	56.250
Number of stock markets	11.900	12.941	13.095
American listing	30.232	32.183	34.482
Application of Social Responsibility Index (SRI)	53.086	56.097	58.536
TOTAL	54.251	55.100	56.637

Table 9 shows evolution of shareholders' rights and information score for 120 listed French firms. An average total score is observed from 2006 through 2008. Higher scores found are for information about the firm's strategic orientation and information about the officers' remuneration criteria. Several lower scores reported are below 42%.

Model Specification

To assess the impact of corporate governance scores on financial returns' conditional volatility during the recent financial crisis, we estimate the following model:

$$FRCV = a + \beta_1 S_1 FBD + \beta_2 S_2 AUP + \beta_3 S_3 REMP + \beta_4 S_4 OWNS + \beta_5 S_5 SHR + \beta_6 FSIZE + \beta_7 DRATIO + \varepsilon \quad (1)$$

in which the corporate governance scores, and the other variables are as defined previously.

RESULTS

Appendix D reports correlation coefficients of key variables. The lack of spuriously significant coefficients suggests that error correlation is not a serious problem in the data. Panels A, B and C of Table 10 present the results of regressions of financial returns' conditional volatility on corporate governance scores in 2006, 2007 and 2008. Our results show that regressions in 2007 are generally not robust compared with those in 2006 and 2008. The first five columns analyze every corporate governance score, and the last column includes both scores (with controls for firm size and leverage). Our discussions is based on the estimation of the last model.

Our main results can be interpreted as follows: Panel A shows that scores of remuneration policy and audit process had a negative and significant effect on the financial returns' conditional volatility. The coefficient on audit process score is -0.041%, indicating lower financial returns' conditional volatility of 0.41% for each increase of 10% in audit process score. This coefficient is significant at the 5% level. With all controls variables, the coefficient on remuneration policy score is -0.028 and is significant at the 10% level, indicating that firms with better scores, on average, had a lower financial returns' conditional volatility of 2.8% in 2006. These results indicate that remuneration policy and audit process scores improve the firm's ability to resist the recent financial crisis, consistent with hypotheses H2 and H3 that a good remuneration policy and an adequate audit process are determinant factors for maintaining confidence of firms. Previous research (Mitton 2002 and Sang Woo and Il Chong 2005) has associated audit process with higher firm's stability. However, the coefficients on practices of a functioning board, ownership structure and shareholders' rights and information are not significant. Our result does not find evidence of hypotheses H1, H4 and H5. There is still progress to be made on these corporate governance practices in French context.

Panel B of Table 10 shows a strong link between corporate governance scores and firm's ability to resist the recent financial crisis is not strongly validated in 2007. Presumably, the loss of reference by the market was absolute in the beginning of the crisis. Moreover, few practitioners are directly involved the responsibility of corporate governance practices for causing the stock crisis. Many other factors have a stronger role during the recent financial crisis. However, our results indicate that good protection of shareholders' rights was beneficial in 2007 and is positively related to the firm's stability. The coefficient on shareholders' rights and information score is -0.337%, indicating lower financial returns' conditional volatility of 3.37% for each increase of 10% in shareholders' rights and information score. This effect is significant at the 10% level. This result builds on the finding by Johnson et al (2000) who find that non-respect of minority shareholder rights explains the sudden fall of the emerging markets during the Asian crisis.

Lastly, in Panel C of Table 10, we find that corporate governance scores and firm stability can be jointly determined through the audit process and shareholders' rights components. With all control variables included, the coefficient on audit process score is -0.347. This indicates that each increase of 10% in audit process score is associated with a lower financial returns' conditional volatility of -3.47% in 2008. The coefficient on audit process score is significant at the 1% level. The audit committee is a fundamental body to restore investor confidence and to meet reasonable expectations of different stakeholders (Mitton 2002, Sang Woo and Il Chong 2005, and Ezzine and al 2011). The regression shows a lower financial returns' conditional volatility of 0.48%, on average, for every increase of 10% in the shareholders' rights score. Panel B and C of Table 10 also show that control variables do not have explanatory power for firm volatility in 2007 and 2008. All companies, despite their size and debt levels are affected by the recent financial crisis.

