

On the Consequences of Being Named in a Sanction for Listed Companies

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Abstract

This paper questions the informational content of sanctions as conducted by the French Financial Market Authority (AMF) involving listed companies, through reactions from financial markets. Out of the 308 decisions made over the period 2004 to 2016, to which add 32 settlements since 2012, listed companies were either sentenced guilty (52 sanctions and 5 settlements) or not-guilty (11 sanctions). Firms were also victims of others' financial market misconducts (65 sanctions). This article contributes to answering whether being named in a sanction, as an offender, an acquitted, or a victim, conveys information to the market using an event-study methodology, completed with cross-sectional regressions: do investors react to such news, and if so, at which stage of the procedure, to what extent, and why?

The market reacts accordingly to the information content of the sanctions. Guilty listed companies experience significant abnormal negative returns after the sanction decision, and its publication, though to a limited extent in absolute and relative terms. Such underperformance is correlated with investigations, longer procedures, smaller companies possibly from industrial or technological sectors, stronger media coverage of the sanctions following the publication, and better economic activity. The markets also incorporate the informational content of the decision: no statistically significant abnormal reaction follows the publication of anonymized sanctions; market reactions vary depending on the regulatory breaches; and, to some extent, the severity of the decision influences abnormal returns. Settlements do not convey information to the market, being lighter and shorter procedure associated with lower sanctions. Being sentenced non-guilty implies a mixed correction in the market, depending on the step of the procedure. Finally, companies named in a sanction report as victims of others' regulatory breaches also suffer negative abnormal returns after the sanction, possibly being synonym of double punishment.

JEL-Classification: G14, G18, K42, N24

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1 Introduction, motivation and related literature

Regulation of financial markets aims at increasing the information available to investors and at ensuring the soundness of the financial system. By doing so, it reduces the asymmetric information in financial markets, as well as adverse selection and moral hazard for investors. Regulatory sanctions and financial penalties may increase the stability in the stock market, as detailed by Koster and Pelster (2017) regarding the banking sector. Financial sanctions demonstrate that the regulatory authority does not tolerate regulatory breaches and that the set of rules has to be respected in order ensure investors' confidence. Sanctions may also play a future deterrent and disciplinary effect by dissuading breaches and encouraging best practices in light of the risks of being caught and sanctioned. Finally, sanctions may discourage listed companies to engage in excessive risk-taking activities.

Hence, as part of its mandate, the Enforcement Committee (EC) of the French Financial Market Authority (AMF²) sanctions market players which do not comply with the set of rules they are subjected to (the Monetary and Financial Code, and the AMF General Regulation), by committing regulatory breaches³. The goal of sanctions, from the regulatory point of view, is to strengthen the market place, by improving practices and setting examples. For a given regulatory breach(es), such administrative procedures could be conducted – until 2016 – by the AMF, in parallel, to criminal prosecutions. From 2004, when the AMF first sanctioned, to 2016, 308 decisions were made and published on the AMF website, standing for 193 billion euros of cumulated fines⁴. All sanction procedures follow the same milestones. If an investigation (to identify market abuses) or a control (to check the compliance with one's professional obligations) concludes that a regulatory breach(es) can be characterized, the Board of the AMF sends a statement of objection to the incriminated entity/person, asking for additional information. Given these elements, the Board may transfer the case to the AMF EC, initiating the “judicial part” of

² <http://www.amf-france.org/>

The AMF has granted the author access to regulatory data. Interviews were also conducted with a wide range of collaborators of the Authority, who need to be thanked for their time and cooperation.

³ Four main regulatory breaches are sanctioned by the AMF: **1) any breach of the Monetary and Financial Code and the AMF General Regulation** (*i.e.* a failure to comply with professional obligations by regulated professions) and three market abuses: **2) breaches of insider dealing regulations** (use and/or divulgence of insider information for investment decisions); **3) price manipulations** (deliberate misconduct to influence securities prices and fair price formation); and **4) breaches of public disclosure requirements** (failure to comply with financial reporting laws and regulations). See de Batz 2007 a and b for details on the legal framework and on the history of sanctions.

⁴ 24 sanctions were made *per* year on average, to which add 6 settlements *per* year since 2012, when this new procedure was first concluded. When excluding the 9% acquittal decisions, 94% of the guilty sanctions included a cash fine, for an average 688,320 euros. The fines are paid to the French Treasury in majority, or to the guarantee fund to which the professional belongs.

the procedure. The latter ends with a public hearing of the EC and possibly sanctions (cash fines⁵, disciplinary sanctions⁶, and usually publication⁷). Once the sanction decision is finalized by the EC and published by the AMF, the offender (firm and/or individual) and/or the AMF Chairman of the Board can appeal the decision towards four different jurisdictions: State Council, Court of Appeal of Paris, Court of Cassation, and *via* priority preliminary ruling on constitutionality.

The legal environment of the AMF significantly evolved over the period under review. On four occasions, its sanction powers were reformed, broadened and reinforced (de Batz, 2017 a and b). Settlement proceedings were introduced in 2010 and first applied in 2012. The latter imply simpler and shorter procedures, initially only for the less serious regulatory breaches (failure to meet with professional obligations), without guilt recognition or appeal possibility. The two latest complementary reforms were enforced in 2016⁸ and will impact sanction and settlement procedures from 2017 onwards. They reformed the organization of legal proceedings for regulatory breaches and reinforced the sanction powers of the AMF. Therefore, such evolutions make it particularly interesting to assess the impact of sanctions on investors from the AMF creation in 2004 until late 2016, before a new set of tougher rules starts to apply.

Sanctions by one's regulatory authority are a major legal risk. Such penalty affects firms directly due to the length of the legal procedures and to their financial consequences (both in

⁵ There is neither binding rule nor clear guideline on how to value fines. Time consistency and the maximums set legally are the two key objective parameters to set a fine, to which add specificities of the respondent (gravity and duration of the financial misconduct(s), financial situation, magnitude of the obtained gains or advantages, losses by third parties, etc.). Maximum fines were increased three times over the period under review and can amount up to 100 million euros for market abuses committed by professionals, or 10 times any profit.

⁶ **1) Warning or blame**, depending on the seriousness of the wrongdoing(s); and **2) "ban on activity"**, covering temporary or permanent ban on providing some or all services, suspension or withdrawal of professional license, and temporary or permanent ban on conducting some or all businesses.

