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# Do financial markets react to regulatory sanctions? Evidence from France

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*Abstract:*

*The paper offers an empirical analysis of the effects of sanctions decided by the Financial Markets Authority (AMF) on the reputation of firms in France. Using an event study approach, we intend to show the impact of three events on the stock prices: opening of an investigation by the AMF ; issuance of a monetary sanction ; publication of the information about sanction in press. The reputational impact issue raises the broader issue of understanding of financial regulation enforcement operates in concreto. We find a strong negative impact of the announcement of sanction in press on the firms' stock prices, which triggers a reputational loss of the deferred firm. We observe also a weak decrease in stock prices when the firm has been notified of the opening of investigation on its misconducts, however we find no evidence on the impact of announcement of sanction directly to the firm on its stock prices. We carry out an OLS cross-section regression to assess the impact of the amount of sanction on the reputational loss of firm. The amount of monetary sanction are too low, compared the market size of deferred companies, to influence stock prices and contribute in reputational loss.*

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## Introduction

A substantial part of economic analysis of sanctions discusses the deterrence and optimality issues. Broadly speaking, “Deterrence requires that punishment exceed the private gains” (Jackson & Roe, 2008: 6); an optimal sanction requires that the expected penalty to the criminal, or fraudulent, equals the total social costs of the crime or fraud. There is no question of offering here a complete review of the literature. What is important to note is that empirical assessments on deterrence effects of sanctions shows how the issue is complex. The behavior of individuals working in firms do not fit the model of optimal sanction, because in the stock market people do not have a clear notion of fault and of their social responsibility; the decisions they take in a business context set aside the moral values they apply in other non-professional contexts. Bazerman and Tenbrunsel (2011) speak of “ethical blindspot”:

situational factors (i.e. the organizational context) outweigh the individual's values to determine its behavior. Mayer, Cava and Baird (2014) argue that the effectiveness of monetary sanctions in the case of post-subprime crisis financial fraud in the US is low: very few criminal prosecutions; significant difference between the means of the regulator (SEC) and fraud; reluctance of regulator's executives to commit important financial and human resources to the most complex fraud cases. Mayer, Cava and Baird (2014) suggest that exercise restrictions (bar) are more appropriate. Jones (2014) goes in the same direction. She observes a lack of force in the enforcement of financial regulation by the SEC since 2008. She argues that withdrawing accreditation including the independent directors (having failed in their oversight obligations) is a more preventive solution than monetary penalties and criminal prosecution.

Apart from economics, sanction is of central importance to lawyers who assess the effectiveness of sanctions for financial malfeasance. For example MacDonald (2012) argues that the sanctions of firms executive is not effective, because there are paid by the corporation. He recommends, in order to improve the deterrence of individuals fraud, to make individuals responsible on their personal incomes and patrimony.

The relative indetermination of formal and applied models of deterrence contrasts sharply with the optimistic view of financial regulators who consider that sanctions they decide have a deterrent virtue. The French "Autorité des marchés financiers" (AMF)<sup>1</sup> officials claim that its main purpose is to deter frauds and misconducts in the financial services industry. From an institutional viewpoint, AMF is a repressive administrative agency which mission is to ensure the police of the market through punishment of wrongdoers. From a legal-administrative viewpoint, its main tool is punishment. Owing to its organic status, AMF is a repressive administrative agency. However the AMF top-level executives claim that the agency has a deterrence of infractions ethos. Several key official published reports (Nocquet, 2013) and newspapers interviews confirm the prevalence of a deterrence policy.

AMF regulatory practice is more complex than its institutionally-defined missions: it involves a mix of punishment, dissuasion, compensation, and cooperation with finance business to redress some key organizational failures in the financial industry. Notice that the deterrence policy is hardly empirically testable. Compensation of harmed victims (saving owners, investors) is rarely explicit in the decisions

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<sup>1</sup> The Autorité des marchés financiers has been set up by a law (called "financial security law", *loi de sécurité financière*) passed in 2003 (loi n° 2003-706 du 1er août 2003). Its creation rationalizes and unifies a previously scattered institutional design owing to the sanctions of financial misconducts and crimes. The AMF unifies three previous institutions which jurisdiction was quite narrow: the *Conseil des marchés financiers*, the commission des opérations de bourse, and the *conseil de discipline de la gestion financière*.

issued by the sanction committee. In some rare cases the disgorgement of non-legal profits is explicitly analyzed in the decisions.

Like any other public agency, the AMF enforcement actions are not the mechanical outcome of statutory legal provisions. They involve an internal doctrine of enforcement deserving empirical analysis. One key basic idea of the paper is that a proper understanding of enforcement actions can be achieved through empirical analysis of what the agency does, rather than through its formal legal and institutional legal powers. We will follow Gadinis (2012) perspective on the necessity to address financial regulation *in concreto*.

Since the seminal Fama & al. 1969 study, the reputational effects of enforcement action or press release of suspected fraud, large number of research works focus on their effects on the firm's reputation in the securities market. The event study methodology allows to identify abnormal returns when an event appears. Such event can be a newspaper press release, or the issuance of a notice by an enforcement agency, or the issuance of a decision to sanction a corporate actor, or any other type of information-providing mechanism. The paper adapts an events study method to address the reactions of the financial market to the opening of a proceeding by the AMF towards corporate firms. While Djama (2013) previous study of AMF proceedings was restricted to financial and accounting information frauds, we do not make any restrictions to the types of frauds and, therefore, take into account every type of wrongdoing (such insider trading, organizational failures of financial firms, lack of information of the customers or investors, etc.).

