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Keywords: Corporate governance, investor protection, financial development, causality, Law and Finance, multi-criteria approach

JEL Classification : G30, K10, K22, C12

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Corporate Governance and Financial Development: A Study of the French Case

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Introduction

The “Law and finance” literature analyzes the relationships between legal origins (common Law, civil Law) and financial development¹. It has been considerably developed since the publication of seminal articles by La Porta, Lopez-Silanes, Shleifer and Vishny (LLSV) (1997, 1998)². This theory argues that a suitable legal environment might contribute to economic growth, and conversely, an ill-suited legal framework might slow it down. Concretely, numerous comparative studies undertaken by LLSV on a sample of 49 countries demonstrate that the content of rules and the conditions of their enforcement influence the degree of protection granted to investors as well as the level of financial development and, eventually, the efficiency of the corporate governance modes. One of the main LLSV’s finding is that legal origin should be considered as an exogenous factor (Haravon, 2005). This work, taken up again in the World Bank's Doing Business annual reports (World Bank, 2009), adopts a critical view of French civil Law countries, and defends the idea that common Law countries might be superior to them regarding their ability to promote successful economic and financial systems.

Our article assesses the relationships between corporate governance reforms and financial development in France between 1977 and 2004. This approach provides elements of answer to criticisms that were traditionally levelled at French civil Law. First, we propose a dynamic analysis based on time-series³. Our approach goes thereby against the dominant aspect of this literature, which depends largely on cross-sectional data. We thus can test the LLSV hypothesis according to which (1) the rules of Law are “fixed” within the framework of a given legal family (in this case, French civil Law), and (2) the level of protection of investors is exclusively conditioned by the legal origin. Second, following (Ménard and Du Marais, 2008), we suggest that the indicators initially chosen by LLSV are fairly general and do not convey the full content of the texts (only 6 rights for shareholders and 4 rights for the creditors). We thus have to consider alternative and more complete indicators. For this purpose, we propose a detailed and specific codification of the French legal environment over 27 years-period (91 rules of Law related to shareholders and creditors, 70 rules of Law related to employees and bondholders). These legal indicators are then compared with other French financial variables. This makes it possible to study causal links between both groups of indicators.

¹ The civil or Romano-Germanic legal tradition is still dominant worldwide, even if its influence is on the decline. It originates in Roman Law and is essentially based on written codes. It is possible to distinguish three large families: the French tradition, German and Scandinavian. The Anglo-Saxon tradition or Common Law is found most notably in the United States, the United Kingdom, Canada, Australia, India, etc. This form of Law is mainly based on jurisprudence, with judges playing the role of the actual authors of the rules of Law.

² Voigt (2005) stresses that LLSV has become a brand name since 2005. The number of citations, of their work, on the search engine academic “scholar.google.com”, is impressive. Their papers of 1997, 1998 and 1999 have been cited respectively by 1105, 1483 and 447 papers. However, Coase’s paper published in 1960 been 1916 citations.

³ It should be noted that the link between corporate governance and financial development has been demonstrated for certain countries, most notably for Finland, by Hyytinen, Kuosa and Takalo (2003). Most of the studies carried are transversal and use the LLSV indicators, with the exception of one by Pistor which enriched the LLSV indicators and the study focussing on Finland, which used Pistor's indicators by adopting a longitudinal approach.

Our paper offers two contributions to the “Law and finance” literature. First, we find that the evolution of corporate governance in France concerns shareholders as well as creditors, employees and bondholders. This “stakeholder view” (Charreaux, 1997, 2000) can be considered as a counter-argument to the low level of corporate governance mechanisms attributed to French civil Law countries. Second, we show that the causal links between the French legal reforms and the financial development in France since the early eighties are much more complex than the pre-supposed relations (from Law to finance) suggested by the traditional “Law and Finance” view.

This paper is organized as follows. Section 1 analyzes the rules organizing and/or defining the rights of the various stakeholders (shareholders, creditors, employees, and bondholders). It proposes two time-series datasets: (i) the first one follows the reforms of corporate governance rules protecting the various stakeholders; (ii) the second one accounts for the evolution of the French financial system. Section 2 analyses the dynamic of these indicators. An evolution of the corporate governance rules is observed as the indicators of shareholder rights increase when those relating to creditors tend to decrease. Thus, the protection of shareholder rights and of creditors appears to be independent of the legal origin. By including employees and bondholders in the analysis, we observe that the French governance model is not strictly shareholder-focused, but brings together all the partners involved with corporate governance. Section 3 presents the results of the Granger test on the correlations between our legal indicators and financial variables. Contrary to the traditionally held assumption, we show that the direction of causality is generally not unidirectional, from Law to finance, but more often bidirectional. The results depend on the considered legal indicators: for most of them, the Granger tests validate the hypothesis of causal link (either bidirectional (non-weighted indicators) or unidirectional), from finance to Law (weighted indicators). This finding is particularly true for employees’ rights relative to their financial interest in the company’s bottom line. Globally, the usual assumption according to which Law “creates” financial development is not confirmed in France, as our results tend to validate a reversed causality.

1. Composition of legal indicators and financial environment variables

The Law and Finance approach is largely based on the analysis of cross section data (some of the data of LLSV (1997) date from 1980-1983, others are from 1993, 1994, and 1995). This static approach does not allow for studying the evolution of shareholders’ and creditors’ rights. In addition, LLSV do not encompass the other classes of stakeholders, such as employees and bondholders. This section presents our indicators on four classes of stakeholders. We propose long-term time series over the period 1977-2004, composed of extensive indicators of corporate governance rules regarding legal protection of (1) shareholders, (2) creditors, (3) employees, and (4) bondholder. In fact, since the beginning of the eighties, a succession of laws has been enacted in France. More precisely, we build 9 indicators related to the shareholders’ rights (section A), 4 indicators related to the creditors’ rights (section B), 4 indicators related to the bondholders’ rights (section C) and 2 indicators related to the employees’ rights

(section D). These indicators are aggregated from 161 dummies describing the rules setting out the rights of these four corporate partners. Each dummy equals 1 if the considered rule is applied in France, and equals 0 otherwise. Last, the financial time series account for the evolution of macro-economic development in the French banking and financial sectors (section E).

A. Indicators related to shareholders' rights

The shareholders' rights are described in company Law, stock exchange Law and commercial Law⁴. The rules defining the shareholders' rights are listed in annex A1, table 1. Most were taken in application of European directives (annex A1, table 2). We trace over the period the evolution of the rules that were found in these texts. To do so, we consider the year of their introduction (or withdrawal). Using the evolution of each indicator, we can evaluate its contribution to the progression (or decline) of the shareholders' rights. Our indicators include the indicator LLSVsh_6, which represents the 6 anti-manager rights that were originally selected by LLSV. However, this indicator has been criticized as it does not encompass all the shareholders' rights. Some authors (Pistor, 2000, Hyytinen, Kuosa, and Takalo, 2003) have proposed alternative indicators to cover the shareholders' rights in a more exhaustive way. Following this approach, we propose a battery of original indicators (table 1) based on several binary indexes (listed in annex A2, table 5).

Firstly, we build four legal indicators accounting for the protection of shareholders. Each covers a particular legal prerogative granted by the French legislators upon the holding of share(s). We distinguish the political prerogatives (that bring together information rights and voting rights), the financial prerogatives (rights to dividends, to reserves (*droits aux réserves*), and to liquidation proceeds (*boni de liquidation*)), and finally the proprietary rights (that cover the rights of transfer and of lien on goods (*droits de cession et de nantissement*)). Our indicators are the following: INFORMATION, VOTE, FINANCIAL, EXIT⁵.

Secondly, we build four additional indicators related to shareholders' protection: ANTIMANAGE, ANTIBLOCK, AUTHORITIES and NORMS. The two first indicators are inspired by the taxonomy of shareholders' rights proposed by Pistor et al. (2000) and are adapted to the specifics of French Law. They measure the impact of the legal system on the two main conflicts of interest in corporate governance: conflicts between shareholders and managers; and between majority shareholders and minority shareholders. The two last indicators (AUTHORITIES, NORMS) account for the development of the various legal texts that modified shareholders' rights, whatever their nature.

⁴ The shareholder rights considered here concern only shareholders of public companies since the notion of shareholder concerns only public companies (*sociétés anonymes*) and partnerships limited by share (*les sociétés en commandite par action*). However, the latter are not numerous in France as there currently exist about 300)

⁵ EXIT represents the exit rights conferred on shareholders (like the right to sanction decision-makers by selling their shares as a sign of protest of the company's bad management). These exit rights have been considerably improved by the Law of August 2, 1989 "Security and transparency in the financial market" which established systems of public offers for withdrawal and obligatory public offerings.

TABLE 1. List of our shareholders' rights indicators

Variables	Description
VOTE	Rights permitting shareholder to express their views.
INFORMATION	Shareholder rights to information.
FINANCIAL	Shareholder financial rights.
EXIT	Shareholder rights to exit.
ANTIMANAGE	Shareholder rights against management.
ANTIBLOCK	Minority shareholder rights against owners of blocks of shares ⁶ .
AUTHORITIES	Measures helping authorities to oversee the proper workings of the financial markets ⁷ .
NORMS	Annual number of legal texts modifying shareholder or creditor rights.

Source: the authors

The analysis of corporate governance rules should not be restricted to the shareholders' rights. We also consider a set of legal rules protecting the other categories of stakeholders. These are outlined in the following sections.

B. Indicators relating to creditors' rights

In France, the main determinants of creditors' rights emerge from banking Law, corporate Law, and commercial code. As with the shareholders' rights, we begin by considering the LLSV indicator on creditors' rights (LLSVcr⁸) which is limited to bankruptcy Law, without covering all its aspects. Again, we propose a set of more comprehensive indicators accounting for creditors' rights in France. Precisely, we build three additional indicators dealing with creditors' rights before (CR-EXANTE) and after default (CR-EXPOST and CR-ANTIMANAGE). These indicators are shown in table 2. The dummies covered by these indicators are listed in annex A2, table 5.

TABLE 2. List of our creditors' rights indicators

Variables	Description
CR-EXANTE	Rights conferred on creditors before the start of a collective receivership or liquidation proceedings.
CR-EXPOST	Rights conferred on creditors after a ruling opening a collective receivership or liquidation proceeding.
CR-ANTIMANAGE	Judicial options available to creditors for sanctioning the manager.