⁷ Most sanctions are published, in particular in recent years, except if such disclosure would seriously jeopardize the financial markets or cause disproportionate damage to the parties involved. The Enforcement Committee decides whether or not to publish its decision, where to publish it (mostly on the French Official Journal for Legal Notices (BALO) and on the website of the AMF) and whether or not to anonymize it (entirely or partially). Moreover, the sanctioned entity and/or person can be required to publish the decision, at its own expenses, in a given set of magazines.

⁸ *Law on market abuses of 21, June 2016 (Law n°2016-819) and Law on transparency, the fight against corruption and modernized business life, of 9, December 2016 (Law n° 2016-1691, IV Art. 42-46)*

Main changes: 1) The maximum fine remains 100 million euros but can stand for up to 15% of the annual turnover for a legal entity and has been increased up to 15 million euros or ten times any profit earned for an individual failing to meet his professional obligations. 2) The ban from activity can now exceed 10 years. 3) The powers of the Enforcement Committee have also been broadened to public offerings of unlisted financial instruments (without prospectus) and to crowdfunding. 4) The scope of regulatory breaches eligible to settlement procedures has been widened to all market abuses (insider dealing, price manipulation and dissemination of false information), and no longer only the failures of regulated professions to meet professional obligations. 5) Finally, any decision published on the AMF website should remain online at least for five years (which was already the case), but any reference to personal data should be anonymized after five years (which was only partially the case).

terms of process and of financial fines). They also have indirect consequences. Sanctions stand for an additional signal of riskiness sent by regulatory authorities, regarding the extent to which the firm abides by its legal obligations. In fact, insurance fees might be increased, as well as investments in communication, marketing, and IT to compensate for the demonstrated market failure. The firm's reputation might also be durably damaged, from the point of view of shareholders and stakeholders. As argued in Fiordelisi *et al.* (2014), reputation is a key asset for any company whose affairs are based on trust. It can be damaged by a wide range of scandals (financial fraud, misleading advertising, product recalls, airplane accidents, environmental accidents, illicit allegations, etc.). Still, newspapers do not converge in their analysis (*see appendix Remark 1*).

This paper focuses on listed companies, the most frequently sanctioned legal entities by the AMF over the period under review. It investigates for a potential abnormal reaction in stock returns following the four main steps of sanction procedures by the AMF (*see Figure 1*), from 2004 to 2016. Four main scenarios were tested: the company is sentenced guilty (and possibly anonymized in the final report) or not guilty, the company is sentenced guilty after a settlement procedure, and the company is mentioned in a sanction decision as a victim of others' financial misconduct. Assuming markets are informationally efficient (Fama *et al.*, 1969), all the available information, and in that case sanctions by a regulator and their characteristics, should be reflected immediately by the market (stock prices/returns of the listed companies). Investors should react proportionally to the degree of severity of the financial market misconduct, by modifying behaviors and investment strategies (Choi and Kahan, 2007). If a potential sanction stands for a credible threat to a market player, the mere existence of such sanctions could complement financial regulation by providing incentives to comply with the set of rules. Alternatively, investors could fail to or decide not to sale their stocks in response to regulatory breaches, for a wide range of reasons: unaware, misunderstanding of the financial market misconduct⁹, not concerned about the wrong-doing, to avoid the hassle of selling and reinvesting the proceeds elsewhere, to circumvent tax consequences, to avoid an exit fee or willingness to stay with a risk taking issuer (and potentially more profitable), etc.

⁹ For example, Drake *et al.* (2014), the high level of complexity of accrual mispricing of annual earnings announcement would be the reason why of the lack of influence of their press coverage. Accordingly, breaches to the Financial and Monetary Code could be less understandable for investors than market abuses such as price manipulation or insider trading, hence dampening their impact.

The impact of sanctions on the behavior of investors was already studied by the literature from different angles, either on given populations¹⁰ or on the impact of specific information¹¹. The country which was more under scrutiny is the USA, given the easy data availability, despite the significant biases at stake (see Karpoff *et al.*, 2014). On average (*see Table 1*), event studies conclude with rapid, negative, and significant market reactions to such financial news from the regulator (*i.e.* sanctions), whatever the country or region under review (the United States (USA), the European Union, France in particular, the United Kingdom (UK), and Asian countries).

According to Becker's economics of crime (1968), the credibility of sanctions in circumventing frauds depends on three parameters: 1) the expected profits from committing the fraud, 2) the probability of being caught (only part of the frauds are detected¹²) and 3) the subsequent costs (fines, disciplinary sanctions, jail, and reputational sanction). Iacobucci (2014) demonstrated that reputational sanctions, hence the incentives to comply with regulation, depend on the expected legal penalties (*i.e.* the size of the expected financial penalties). Others estimated that the reputational penalty would by far exceed the legal penalty (see Karpoff and Lot, 1993, Karpoff *et al.*, 2008a for the USA, and Armour *et al.*, 2017 for the UK). To reach optimality, the expected total penalty for misconduct (explicit legal sanction plus reputational penalties) should equal this activity's total social cost. Otherwise, the perceived under-punishment of frauds might, in the end, encourage financial misconduct. The question is then whether financial misconduct pays, in the sense that expected profits from regulatory breach(es) may exceed the costs of a sanction (monetary (fines) and non-monetary (reputation) costs) times the probability of being caught. If sanctions influence the reputation of market players, for how long does it last? Can sanctions impair the survival of companies? What are the consequences, for a listed company, of being named in a sanction report, *i.e.* being a victim of others' financial misconduct? Do markets react, positively or negatively, when learning that a given company was victim of others regulatory breaches? Put it differently, what is the reputational spillover of being the victim of others wrongdoing? Going more into the details of the decisions, which form of sanction is more likely to encourage companies and managers to act more responsibly? Are public enforcement of

¹⁰ Such as listed companies (Karpoff and Lott, 1993, Kirat and Rezaee, 2015), or asset managers (Choi and Kahan, 2007, McCabe, 2009, Chapman-Davies *et al.*, 2014).

¹¹ Such as financial and accounting frauds (for France, Djama, 2008, 2010 and 2013, or for the USA, Dechow *et al.*, 1996), the accounting disclosure (Kothari, 2001, Karpoff *et al.*, 2008b), or insider trading news (Rogers *et al.*, 2016).