Table 10: Regression Estimation

Panel A: Corporate Governance Scores and Financial Returns' Conditional Volatility in 2006						
	(I)	(II)	(III)	(IV)	(V)	(VI)
S ₁ FBD	-0.034** (-1.571)					-0.005 (-0.164)
S ₂ AUP		-0.045** (-2.277)				-0.041** (-1.701)
S ₃ REMP			-0.064** (-1.623)			-0.028** (-1.665)
S ₄ OWNS				-0.004 (-0.104)		0.001 (0.963)
S ₅ SHR					-0.005 (-0.026)	0.048 (0.224)
BSIZE	-0.008** (-2.027)	-0.009** (-2.305)	-0.007** (-1.803)	-0.010** (-2.256)	-0.008** (-1.962)	-0.012** (-2.478)
DRATIO	0.014 (0.280)	0.020 (0.415)	0.009 (0.182)	0.014 (0.282)	0.007 (0.142)	0.031 (0.592)
Intercept	0.265*** (4.881)	0.280*** (5.208)	0.255*** (4.919)	0.240*** (4.274)	0.222*** (3.755)	0.306*** (4.473)
R2 adjusted	0.040	0.071	0.042	0.072	0.011	0.059
F-statistic	2.162	3.111	2.220	1.740	1.300	1.713
Panel B: Corporate Governance Scores and Financial Returns' Conditional Volatility in 2007						
	(I)	(II)	(III)	(IV)	(V)	(VI)
S ₁ FBD	-0.018 (-1.188)					-0.025 (-1.186)
S ₂ AUP		-0.005 (-0.204)				0.015 (0.398)
S ₃ REMP			0.001 (0.055)			0.015 (0.398)
S ₄ OWNS				-0.018 (-0.608)		-0.012 (-0.403)
S ₅ SHR					-0.356* (-1.793)	-0.337* (-1.718)
BSIZE	-0.001 (-0.370)	-0.001 (-0.312)	-0.0008 (-0.279)	-0.001 (-0.437)	-0.0006 (-0.231)	-0.001 (-0.321)
DRATIO	0.048 (1.391)	0.039 (1.159)	0.039 (1.131)	0.036 (1.064)	0.046 (1.369)	0.051 (1.461)
Intercept	0.180*** (5.095)	0.165*** (4.452)	0.161*** (4.512)	0.178*** (4.167)	0.221*** (5.529)	0.236*** (4.523)
R2 adjusted	0.003	0.025	0.026	0.063	0.058	0.027
F-statistic	0.941	0.474	0.461	2.387	1.487	1.242
Panel C: Corporate Governance Scores and Financial Returns' Conditional Volatility in 2008						
	(I)	(II)	(III)	(IV)	(V)	(VI)
S ₁ FBD	-0.001 (-0.117)					-0.006 (-0.326)
S ₂ AUP		-0.002** (-2.187)				-0.347* (1.813)
S ₃ REMP			0.001 (0.051)			0.006 (0.184)
S ₄ OWNS				0.048 (1.182)		-0.163 (-1.322)
S ₅ SHR					-0.159 (-1.303)	-0.048* (-1.866)
BSIZE	-0.002 (-0.822)	-0.002 (-0.087)	-0.002 (-0.820)	-0.001 (-0.665)	-0.002 (-0.819)	-0.001 (-0.655)
DRATIO	0.035 (1.514)	0.034 (1.506)	0.035 (1.507)	0.031 (1.415)	0.032 (1.435)	0.031 (1.325)
Intercept	0.194*** (5.951)	0.194*** (5.809)	0.192*** (5.710)	0.161*** (4.857)	0.221*** (6.127)	0.191*** (4.308)
R2 adjusted	0.002	0.245	0.001	0.055	0.028	0.221
F-statistic	1.035	1.633	1.031	2.270	1.625	1.799

This table shows the regression estimates of the equation in for Returns' conditional volatility. The first five columns analyze every corporate governance score, and the last column includes both scores (with controls for firm size and leverage).

CONCLUSION

This study compares corporate governance scores applied by 120 SBF listed firms and analyzes their impact on the company's ability to maintain investors' confidence during the recent financial crisis. The scores focus on a functioning board, audit process, remuneration policy, ownership structure and shareholders' rights and information. Overall, the results show that French firms demonstrate a fairly satisfactory degree of conformity with corporate governance principles. Additional efforts should be conducted and directed toward enhancing managerial transparency and strengthening disclosure requirements in order to provide a better environment for stronger corporate governance. Our results show that scores related to corporate governance practices have an explanatory power for firm volatility during the crisis period especially in 2006 and 2008. Companies that offered higher audit process, remuneration policy, and shareholders' rights and information scores appear to have provided greater protection to their minority shareholders. Stronger corporate governance was especially important when it should have been important-during an unexpected period of extreme economic distress when the risk of expropriation of minority shareholders was high.

However, at the beginning of the crisis, we find little evidence of a relationship between corporate governance scores and firm financial volatility. Few practitioners have directly involved the responsibility of corporate governance practices for causing the stock crisis. Many other factors have strong and important influences on firm stability during the recent financial crisis. Further research could demonstrate the generalizability of the findings to different markets. Replication of this research using data from other international stock exchanges may provide insight into market responses to corporate governance practices and their impact on firm volatility and their contribution in preventing firms going bust during an economic recession.