Coffee (2007) and Armour, Mayer and Polo (2011) remark that the enforcement of sanctions issue is closely connected with the reputation issue and the links between legal institutions and financial development. We agree with such a statement. The paper will extend it through further reflections about the "enforcement in action" issue which simply consists in understanding what regulators do. This will be completed by an estimate of stock market reactions to the opening of proceedings by the AMF against corporate actors, through a nowadays current event study method.

Section 1 gives a brief presentation of key background issues about AMF. Section 2 reviews the literature on enforcement of financial regulation, reputational loss, and informative capacity of the market. Section 3 presents the data and the methodology. Section 4 presents the empirical results and discusses them. A conclusion follows.

## 1. Background

***Enforcement of financial regulation.*** The maximum amount of pecuniary sanctions is defined by a legislative act. It has been revised several times since the AMF creation in 2003. At the beginning the law fixed a ceiling of 1,5 Million euros. A 2008 law<sup>2</sup> has raised the maximum possible sanction at 10 Million euros (or ten times the amount of profits made as the result of a non-legal practice). In 2010, a law passed in the context of the subprimes<sup>3</sup> collapse raised the ceiling at 100 Million euros (or ten times the amount of profits made thanks to a non-legal practice).

It must be noticed that the previous figures concern a part of the professionals: investment services providers, regulated professionals, and physical or moral persons convicted as authors of a market abuse or as having failed to comply with professional duties. Market abuses are considered as having a higher degree of gravity than non-compliance with professional duties. For physical persons acting on behalf an investment services provider or a regulated professional, the maximum sanction is fixed at 15 million €(1.5 M€before 2010).

***Internal organization and procedure:*** From a legal viewpoint the AMF is an independent administrative agency vested with the power to sanction the non-compliance to financial regulation, which is codified in the financial and monetary code. It is also vested with the power to sanction non-compliance to the law. Its policy is stated in various documents posted on its website: internal regulation (*règlement general*) and communications.

AMF is ruled by a “Collège,” which decides the policy and has the exclusive power to open a sanction procedure. The administrative staff is divided into several divisions, one of the most important for our purpose being the Division of investigations and the Division of market oversight. The Sanctions commission is the entity which implements the punishment of non-compliant behaviors. The AMF proceedings are based on judicially-based rules which guarantee the legal rights of the defendant and the impartiality of the proceeding. Despite not being a judicial court, the AMF must, owing to constitutional and European law provisions, clearly separate the entities in charge of prosecution (*poursuites*) (the *Collège*) and sanctions (the *Commission des sanctions*). Beyond the separation of power to prosecute and power to sanction, the AMF must comply with constitutional law which forbids the referee in charge of instruction to participate to the sanction decision. In short, as others similar

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<sup>2</sup> loi n°2008-776 du 4 août 2008 de modernisation de l'économie.

<sup>3</sup> loi n° 2010-1249 du 22 octobre 2010 de régulation bancaire et financière.

judicial or quasi-judicial institutions in France, the AMF must respect the separation of prosecution (*poursuite*), investigation (*instruction*), and judgement stages.

The sanctions commission has the exclusive power to decide penalties. It can decide two types of sanctions: disciplinary and monetary. The latter has a dissuasive character, while the former consists in a non-monetary sanction of non-compliant and faulty behaviors of professionals of finance.

**AMF doctrine about penalties.** The 2013 Nocquet report on “post-penalty issue” stresses the existence of a gap in the legislative and regulatory provisions owing to the criteria that may provide a secure guideline to decide the monetary amount of sanctions. Legal texts state that the amount should be determined in regard of the gravity of the infraction and in relation with the benefits or profits made as a result of the infraction (*Code monétaire et financier*, art. L. 621-15, III). The Nocquet report makes several recommendations about the way sanctions should be decided and enforced. Among them, the report formulates a series of detailed criteria for the determination of the sanction: gravity and length of the infraction, status and degree of commitment of individuals in the infraction, financial capacity of legal persons or individuals, degree of cooperation with the AMF, etc. More important, the Nocquet report recognizes that the AMF has elaborated in the course of time, and will continue to do so, in an empirical way, its own rules of practice and tools, which supplement the legal gaps.

**AMF practice.** AMF has the duty to oversight the markets and to sanction frauds and misconducts of individuals and corporate actors. The Bureau of market oversight identify about 30.000 abnormal events per year; only a small fraction (395 in the course of 2013) of them are scrutinized. Ultimately, only 25 investigations were opened in 2013 (AMF annual report 2013, p. 114).

Since 2004 the sanctions commission issues on average 25 decisions per year. In many case, a particular decision sanctions more than one single person. A typical proceeding incriminates usually at least one individual (executive agent, CEO, Finance director...) and one corporate actor. Over time the total number of incriminated persons grows swiftly from 2004 to 2008; afterwards that number falls down (Figure 1).