¹² Cumming and Johan (2013) estimated that, on average, 2 to 5% of the US listed companies are investigated per year by the SEC.

securities laws and sanctions efficient in deterring financial market misconduct, or should regulators focus on other tools such as disclosure and private enforcement (see Berger and Davies, 1998, Barth *et al.*, 2004, La Porta *et al.*, 2006)? A complementary question is who to sanction in terms of efficiency and future deterrence? In fact, recent literature encourages focusing on individuals (and in particular top managers), rather than on their organizations (see Jones, 2013, Kay, 2015 and Cullen, 2016).

All in all, this research aims to contribute to improving the understanding and the efficiency of financial market regulation. It is a crucial parameter of the attractiveness and the strength of securities markets in terms of fund raising (see La Porta *et al.*, 2006), of market capitalization (see Beny, 2008), or of liquidity (see Cumming *et al.*, 2011). Finally, to what extent does the AMF cop with the three greatest challenges of regulators, as stated by Carvajal and Elliott (2007): 1) the lack of independence from the government and political process, 2) the lack of legal authority and 3) limited resources?

One contribution of this paper is to analyze to the largest possible extent the financial consequences of sanctions by the French financial market regulator, beyond their financial and disciplinary components, as well as their publicity. The impact of the timing of the procedures over a long and up-to-date time span (2004 to 2016) is questioned. It is particularly interesting given the length of the procedures (2.7 years on average from the ignition until the sanction, followed by a two month lag before publication). It contributes to the legal risks for the entities being prosecuted. Better understanding the stock market response across time until recent sanctions is all the more relevant that the sanction powers of the AMF were recently broadened. The second contribution of this paper is to test the robustness of the reaction to sanctions through several dimensions: within the sample (corrected for the sector, before or after the financial crisis, depending on the seriousness of the regulatory breaches, anonymized or not), and compared with larger or complementary samples (including a large recidivist global financial institution, settlements, not guilty verdicts, and victim companies).

Even though, on a sanction-by-sanction basis, the statistical significance is difficult to detect because of the volatility in firms' stock returns, our results indicate statistical abnormal reaction on average. Listed firms do incur financial losses after the sanction decision and its publication, though to a limited extent. As expected, and reassuringly in terms of confidentiality of procedures, no reaction followed either the beginning of the procedure or the statement of

objection. The research further investigates the informational content of the sanction decisions. It concludes that markets react differently depending on the regulatory breaches, if the verdict was not guilty, and depending on the seriousness of the regulatory breaches, according to the AMF guidelines to fix sanctions, in line with the efficient financial market hypothesis (financial markets would price in the available information). Cross-sectional analysis demonstrates statistically significant negative reactions for investigations, longer procedures, in cases of involvement of the top management, when the media coverage is higher, and during better economic times. Conversely, no reaction followed anonymized sanction or settlement publication. Markets react in opposite directions for acquittal decisions. Finally, and surprisingly, the event study demonstrated significant abnormal losses following the decision for listed companies which were victims of others' financial misconduct, suggesting a double punishment.

The rest of this paper is structured as follows. Sections 2 and 3 will describe the methodologies, and the data samples. Section 4 presents the results for guilty decisions. The econometric results of abnormal returns implied after the different stages of the sanction procedure (so-called "events") will be analyzed. This section will also assess the average market value losses incurred by shareholders, estimated based on the event-study results. It will be complemented with robustness checks and with informational content tests. Section 5 will put into perspective these results by analyzing the stock market reactions for other types of decisions: acquittal decisions, settlements involving listed companies, and sanctions naming listed companies as victims of others' wrongdoings. Section 6 discusses the results and section 7 concludes and proposes next steps for future work.

2 Methodology

2.1 Event studies, to test equity returns reactions following steps of sanction procedures

Several factors suggest that stock market value should contract after the news of a sanction: the mere cost of the cash fine imposed by the regulatory authority, the second-round effects of a sanction, such as higher costs of funding and doing business (insurance, IT and process improvements, marketing, communication, etc.), and, more generally, the signal of higher riskiness of this entity (reputational cost). Consequently, a sanction may lead stockholders and shareholders to downgrade their forecasts on a sanctioned firm. Conversely, some opposing forces may play: some investors may fail to or decide not to react to the news, while risk-seeking investors could search for investments in firms more prone to play with the limits of the law,

possibly synonym of higher returns. This article questions whether a sanction procedure provides information to the marketplace. Put it differently, it investigates the nature of the correlation between the observed change in the market value of the sanctioned company and the sanction itself.

Following MacKinlay (1997), Campbell *et al.* (1997), and Kothari and Warner (2007)¹³, event studies were conducted to challenge the information content of the four main steps of the AMF sanction procedure, from ignition to publication (*i.e.* “events”). The impact of the event is measured as the abnormal returns of the company being sanctioned. For every “event”, the abnormality of daily returns will be tested over the event window, by comparing “actual” *ex-post* returns with “normal” returns. The latter are the expected returns without conditioning on the event occurring, estimated over the estimation window, preceding the event window. The abnormal returns consecutive to a given step of the procedure are taken as an unbiased estimate of the total financial consequence of the sanction (all expected uninsured future costs, including reputational losses). For a sanctioned firm i , over the period τ , the abnormal returns will be:

$$AR_{i,\tau} = R_{i,\tau} - E(R_{i,\tau}/X_\tau) \quad (1)$$

$AR_{i,\tau}$, $R_{i,\tau}$, and $E(R_{i,\tau}/X_\tau)$ respectively capture for the abnormal, the actual, and the normal returns on the security i over the period τ , given the conditioning information X_τ for the normal performance model.

A market model¹⁴ augmented with a sectoral index¹⁵ describes the behavior of asset returns. The rationale for using the augmented model is to separate, to the maximum possible extent, the impact of the “event” from any other unrelated movement in prices. Controlling for sectors contributes to take into account the long period under review, and the wide range of sectorial activities of the sanctioned firms. In fact, global and sector-specific cycles occurred during the period under review, the most important being the Global Financial Crisis, hitting most severely banks and financial institutions.