Source: the authors

⁶ Pistor's choice of the ANTIBLOCK variable is justified by the fact that within companies characterized by a high concentration of ownership, shareholders having a considerable power of control over the managers could be disadvantageous to small shareholders.

⁷ The special interest demonstrated by legislators in the prerogatives of information and of transparency can also be observed through the growing powers conferred on market control authorities.

⁸ We note that LLSV considered their indicator as exclusive of creditor rights, while it includes a sub-indicator ("Management Does Not Stay", MNSR) relative to managers.

C. Indicators related to employees' rights

In France, numerous texts have settled the rules organizing the way employees take part in the governance of their company (annexes A1, table 3). Figure 2 lists such rules. It enables us to propose two indicators related to employees (both cover a total of 21 rights). Each indicator reflects the development of their prerogatives over the period. SALARIES accounts for the employees' right to get informed and to take part in the management of their company (annex A2, table 5). SALARIE_INV covers their participation rights in the profits and in the capital, as any class of investors (annex A2, table 5).

TABLE 3. List of our employees' rights indicators

Variables	Description
SALARIES	Employee rights to participate in the information and management of their company.
SALARIES_INV	Employee rights to take part in the profits and capital of their company.

Source: the authors

Figure 2. Modes of employee involvement in corporate governance

D. Indicators related to bondholders' rights

The 1935 Law aims to protect bondholders by considering them collectively, as a pool of investors. This Law defined the main bondholders' rights (cf. annex A2, table 5). It was modified thereafter, first by the Law of July 24, 1966, then that of January 5, 1988, and more recently by the order of June 24, 2004. The various legal documents modifying bondholders' rights in France are presented in table 3 of annex A1. We use four indicators to follow the development of bondholders' rights over the period (i.e. a total of 50 rights). Following the usual classification prevailing in French Law, we select political rights (BONDVOTE and BONDINFORMATION), proprietary rights (BONDPROPRIETARY), and financial rights (BONDFINANCIAL). We consider all the rules relative to the regulation of each category of rights: democratic function, access to information, organization of property transfers, and protection of financial interests.

TABLE 4. List of our bondholders' rights indicators

Variables	Description
BONDVOTE	Bondholders' rights to vote (the interests of each bondholder are protected collectively by the collective group of bondholders he is part of).
BONDINFORMATION	Bondholders' rights to information (right to receive transcripts and attendance sheets for general meetings of collective groups of bondholders) collectively granted to the different bondholder collective groups.
BONDPROPRIETARY	Bondholder rights to sell their bonds (rights similar to those of shareholders).
BONDFINANCIAL	Financial rules of Law conferred to bondholders.

Source: the authors

E. Financial Variables

As for many other developed countries, the eighties and the nineties were characterized by a deep transformation of the French financial system. While maintaining a high level of self-financing, French companies increasingly prioritized shares (or quasi-shares) over credit in their external financing. As a result, the intermediation rate (in the strict sense⁹) began to fall. This marketization of the financial systems has been analyzed in numerous articles, among which a comparative study between Germany and France¹⁰. In order to represent the structure and the size of the French financial system over the period 1977-2004, we propose five indicators accounting for the corporate financing structure. Each reflects a particular financing method (owners' equity, credit, or marketable securities). SHARES equals the total shares issued by French companies out of their total external financing (in billions of euro, source INSEE¹¹). CREDIT is the intermediation rate of the economy in the strict sense (sources INSEE and the *Banque de France*¹²): it measures the part of credit granted by financial companies in the total financing of companies. Finally, INSTITUTIONALS accounts for the importance of institutional investors in France: it is the percentage of financial assets held by institutional investors over GDP (source OECD¹³). We also use the CONVBOND variable, which is the part of convertible bonds in the total of capital raised by listed companies¹⁴. Finally, CAPITALIZATION represents the annual evolution of the “primary market”¹⁵ capitalization.

⁹ The intermediation rate in the strict sense consists of comparing the amount of credit extended by credit institutions to non-financial agents to the total financing the latter have secured. Conversely, the rate in the broad sense results from an approach bringing together under the term of intermediated financing all of the aid granted to non-financial agents (i) by all the financial institutions (credit establishments, insurance companies or UCITS) (ii) by the various channels possible (granting of credits or the purchase of loan securities or shareholder equity: negotiable short-term debt securities, bonds and shares) (Biales, 2005)

¹⁰ Within the framework of a joint research project by the Deutsche Bundesbank and the Banque de France.

¹¹ The data is taken from the National Accounts (“Reports on the accounts of the nation” 2003).

¹² For INSEE, the data is taken from the National Accounts (“Reports on the accounts of the nation” 2003). For the *Banque de France*, the data come from “Statistics and Surveys”: <http://www.banque-france.fr/fr/statistiques/base/base.htm>

¹³ The data come from OECD. They cover life and non-life insurance companies, investment firms which are made up of Undertakings for Collective Investment in Transferable Securities (UCITS), and pension funds.

¹⁴ The capital raised is defined as the total of the amounts collected by the company from its initial public offering.

¹⁵ The annual values of this variable are obtained by calculating the development in comparison to the preceding year of a series of data on market capitalization (the value of a company on the stock market) provided by Euronext Paris. The primary market, which replaces the term “Official list”, is the market upon which the biggest companies are traded.

2. The dynamics of legal indicators over the 1977-2004 period

After having established the list of rules of Law making up the 17 legal indicators for shareholders, creditors, employees and bondholders, we determine the year of introduction of each rule: each is set at 1 for the period, as long as it remained in the texts. The development of our legal indicators is presented in annex A3 (figures 1 to 16). Contrary to the traditional view on Civil Law countries, the time evolution of our indicators reveals a constant and regular growth of rules organizing shareholders' rights in France since 1984, while the growth of those relating to creditors' rights is less evident (annex A3, figures 14 to 16). For shareholders, the strengthening of the legal rights is particularly clear for three of them. The right to information (INFORMATION) has played a major role in this process, as it has been reinforced and transformed into a right to transparency, notably by the "NRE" Law (annex A3, figure 1). The particular interest shown by legislators in the prerogatives of information and transparency is also reflected by the growing powers conferred on market control authorities (AUTHORITIES) (annex A3, figure 5¹⁶). The development of the variable NORMS, which presents the annual number of different legal instruments (laws, decrees, and orders: cf. annex A2, table 6) contributes to the development of investor protection. The development of the legal indicators over the period reveals also a greater consideration of employees' rights (see annex A3, figures 8 and 9). This tendency is in accordance with the French legal orientation prioritizing the protection of the most fragile companies and their employees (Blazy et al. (2009)). The improvement of employees' rights is more noticeable in the capital-sharing prerogatives, as it is being done more progressively and frequently than the improvement of employees' roles in management and of their access to information. Figure 10 (annex A3) illustrates the growing importance of bondholders' voting rights in comparison to their information rights (annex A3, figure 11) and to their proprietary and financial rights (annex A3, figures 12 and 13). Once again, this development is coherent as bondholders are most often institutional investors; strong enough to make their voices heard and defend their interests.

In parallel, the development of financial indicators in France indicates the increasing role of financial markets in corporate finance (annex A3, figures 17 to 21). In particular, the proportion of financing through shares (SHARES) has increased regularly, while the proportion of credit in the total financing of companies (CREDIT) decreases. In other respects, the main holders of financial credit are the institutional investors whose role on the capital markets is increasingly evident: the share of financial assets they hold in the GDP has gone from 11.3% in 1980 to 131.80% in 2002. Finally, the development of the financial variables CAPITALIZATION and CONV BOND are represented in figures 20 and 21 (annex A3).

¹⁶ This figure illustrates the impact on the AUTHORITIES indicator of the promulgation of the Law of July 2nd, 1996 concerning the modernization of financial activities as well as the LSF Law of August 1st 2003 which made possible the founding of a single and independent market authority (*Autorité des Marchés Financiers*) combining the powers of the Stock Exchange Operations Commission (*Commission des Opérations de Bourse*) and the Financial Market Council (*Conseil des Marchés Financiers*).

The use of more precise and complete indicators enables us to throw original light on the development of governance rules in France. However, these first observations are still insufficient to appreciate the causal interactions between the legal and financial variables. This work has to be done without *apriorism*. We propose elements of answer in the next section.

3. Causalities between legal indicators and financial indicators.

We select a particular protocol in order to study the causal links between financial and legal variables. Following Hyytinen, Kuoosa and Takalo (2003), we run Granger causality tests. This techniques, adapted to the time-series and particularly to short time periods data, enable the detection of bi-directional causality between two time series. Following Granger (1969), we test whether the delayed (past) values of legal variables (X_t) significantly cause (in the Granger sense) the financial variables (current values of Y_t). We also introduce in the OLS regression the delayed values of Y_t , as additional explanatory variables. We reversely test whether the delayed values of the financial variables (Y_t) significantly cause the legal variables (X_t). The equations to estimate are the following:

$$Y_t = \sum_{i=1}^L (\alpha_i Y_{t-i} + \beta_i X_{t-i}) + \varepsilon_i \quad \text{and} \quad X_t = \sum_{i=1}^L (\lambda_i X_{t-i} + \theta_i Y_{t-i}) + \varepsilon_i \quad ^{17}$$

We identify several variable pairs, each composed, on the one hand, of one of our 5 financial indicators, and on the other hand, of one of the 17 legal indicators. Section A presents the results of the Granger tests, separating the indicators related to the shareholders and creditors from those related to employees and bondholders (tables 6 and 7 of annex A4). The tests reveal bidirectional relationships between the financial variables and the legal indicators.

A. Granger Causalities between legal and financial indicators

The results of the regressions are presented in table 6 (annex A4)¹⁸. They highlight a causal dynamic more complex than usually supposed. This dynamic is described in figure 1 which presents the subset of significant correlations between our indicators (i.e. 7 indicators out of 11, excluding the AUTHORITIES indicator, which evolution is too recent).

¹⁷ L= the number of lags chosen and makes it possible to have the best significance between the two time-series.

¹⁸ The Augmented Dickey Fuller (ADF) tests confirm that the financial series are not stationary at level. These three series have been made stationary by differentiating them once. For their part, the legal series have been log-linearized with the exception of the variables FINANCIAL, CR-EANTE, CR-EXPORT ET CR-ANTIMANAGE, which are stationary in level.