[Insert Figure 1 here]

[Insert Figure 2 here]

As stated earlier, sanctions can be decided against physical persons and moral persons. Both kinds of persons can be sanctioned in a same decision. The figure 3 exhibits the distribution of persons sanctioned in 2006, 2008 and 2011. It shows a peak of physical persons sanctioned in 2008, whatever they are sanctioned in a specific decision, or in conjunction with corporate entities. By contrast, the number of individuals becomes rare in 2011. That seems to evidence a trend to de-personalize the sanctions decided by the AMF.

[Insert Figure 3 here]

There is evidence of an AMF policy to concentrate on the most serious fraud and misconduct cases, in other terms on behaviors which are considered as threatening the integrity of the financial markets (Bouthinon-Dumas, Kirat & Marty 2015).

## **2. Review of Applied Literature**

We make a brief review of applied literature on the following issues:

- The concrete enforcement of regulation. We discuss the measurement of enforcement issue in connection to the need to understand how the market reacts to sanction of corporate actors. Reputation issue.
- The reputation effects of financial regulation enforcement, which is currently assessed through event-study methodology.
- The informative capacity of the market.

### **Enforcement of sanctions**

Enforcement of sanctions is a crucial issue. It is however difficult to measure the level of enforcement of sanctions by a financial regulator. In the economic and finance literature, the level of enforcement is approached in two alternative ways: i) through the formal powers granted by the Government to the regulator, ii) through the budgetary and human resources allocated by the Government to the regulator.

The approach by the formal powers given to the regulator proposes to measure the extent of legal capacity of the regulator to sanction non-legal behavior in the financial industry (La Porta, Lopez-de-Silanes, Shleifer, 2006; Djankov, La Porta, Lopez-de-Silanes, Shleifer, 2008). La Porta & al. argue that the enforcement of the regulation can be approximated by the legal powers that the Government attaches to the regulator. They also argue that private enforcement (via courts, rules of liability and disclosure) is more effective in terms of investor protection than public enforcement by a public agency. La Porta et al. (2006) measure the intensity of public enforcement of financial regulation through the formal characteristics of the regulator, in terms of independence from the executive (owing to appointment, and tenure), rule-making power, investigative powers, its capacity to issue orders, and the ranks of sanctions available. They set up a summary index of public enforcement. Using these data, and others data collected through a survey among attorneys in 49 Countries, about liability standards and rules about disclosure, they found little evidence that public enforcement benefits stock markets. On the contrary, they found that “both extensive disclosure requirements and standards of liability facilitating investor recovery of losses are associated with larger stock markets” (La Porta & al., 2006: 28). They conclude that private enforcement via courts provides a better enforcement mechanism than enforcement by a public agency. Interpreted in terms of legal origins, these characteristics are those of a common law system, which benefits “appear to lie in its emphasis on private contracting and standardized disclosure and in its reliance on private dispute resolution using market-friendly standards of liability” (La Porta & al., 2006: 28).

The most common criticism of legal index is than they are basically flawed (Voigt, 2013). These critics being well-known, we prefer focusing here on the measurement of public enforcement through formal qualities of the financial regulator. Jackson and Roe (2008) offer a series of objections against it, the most important being that the key issue is “not to be whether the regulator has the *formal* power to sanction offenders, but whether it *actually* exercises that power” (Jackson & Roe, 2008: 8).

The approach by the staffing and budget resources is based on the idea that their level is indicative of the importance the Government attaches to the regulation of the financial market through the level of enforcement that the level resources allow to achieve. Jackson and Roe (2009) conclude that countries that invest more in regulation and sanctions have better capital markets outcomes. More precisely,



“Allocating more resources to public enforcement is positively correlated with robust capital markets, as measured by market capitalization, trading volume, the number of domestic firms, and the number of initial public offerings” (Jackson & Roe, 2008: 2). Jackson and Roe’s findings sharply contrast with La Porta & al., regarding the private vs. public enforcement debate. They argue that private litigation suffers major shortcomings as an enforcement mechanism: slow and inept judiciaries, lawyers’ rent-seeking, and free riders effects when the harms are collective. Moreover they find that common-law countries devote more resources to public enforcement and securities regulation than civil law countries; such a conclusion challenges usual assumptions about the primacy of state power in civil law jurisdictions (2008: 23).

Beyond formal powers, one other key issue is to understand regulation “in action”, which leads to focus on how the financial regulator behave *in concreto*. Gadinis (2012) study of SEC performance data just before the 2007-08 subprime crisis penlights the SEC enforcement against brokerage houses and investment banks. He argues that the defendant associated with big firms fared better as compared to lower size firms. Three dimensions separate big firms and lower size firms: a) for big firms, SEC actions against them scarcely involve individuals, since the huge majority of actions involve corporate liability exclusively, b) big firms are more likely to end up in administrative proceedings instead of judicial proceedings, c) within administrative proceedings, big firms employees were likely to receive lower sanctions, notably bars from the industry, temporarily or definitively. Gadinis’ analysis of SEC enforcement actions shows that the SEC treats, de facto, financial firms differently according to their size, and individuals are treated differently according to the type of firm which employs them.

## **Reputation**

Reputational effects of enforcement actions are usually estimated through the event study methodology pioneered by Fama, Fisher, Jensen and Roll (1969).