The objective is to sort out changes in value caused by overall market effects or by industry specific developments from those subsequent to the news (*i.e.* the consecutive steps of the sanction procedure). The model assumes a jointly multivariate normal and temporally

¹³ And a long history of event studies, see Dolley (1933), on the price impact of stock splits.

¹⁴ The market model assumes a stable linear relation between the market return and the security return.

¹⁵ *I.e.* a multi-factor market model including industry indexes in addition to the market, as in Sharpe (1970) or Sharpe *et al.* (1995). It reduces the variance of the abnormal returns. The results of the event study are in line when using a market model not adjusted for the sectors though lower (*see Table A.4*).

independent distribution of returns. For every security i of sector s , the augmented market model is in t :

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \gamma_i R_{s,t} + \varepsilon_{i,t} \quad (2)$$

$$E(\varepsilon_{i,t}) = 0 \text{ and } Var(\varepsilon_{i,t}) = \sigma_\varepsilon^2$$

$R_{i,t}$, $R_{m,t}$ and $R_{s,t}$ are respectively the returns¹⁶ in t on the security i , on the market portfolio, and on the sector s portfolio. $\varepsilon_{i,t}$ is the zero mean disturbance term. α_i , β_i , γ_i , and σ_ε^2 are the parameters of the model. The broadest index for the French stock market (SBF 250) will be used to proxy the market portfolio, and Euronext indices for the sector portfolios (*see composition in Table A.1*).

Under general conditions, abnormal returns parameters ($\hat{\alpha}_i$, $\hat{\beta}_i$ and $\hat{\gamma}_i$) are estimated for every sanction using the augmented market model with Ordinary Least Squares, as recommended by MacKinlay (1997). As in Campbell *et al.* (1997), the estimation window is set at [-120;-11] prior to the event in $t = 0$ (*i.e.* 110 trading days or 5 months). On every day t , the deviation in an individual stock's daily return¹⁷ from what is expected based on specification (2) (*i.e.* the prediction error or “abnormal” returns) is taken as an unbiased estimate of the financial effects of the “event” on the stock i in t :

$$AR_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t} - \hat{\gamma}_i R_{s,t} \quad (3)$$

$R_{i,t}$ is the actual returns on the security i in t and $AR_{i,t}$ is the estimated abnormal returns for the firm i in t . $\hat{\alpha}_i$, $\hat{\beta}_i$ and $\hat{\gamma}_i$ are the estimates of α_i , β_i , and γ_i , from the estimation window. Abnormal returns over the event window stand for the impact of the event on the value of the firm, under the assumption that the event is exogenous with respect to the given security.

Abnormal returns are calculated over the event window [-10;+120], including the event day ($t = 0$), in order to assess the price effect of the event and its persistence in time¹⁸. Under the null hypothesis H_0 , the “event” (*i.e.* every step of the sanction procedure, for a given sample of sanction) has no impact on the distribution of returns for the firms since 2004 (mean or variance effect).

Individual t-statistics are calculated for each sanctioned firm's abnormal return, and for each event day. The abnormal return observations must be aggregated to draw overall inferences

¹⁶ Equity returns are defined as the daily log difference in value of the equity.

¹⁷ Including reinvested dividends.

¹⁸ Lin and Rozeff (1995) demonstrated that the great majority (85 to 88%) of private information is incorporated into prices within one trading day.

for the event of interest, through time and across individual firms. Hence, the average abnormal daily returns in day t (AAR_t) are calculated for all the n sanctions in the sample, along with their statistical significances. The sum of the individual t-statistics follows an asymptotically-normal distribution, with a zero mean and a variance equal to the number of observations. The z-statistic for the average is then the sum of the individual t-statistics divided by the square-root of the number of observations¹⁹.

$$AAR_t = \frac{1}{n} \sum_{i=1}^n AR_{i,t} \quad (4)$$

The cumulated average returns from day t_1 until t_2 ($CAR_{i,[t_1;t_2]}$) for the sanctioned company i are calculated as in specification (5). To test across all events, $CAR_{i,[t_1;t_2]}$ for all sanctions are treated as a group. The p-value on the constant of the regression, using robust standard errors, gives the significance of the cumulative abnormal returns across all sanctions.

$$CAR_{i,[t_1;t_2]} = \sum_{t=t_1}^{t_2} AR_{i,t} \quad (5)$$

Finally, abnormal returns are cumulated and averaged through time and across sanctions, as follows:

$$CAAR_{[t_1;t_2]} = \sum_{t=t_1}^{t_2} AAR_t = \frac{1}{n} \sum_{i=1}^n CAR_{i,[t_1;t_2]}. \quad (6)$$

For every sanctioned firm i , the shareholder loss (or gain) $SL_{i,[t_1;t_2]}$ is estimated by multiplying the market capitalization of the firm i on the day preceding the beginning of the period $(t_1 - 1)$ MV_{i,t_1-1} (in euros) with the cumulated the abnormal returns over the period $[t_1; t_2]$:

$$SL_{i,[t_1;t_2]} = CAR_{i,[t_1;t_2]} \times MV_{i,t_1-1} \quad (7)$$

Consequently, the average abnormal shareholder loss (or gain) due to the event ($SL_{[t_1;t_2]}$) over the period $[t_1; t_2]$ is calculated by averaging all the cumulated market value losses ($SL_{i,[t_1;t_2]}$) through the sample of n sanctioned firms (in million euros):

$$SL_{[t_1;t_2]} = \frac{1}{n} \sum_{i=1}^n SL_{i,[t_1;t_2]} \quad (8)$$

Finally, the (net) reputational losses $RL_{i,[0;t]}$ for the sanctioned firm i can also be measured with the “residual approach”, as in Jarrell and Peltzman (1985), Karpoff and Lott

¹⁹ Another measure of significance aggregates, into a single portfolio, the abnormal returns of all the sanctioned companies for the day of each sanction. It then uses the daily variance of returns on this portfolio to calculate a t-statistic. This test however attributes more weight to observations of sanctions with a high variance in returns, and is therefore more sensitive to distortions from noisy observations.

(1993), Karpoff *et al.* (2008a), and Armour *et al.* (2017). The idea is to deduct the amount of financial payments (fines and/or compensation) imposed by the regulator from the abnormal shareholder loss due to the event:

$$RL_{i,[t_1;t_2]} = CAR_{i,[t_1;t_2]} \times MV_{i,t_1-1} - FP_i \quad (9)$$

Where FP_i stand for the fines on the firm i decided by the regulator on the day of the sanction.