Figure 1. Significant causalities between legal and financial indicators (Shareholders and Creditors)

Source: Table 6, Annex A4

Interpretation of the figure: legal indicators and financial variables are respectively indicated in the grey and white boxes. The arrows indicate the direction of the causality. The number alongside each arrow corresponds to the probability associated with the Granger test; high levels at 90%, 95% and 99% indicate a risk of error less than 10%, 5% and 1%. The '+/-' sign accompanying each variable/indicator describes its development over the period, growth (+) or reduction (-).

Even if one should exercise prudence with the economic interpretation of statistical inter-relations between the variables, it is still possible to identify specificities of the French case, which has long been made up of a concentrated shareholding. In that way, the legal indicator ANTIBLOCK significantly causes the variables accounting for the development of financial markets (INSTITUTIONALS and SHARES). We can see here a consequence of the initial legislators' intention to open these markets to a wider shareholding, and in this way resolve a main governance conflict between minority and majority shareholders. Resolving this conflict made it possible to stimulate financial development. The dynamic seems to suggest a circularity of the relationships between the legal and financial spheres, more complex than a simple unidirectional link. In this way, the INSTITUTIONALS and SHARES variables cause the

legal variables *ANTIMANAGE* and *INFORMATION*. The first variable (*ANTIMANAGE*) reflects the legislators' reaction to financial development in resolving the second type of governance conflict, this time between shareholders and managers. The second variable (*INFORMATION*) shows the legislators' action in support of better information for shareholders, whose role in the financing of the economy has grown. Once again, this legal reaction to financial changes causes, in return, another financial change: the *CREDIT* variable decreases, reflecting thus the adaptation of the banks that have refocused their activity towards institutional investment (cf. investment funds). This process, described by *CREDIT* (decreasing), then causes the legal indicator *VOTE* (increasing), thus giving new institutional investors a growing political power. Globally, the study of causality in France, does not confirm the presupposed unidirectional link from Law to finance, but suggests, to the contrary, the existence of many bidirectional and dynamic links.

We consider now the indicators accounting for employees' rights (*SALARIES*, *SALARIES_INV*) and for bondholders' rights (*BONDINFORMATION*, *BONDVOTE*, *BONDFINANCIAL* and *BONDPROPRIETARY*). The results of the Granger tests are shown in table 6 (annex A4¹⁹). Once again, the causal links appear more complex than those usually postulated. Figure 3 describes the significant causal links between our legal indicators and the corresponding financial variables. The link between employees' rights and market capitalization is represented in this figure even if it is only significant after having weighted our legal indicators (see next section).

Generally, the study of causal links confirms circularity between financial variables and indicators relating to the rules of bondholder Law. In our view, this circularity partially reflects an adaptation process followed by the French legislators. Precisely, the increase of convertible bonds out of shares (*CONVBOND*) encouraged them to better protect the political prerogatives of bondholders. In that view, the Law conferred a growing importance to the rules that helped bondholders to behave collectively (via voting rights (*BONDVOTE*) and information rights (*BONDINFORMATION*)). As a result, this category of investors could become more involved in corporate strategic management. Since bondholders benefit from improved voting rights, it's not surprising to see the share of the institutional investors (*INSTITUTIONALS*) – mostly bondholders – increasing. Finally, the French legislators have improved the legal protection to their proprietary rights (*BONDPROPRIETARY*).

¹⁹ The variables *SALARIES*, *SALARIE_INV*, *BONDINFORMATION*, *BONDFINANCIAL*, *BONDVOTE* and *BONDPROPRIETARY* are not stationary in level; they involve a trend and are therefore integrated by order 1. The differentiation makes it possible to make them stationary by eliminating the effect of the trend. We can't, however, use these series in the first differentiation because they include, due to their method of construction, several null values corresponding to the years with identical scores. In other respects, the series transformed by carrying out an exponential smoothing are stationary in the first differentiation. Smoothing methods reduce; indeed eliminate short-term fluctuations of the series. The series representing the share of convertible debentures in the total of capital raised from private companies (*CONVBOND*) being stationary in level, the Granger test will thus be applied to this series without transformation. It is the same for the *CAPITALIZATION* series, representing the annual development of market capitalisation on the primary market.

Figure 3. Significant causalities: legal indicators (Bondholders and Employees) and financial variables

Source: Table 6 and Table 8, Annex A4

Interpretation of the figure: Legal indicators and financial variables are indicated, respectively, in the grey and white boxes. The arrows indicate the direction of causality. The numbers accompanying each arrow correspond to the probability associated with the Granger test: levels above 90%, 95% and 99% indicate a margin of error under 10%, 5% and 1%. The sign accompanying each variable/indicator describes its development over the period, increasing (+) or decreasing (-).

In the current section, we have considered non weighted legal indicators. The next section performs similar approach using weighted indicators.

B. Granger Causalities: weighted legal indicators

The previous results stem from composite indicators that are the sum of legal dummies. However, this methodology, frequently used in the fields of Law and finance, gives the same importance to the various investors' rights, whether they are optional or compulsory, and regardless of the level of sophistication of the legal texts they are attached to. In this section, we aim at prioritizing these rights depending on their importance in the protection of shareholders and creditors. The distinction between their optional or compulsory character would require the acquisition of additional information from practitioners and/or theorists of Law. In addition, this distinction would remain marked by a certain amount of subjectivity. Conversely, accounting for the rules of Law, as part of a single legal indicator, reveals the indicators' degree of sophistication. In that view, we hypothesize that a high number of

dummies within one legal indicator reflects the legislator’s willingness to regulate in the most supervised and most precise manner the indicator in question. This method, derived from the multicriteria analysis (Roy, 1985 and 1992, Roy and Bouyssou, 1993), makes it possible to determine the legal indicators having the most important *a priori* weights. It is then possible to prioritize the various legal indicators. To ensure the validity of this method, it is essential to use indicators containing an exhaustive number of shareholders' and creditors' rights relating to the goal of the indicator in question. Table 7 in annex A4 presents a list of the 11 indicators weighted in that way. This question is then to determine whether the direction of causality remains.

Each legal indicator (i) (i ranges from 1-13) is weighted by the ratio between the number of binary variables used for the computation of this indicator (n_i) and the total number of binary variables that are used for all indicators ($N=91$). The annual value of a weighted indicator (i) is thus equal to the product of its weight (n_i/N) and the annual value of the indicator (i):

$$[\text{Weighted Indicator (i)}]_t = \frac{n_i}{N} \times [\text{Indicator (i)}]_t^{20}$$

The weight of each indicator is thus represented by the number of legal rules existing in company Law and aimed at protecting the considered class of stakeholders. In that view, a high number of legal rules reflects the relative importance attached by legislators to this category of protection. Precisely, the indicator related to shareholders’ voting rights contains a higher number of legal rules than the ones related to shareholders’ information, financial, and proprietary rights.

This weighting highlights the most significant causal relationships to the detriment of less influential ones²¹. The results of the Granger tests on weighted indicators are presented in annex A4, table 8. We rename our indicators by adding “wg” to them. Depending on the type of investors, the direction of causality becomes unidirectional, *mostly from finance to the Law*. In our view, the choice of weighting is not neutral and underlines the particular links between the financial variables and the most important categories of investor protection. Generally, it appears that the significance of the causalities grows with the weighting.

For shareholders, the direction of causality is strengthened, and indicates a significant relationship leading from the financial variables towards the legal indicators: INSTITUTIONALS affects ANTIMANAGE_wg, INFORMATION_wg and VOTE_wg; SHARES affects the same variables as well as ANTIBLOCK_wg. This causality is interesting for three reasons. Firstly, it confirms the legislators’ ability to adapt to changes in the environment. Secondly, it might reflect lobbying pressures exercised by shareholder groups and by institutional investors (most often banking departments). Thirdly, it puts into question the usual hypothesis, initially proposed by LLSV, according to which the legal origin fully

²⁰ The weighted legal indicators as well as their respective weights are presented in table 7 in annex A4.

²¹ The results of stationarity test indicate that the series following the development of shareholder rights indicators (INFORMATION_wg, VOTE_wg, FINANCIER_wg, ANTIBLOCK_wg and EXIT_wg) with the exception of ANTIMANAGE_pr. As before, we have transformed these series by loglinearizing them. The series representing the protection of creditors (CR_EXANTE_wg, CR_EXPOST_wg, CR_ANTIMANAGE_wg) are stationary in level.

determines the financial development of a nation. On the contrary, our results suggest that financial developments would give rise to legal ones. Legislators would therefore adapt the country’s institutions to financial changes, and legal texts could be viewed as a response to the needs of the financial system (the current context of crisis could be an example of the impact of finance on Law, since the common Law and civil Law countries are reacting by seeking immediate solutions to the market instability and the means to prevent *ex-ante* financial system dysfunction). Regarding the two other partners (employees, bondholders) the direction of causalities are mostly from finance to the Law as well (annex A4, table 8). Still, for the creditors and the credit market, we find a reversed causal link, from the Law to finance, as the indicators CR-EXANTE_wg, CR-EXPOST_wg and CR-ANTIMANAGE_wg cause CREDIT.

Interestingly enough, after having weighted the legal indicators, the direction of causality mainly depends on the type of investor, with a clear split between the sources of financing, either via market finance or through classic intermediated credit.

To summarize, even if the causal links highlighted in the non-weighted approach remain, new causalities appear. The first reveals a link from finance towards Law and involves the variables CAPITALIZATION and SALARIE_INV_wg²². For the *ex-post* rules of creditor Law, however, we find a causal link from Law towards finance.

Conclusion

In this paper, we test the explanatory power of the legal approach of corporate governance in the framework of a French civil Law country. According to the approach set out by LLSV, this legal tradition results in weak shareholder protection, and would then undermine financial development. We find that the analysis of the rules of governance rests on complex legal rulings that require the use of more precise indices than those traditionally used, notably those developed by the World Bank, which were greatly inspired by the founding work of LLSV. In this way, a meticulous study of the specifics of the legal rules conferred on shareholders and creditors led us to make an inventory of 91 dummies making up 13 legal indicators. Moreover, our work emphasizes the importance of abandoning a static approach to the legal environment, in favour of a dynamic analysis following the development of this environment over time: we selected the period 1977-2004.