[Insert Table 1 here]

Karpoff & Lott (1993) raise the issue of reputational penalty that firms bear from committing criminal fraud; they reassess the optimal penalty for corporate fraud theory in order to determine if reputational costs overcome the low level of penalty for fraud owing to its social cost. Their sample is based on a collection of press announcement of corporate fraud from the Wall Street Journal from 1981 through 1987. Criminal fraud includes four types of frauds: stakeholder fraud, Government fraud, financial reporting fraud, and violation of regulations. Stakeholder fraud relates to situation in which the firm is accused or convinced to cheat on implicit or explicit contracts with employees, suppliers, franchisees, or customers. Frauds of Governments are cases in which the firm cheats on implicit or explicit contracts with a Government agency, which concern mainly defense programs and procurement. Financial reporting frauds relate to situations in which agents of the firm misrepresent the firm's financial conditions. The last type of fraud, i.e. violation of regulations, involve violations of regulation enforced by federal agencies, mainly in the field of financial services (Karpoff & Lott 1993:766-68). The authors identify several types of press dates found in the Wall Street Journal: i) the report in the press of allegations or investigations of a fraudulent activity, ii) the date of charges or lawsuit filed by a governmental agency or a private party, iii) the date of the penalty of a convinced firm or, otherwise, of a settlement with at least one party, and finally iv) the date of the first report containing additional information about the settlement.

They estimate the reputation penalty under the following analysis: alleged or actual corporate fraud “correspond to an economically and statistically significant loss in the accused firm's common stock market value” (Karpoff & Lott 1993: 796). A small part of this loss (6.5%) corresponds to the expected legal fees and penalties, They compute other portions of loss which could reflect higher expected penalties for future frauds, and “the lost value of the cheating firm's profits from committing fraud” (Karpoff & Lott 1993: 796). However, one third of the loss remains. Karpoff & Lott argue that the remaining cost represents lost reputation.

Karpoff & Lott find large reputational penalties associated with fraud, with the exception of violations of regulations for which the reputational penalty is negligible. They also find that the successive events do not change the effect of the first announcement on the firm's value on the market.

Kang (2008) extends Karpoff & Lott work. He studies the reputational effects of financial reporting fraud which takes into account the spillover of reputational penalties to firms connected to the fraudulent one through directors' interlocks. He collected data from Lexis-Nexis database for public announcements of firms under SEC investigations from 1998 to 2002 and completed a first sample of 30 firms accused of fraud, with a second group composed of associated firms with director interlocks with at least one firm of the first group. Kang finds that the 30 firms of the first group experienced reputational penalties, and that the 244 associated firms experienced an average decline of cumulated abnormal returns of 1.03% over a two-day window (Kang 2008: 547). He also finds, as a result of logistic regression analysis, that associated firms were more likely to experience significant reputational penalties when the interlocking directors held audit or governance chair positions in them.

Feroz, Park & Pastena (1991) explore how markets react to the SEC accounting enforcement actions. They use the SEC Accounting and Enforcement Releases, issued from april to 1982-april 1989, and test the market reactions after the occurrence of three events: i) disclosure of reporting of accounting or auditing fraud, ii) investigation, and iii) final settlement. They find that disclosures of the reporting violations are associated with average two-day abnormal returns of -13%; they also find abnormal returns of -6% at disclosures of investigations. However, none of the abnormal returns associated with final settlement of enforcement actions are significant. They conclude that "the market reacts negatively to news of an SEC investigation even when there was prior public disclosure of the violation. This implies that threat of an investigation represents a viable sanction that is available to the SEC in its goals of maintaining the credibility of financial statements and preventing the erosion of accounting principles" (Feroz, Park & Pastena 1991:127).

Miller (2006) investigates the press's role as monitor for accounting fraud. Albeit not focused on penalty per se, Miller's article is interesting because he assess the abnormal return issue through a event study. He makes a distinction of two types of press articles relating to accounting fraud: first, the reporter-generated articles, which are based on specific investigations and therefore issue previously unknown information; second, the articles which rebroadcast allegations from other intermediaries. While the former provide new information to the markets, the latter do not. Miller investigates whether the market reacts negatively to press information alleging accounting malfeasance. Miller observes the abnormal returns of 60 firms in a one-day window. He finds an average one-day adjusted react of -6.3% and a median adjustment of -2.9%. He investigates whether the market reacts in different ways according to the types of articles, i.e. reporter-generated and rebroadcasting articles. The latter can either have no impact because they do not deliver additional information to the market, or have an impact because they

can inform stakeholders who have not informed by press-generated articles. Miller finds that the reporter-generated articles explain a substantial market reaction: -13.9%, which is statistically greater than that for the rebroadcasting articles (Miller 2006:1021). After an additional examination of number of trades, volume, average trade size, and volatility, Miller concludes that: “Overall, the market return evidence indicates press articles are informative to market participants. In particular, press articles based on reporter analysis seem to create significant changes in the market’s assessment of a firm” (Miller, 2006: 1024).

Djama (2013) studies the market reactions to the French financial supervisor decisions to scrutinize and, eventually issue a sanction, in the field of financial and accounting fraud. On the basis of 69 sanction decisions issued in the period 1995-2008 in financial and accounting misreporting, Djama takes into account three events: a) the announcement of financial and accounting information by the firm, b) the opening of an investigation by the AMF, v) the issuance of a sanction.