2.2 Cross-sectional regression, to test informational content of the characteristics of the sanctions

Event studies are typically complemented by cross-sectional regressions. The goal is to investigate the relationship between the magnitude of the event abnormal return and the characteristics of the event (amid others the determinants of the sanction by itself, who is sanctioned, whether the decision was appealed, the media coverage it received, etc.). It is particularly interesting when multiple hypotheses exist regarding the causes for these abnormal returns: does a higher fine, disciplinary sanctions, recidivism, more media coverage, more liquid stocks, etc. lead to higher negative abnormal returns?

Hence, a cross-sectional regression for cumulated abnormal returns for every sanction i over the period $[t_1; t_2]$ ($CAR_{i,[t_1;t_2]}$) on the n characteristics of the sanctions is estimated using the usual OLS, with White-corrected standard errors:

$$CAR_{i,[t_1;t_2]} = \delta_0 + \delta_1 x_{1,i} + \delta_2 x_{2,i} + \dots + \delta_n x_{n,i} + \mu_i, \text{ where } E(\mu_i) = 0 \quad (10)$$

Where $x_{j,i}$, for $j = 1, \dots, n$, are the n characteristics of the i^{th} observation and μ_i is the zero mean disturbance term, that is uncorrelated with the j 's. Heteroskedasticity²⁰-consistent t-statistics using standard errors will be derived using a White (1980) approach. In fact, there is no reason to expect the residuals to be homoskedastic.

3 The data

A unique dataset was built, mostly based on the 308 publicly available sanction decisions, published on the AMF website²¹ from 2004 to 2016. It was completed with a second dataset covering the 32 settlement decisions made from 2012 to 2016.

²⁰ No assumption on identical finite variance of residuals.

²¹ See for sanctions: <http://www.amf-france.org/Sanctions-et-transactions/Decisions-de-la-commission/Chronologique/Liste-Chronologique.html?year=2017&docType=sanction>

Over the period under review, various variables were included, ranging from the characteristics of the decisions (such as the cash fines, disciplinary sanctions, or publication) and of the respondents (such as the moral form or recidivism before or after the AMF creation), to the media coverage of the sanctions, and some legal indicators. In particular, the dates of four milestones of every sanction procedure were compiled for all sanctions: *i)* the formal ignition of the AMF internal procedure, with the approval of a control or an investigation, *ii)* the statement of objection, when a given entity learns that it is being investigated by its regulator, *iii)* the Enforcement Committee hearing and the subsequent sanction decision, and *iv)* the publication of the sanction on the AMF website (*see Figure 1*).

3.1 The sample of sanctions of listed companies

The aim of this paper is to provide robust empirical evidence on the stock market reactions to the AMF sanction procedures for the most serious regulatory breaches. Less severe market failures are dealt with confidentially by the AMF, bilaterally with the regulated entity. The sample of 308 sanctions was restricted to listed companies, which are historically the most frequently sanctioned population. They stand for 42% of the sanctions over the period under review.

The initial sample covered 134 cases, in which 129 sanctions impacted 105 companies over the period under review. Some sanctions involved more than one listed company. Additionally, some companies were sanctioned several times (1.3 times on average). Recidivist companies (taking into account branches of groups) were sanctioned on average three times, ranging from two to nine sanctions.

To conduct a daily event study, the sample was restricted to the firms daily listed on the Paris stock markets²², from the 120 trading days before ignition of the procedure until 120 trading

The dataset was enriched with regulatory confidential data, thanks to the collaboration of the AMF, in particular regarding the anonymized decisions and missing dates in sanction reports or information dating back to before the AMF creation. Regarding recidivism, the ACPR, the French regulator of financial institutions, was contacted to share confidentially data on its sanctioned entities, unsuccessfully.

²² Euronext is organized around three pillars:

- 1) The European Union regulated market for equity securities operates in five markets (including Paris). They are segmented by market capitalizations: compartment A (above 1 billion euros), compartment B (from 150 million to 1 billion euros), and compartment C (below 150 million euros).
- 2) Alternext targets small-and-mid-sized companies by offering a simplified access to capital markets with fewer requirements and less stringent ongoing obligations than on the EU-regulated market.
- 3) The free market provides the easiest access to capital markets through a direct quotation procedure for any company, whatever the size (from micro-cap to medium-sized international companies) searching to access capital markets (free from the Euronext's eligibility criteria and information disclosure requirements). This market targets primarily sophisticated or professional investors.

days after the publication of the sanction²³. The sanctions for which the entity was not listed over the whole period (*i.e.* daily data only partly available due to early delisting²⁴, late listing or temporary suspension) or for which higher than daily data was available were excluded from the scope (*see Table 2*). The goal was to avoid introducing biases in the sample. In fact, such companies could be already ailing, experiencing financial difficulties (announcing a failure in the near future), less traded (less liquid stocks, with higher than daily quotation), or could undergo exceptional events justifying a temporary suspension (M&As for example). Such reasons are likely to interfere with the event and to impact (to the down- or up-side) the market reactivity to the news of a sanction. Four sanctions on a bank daily traded in Euronext Paris were excluded as the mother company was too big compared to the size of its activities in France, to avoid a bias in size and likelihood in reaction²⁵. Acquittal decisions (11 cases) were also excluded from the initial sample. Their expected informational content conveyed regarding the firm is not straightforward. It could be also negative, as only the most serious regulatory breaches are brought to the EC, all the more that the reason of acquittal could be prescription limit or procedural irregularity (which do not acquit the entity). Conversely, being acquitted could stand for positive signal sent to the market (at least no financial fine to honor), despite the fact that a significant regulatory breach led to the sanction procedure. To avoid overlap and enable data clustering²⁶, two sanctions were excluded, as they targeted financial companies which were subject to two concomitant procedures. The features of the sanctions (cash fines and behavior sanctions) were merged, to assess the severity of the decision made by the Regulator. Finally, five sanctions were rejected due to major confounding events, such as the outcome of a major law suit, the start of a safeguard procedure, or changes of names.