A first result confirms that the rules setting out shareholders’ and creditors’ rights are not fixed by the French civil tradition, but have steadily and relatively quickly increased. This increase has accompanied the development and sophistication of the financial markets. We are therefore justified in asking ourselves about the causal direction linking the two types of variables, legal and financial. The joint use of our indices and macro-economic financial indicators makes this study of causality feasible. To carry this out, we use Granger tests on various combinations of variables. One notable result of this study is that the direction of causality is more complex than expected, and doesn’t confirm a marked

²² This link very probably reflects the legislators’ willingness to promote the concept of employee shareholding.

causality from the Law towards finance, but, on the contrary, underlines bidirectional inter-relationships. These manifestly reflect a certain amount of circularity between the succession of legal reforms and the development of the financial sphere. This approach is then finalized by the use of weighted indicators related to the sophistication of texts, conveying the weight accorded by the French legislators to each category of investors. Using such indicators increases even more the significance of the causal links between finance towards the Law.

Our results do not reject the vision adopted by the founders of the *Law and Finance* theory, but underline some of its limits: the presupposed causal link exists, but it doesn't always prevail, indeed it might even be reversed, when we consider more complete or hierarchically-organized indicators.

The second contribution of this research is to broaden the spectrum of analysis to include other “*stakeholders*”, in particular employees and bondholders whom are also part of the French corporate governance model. From the example of shareholders, it seems the rules governing employees’ and bondholders’ rights follow a regular and continual increase. This evolution reflects the growing interest shown by legislators to this group of economic agents. The application of Granger tests again demonstrates bidirectional causality between legal and financial variables. The weighting of the indicators further reinforces the link from finance towards the Law.

Our work puts into perspective a country's dependence on its legal tradition. The case of France shows that legislators are responsive to environmental modifications. A next step for research is to control for external factors, such as the international environment. Particularly, the development of the French financial system is obviously related to the changes in the European financial markets.

Taken together, the progression of shareholder's information, voting and exit rights suggests a convergence of the French model of corporate governance towards the shareholder model. This convergence is very likely due, at least in part, to the growth of the stock markets since the end of the eighties. The demands of financial globalization and the profusion of merger and acquisition deals play an important role in this process of convergence. Financial communications become progressively more important for companies in order to attract investment funds, notably those managed by Anglo-Saxon institutional investors, whose presence on the French markets has become predominant. It is nevertheless essential to underline that this convergence does not signify for all that the decline of the rule of Law of other stakeholders. On the contrary, policies promoting employee shareholders and the strengthening of bondholders' rights reflect a broadening of the governance model.

As other works have emphasized, the French corporate governance system is by nature a “hybrid” model, close to the “*stakeholders*” approach, which has proved itself indispensable to the description of the governance mechanisms. In our view, there cannot be global response to the problem of corporate governance if the starting hypothesis focuses on sole type of investor, brushing aside all the others.

ANNEX A1: LIST OF LEGAL TEXTS**TABLE 1. Legislation amending corporate governance rules**

DATE	HEADINGS LAWS
January 24, 1984	Loi relative à l’activité et au contrôle des établissements de crédit.
1st March 1984	Loi relative à la Prévention et au règlement à l’amiable des difficultés des entreprises.
January 25, 1985	Loi relative au redressement et à la liquidation judiciaire des entreprises.
December 23, 1988	Loi sur les bourses de valeurs ²³ .
August 2, 1989	Loi relative à la sécurité et à la transparence du marché financier.
June 10, 1994	Loi relative à la prévention et au traitement des difficultés des entreprises.
August 8, 1994	Loi portant diverses dispositions d’ordre économique et financier.
February 11, 1994	Loi relative à l’initiative et à l’entreprise individuelle ²⁴
July 2, 1996	Loi relative à la modernisation des activités financières.
May 15, 2001	Loi sur les nouvelles régulations économiques.
1st August 2003	Loi de sécurité financière.

TABLE 2. European Directives amending corporate governance rules

Date	HEADINGS DIRECTIVES
15 February 1982	Directive on information to be published on a regular basis by companies the shares of which have been admitted to official stock-exchange listing.
20 December 1985	Directive on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS).
15 December 1989	Directive on the coordination of laws, regulations and administrative provisions relating to the taking up and pursuit of the business of credit institutions
10 May 1993	Directive on investment services in the securities field.

TABLE 3: Laws promoting employee participation in company life

Date	TITLE of LAWS
October 28, 1982	Loi relative au développement des institutions représentatives du personnel. Loi dite loi Auroux
July 25, 1994	Loi relative à l’amélioration de la participation des salariés dans l’entreprise
February 19, 2001	Loi sur l’épargne salariale
December 11, 2001	Loi portant mesures urgentes de réformes à caractère économique et financier (loi MURCEF)
January 17, 2002	Loi de modernisation sociale
January 3, 2003	Loi modifiant le livre VIII du code de commerce (de quelques professions réglementées : des administrateurs judiciaires, mandataires judiciaires et experts en diagnostic d’entreprise ; des commissaires aux comptes)
August 21, 2003	Loi portant réforme des retraites

²³ In this way, three authorities ensure the proper functioning of the financial markets: le Conseil des Bourses de valeur, la Société des Bourses françaises et l’association française des sociétés de bourses.

²⁴ This Law, known as the Madelin Law, introduced numerous changes, particularly concerning the make-up of boards of directors and supervisory boards of public companies.

TABLE 4. **Laws modifying bondholders' rights**

Date	TITLES of LEGISLATIVE TEXTS
October 30, 1935	Décret-loi relatif à la protection des obligataires et aux émissions d'obligations par les sociétés françaises.
July 24, 1966	Loi sur les sociétés commerciales.
January 25, 1985	Loi relative au redressement et liquidation judiciaires des entreprises.
January 5, 1988	Loi relative aux fusions et aux scissions de sociétés commerciales et modifiant la loi du 24 juillet 1966 sur les sociétés commerciales.
June 10, 1994	Loi relative à la prévention et au traitement des difficultés des entreprises.
June 24, 2004	Ordonnance portant réforme du régime des valeurs mobilières émises par les sociétés commerciales et extension à l'outre-mer de dispositions ayant modifié la législation commerciale.

ANNEX A2: DEFINITIONS OF VARIABLES

TABLE 5. Shareholder rights indexes

VARIABLE	DESCRIPTION
SHAREHOLDERS	
LLSVsh_6 = 6 shareholders rights elaborated by LLSV	<ol style="list-style-type: none"> 1. The country allows shareholders to mail their proxy vote to the firm. 2. Shareholders are not required to deposit their shares prior to the general shareholders' meeting. 3. Cumulative voting or proportional representation in the board of directors is allowed. 4. An oppressed minorities' mechanism is in the place. 5. The minimum percentage of share capital that entitles a shareholder to convene an extraordinary shareholders' meeting. 6. Shareholders have preemptive rights that can be waived only by a shareholders' vote.
VOTE = 17 rules providing for the shareholders' vote	<ol style="list-style-type: none"> 1. The impossibility of voting rights for treasury stock. 2. The double-voting right is permitted. 3. The right to vote by correspondence. 4. The right to vote by proxy. 5. The possibility of voting by data transmission or by fax. 6. Preferred dividend shares, with no voting rights, may not surpass a quarter of the equity capital. 7. Interference with voting freedoms is penalised by Law 8. One share is worth one voting right (voting rights respect the principle of proportionality). 9. The possibility of providing a limit on the number of votes held by shareholder in the statutes. 10. The possibility for minority shareholders to convene a general meeting. 11. Each member of the supervisory board must own a number of shares at least equal to that which allows shareholders to attend the general meeting. 12. The required quorum for ordinary general meeting deliberations is one-quarter of voting shares, held by shareholders present or represented during the meeting. 13. The Ordinary General Meeting (OGM) gives decisions on the basis of the majority of votes held by shareholders either present or represented.. 14. The quorum required for deliberations of an extraordinary general meeting is one third of voting shares held by shareholders present or represented during the meeting. 15. The Extraordinary General Meeting (EGM) gives decisions on the basis of a two-thirds majority of votes held by shareholders present or represented. 16. The existence at each meeting of an attendance sheet. 17. The possibility for the meeting to dismiss one or several directors or members of the supervisory board and vote in their replacements, even if this is not included on the agenda.

INFORMATION = 15 rules setting out the shareholders' right to information.	<ol style="list-style-type: none"> 1. The possibility for the shareholder to be helped by an expert in order to consult various documents. 2. The possibility for shareholders with at least 5% of the capital to call for the registration of draft resolutions on the agenda of the general meeting. 3. The possibility for a shareholders association, owning at least 5% of the capital, to call for the registration of draft resolutions on the agenda. 4. All shareholders have the right to pose written questions to which the board of directors or the executive board must respond during the meeting. 5. All shareholders have the right to obtain information about the company's annual accounts. 6. The possibility of transmitting meetings of the board of directors by videoconference. 7. The duration of the senior management team's mandate is of 4 years (instead of 6 years). 8. The right of shareholders who hold at least 5% of the equity capital to ask, at least twice a year, questions concerning the type of facts which could compromise the continuity of the business. 9. During the OGM, the board of directors or the executive board presents the annual accounts to the meeting. 10. During the OGM, the board of directors or the executive board presents the consolidated accounts to the meeting. 11. The annual report presented by the board of directors must include an objective and exhaustive analysis of the development of the business (financial situation, indebtedness situation) in order to allow shareholders to have clear and precise information about the situation of the company. 12. The impossibility of providing in the statutes for a clause prohibiting certain shareholders (holding less than a minimum of shares) to take part in meetings. 13. The obligation to inform about the crossing of thresholds of capital holding of a company. 14. Shareholders' right to collectively exercise a derivative action for liability against management. 15. The right to legally require the designation of an agent responsible for calling a general meeting in non-urgent situations.
FINANCIAL = 6 rules setting out shareholders financial rights.	<ol style="list-style-type: none"> 1. The distribution of dividends to shareholders is decided by the OGM during its annual meeting. 2. The possibility for shareholders to receive instalments on the dividends. 3. The possibility for shareholders to receive their dividends in the form of shares. 4. The possibility for shareholders to receive non-voting Priority Dividend Shares (PDS). 5. The obligation for a company to maintain a legal reserve (the accumulation of withheld profits (one twentieth of the annual net profit) constitutes the legal reserve). 6. The shareholders right to the liquidation surplus (what remains after the reimbursement of social security liabilities and inflows in the case of the company's dissolution).
EXIT = 5 legal rules providing for the shareholders' withdrawal from the company's capital	<ol style="list-style-type: none"> 1. The right to surrender shares. 2. The possibility for shareholders to sell their stocks before the general meeting up until D-1 at 15'08. 3. The existence of a capital threshold required for a take-over bid. 4. The existence of a capital threshold required for a share exchange offer. 5. The existence of a capital threshold required for a de-listing tender offer²⁵.