The first event relates to the disclosure of false information by the firm. The market is supposed to react positively to the new information delivered, even if the information is proved to be wrong ex post. The markets reacts negatively to the opening of an investigation, since the cumulated abnormal returns turn negative; the market discovers that the financial and accounting information issued by the firms is fraudulent, so the investors adapt their expectations to the new information delivered by the AMF. The negative impact of opening of investigation on the value of the firm in the market can be explained by two reasons : i) investors become uncertain as to the expectancy of future returns, ii) the negative effects in terms of loss of reputation of the firm and its managers (Djama, 2013 : 152). The third event – the sanction decision issuance – has no effect on the market: cumulated abnormal returns are not significantly different of zero during the interval “one day before/one day after” the event. Djama argues that « it is not the AMF sanction but, instead, the opening of an investigation, which have a disciplinary effect” (Djama 2013:152).

Armour, Mayer and Polo (2011) study the impact of the enforcement of financial and securities regulation by the UK’s Financial Services Authority (FSA) and London Stock Exchange (LSE) on the market price of disciplined firms. They use a sample which consists of the entire population of regulatory enforcement actions by the FSA and the LSE against publicly-traded companies over the period 2001-January 2011. What is specific to the paper is : i) that they do not aggregate the effects of multiple announcements over a period of time, ii) to set up a proper measure of reputational loss; iii) to separate the reputational effects between customers and investors (those parties who trade with the firm) and third parties.

(i) One «clean» event instead of several successive events. Armour & al. argue that previous measures of reputational losses have shortcomings, since they measure reputational loss as the residual component of the firm's stock price decline as a result of financial penalties. Therefore the conventional approach consists in subtracting any financial payment of penalized firm is required to make, from the total stock price effect. With such a method the problem is that there are frequently several announcements associated with a particular action. This is usually the case in the US : a first announcement relates to the opening of an investigation, a second one can relate to the results of the investigation, a third one can relate to subsequent civil litigation or to a class-action claim. Armour & al notice that “the approach that previous researchers have taken to such multiple events is simply to sum up the total abnormal returns across the events”, so “it is difficult to be sure that the latter stages really related to the original announcement and not to further information that was released during subsequent stages, or conversely that relevant information was not released between the reported stages (Armour & al., 2011: 10-11). In other terms, summing share price reactions risks both over and under inclusion of information.

(ii) They calculate the change in the share price  $\Delta V_t = V_t - V_{t-1}$  in the event window around the announcement of misconduct by the financial regulator; they subtract the amount of payments (fines and/or compensation). Reputational loss is then :  $\Delta V_t - \text{Fine} - \text{Compensation}$  (Armour & al. 2011 : 22).

(iii) a firm wrongdoing may affect two types of groups : first, the parties who have contractual relationship with the wrongdoer, such as the customers and the investors ; second, the third parties, who do have no contractual link with the wrongdoer (the public in general). It is therefore legitimate to assess the enforcement actions effects on stock price for the two groups.

According to Armour & al., substantive law and procedural rules in the UK give them the opportunity to identify one particular event instead of relying to multiple events. The FSA final notice issuance gives a clean information about the wrongs, because it is the sole information which can be released to public and because settlements agreements must be validated by a final notice. Armour & al argue that the FSA final notice issuance gives a clean and complete announcement to the market” (Armour & al., 2011 : 14). They find that reputational sanctions are empirically real : their stock price impact is on average 9 times larger than the financial penalties imposed. However, the reputational loss for the customers/investors subgroup is -2,31% of market value, and is strongly statistically significant; however, for third parties, the reputational effect is positive (0.43%) but not significant. Armour & al conclude that “the absence of reputational damage in the event of revelation of third party wrongs suggest that market processes are wholly inadequate for restraining such activity” (Armour & al. 2011:28).

## **Informative capacity of the market**

*Signaling Theory.* Signaling theory deals with information asymmetry among firm and its investors. When a firm's variable attributes are disclosed then investor's uncertainty about the effective value of company reduces. Some of these signals are coming from company and some are issued from third parties. The article of Akerlof (1970), on which has set up the foundations of signaling theory, explains that information asymmetry could destroy market equilibrium and impact securities prices. Investor are keen to grasp any signal likely to improve their knowledge about firm and hence readjust stock price. In this paper we show that sanction announcements send a strong signal which trigger a price level change.

*Efficient-Markets Hypothesis.* Following Efficient-markets hypothesis (EMH) in an efficient market securities prices reflect all available information. Theoretical stock prices are considered to be equal to the present value of the future expected dividends. These latter are highly conditioned, on one hand, to companies idiosyncratic information and on the other hand to overall macroeconomic news. Considering present day regulated stock exchanges as efficient (or semi-strongly efficient) markets (Fama & al. 1969) every single new information have to readjust price levels. Following the nature of the news (Good/Bad) and its impact on the future profit, the price have to increase or decrease. In order to study the impact of a given event on stock prices it is hence possible to isolate its outcome as an abnormal return (AR). Following the magnitude of the impact on future profit the abnormal return could be negative or positive. In this study, sliding prices following a sanction announcement is interpreted as a reputational loss. This latter could raise questions about the trustworthiness of managers or the lack of effective system of surveillance and compliance in company.