²³ Hence, entities which went into bankruptcy before the end of the sanction procedure or decided to delist were excluded from the sample (*see Table A.2 and Table A.3*). Delisting can be accounted for two main set of reasons: 1) managerial decision to delist (24%) due to the regulatory constraints and the legal and financial risks associated, preferring another way of financing (less regulatory constrained); and 2) mergers or acquisitions with/by another listed company (33%), leading to delisting.

Regarding data problems, some sanctions were excluded as they were not daily quoted, or their quotations were partly suspended over the period under review.

For the final sample, the length of stock prices surveyed (for the four steps) is on average 3.5 years.

²⁴ Karpoff et al. (2008 a) also found for the USA that there is high delisting rate, which reduces massively the size of the sample. The study also stresses that the delisted companies tend to be associated the poorest stock performance over the whole enforcement period.

²⁵ Given the size of the bank, and the markets on which it is traded, any action from the French AMF would unlikely provoke a significant abnormal reaction from global shareholders. Additionally, confounding events could lead to misinterpret the results.

²⁶ Hypothesis for clustering: returns are supposed to be independent across firms to be able to aggregate variances.

All in all, the sample covers less than half of the sanctions of the initial set of listed companies mentioned in the sanction reports (*see Table 2*): 52 sanctions of listed firms²⁷ (*i.e.* on average 4 sanctions per year) against 40 listed companies (or 40% of all the sanctioned entities over the period under review). 6 of the latter are no longer listed, following M&As or bankruptcies. The fact that the sample covered exhaustively the listed companies sanctioned limits risks of potential biases which could have been introduced through the sample selection.

3.2 Features of the sample of the sanctioned companies

Most of the distinctive characteristics of the sanctions were drawn from the online sanction reports, completed with publicly available information. Some regulatory confidential information was also shared by the AMF, in particular regarding the names of the entities, when the sanction report was anonymized²⁸ (either *ex ante* or *ex post*), and some missing dates. Finally, softwares were used for specific data (Thomson Reuters from stock prices, market capitalization, SBF 250, and Euronext CAC sector indices, *see Table A.2*), or create some media coverage variables (Factiva).

Table 3 reports some descriptive statistics, comparing the averages of sanction characteristics for all the listed companies with the sample of daily listed companies. 81% of the sanctions followed investigations. The most frequent regulatory breach for the sample²⁹ is dissemination of false information (63%), followed by breaches to the Monetary and Financial Code and the AMF General Regulation (38%), insider trading (29%), and price manipulation to lesser extent (10%). The great majority of companies were big companies, as 56% of them were listed on the Compartment A and 17% on the Compartment B of Euronext. The average market capitalization (on the day of the sanction) amounted to 9.8 billion euros, ranging from 8 million

²⁷ By construction, the sample selection process should avoid the five problems affecting the validity of interpretation of empirical findings (Karpoff *et al.* (2012): 1) misidentification of event dates (stale initial revelation dates), 2) missing value-relevant information (scope limitations), 3) errors of omission, 4) duplicate (or follow-on) events for the same instance of misconduct, and 5) inclusion of events unrelated to misconduct (false positive). Additionally, it complies with the 3 properties that an ideal empirical analysis of reputational loss should possess according to Armour *et al.* (2017): (i) a clearly defined revelation of information relating to a firm's conduct; (ii) all information relevant to the firm's conduct should be released simultaneously (in the sanction report); (iii) the direct costs associated with the revelation of information (for example, in this case the size of publicly imposed fines) should be measurable when it is disclosed and distinguishable from the additional reputational loss.

²⁸ Sanction reports can be first (*ex ante*) published anonymized or not, depending on the EC decision. Additionally, reports can anonymized *ex post*, following decisions of the Chairmen of the EC (de Batz, 2007 a and B).

²⁹ For the sample, there were 1.5 regulatory breaches per sanction on average.

up to 69 billion euros with a standard deviation of 15.5 billion euros. 48% of the decisions were appealed, with a confirmation rate of the Enforcement Committee decision of 84%.

Most of the divergences between the sample and the average of listed companies derive from the higher share of financial companies in the sample (38%, against 25% on average)³⁰. In fact, these sanctions targeted top tier universal banks, with higher than average market capitalization (by 42%³¹), and a lower likelihood of bankruptcy (the Central Bank being the lender of last resort). The gap in market capitalization is also accounted for by the fact that smaller companies are more frequently not daily quoted (hence excluded from the sample) or suffered some financial difficulties. It can lead to quotation suspension or bankruptcy rapidly after the sanction, which adds to the reasons for being excluded from the sample. Additionally, financial firms turned out to be historically the companies mostly likely to reoffend (de Batz, 2017 a and b). Recidivism and size being parameters to set the amount of the cash fine, there is no surprise in having a higher than average cash fines in the sample (28% on average).

3.3 Features of the sample of the victim companies

In parallel, 85 listed companies were mentioned 105 times in 80 sanction decisions as victims of other market participants' regulatory breaches (*see Table 3*). 19% of the firms were victim several times, on average 2.3 times. 15% of these companies were both sanctioned by the AMF and victims of others' wrongdoings, 21% being financial companies.

Out of the initial sample of 105 mentions in the sanction reports of listed firms being victims of others, 40 cases were excluded: 13 due to data frequency problems (either not daily listed, suspended during the process, or listed through the process), 12 as they were delisted during the procedure, 11 as they merged with other companies before the sanction was pronounced (hence delisted), 2 as they were listed in another stock market, and 2 last because they were twice victims of other companies' regulatory breaches, leading to two parallel sanction procedures. All in all, on 65 occasions, 53 daily listed companies were mentioned in 50 sanction reports as victims of others' regulatory breaches. These companies were on average victim 1.2 times of others' financial misconducts, overwhelmingly uncovered by investigations (95%).

³⁰ The sectors most frequently sanctioned were financials (38%), consumer goods and services (15%), industrials (15%), and technology (13%).

³¹ When excluding the 4 sanctions of the major international bank excluded from the sample.

For the sample of sanctions, the sanctioned entities received much higher fines than the average (978,000 EUR for the sample). In 10% of the sanctions, the verdict was an acquittal. The most frequent regulatory breach for the sample is insider trading, for 40% of the sanctions, followed by breaches to the Monetary and Financial Code and the AMF General Regulation (29%), price manipulation (28%), and dissemination of false information (25%)³². In line with the population under review, the weights of insider trading and price manipulation are much higher than the average of sanctions (respectively 28% and 9%).