²⁵ Definition of take-over bid and share exchange offer: "Procedures intended to assure, in companies whose stocks are listed on a regulated market, an equal treatment of all shareholders upon the taking or strengthening of control of the company by a third party (an individual most generally). It involves this third party having to inform shareholders that he intends to acquire their shares at a given price (take-over bid) or to exchange them for other shares or bonds (share exchange offer)" A de-listing tender offer: "a transaction through which a company whose stocks are listed on a regulated market, can, under certain conditions, be required to purchase minority shares. In certain cases, this company could require minority shareholders to sell their shares; this is an obligatory withdrawal" Lexique des termes juridiques (Dalloz, 14th edition, 2003).

ANTIMANAGE = 9 rules setting out shareholder protection with regard to managers.	<ol style="list-style-type: none"> Shareholders' right to collectively exercise a derivative action for liability against management. The right to legally require the designation of an agent responsible to call a general meeting in non-urgent situations Executive board members are named or dismissed, without a fair motive, by the supervisory board and not by the general meeting. . The possibility for shareholders to individually launch legal proceedings against the board of directors. The possibility for shareholders individually or by a shareholders' association to launch legal proceedings against the managing director. The possibility for minority shareholders, owning at least 10% of shares, to ask for management expertise. The possibility to separate the roles of the chairman and that of the managing director. All shareholders have the right to obtain information concerning the company's annual accounts (and the amount of remuneration for the 5 or 10 best paid individuals). The obligation to supply to the Financial Market Authority ("<i>l'Autorité des Marchés Financiers</i>" (<i>AMF</i>)) all information about transactions undertaken by the management (members of the board, or the executive board, of the managing director) on the company's shares.
ANTIBLOCK = 8 rules setting minority shareholder protection with regard to majority shareholders	<ol style="list-style-type: none"> Non-voting PDS should not surpass a quarter of the equity capital. The possibility to provide in the statutes for a limitation on the number of votes held by a shareholder. The pre-emption right. The existence of a capital threshold required for a take-over bid. The obligation of information about the exceeding of thresholds of capital holding in a company. The obligation to inform the financial markets council (<i>le Conseil des Marchés Financiers</i> (<i>CMF</i>)) about crossings of thresholds of company capital acquisition. The obligation of transparency concerning the exceeding of thresholds of acquisition of company voting rights by individuals or legal entities and concerning the total number of voting rights it possesses within 5 days. The obligation to render to the <i>AMF</i> all information concerning the trades carried out on the company's stocks by any person having close personal links with the management.
AUTHORITIES = 6 binary rules setting out the rules of regulatory authorities	<ol style="list-style-type: none"> The existence of independent supervisory authority entitled to control the financial market security. The requirement to inform the financial market authority (the <i>CMF</i>) about crossings of acquisition thresholds of the company's capital. The existence of a system permitting the strengthening of the power of the financial market control authorities (founding of the <i>AMF</i>). The possibility for the financial market control authorities to co-operate with foreign authorities. The existence of rules established by the market authorities setting out the rules relating to public offers of financial instruments. The obligation for market control authorities to distribute information about listed companies.

CREDITORS	
LLSVcr= 4 creditor rights	<ol style="list-style-type: none"> 1. Restrictions for going into reorganization. 2. No automatic stay on secured assets. 3. Secured creditors first. Management does not stay.
CR_EXANTE= 6 rules setting out creditor protection before the initiation of a collective proceeding (of receivership or of liquidation)	<ol style="list-style-type: none"> 1. The existence of a short suspect period (period separating the court-determined date of the condition of insolvency “<i>cessation de payments</i>” and the effective date of that judgment) (this period is capped at 90 days in the American bankruptcy code as well as in many other countries, whereas it is 18 months in France.) 2. Creditors' agreement concerning the institution of receivership or liquidation proceedings is necessary. 3. The legal obligation for a company to have a legal reserve (the accumulation of withheld profits (one twentieth of the annual net profit) constitutes the legal reserve). 4. The possibility for a company's creditors to distribute information concerning its financial difficulties (the opening of a out-of-court settlement proceeding between a company and its creditors is covered by professional confidentiality.²⁶ 5. The impossibility, during an out-of-court settlement procedure, to provisionally suspend legal actions against the company in financial difficulty by creditors whose claim precedes opening of this procedure. 7. The obligation to inform all creditors (except creditors holding a surety such as mortgagees and the Treasury Department) concerning the date of initiation of a procedure.
CR_EXPOST = 6 rules setting out creditor protection after the initiation of a joint procedure (of receivership or liquidation)	<ol style="list-style-type: none"> 2. The consultation of creditors is necessary after the initiation of a collective procedure concerning the company's recovery plan. 3. The possibility for creditors whose claim precedes the initiation of a receivership proceeding, to open or to pursue legal action against the company in recovery. 4. Activities preceding the initiation of bankruptcy proceedings can be cancelled. 5. The possibility for creditors, domiciled in France, to declare their claims to their representative after the limitation period (2 months) in order to recover their claims. 6. The existence of a principle preferring new creditors (after the initiation of a receivership procedure) in comparison to older creditors (previous): the impossibility for a later unsecured creditor to have priority over a prior privileged creditor. 7. Priority given to later creditors occurs only in case of the ending of the receivership procedure with the continuation of the business.
CR_ANTIMANAGE= 5 rules setting out possibilities given to creditors penalize the manager.	<ol style="list-style-type: none"> 1. Consultation of creditors is necessary after the initiation of collective procedure concerning the company's recovery plan. 2. The possibility for creditors whose claim precedes the initiation of a collective procedure, to start or pursue legal action against the manager of the company in difficulty. 3. The possibility for creditors whose claim precedes the initiation of a receivership procedure, to start or pursue legal action against the manager of the company in receivership. 4. In the case of the initiation of a receivership procedure anyone who attempts to misappropriate any part of the debtor's assets or who seek to fraudulently increase the debtor's liabilities-are guilty of fraudulent bankruptcy. 5. In the case of the initiation of the legal liquidation procedure anyone who attempts to misappropriate any part of the debtor's assets or who seek to fraudulently increase the debtor's liabilities-are guilty of fraudulent bankruptcy.

²⁶ An out-of-court settlement proceeding is the last recovery procedure proposed to the company before the cession of payments. This procedure was introduced by the Law of the March 1, 1984.

EMPLOYEES	
SALARIES = 10 legal rules setting out employee participation in the information and management of the company.	<ol style="list-style-type: none"> 1. The possibility for the works council²⁷ to regularly receive information and reports about the status and the profits or losses of the company. 2. The possibility for the works council to be helped by an accounting expert paid for by the company to assist with the annual examination of the accounts²⁸, up to twice a year. 3. The impossibility for directors to make public announcements about corporate strategy without the input of the works council. 4. The right for the works council to initiate the alert procedure. 5. The right for the works council to designate a management expert or to request the dismissal of an independent auditor. 6. The possibility for the works council to make a legal request to designate a representative in charge of convening the general meeting of shareholders in case of an emergency. 7. The possibility for the works council to request the recording of shareholder resolutions in the meetings' order of the day. 8. The possibility for the works council to designate two of its members to attend general meetings (they can also be heard in any resolution requiring the unanimity of shareholders). 9. The obligation for the independent auditor to inform the works council of facts of the kind that could compromise the continuity of the operations of the company he is responsible for overseeing. . <p>The possibility for employee representatives (representatives of the works council) to attend board of directors meetings.</p>
SALARIES_INV = 11 legal rules setting out the possibility for employees to participate financially in the capital of the company	<ol style="list-style-type: none"> 1. The possibility to issue shares to employees of a company. 2. The possibility for employees to participate in the development of a securities portfolio (employee stock ownership program, ESOP). 3. The possibility for employees to participate in a long-term voluntary employee pension savings plan. 4. The possibility to nominate one or several representatives of employee shareholders holding more than 5% of the capital of the company to the board of directors or the supervisory board. 5. The obligation to include in the annual report (of the board of directors or the executive board) the proportion of shares held by employees of the company and employees of related companies. 6. The annual report sets out the proportion of share capital represented by shares held by the company's employees or former employees. 7. The works council is consulted when the general meeting is called upon to deliberate on changes to the economic or legal organization of the company. 8. The obligation to nominate one or several directors or members of the supervisory board of SAs from among the employees shareholders, and, on their proposition, when they hold more than 5% of the share capital of the company (art. 129-2 of the Law of 1969). 9. The obligation to nominate one or several directors or members of the supervisory board from among the employee shareholders, and, on their proposition, when they hold more than 3% of the capital. 10. The possibility for employees (after having signed an incentive agreement) to receive a bonus in addition to the salary (at 20% of the gross salary) if there is an increase in the business profits. <p>The possibility for the representative of the employees to be heard by the court prior to giving a ruling on the initiation of a liquidation procedure.</p>

²⁷ According to article L.431-1 of the Code du Travail introduced by Law n° 73-4 of January 2, 1973), “Works councils are formed in all industrial and commercial companies, public and ministerial offices, professions, non-trading companies, professional associations, mutual benefit societies, social security organisations, with the exception of those of a character of a public administration establishment, as well as associations of whatever form and goals who employ at least fifty employees.”