In order to test this assumption we state the following hypothesis:

*H1: Press statement of misconduct has a negative impact on the reputation of defendant firms hence the market reacts negatively to the announcement of a regulatory sanction.*

The statement of beginning of investigation as well as statement of sanction to the firm, though not a public information, is known swiftly by small sphere in a financial center. Financiers of such a firm could anticipate the negative impact of sanction announcement when it is disclosed in press and try to take advantage of it. Insider trading is the way through which informed agents could profit of their privileged information and speculate on stocks. This bring us to state following hypothesis:

*H2: Stock prices dip when the firm is informed about opening of an investigation about its exercise.*

*H3: Stock prices dip when the firm is informed about the sanction which has been resulted of the investigation.*

Armour & al. (2011) show that the amount of fine does not serve as signal of how serious is the wrong. Seemingly, the amount of fine is too low, compared to the market size of firm, to be considered by markets.

*H4: The amount of penalties is not correlated to the reputational loss.*

In the aftermath of the bankruptcy of Lehman brothers and the financial crisis in 2008, all around the world the regulators tightened their rules and attach importance to the application of rules (Armour & al., 2011). The investors also became much more sensitive to the information related to the wrongdoings. This brings us to posit the following hypothesis:

*H5: The investigations which have been opened after financial crisis have even more negative impact on the stock prices.*

### **3. Data and Methodology**

We have examined all the AMR sanctions procedures which resulted to a financial payment by companies over the period 2006-2011. From the information available on the web site of AMF we have found 60 cases, which have resulted to a monetary sanction. Since the study of abnormal returns is only possible on the publicly listed companies we had to drop all non-listed companies as well as individuals. This reduces the number of our cases to 25 of which 7 cases concern non-financial companies. The innovation of our study compared to the literature is that we have three separate events which increases the amount of whole observations to 75. The stock prices of each firm as well as market index (CAC 40) of the Paris Stock Exchange (Euronext-Paris) have been collected thanks to DATASTREAM database.

To assess the sanction announcement impact on shareholders' wealth, we implemented a market model for abnormal returns (Brown and Warner 1985). We estimated the market model variables (  $\alpha$  and  $\beta$  ) for an estimation period immediately before the event period. The estimation period lasted 125 days; the event period is composed of days -5 to +5 around the announcement date. This large interval enable us to grasp potential insider trading before the event and also the impact of announcements days following the event.

Let  $R_{it}$  be the observed return for security  $i$  on day  $t$  and  $R_{mt}$  be the return on the index for day  $t$ . The abnormal return  $A_{it}$  for security  $i$  on day  $t$  is

$$AR_{it} = R_{it} - (\alpha_i + \beta_i R_{mt}) \quad (1)$$

The average abnormal return on day  $t$  for a given sample of  $N$  events is

$$AAR_t = \frac{1}{N} \sum_{j=1}^N AR_{jt} \quad (2)$$

Then, the cumulative average abnormal return between event days  $a$  and  $b$  can be calculated as:

$$CAAR_{a,b} = \frac{1}{N} \sum_{j=1}^N \sum_{t=a}^b AR_{jt} \quad (3)$$

In order to test the statistical significance of results we have used Corrado's nonparametric rank test. Corrado's test outperforms standard parametric tests which are affected by some problems (Bartholdy & al. 2007)

#### 4. Results and discussion

Table 2 depicts separate results of the average abnormal returns (AAR) for the three events: opening of investigation, announcement of sanction to firm and press release of the sanction. As it is shown on Table 2, Corrado rank test supports strongly the statistical significance of negative returns for two days which follow the announcement. Hence in support of H1, our results indicate that press statements of sanctions have a statistically negative impact on the reputation of deferred firms. The negative impact is even more obvious on the Figure 4. This latter illustrates the cumulative average abnormal returns (CAAR) and average abnormal return (AAR), 5 days before and after publication of sanction in press. As the figure shows, abnormal returns are negative following the event and cumulative abnormal returns remain negative after the event.

[Insert Table 2 here]

[Insert Figure 4 here]

Although the significance is not so high, we find close to 10% significance level for the ARR on the announcement of opening of investigation. This is consistent with H2. However, results show that the



announcement of sanction to the firm has no significant impact on stock prices rejecting null hypothesis H2.

In order to test whether the amount of monetary sanctions that deferred firms have to pay has any impact on the abnormal returns we have conducted an OLS cross-sectional regression with AAR of the press release date. The regression also enables us to assess if the financial crisis of 2008 had any impact of the reaction of markets to the announcements about wrongdoings. Specifically we have utilized the following explanatory variables:

- Amount of monetary sanction: This variable represents the amount of sanction paid by firm following the investigation

- Post-crisis: a dummy variable which takes 1 when the investigation has been started after the financial crisis of 2008 (September), and 0 otherwise.

In order to take into account the impact of large capitalizations we have also integrated a control variable:

- Market size: a variable representing market capitalization of the deferred firms at the end of the year they get sanctioned.

Given difficulties to gather information for the variables the number of observation pass to 20. Table 3 provides descriptive statistics for these variables. The sample contains small with a market capitalization of 4 million as well as large capitalizations (Blue chips). Accordingly the results of regression are robust to the market size of firms.

[Insert Table 3 here]

Table 4 presents the results of cross-sectional regression. The market size is not statistically significant, which is consistent with H4. It means that the abnormal returns are not correlated to the sanction amount or in other words the amount of monetary sanction is not a significant factor in the reputational loss.