The great majority of companies were big companies. 57% of them were listed on the Compartment A, and 19% on the Compartment B of Euronext. The average market capitalization (on the day preceding the sanction) amounted to 13.9 billion euros, ranging from 7 million up to 104.8 billion euros, with a standard deviation of 23 billion euros. The sectors most frequently victim were industrials (23%), financials and consumer goods and services (22% each), technology (12%), and utilities (11%).

3.4 Features of the sanctions

A wide range of variables characterizing the sanctions was extracted from the sanction reports, and completed with regulatory and public information, and with softwares. They can be sorted into five main categories as follow. All the descriptive statistics for the 43 variables are presented in Table 4.

1) The building-blocks of the sanction. The following variables were constructed based on the information available in the sanction reports:

- The type of procedure at the origin of the sanction (a dummy variable set to one for investigations, zero for controls),
- The sanctioned regulatory breach(es)³³ (a sanction involves on average 1.3 regulatory breaches, hence four dummy variables cover insider trading, price manipulation, information, and failures to meet with professional obligations),
- The cash fine (as euros³⁴),
- Additional disciplinary sanctions (two dummies for warning and/or blame³⁵),

³² A sanction can cover several regulatory breaches (1.3 on average for the sample of sanctions). The remaining last two reasons being very rare: 5% for proceedings and 2% for takeovers.

³³ The AMF classification is used: insider trading, price manipulation, information and failure to meet with professional obligations, proceedings and takeovers.

³⁴ The fine is set at zero if the sanction only implies a disciplinary sanction.

- A dummy is set to one if another public company was victim of the regulatory breach(es) being sanctioned,
- The duration of the procedure from the ignition of the procedure to the sanction decision (in years, as in Karpoff *et al.* (2008)),
- The lag between the decision and its publication on the AMF website (in months),
- The anonymization or not of the sanction report (three dummies for anonymization when first published, partial anonymization, and *ex post* anonymization),
- And the length of the sanction report³⁶ (in number of pages).

2) The characteristics of the sanctioned persons. A given sanction can impact several persons.

Consequently, the following variables were included in the dataset:

- The size³⁷ of the listed company when sanctioned (market capitalization in euros, on the day preceding the sanction decision),
- The Euronext stock market on which the firm is listed (with 3 dummies variables for the biggest compartments A, B, and C³⁸),
- The business sector of the firm, with 4 dummies following on Euronext classification, based on the most frequent sectors, set equal to one if the company belongs to the financial sector, industry, consumer goods and services, and technology, and zero otherwise³⁹.
- The survival to the sanction (dummy variable set to one if the company did not go into bankruptcy nor merged with another one since then),
- Physical person also being investigated (dummy variable set to one if so),
- Quality of the top management, with a dummy set to one if top managers (CEO, chairman, HR manager) were named in the enforcement action⁴⁰ (as in Karpoff *et al.* (2008b)),

³⁵ The third possible disciplinary sanction (ban on activity) did not occur in the sample.

³⁶ Each sanction reports follows the same organization: 1) main steps of the procedure and people involved; 2) facts and process; 3) reasons for the decision; and 4) sanction decision and publication. Still, the layout can differ.

³⁷ The size is a key parameter to set the cash fine. The impact of a sanction itself on a firm could differ significantly as bigger market capitalizations are more traded and scrutinized. Conversely, in terms of reputation, smaller firms could rely more on trust to retain investors, and hence could be more affected than bigger firms.

³⁸ By dropping the smaller stock market, the idea is to test if the size of the stock market influences the reaction.

³⁹ The remaining sectors are: oil & gas, basic materials, health care, telecommunications and utilities.

⁴⁰ From an investor's point of view, such implication could be a particularly worrying signal, demonstrating the improper management of the company and questioning the capacity of the management to deal with future challenges. In fact, Karpoff *et al.* (2008b) demonstrated how financial mis-presentation can negatively influence

- And reputation, measured as the recidivism of the entity with two variables: whether or not the entity was already sanctioned before and/or after the AMF creation in 2004 (two dummy variables set to one if so).

3) The aftermath of the sanction, with possible appeals of the decision. Building up on public and regulatory information, the following variables were constructed:

- A dummy variable set to one if the decision was appealed for (see Karpoff *et al.*, 2008b),
- A dummy variable set to one if the AMF appealed the decision of the Enforcement Committee,
- The number of courts appealed to (up to four),
- A dummy variable set to one if the Enforcement Committee's decision was confirmed in appeal, or if the firm decided to withdraw its appeal,
- And the duration of the appeal procedure (in years)⁴¹.

4) The media coverage. The software Factiva was used to conduct systematic searches on the names of the entities over given periods to construct the following variables:

- The media exposure of the entity before the sanction⁴² (the ratio of the number of articles, in French or in English, mentioning the firm over the 20 days preceding the sanction to the number of articles over the year preceding),
- Three variables will control for the easiness to access to the news of the sanction and also a potential reaction of investors before its publication: 1) the media coverage of the sanction between the Enforcement Committee and the publication of the sanction (number of articles); 2) the media coverage of the sanction over the week following the publication (number of articles); and 3) a dummy if some articles were published in top tier journals (set to one if at least an article was published in either L'Agéfi or Les Echos, which are the two French business reference newspapers).

5) Time and regulatory environment. Sanctions are by construction uniformly distributed over the period under review. Given the length of the period under review and the evolutions in terms of financial laws and management of the AMF, the following variables were introduced⁴³:

careers of top managers (as more than 90% of individuals responsible for fraud lose their jobs by the end of the SEC enforcement procedure), adding to financial and disciplinary sanctions.

⁴¹ For one sanction, the appeal was still ongoing so the duration of the appeal is calculated depending on the latest update of this article, as if it were concluded, as a proxy for the minimum length of the procedure.

⁴² This variable will control for the fact that some firms are more under the press scrutiny than others.