APPENDIX

Appendix A: The Johnson et al Model

The simple model of Johnson and al (2000) is related to Laporta et al (1999b). The manager owns a share α of the cash flows generated by the firm and outsiders own $1 - \alpha$. Retained earnings are denoted by I . The manager can divert $S \geq 0$ of the retained earnings and obtain the utility of S for them. S represents the amount of profits made by the firm that can be expropriated from all shareholders, including those of the

minority. We assume that expropriation is costly and the manager expects to lose $C(S) = \frac{S^2}{2K\alpha}$. A higher

value of K , representing weaker corporate governance mechanisms, means that it is costly to steal. Thus, the value of stealing, $S - C(S)$, is concave in S . The marginal value of stealing falls as the amount diverted increases, because it becomes harder to steal as the absolute amount of theft increases. The manager invests retained earnings in excess of the amount expropriated in a project with return $R > 1$, from which he obtains a share α of the profits. The manager's optimization problem is given by:

Max_s $U(S; R, K, \alpha) = \text{Max}_s [\alpha R (I - S) + S - \frac{S^2}{2K\alpha}]$, and the optimal amount of theft, S^* , is found by

solving $\frac{\partial U}{\partial S} = 1 - \left(\frac{S^*}{K\alpha}\right) - \alpha R = 0$, which yields $S^*(R, K, \alpha) = K\alpha(1 - \alpha R)$. We assume parameter values

are such that the total expropriation is less than the amount of retained earnings, I . The total value of the firm's equity is the total value of the firm minus the value expropriated, which is given by: $\pi = R(I - K\alpha$

$(1 - \alpha R)$. Differentiating with respect to R , $\rho_a = \frac{\partial \pi}{\partial R} = I - K\alpha(1 - \alpha R) + RK\alpha^2$, which is the sensitivity of

the firm's value to changes in R. This is always positive because we assumed the optimal level of stealing is less than I. There are two effects of a higher R. The first is the direct effect which consists of raising the expected payoff and thus increasing the amount the investor is willing to put into the firm. Holding the level of stealing constant, the direct effect works because a higher return on investment reduces the optimal level of stealing, so $\frac{\partial S^*}{\partial R} < 0$. Lower stealing also raises the expected payoff for outside investors and increases firm value.

We are most interested in how the amount is expropriated, and in turn, how firm value changes with the change in the attractiveness of the firm's investment opportunities. We focus on the percentage change in firm value with respect to change in the return on investment, which is given by:

$$\rho_r = \frac{\frac{\partial \pi}{\partial R}}{\pi} = \frac{I - K\alpha(1 - \alpha R) + RK\alpha^2}{R(I - K\alpha(1 - \alpha R))}$$

To investigate how differences in corporate governance mechanisms are reflected in firm value when the attractiveness of investment opportunities change, we differentiate the above equation with respect to k.

$\frac{\partial \rho_r}{\partial K} = \frac{I\alpha^2}{(I - K\alpha(1 - R\alpha))^2} > 0$. This comparative static result allows us to raise the following interesting idea. For a given level of cash flow ownership, α , weaker corporate governance mechanisms, K, lower the cost of expropriation. This implies that changes in firm value are more sensitive to changes in investment opportunities when managers practice different forms of minority shareholder expropriation.

APPENDIX

Appendix B: Measures of Corporate Governance Scores

Panel A: Measures of Board Criteria	
Functioning Board	Measures
Board composition	Number of directors on board
Leadership structure	Dummy variable: 1 if the chairman is also the firm's CEO and 0 otherwise.
Existence of independent directors	Dummy variable (0 or 1)
Number of independent directors	% of independent directors on board of directors
Number of board meetings o	Number of board meetings
Nomination committee	Dummy variable: 1 if there is a Nomination Committee and 0 otherwise.
Number of independent directors on nomination Committee	% of independent directors on nomination committee
Number of meetings of nomination committee	Number of meetings of nomination committee
Definition of independent directors	Dummy variable (0 or 1)
Mandate of directors	(0 ; 1 ; 2) as codes of best practices
Existence of foreign directors on board	Dummy variable (0 or 1)
Number of Foreign directors on board	% of foreign directors on board of directors
Average age of directors	(0 ; 1 ; 2) as codes of best practices
Directors' training level	(0 ; 1 ; 2) as codes of best practices