²⁸ Provided for in article L. 432-4, paragraphs 9 and 13 of the Code du Travail

BONDHOLDERS²⁹	
BONDVOTE = 25 legal rules protecting bondholders' interests permitting them to express their wishes	<ol style="list-style-type: none"> 1. The possibility for every bondholder to be represented as part of a collective group endowed with juridical personality (without personal assets but able to take legal action). 2. The board of directors or the executive board, depending on the situation, is legally entitled, unless there is a statutory provision to the contrary, to issue bond loans intended to finance loans to which the companies (having as a main goal to issue loans) have consented. 3. The collective group is represented by one or several agents elected by the bondholders' general meeting. Their number can in no case exceed three. The collective group generally elects a bank as its agent or representative. 4. The collective groups' representatives can be relieved of their duties by the bondholders' ordinary general meeting. 5. The collective groups' representatives have, except for restrictions imposed by the bondholders' general meeting, the power to carry out in the collective group's name all management acts for the defence of the bondholders' common interests. 6. Any bondholder can vote by mail, by using a form whose fields are set out by decree in the Council of State. Arrangements contrary to the statutes are deemed non-written. 7. A company that owns at least 10% of the stock of the debtor company cannot vote at the meeting with the bonds it owns. 8. Those who knowingly prevent a bondholder from attending a bondholders' general meeting will be punished by imprisonment for three months to two years and a fine of between 300 to 6000 euro, or of one of these two penalties only. 9. The possibility of issuing bonds convertible into shares (on condition of having the approval of the extraordinary general meeting). 10. The decision of the shareholders' general meeting to do away with the preferential subscription right must be approved by the extraordinary meeting of interested bondholders.. 11. Between the issuance of bonds exchangeable for shares and the date upon which all of the bonds should have been exchanged or reimbursed, the take-over of the issuing company by another company or a merger with one or more other companies to form a new company is subject to the prior approval of the extraordinary general meeting of interested bondholders. 12. The representative of the bondholders' collective group can take an opposing position when the meeting approves a capital -reduction plan not motivated by losses. 13. The representative of the bondholders' collective group cannot be chosen from among: directors, members of the executive board or the supervisory board (independent auditors or employees of the companies involved.). 14. Not eligible to be chosen as a representative of the body are: <ol style="list-style-type: none"> a. the debtor company, b. companies holding at least a tenth of the capital of the debtor company or in which the latter holds at least a tenth of the capital, c. the company guaranteeing for all or part of the commitments of the debtor company, d. the managers, directors, members of the executive and supervisory board, managing directors, independent auditors or employees of the companies involved in 1 and 3, as well as their ascendants, descendants or spouses. 15. Not eligible to be chosen as a representative of the body: persons barred from exercising the banking profession or who have been stripped of the right to direct, administrate or manage a company, for any reason. <p>Persons to whom the exercise of the profession of banker is prohibited or who are deprived of the right to run, administer or manage any type of company.</p>

²⁹ Within the company, shareholders (equity providers) and employees constitute two distinct groups, the shareholders coming under company Law while employees come under labour Law. The possibility offered to employees to acquire company shares nevertheless permits the combination of the two statuses of shareholder and of employee. The Law of July 24, 1966 expresses a reservation and only authorises this combination of statuses in certain cases. Previously, equity providers appreciated this legal reservation as it allowed them not to share power with employees and especially with employee unions.

	<p>16. The right for "holders of bonds or bond issues from the same issuing, carried out in France" to group together in defence of their common interests in a collective group which possesses legal personality.</p> <p>17. The voting right in general meetings of bondholders shall belong to the bare owner.</p> <p>18. The general meeting deliberates on all measures having the object of assuring bondholders' defence and the carrying-out of the loan contract as well as any proposal to modify that contract.</p> <p>19. General meetings deliberate under the quorum conditions set out by article 155 (paragraphs 2 and 3)</p> <p>20. Meetings cannot increase bondholders' expenses nor establish an unequal treatment between bondholders of the same collective group.</p> <p>21. The establishment of an attendance sheet at bondholders' general assemblies. .</p> <p>22. The bondholders' general meeting is convened by the board of directors, the executive board (or the managers), by the representatives of the collective group or by the liquidators during the liquidation period.</p> <p>23. The receivership of the company does not end the functioning and role of the general meeting of bondholders.</p> <p>24. The legal liquidation of the company does not end the functioning and role of the bondholders' general meetings.</p> <p>Conformity of the quorum conditions and of majority during bondholders' general meetings with those of shareholders' ordinary general meetings.</p>
<p>BONDINFORMAT ION = 14 rules setting out bondholder rights to information</p>	<p>1. The convening of bondholders' general meetings is made under the same conditions of form and time limit as those of shareholders' general meetings. Moreover, convening notices must contain legally determined special references.</p> <p>2. The general meetings' agenda is decided by the person who convened the general meeting..</p> <p>3. All bondholders have the right to attend the general meeting or to be represented by a proxy of his/her choice at the general meeting.</p> <p>4. The possibility for the representatives of the collective group to attend the shareholders' general meetings, but without the right to speak and vote (they cannot be involved in the management of corporate affairs).</p> <p>5. The collective group's representatives have the right of access to documents made available to the shareholders, under the same conditions.</p> <p>6. The possibility to issue bonds convertible into shares (subject to the condition of having the authorisation of the extraordinary general meeting).</p> <p>7. The possibility for representatives of the collective group to be designated in the bond issuance contract by initial public offering.</p> <p>8. The representatives of the collective group of holders of bonds for which the company made an initial public offering (in cases where they have not been designated in the issuance contract) are named within one year starting from the subscription date and, at the latest, one month prior to the first foreseen amortization.</p> <p>9. In cases of issuance by initial public offering, the representatives can be designated in the issuance contract.</p> <p>10. The establishment of an attendance sheet at the time of the bondholders' general meeting.</p> <p>11. The bondholders' general meeting is convened by the board of directors, the executive board or the managers, by the representatives of the collective group or by the liquidators in the liquidation period.</p> <p>12. The receivership of the company does not bring an end to the operation and to the role of the bondholders' general meeting.</p> <p>13. The legal liquidation of the company does not bring an end to the operation and to the role of the bondholders' general meeting.</p> <p>Consolidation of the rules applicable to hybrid securities by the order of June 24, 2004.</p>

BONDPROPRIETARY = 9 rules setting out the rights of transfer of bond ownership	<ol style="list-style-type: none"> 1. The possibility for bondholders to sell their bonds. 2. The possibility for the bondholders' general meeting to require the repayment of the bonds in the case of the anticipated dissolution of the company not caused by a merger or by a break-up. 3. The right of the collective group's representatives to act in its name, in the case of the receivership of the company. 4. The right of the collective group's representatives to act in its name, in the case of the court-ordered liquidation of the company. 5. The representative of the bondholders' collective group must report to the liabilities side of the company's receivership, for all the collective group's bondholders, the amount (in principal) of outstanding bonds as well as unpaid interest (the detailed account will be established by the creditors' representative.). 6. In case of non-disclosure (to the liabilities of the amount of bonds) by the collective group's representatives, during a court-ordered liquidation, a court ruling designates, upon the request of the creditors' representative, an agent responsible to ensure the collective groups' representation and disclose the debt. . 7. In case of non-disclosure (to the liabilities of the amount of bonds) by the collective group's representatives, during receivership, a court ruling designates, upon the creditors' representatives request, an agent responsible for ensuring the collective group's representation and to declare the debt.. 8. The collective group's representatives are consulted by the creditors' representative on the bond settlement options proposed by the Law (of January 25, 1985). The collective group's representatives give their support in the direction established by the bondholders' ordinary general meeting convened to that effect. 9. The costs of representing the bondholders' collective group, during the receivership lie with the company in receivership.
BONDFINANCIAL = 8 rules setting out the financial rights conferred upon bondholders	<ol style="list-style-type: none"> 1. The compensation of the collective group set by the bondholders' general meeting is the responsibility of the debtor company. 2. The possibility of issuing bonds convertible into shares (on condition of having the authorisation of the extraordinary general meeting). 3. The compensation of the bondholders' collective group's representatives (as established by the general meeting or by the issuing contract is the responsibility of the debtor company (article 303 of Law 1966). 4. The share capital can be increased by the exercise of rights attached to the securities giving access to the capital.. 5. Between the issuing of bonds convertible into shares and the date at which all the bonds have been converted or reimbursed, the merger of the issuing company with another company or the amalgamation with one or several other companies into a new company is subject to the prior approval of the extraordinary general meeting of the bondholders involved. 6. The meetings cannot increase the bondholders' charges nor establish an unequal treatment between the bondholders in the same collective group. 7. The representative of the bondholders' collective group must report to the liabilities side of the receivership of the company for all the bondholders of the collective group the amount (in principal) of bonds outstanding as well as unpaid interest (the detailed account will be established by the creditors' representative). 8. In case of non-disclosure (to the liabilities of the amount of bonds) by the collective group's representatives, during a receivership, a court ruling designates, upon the request of the creditors' representative, an agent responsible to ensure the collective groups' representation and disclose the debt.

TABLE 6. List of Legal Texts that modify shareholders and creditors rights (NORMS)