[Insert Table 4 here]

The Post-crisis dummy is not significant, meaning that there is no evidence on the impact of financial crisis on the market reaction to the wrongdoing announcements. This rejects H5 which considers the markets more reactive to the announcement of sanctions.

## Conclusion

In this article we have studied the reputational loss of monetary sanctions on the deferred firms in France. In our sample we have considered listed companies which have been sanctioned by the French regulatory authority in France (AMF) over the period 2006-2011. We have collected stock market prices of deferred companies during three announcements: opening of investigation, announcement of sanction to firm and press release of the sanction.

We have implemented a robust event study approach to assess the impact of these announcements on the stock prices. The event study enables us to isolate abnormal returns which are resulted from the announcements around the event date  $\{-5,+5\}$ .

The results indicate a strong negative impact of the announcement of sanction in press on the firms' stock prices. Accordingly, we observe a reputational loss of the deferred firm following the disclosure of sanction in press. We observe also a weak decrease in stock prices when the firm has been notified of the opening of investigation on its misconducts, however we find no evidence on the impact of announcement of sanction directly to the firm on the stock prices.

We also carry out an OLS cross-section regression to assess, mainly, the impact of the amount of sanction on the reputational loss of firm. As we have expected, the amount of monetary are too low, compared the market size of deferred companies, to influence stock prices and contribute in reputational loss. Recent literature suggest that the investors are more reactive to the misconducts in financial markets. This is why we have examined whether markets are reacting more negatively to sanction announcements in press, but we found no evidence to support this hypothesis.

In the bottom line we observe on one hand, the sensitiveness of stock markets to the announcement of misconducts and on the other hand, the monetary sanctions amounts are not as much large to impact or hold back the likelihood of firms to misconduct.