Panel B: Measures of Shareholders' Rights Criteria	
Shareholders' Rights And Information	Measures
One-share one-vote rule	Dummy variable (0 or 1)
Shareholders power	(0 ; 1 ; 2) as codes of Best practices
Cumulative voting	Dummy variable (0 or 1)
Proxy voting	Dummy variable (0 or 1)
Voting by mail	Dummy variable (0 or 1)
Double voting rights	Dummy variable (0 or 1)
Anti-takeover	Dummy variable (0 or 1)
Information about the firm's debt policy	Dummy variable (0 or 1)
Information about the firm's strategic orientation	Dummy variable (0 or 1)
Board charter	Dummy variable (0 or 1)
Information about the officers' remuneration	Dummy variable (0 or 1)
General meetings	(0 ; 1 ; 2) as codes of best practices
Shareholder proposals in general meetings	Dummy variable (0 or 1)
Publication date of results	(0 ; 1 ; 2) as codes of best practices
Number of stock markets	(0 ; 1 ; 2)
American listing	Dummy variable (0 or 1)
Application of Social Responsibility Index (SRI)	Dummy variable (0 or 1)
Panel C: Measures of Internal Audit Criteria	
Internal Audit Process	Measures
Audit committee	Dummy variable: 1 if there is an audit committee and 0 otherwise.
Audit Size	Number of directors on audit committee
Number of independent directors	% of independent directors on audit committee
Number of audit meetings	Number of meetings of audit committee
Missions of audit committee	Dummy variable (0 or 1)
Panel D: Measures of Remuneration Policy Criteria	
Remuneration Policy	Measures
Remuneration committee	Dummy variable: 1 if there is a remuneration committee and 0 otherwise.
Committee size	Number of directors on remuneration committee
Number of independent directors	% of independent directors on remuneration committee
Number of meetings	Number of meetings of remuneration committee
Variable part	Dummy variable (0 or 1)
Composition of variable part	(0 ; 1 ; 2) as codes of best practices
Directors' fees	(0 ; 1 ; 2) as codes of best practices
Stocks options	(0 ; 1 ; 2) as codes of best practices
Missions of remuneration committee	Dummy variable (0 or 1)
Panel E: Measures of Ownership Structure Criteria	
OWNERSHIP STRUCTURE	MEASURES
Ownership structure	Ownership structure
Fraction held by officers	Fraction held by officers
Fraction held by institutional investors	Fraction held by institutional Investors
Fraction held by employees	Fraction held by employees
Fraction held by directors	Fraction held by directors

This table shows measures of criterion retained for each variable. These measures were inspired by the Louizi's study (2007). For the threshold values, we retained the recommendations of the Viénot I and Viénot II Reports and Codes of Good Governance (MEDEF). For (0; 1; 2), 0 is bad, 1 is average and 2 is good.

Appendix C: Examples of Criteria Calculation

Criteria	Scores Calculation
Audit committee	If 20 firms in the sample have an audit committee, each firm with an audit committee has a score of 1/20, the others 0/20.
Audit size	The number of members on audit committee i / \sum total number of members on all audit committees
Number of independent directors	The % of independent directors on each committee
Number of meetings of audit committee	The meetings of the audit committee i / \sum Total meetings of all audit committees
Board composition	The number of members on board i / \sum Total number of members on all boards
Leadership structure	If 20 firms in the sample separate the roles of chair and CEO, each firm characterized by the separation will have a score of 1/20, the others 0/20.
Existence of independent directors	If 20 firms in the sample are characterized by the presence of independent directors on the board, each firm will have a score of 1/20, the others 0/20.
Number of independent directors	The % of independent directors on board of directors
Number of meetings of board	The Meetings of the board i / \sum Total meetings of all boards

Appendix C provides examples of criteria calculation as audit committee, audit size, number of independent directors, number of meetings, board composition, leadership structure, etc.

Appendix D: Correlations Coefficients

	S ₁ FBD	S ₂ AUP	S ₃ REMP	S ₄ OWNS	S ₅ SHR	FSIZE	DRATIO
S ₁ FBD	1	0.4471	0.722	0.170	0.315	0.107	0.079
S ₂ AUP		1	0.512	0.140	0.171	-0.1875	0.105
S ₃ REMP			1	0.141	0.205	0.057	0.033
S ₄ OWNS				1	0.088	0.012	0.021
S ₅ SHR					1	-0.028	-0.005
FSIZE						1	0.052
DRATIO							1

Appendix D reports correlation coefficients of key variables. The lack of spuriously significant coefficients suggests that correlation of errors is not a serious problem. S₁ FBD is the score of functioning board. S₂ AUP is the score of audit process. S₃ REMP is the score of remuneration policy. S₄ owns is the score of ownership structure. S₅ SHR is the score of shareholders' rights. FSIZE is the firm size and is measured by the natural logarithm of total assets. DRATIO is the debt ratio and is measured as the book value of total debt divided by the book value of total capital.

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