YEAR	LAWS AND OTHER LEGAL TEXTS	NUMBER
1977		0
1978	1) Loi n°78-741 du 13 juillet 1978 ³⁰ : Loi relative à l'orientation de l'épargne vers le financement des entreprises.	1
1979	1) Le Décret (n°79-641) du 27 juillet 1979 relatif aux Assemblées spéciales des titulaires d'actions à dividende prioritaire sans droit de vote.	1
1980	1) La loi (n°80-834) du 24 octobre 1980 créant une distribution d'actions en faveur des salariés des entreprises industrielles et commerciales. 2) Le Décret (n°80-935) du 26 novembre. Application de la loi (n°80-834) du 24 octobre 1980.	2
1981	1) La loi (n°81-1160) du 30 décembre 1981 portant sur l'inscription en compte des valeurs mobilières. 2) La loi (n°81-1162) du 30 décembre 1981 sur la Mise en harmonie du droit des sociétés commerciales avec la deuxième directive adoptées par le conseil des communautés européennes.	2
1982	1) Le Décret (n°82-460) du 2 juin 1982 relatif à l'Harmonisation des dispositions réglementaires du droit français des sociétés anonymes avec la deuxième directive.	1
1983	1) Loi n°83-1 du 3 janvier 1983, sur le développement des investissements et la protection de l'épargne. 2) Décret (n°83-363) du 2 mai 1983 Application de la loi (n°83-1) du 3 janvier 1983.	2
1984	1) La loi (n°84-46) du 24 janvier 1984 relative aux Etablissements de crédits. 2) La loi (n°84-148) du 1 ^{er} mars 1984, relative à la Prévention et règlement à l'amiable des difficultés des entreprises. 3) Décret (n°84-708) 24 juillet 1984 portant Application de la loi du 24 janvier 1984.	3
1985	1) La loi (n°85-11) du 3 janvier 1985 relative aux comptes consolidés. 2) La loi (n°85-21) du 4 janvier 1985 relative à l'Ouverture d'options de souscription ou d'achat d'actions au bénéfice du personnel des sociétés. 3) La loi (n°85-98) du 25 janvier 1985 relative au redressement et liquidation judiciaires des entreprises. 4) Le décret (n°85-295) du 1 ^{er} mars 1985 relatif à l'application de la loi n°84-148 du 1 ^{er} mars 1984 (sur la prévention et règlement amiable des difficultés d'entreprises). 5) La loi (n°85-705) du 12 juillet 1985 relative aux participations détenues dans les sociétés par actions. 6) La loi (n°85-1321) du 14 décembre 1985 modifiant diverses dispositions du droit des valeurs mobilières des titres de créances négociables, des sociétés et des opérations de bourse. 7) La loi (n°85-1388) du 27 décembre 1985 relative au Redressement et liquidations judiciaires des entreprises.	7
1986	1) Décret (n°86-221) du 17 février 1986. Application de la loi (n°85-11) du 3 janvier 1985. 2) Décret (n°86-584) du 14 mars 1986. Vote par correspondance dans les assemblées d'actionnaires. 3) Ordonnance (n°86-1135) modifiant la loi du 24 juillet 1966 (participation des représentants du personnel aux conseils d'administration ou de surveillance).	3
1987	1) Décret (n°87-93) du 11 février 1987 Modification du décret n°67-236 du 23 mars 1967 sur les sociétés commerciales (modification de l'art 205-1 et 205-2). 2) Décret (n°87-243) du 3 avril 1987 Modification du décret n°85-1388 du 27 décembre 1985 (Redressement et liquidation judiciaires ; art.181). 3) La loi (n° 87-416) du 17 juin 1987 sur l'épargne.	3
1988	1) La loi (n°88-15) du 5 janvier 1988 Développement et transmission des entreprises. 2) Le décret (n°88-55) du 19 janvier 1988 relatif au vote par correspondance dans les assemblées générales. 3) Décret (n°88-430) du 21 avril 1988 Redressement et liquidation judiciaires. 4) La loi (n°88-1201) du 23 décembre 1988 OPCVM et FCP (Abrogée et codifiée au C. mon. fin).	4
1989	1) La loi (n°89-531) du 2 août 1989 sur la Sécurité et transparence du marché financier. 2) Le Décret (n°89-623) du 6 septembre 1989 pris en application de la loi (n°88-1201) du 23 dec.1988 sur les OPCVM.	2

³⁰Lien Internet: <http://www.admi.net/jo/textes/ld.html> L78-753

1990	1) Décret (n°90-263) du 23 mars 1990. Injonctions et sanctions administratives prononcées par la COB et recours contre les décisions de la COB relevant de la compétence du juge judiciaire. 2) La loi (n°90-1002) du 7 novembre 1990 Intéressement et participation des salariés.	2
1991	1) Décret (n°91-1030) du 8 octobre 1991 Modification du décret (n°85-1389) du 27 déc. 1985 (administrateurs judiciaires et mandataires judiciaires à la liquidation des entreprises. P. 2021 du C com).	1
1992	1) Décret (n°92-437) Modification du décret (n°83-359) du 2 mai 1983 (régime des valeurs mobilières p.1693 du C. com).	1
1993	1) Décret (n°93-381) du 15 mars 1993. Portant adaptation au marché unique européen de diverses réglementations applicables n matière de crédit.	1
1994	1) Loi (n°94-475) du 10 juin 1994, Loi relative à la prévention et au traitement des difficultés des entreprises. 2) Loi n°94-640 du 25 juillet 1994, Loi relative à l'amélioration de la participation des salariés dans l'entreprise. 3) La loi 5n°94-679° du 8 août 1994 apportant diverses dispositions d'ordre économique et financier. 4) Décret (n°94-910) du 21 octobre 1994. Application de la loi (n°94-475) du 10 juin 1994.	4
1995	1) Décret (n°95-237) du 2 mars 1995, pris pour l'application des articles 5 et 6 de la loi (n°94-640) du 25 juillet 1994.	1
1996	1) Loi (n° 96-597) du 2 juillet 1996 de modernisation des activités financières. 2) Décret (n°96-868) du 3 octobre 1996 relatif à la formation et à l'organisation du Conseil des Marchés Financiers. 3) Règlement COB (n°96-01) du 8 novembre 1996 relatif au droit d'opposition de la COB à l'admission d'instruments financiers.	3
1997	1) Arrêté du 6 janvier 1997. Homologation du règlement COB n°96-03 (gestion de portefeuille pour le compte de tiers : Informations privées ; exercices des droits attachés aux titres). 2) Règlement COB (n°97-01) du 27 mars 1997 franchissement des seuils de participations. 3) Arrêté (14 octobre 1997). Règlement général du CMF.	3
1998	1) Arrêté du 19 janvier 1998. Règlement CMF (marchés réglementés). 2) La loi (n°98-546) du 2 juillet 1998. Diverses dispositions d'ordre économique et financier. 3) Décret (n°98-620) du 21 juillet 1998. Modifications du décret (n°96-868) du 3 octobre 1996 (formation et organisation du conseil des marchés financiers). 4) Arrêté du 29 juillet 1998. Règlement général du CMF (Opérations de reclassement et OPA, C. sociétés).	4
1999	1) Décret (n°99-257) du 1 ^{er} avril 1999. Application de la loi (n°98-546) du 2 juillet 1998. Diverses dispositions d'ordre économique et financier et modification du décret (n°67-236 du 23 mars 1967 sur les sociétés commerciales).	1
2000	1) Décret (n°2000-721) du 1 ^{er} août 2000 (injonctions et procédures de sanctions de la COB).	1
2001	1) La loi du 15 mai 2001 sur les nouvelles régulations économiques. 2) Le décret du 3 mai 2001 portant application de la loi NRE.	2
2002	1) Loi (n° 2002-1303) du 29 octobre 2002 issue de la proposition de loi Houillon, modifiant certaines dispositions du Code de commerce relatives aux mandats sociaux. 2) Décret (n°2002-278) du 26 février 2002. Modification du Décret (n°89-623) du 6 septembre 1989 pris en application de la loi (n°88-1201) du 23 déc.1988 sur les OPCVMs (p. 1726 du C. com). 3) Décret (n°2002-803) du 3 mai 2002. Application de la troisième partie de la loi NRE.	3
2003	1) La loi (n°2003-706 du 1 août 2003 de Sécurité financière. 2) Décret (n°2003-1109) du 21 novembre 2003 relatif à l'AMF.	2
2004	1) L'ordonnance (n°2004-604) du 24 juin 2004.	1

ANNEX A3: FIGURES

FIGURE 1. Progression of shareholders' information rights

FIGURE 4. Evolution of shareholders' exit rights

FIGURE 7. Evolution of anti-managers rights

FIGURE 2. Improvement of shareholders' voting rights

FIGURE 5. Evolution the security regulators' roles

FIGURE 8. Growth of employee right to information and to a role in management

FIGURE 3. Evolution of shareholders' financial rights

FIGURE 6. Evolution of shareholders' anti-block rights

FIGURE 9. Growth of employees' rights to financial interest.

FIGURE 10: Growth in bondholder's voting rights.

FIGURE 13: Growth in bondholders' proprietary rights

FIGURE 16: Evolution of anti-managers creditors' rights

FIGURE 11: Growth in bondholders' information rights

FIGURE 14: Evolution of ex-ante creditors' rights

FIGURE 12: Growth in bondholders' financial rights

FIGURE 15: Evolution of ex-post creditors' rights

FIGURE 17. Annual development - number of legal instruments

FIGURE 20. Annual development of stock market capitalisation

FIGURE 18. Development of financial indicators between 1977 and 2002

FIGURE 21. Development of convertible bonds in the total of capital raised by private companies

FIGURE 19. Total financial assets of institutional investors (% of GDP)

ANNEX A4: CAUSALITIES

TABLE 6. Granger Test (causalities)