Figure 1. Sanctions and settlements by AMF

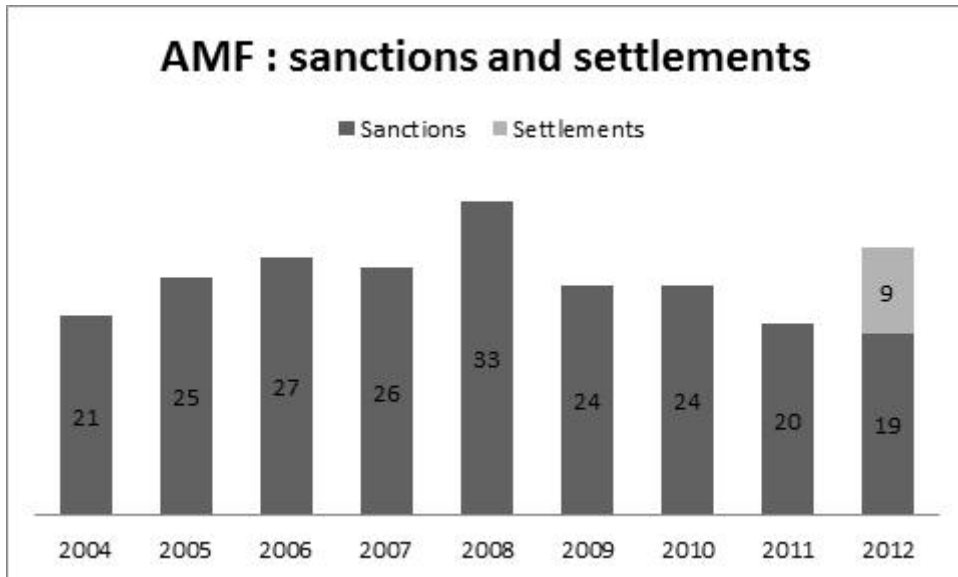


Figure 2. Terminated Procedures

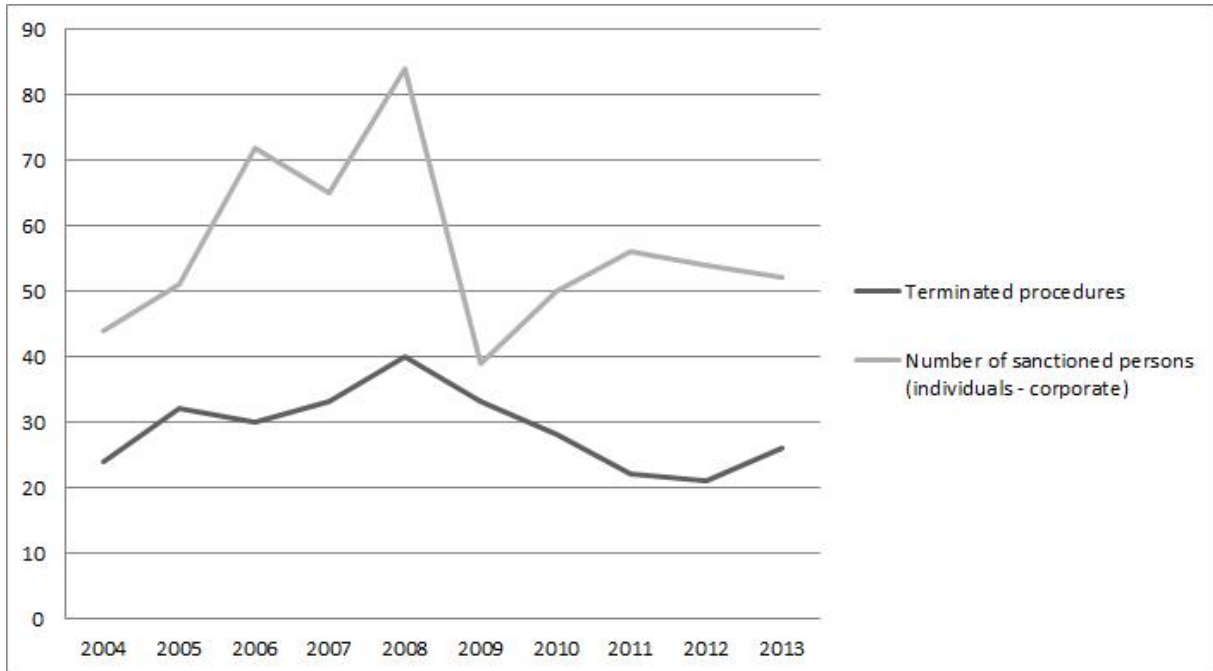


Figure 3. Classification of sanctions

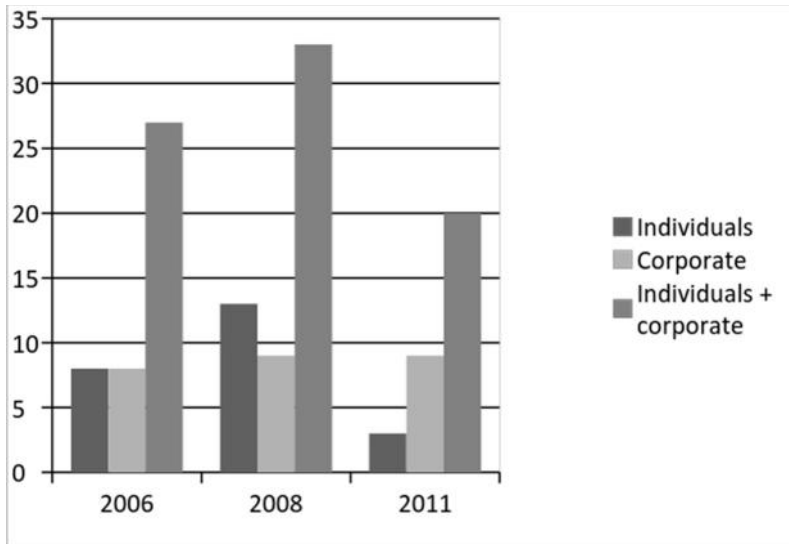


Table 1 – Overview of some works using event study

Author	Case studied	Source	Field
Karpoff & Lott 1993	USA	Press release about corporate criminal fraud (Wall Street Journal), 1981-1987	Stakeholder fraud Government fraud (procurement) Financial reporting frauds Violations of regulation
Kang 2008	USA / SEC	LexisNexis	SEC enforcement actions
Armour, Mayer and Polo (2011)	UK	FSA final notice	FSA enforcement actions
Djama 2013	France	AMF announcement of investigation and sanction	AMF enforcement actions
Miller 2006	USA	Press	Accounting fraud
Feroz, Park & Pastena (1991)	USA/SEC	SEC Accounting and Enforcement Releases, 1982-1989	Accounting and auditing fraud

Table 2. Average Abnormal Return (AAR) around the event date (t=0)

	Days around event (t=0)	AAR	Corrado Rank Z test	
Publication in Press	-5	-0.21%	-1.12	
	-4	-0.21%	0.07	
	-3	0.07%	0.19	
	-2	-0.38%	0.21	
	-1	0.42%	-0.15	
	0	-1.33%	-2.01	**
	1	-1.87%	-1.81	*
	2	-0.41%	-0.39	
	3	-0.04%	-0.26	
	4	-0.19%	0.42	
	5	-0.47%	-0.97	
<hr/>				
Investigation opening	-5	0.39%	0.57	
	-4	0.06%	0.37	
	-3	-1.02%	-1.21	
	-2	0.21%	-0.06	
	-1	0.45%	1.61	
	0	-0.88%	-0.49	
	1	-0.13%	-1.05	
	2	-0.85%	-0.76	
	3	0.69%	0.33	
	4	-0.25%	0.42	
	5	-1.93%	-1.64	
<hr/>				
Issuance of sanction	-5	-0.91%	-1.57	
	-4	-0.59%	-0.82	
	-3	-0.63%	0.56	
	-2	1.07%	1.18	
	-1	0.91%	0.03	
	0	0.05%	-0.21	
	1	0.04%	1.01	
	2	-0.79%	-0.31	
	3	1.21%	0.85	
	4	0.02%	-0.37	
	5	-2.76%	-1.52	

Fig.4 CAAR (-5,5) for press statement of sanction



Table.3 Descriptive Statistics

	Mean	Min	Max
Average Abnormal Return (AAR,0)	-0.0134	-0.0870	0.0751
Fine Amount (euros)	396842	10000	1500000
Market Size (Million euros)	11348	4	36655
Observtions	20		

Table 4. Cross-sectional regression analysis of Press announcement average abnormal return

Variable	Coefficient	t-statistics
Fine amount	-0.0001	-0.87
Market size	-0.0001	-1.44
Post-crisis	0.0136	0.76
Constant	-0.0005	-0.03
	F-statistics	1.32
	R <sup>2</sup>	0.20
	Adjusted R <sup>2</sup>	0.05



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