HYPOTHESIS	Number of Lags	Number of Years	F-statistic	Probability
SHAREHOLDERS				
INSTITUTIONALS causes in the Granger sense INFORMATION	2	20	2,85	91%*
INFORMATION causes in the Granger sense INSTITUTIONALS			0,32	30%NS
SHARES causes in the Granger sense INFORMATION	1	25	2,38	90%*
INFORMATION causes in the Granger sense SHARES			0,86	65%
CREDIT causes in the Granger sense INFORMATION	2	24	0,37	30%
INFORMATION causes in the Granger sense CREDIT			2,26	90%*
INSTITUTIONALS causes in the Granger sense VOTE	1	20	1,98	83%
VOTE causes in the Granger sense INSTITUTIONALS			0,30	40%
SHARES causes in the Granger sense VOTE	1	20	1,65	78%
VOTE causes in the Granger sense SHARES			1,61	77%
CREDIT causes in the Granger sense VOTE	1	24	2,28	90%*
VOTE causes in the Granger sense CREDIT			0,18	33%
SHARES causes in the Granger sense AUTHORITIES	1	25	1,84	81%
AUTHORITIES causes in the Granger sense SHARES			3,13	91%*
INSTITUTIONALS causes in the Granger sense ANTIBLOCK	1	23	5,02	83%
ANTIBLOCK causes in the Granger sense INSTITUTIONALS			2,90	90%*
SHARES causes in the Granger sense ANTIBLOCK	1	25	0,07	21%
ANTIBLOCK causes in the Granger sense SHARES			5,96	98%**
INSTITUTIONALS causes in the Granger sense ANTIMANAGE	3	19	3,11	93%**
ANTIMANAGE causes in the Granger sense INSTITUTIONALS			0,25	25%
SHARES causes in the Granger sense ANTIMANAGE	3	23	3,70	97%**
ANTIMANAGE causes in the Granger sense SHARES			1,02	59%
CREDITORS				
SHARES causes in the Granger sense CR-EXANTE	2	24	0,23	21% NS
CR-EXANTE causes in the Granger sense SHARES			1,32	70% NS
INSTITUTIONALS causes in the Granger sense CR-EXANTE	2	20	0,21	19% NS
CR-EXANTE causes in the Granger sense INSTITUTIONALS			0,22	20% NS
CREDIT causes in the Granger sense CR-EXANTE	2	23	0,15	14% NS
CR-EXANTE causes in the Granger sense CREDIT			2,22	90%*
SHARES causes in the Granger sense CR-EXPOST	2	24	0,35	13% NS
CR-EXPOST causes in the Granger sense SHARES			3,33	52%NS
INSTITUTIONALS causes in the Granger sense CR-EXPOST	2	20	0,33	29% NS
CR-EXPOST causes in the Granger sense INSTITUTIONALS			0,32	28% NS
CREDIT causes in the Granger sense CR-EXPOST	3	23	0,35	22% NS
CR-EXPOST causes in the Granger sense CREDIT			3,33	96%**
SHARES causes in the Granger sense CR-ANTIMANAGE	2	23	0,35	20% NS
CR-ANTIMANAGE causes in the Granger sense SHARES			1,33	52%NS
INSTITUTIONALS causes (Granger sense) CR-ANTIMANAGE	2	23	0,33	29% NS
CR-ANTIMANAGE causes (Granger sense) INSTITUTIONALS			0,30	30% NS
CREDIT causes in the Granger sense CR-ANTIMANAGE	4	21	1,28	67% NS
CR-ANTIMANAGE causes in the Granger sense CREDIT			1,93	90%*
SALARIES				
SALARIE_INV causes in the Granger sense CONVBOND	1	26	1,48	77% NS
CONVBOND causes in the Granger sense SALARIE_INV			0,04	15% NS
SALARIE_INV causes in the Granger sense INSTITUTIONALS	1	20	1,38	75% NS
INSTITUTIONALS causes in the Granger sense SALARIE_INV			0,62	56% NS
SALARIE_INV causes in the Granger sense CAPITALIZATION	3	24	0,42	27% NS
CAPITALIZATION causes in the Granger sense SALARIE_INV			0,48	31% NS
BONDHOLDERS				
BONDINFORMATION causes in the Granger sense CONVBOND	1	26	0,53	53% NS
CONVBOND causes in the Granger sense BONDINFORMATION			3,56	92,8%*
BONDVOTE causes in the Granger sense CONVBOND	1	26	0,36	45% NS
CONVBOND causes in the Granger sense BONDVOTE			3,6	93%*

BONDFINANCIAL au sens de Granger CONVBOND	2	25	2,64	90%*
CONVBOND causes in the Granger sense OBLIGPFICIER			2,06	90,5%*
BONDPROPRIETARY causes in the Granger sense CONVBOND	1	26	0,92	66% NS
CONVBOND causes in the Granger sense BONDPROPRIETARY			0,21	35% NS
BONDINFORMATION causes in the Granger sense INSTITUTIONALS	2	19	0,28	24% NS
INSTITUTIONALS causes in the Granger sense BONDINFORMATION			0,51	39% NS
BONDVOTE causes in the Granger sense INSTITUTIONALS	1	20	2,87	90%*
INSTITUTIONALS causes in the Granger sense BONDVOTE			0,25	40% NS
BONDFINANCIAL causes in the Granger sense INSTITUTIONALS	1	20	2,06	83%NS
INSTITUTIONALS causes in the Granger sense BONDFINANCIAL			0,01	5% NS
BONDPROPRIETARY causes in the Granger sense INSTITUTIONALS	2	19	0,54	41% NS
INSTITUTIONALS causes in the Granger sense BONDPROPRIETARY			2,19	90%*

NS=Not Significant * Significant at 10% ** Significant at 5% *** Significant at 1%

TABLEAU 7. Weight of legal indicators

LEGAL VARIABLES	W_i
SHAREHOLDERS	
INFORMATION_wg	$\frac{15}{91}$
VOTE_wg	$\frac{17}{91}$
FINANCIAL_wg	$\frac{6}{91}$
ANTIMANAGE_wg	$\frac{9}{91}$
ANTIBLOCK_wg	$\frac{8}{91}$
EXIT_wg	$\frac{5}{91}$
CREDITORS	
LLSVcr_wg	$\frac{4}{91}$
CR-EXANTE_wg	$\frac{6}{91}$
CR-EXPOST_wg	$\frac{6}{91}$
CR-ANTIMANAGE_wg	$\frac{5}{91}$
SALARIES	
SALARIES_wg	$\frac{10}{67}$
SALARIE_INV_wg	$\frac{11}{67}$
BONDHOLDERS	
BONDINFORMATION_wg	$\frac{13}{67}$
BONDVOTE_wg	$\frac{25}{67}$
BONDPROPRIETARY_wg	$\frac{8}{67}$
BONDFINANCIAL_wg	$\frac{9}{67}$

TABLE 8. Granger Test (causalities with weighted indicators)

HYPOTHESIS	Number of Lags	Number of Years	F-statistic	Probability
SHAREHOLDERS				
INSTITUTIONALS causes in the Granger sense INFORMATION_wg INFORMATION_wg causes in the Granger sense INSTITUTIONALS	2	19	5,17 1,79	98%** 79%
SHARES causes in the Granger sense INFORMATION_wg INFORMATION_wg causes in the Granger sense SHARES	2	23	3,40 0,45	94,5%** 35%NS
INSTITUTIONALS causes in the Granger sense VOTE_wg VOTE_wg causes in the Granger sense INSTITUTIONALS	1	20	1,90 0,30	90%* 42%NS
SHARES causes in the Granger sense VOTE_wg VOTE_wg causes in the Granger sense SHARES	1	20	1,98 0,30	90%* 42%
INSTITUTIONALS causes in the Granger sense ANTIBLOCK_wg ANTIBLOCK_wg causes in the Granger sense INSTITUTIONALS	2	23	1,34 1,92	72% 80%
SHARES causes in the Granger sense ANTIBLOCK_wg ANTIBLOCK_wg causes in the Granger sense SHARES	2	23	2,77 1,18	91%* 67%NS
INSTITUTIONALS causes in the Granger sense ANTIMANAGE_wg ANTIMANAGE_wg causes in the Granger sense INSTITUTIONALS	2	19	2,45 0,61	90%* 45%NS
SHARES causes in the Granger sense ANTIMANAGE_wg ANTIMANAGE_wg causes in the Granger sense SHARES	3	22	2,28 1,23	90%* 77% NS
CREDITORS				
SHARES causes in the Granger sense CR-EXANTE_wg CR-EXANTE_wg causes in the Granger sense SHARES	2	22	1,34 0,87	70% NS 50% NS
INSTITUTIONALS causes in the Granger sense CR-EXANTE_wg CR-EXANTE_wg causes in the Granger sense INSTITUTIONALS	1	21	0,12 0,22	27% NS 51% NS
CREDIT causes in the Granger sense CR-EXANTE_wg CR-EXANTE_wg causes in the Granger sense CREDIT	2	23	0,15 2,22	14% NS 90%*
SHARES causes in the Granger sense CR-EXPOST_wg CR-EXPOST_wg causes in the Granger sense SHARES	3	23	0,95 1,34	57% NS 71% NS
INSTITUTIONALS causes in the Granger sense CR-EXPOST_wg CR-EXPOST_wg causes in the Granger sense INSTITUTIONALS	3	19	0,52 0,29	39% NS 18% NS
CREDIT causes in the Granger sense CR-EXPOST_wg CR-EXPOST_wg causes in the Granger sense CREDIT	3	22	0,28 1,87	17% NS 90%*
CREDIT causes in the Granger sense CR-ANTIMANAGE_wg CR-ANTIMANAGE_wg causes in the Granger sense CREDIT	4	21	1,28 1,93	67% NS 90%*
SALARIES				
SALARIE_INV_wg causes in the Granger sense CONVOND CONVBOND causes in the Granger sense SALARIE_INV_wg	1	27	1,30 0,73	74% NS 60% NS
SALARIE_INV_wg causes in the Granger sense INSTITUTIONALS INSTITUTIONALS causes in the Granger sense SALARIE_INV_wg	2	19	0,77 1,34	52% NS 71% NS
SALARIE_INV_wg causes in the Granger sense CAPITALIZATION CAPITALIZATION causes in the Granger sense SALARIE_INV_wg	1	26	0,65 2,41	58% NS 90%*
SALARIE_INV_wg causes in the Granger sense CONVOND CONVBOND causes in the Granger sense SALARIE_INV_wg	1	27	1,30 0,73	74% NS 60% NS
SALARIE_INV_wg causes in the Granger sense INSTITUTIONALS INSTITUTIONALS causes in the Granger sense SALARIE_INV_wg	2	19	0,77 1,34	52% NS 71% NS
BONDHOLDERS				
BONDINFORMATION_wg causes (Granger sense) CONVOND CONVBOND causes (Granger sense) BONDINFORMATION_wg	1	26	0,37 3,59	45% NS 93%*
BONDVOTE_wg causes in the Granger sense CONVOND CONVBOND causes in the Granger sense BONDVOTE_wg	2	25	0,79 14,94	54% NS 98,8%**
BONDFINANCIAL_wg causes in the Granger sense CONVOND CONVBOND causes in the Granger sense BONDFINANCIAL_wg	2	25	2,64 2,06	90,5%* 90%*
BONDPROPRIETARY_wg causes (Granger sense) CONVOND CONVBOND causes (Granger sense) BONDPROPRIETARY_wg	1	26	1,01 0,25	78% NS 38% NS
BONDINFORMATION_wg causes INSTITUTIONALS INSTITUTIONALS causes BONDINFORMATION_wg	1	20	0,85 0,06	63% NS 19% NS
BONDVOTE_wg causes in the Granger sense INSTITUTIONALS INSTITUTIONALS causes in the Granger sense BONDVOTE_wg	1	20	3,35 0,49	92%* 61% NS
BONDFINANCIAL_wg causes (Granger sense) INSTITUTIONALS INSTITUTIONALS causes (Granger sense) BONDFINANCIAL_wg	2	19	1,08 0,25	63% NS 22% NS

NS=Not Significant

* Significant at 10%

** Significant at 5%

*** Significant at 1%

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