⁴³ The effect of time is hard to predict. The continuous reinforced transparency obligations may have reduced the informational content of the publication of the sanction. Still, public concerns about compliance with the law and

- A variable covers the years of the sanction,
- Regulatory changes and the tightening of the rules (in particular the increase in the maximum sanction authorized) are proxied by two dummies covering the two most frequent French Financial laws over the period under review (set to one for LME 2008 or LRBF 2010),
- Two dummy variables are set to one for the last two Chairmen of the board in office, Jean-Pierre Jouyet and Gérard Rameix,
- And real quarterly GDP year-on-year growth rate was included (source Eurostat).

A comprehensive correlation analysis was carried on the 43 variables previously described⁴⁴. The main conclusions are in appendix (*Remark 1*. News extracts: Perceived impacts of sanctions, via press articles

A review of the articles commenting sanctions demonstrates that there is no consensus of the impact of sanctions on stock prices. Journalists and analysts forecast no reaction or a negative one depending on the cases. Below, two examples of articles illustrate such uncertainty. The first concludes with no reaction whereas the second one details the view of an analyst which downgraded its outlook to negative.

Altran techn. : Bryan Garnier minimise l'impact des sanctions de l'AMF (June, 1 2007)

“Brian Garnier reckons that the 1.5 million euros sanction [...] will not impact Altran Technology stock price”.

*Bryan Garnier **ne pense pas que l'amende** de 1.5 Million d'euros annoncée jeudi par la commission des sanctions de l'AMF à l'encontre d'Altran Technologies **aura d'impact significatif sur l'action**. Le broker rappelle que cette amende renvoie à faits anciens et que tous les dirigeants impliqués dans les scandales ont quitté le groupe. En outre, l'éventualité d'une sanction était provisionnée dans les comptes de la société. Le courtier maintient néanmoins sa recommandation à "vendre" sur Altran, avec un objectif de cours de 6.4 euros. Bryan Garnier motive son opinion par la prime de 18%, non justifiée selon le courtier, avec laquelle se négocie la valeur par rapport à ses comparables.*

Source: <https://www.tradingsat.com/altran-techn-FR0000034639/actualites/altran-techn-bryan-garnier-minimise-l-impact-des-sanctions-de-l-amf-390295.html>

Les sanctions de l'AMF pèsent sur notre opinion de Petercam (April, 24 2015)

“The AMF sanctions against Petercam and two of its employees lead us to downgrade our opinion on the company to “negative”.”

easier access to information *via* the Internet and social networks might aggravate the stock market losses and reputational damages.

⁴⁴ Detailed results are available on demand.

Les sanctions prononcées par l'AMF à l'encontre de Petercam et de deux de ses employés nous conduisent à abaisser notre appréciation de la société à « Négative ».

En avril 2015, l'Autorité des Marchés Financiers (AMF) a prononcé une sanction pécuniaire à l'encontre de Petercam pour manipulation de cours, concernant des transactions effectuées sur l'un de ses fonds (Petercam Equities Agrivalue) le dernier jour de bourse de 2011. L'AMF a également sanctionné à titre personnel le trader et le gérant de portefeuille qui étaient à l'origine de ses opérations. Nous estimons que Petercam a depuis lors mis en œuvre des mesures appropriées pour que ce type d'agissement ne puisse plus se reproduire. [...] En revanche, nous sommes déçus que Petercam n'ait pas pris de mesures à l'encontre du gérant concerné, afin de restaurer la confiance des investisseurs. [...] La plupart des gérants sont investis à titre personnel dans les fonds qu'ils gèrent, une bonne façon d'aligner leurs intérêts sur ceux des investisseurs. La communication avec les investisseurs est de bonne qualité et les frais sont en ligne avec les pratiques de l'industrie. Néanmoins, la récente sanction de l'AMF milite pour la prudence et nous conduit à abaisser notre appréciation à « Négative ».

Source: <http://www.morningstar.fr/fr/news/137057/les-sanctions-de-lamf-p%C3%A8sent-sur-notre-opinion-de-petercam.aspx>

Remark 2).

4 Impact of sanctions on guilty companies

4.1 Impact on stock returns

As previously described, four event studies were conducted for the sample of 52 sanctioned companies for every step of the enforcement action: 1) beginning of procedure, when the investigation or the control started (*i.e.* an internal procedure), 2) statement of objection, when the firm learns that it is being investigated on (*i.e.* insider information), 3) sanction, with the EC hearing (*i.e.* the trial), and the subsequent sanction decision made by the EC, and 4) publication, when the sanction report is published on the AMF website. Since 2010, the hearings have been opened to the public and top tier financial journalists typically attend them. Newspaper articles can be written over the average 50-trading-day lag between the decision itself and its publication (in 42% of the sample) and more frequently after (85%). Hence, returns could start to adjust even before the publication of the decision.

For every step of the procedure, the parameters of “normal” returns were estimated over the estimation window (*see specification (2)*). “Abnormal” returns were calculated from these parameters over the event window⁴⁵ (*see specification (3)*). A set of abnormal returns by sanction

⁴⁵ Different lengths of estimation windows were tested and the results in terms of abnormal returns do not differ significantly (*see Table A.10*).

for every step are presented in *Figure 3*. Stock returns being by nature volatile, statistical significance is difficult to detect without aggregating data. Hence, abnormal returns were aggregated across time and/or sanctions to draw some inferences on the abnormal reactions following every steps of the procedure (*see specifications (4) and (5)*). The cumulative abnormal returns for the publication for every sanction are reported on Table 5, for the period $[-1;+1]$. The event window spans from one day preceding the event, to investigate for anticipation following leakages, to one day after, as usually done in the literature to search for anticipation of the news.

Table 7: Determinants of Abnormal Returns Following the Publication of Sanction Decisions

This table reports results from least squares regressions (using White-corrected standard errors) for specifications (11) (model 1), (12) (model 2), and (13) (model 3). The dependent variables are the Cumulative Abnormal Returns from one day before the publication of the sanction decision until t days following it: $CAR_{i,[0;+t]}$, for $i = 1, \dots, 52$ and $t = 0, +1$ and $+6$. Abnormal returns are computed using the market model. The sample is composed of the 52 companies which were sanctioned guilty by the AMF from 2004 to 2016 and were daily quoted all through the sanction procedure.

	CAR [-1;0]				CAR [-1;+1]		CAR [-1;+6]			
	<i>Model 1</i>		<i>Model 2</i>		<i>Model 1</i>		<i>Model 1</i>		<i>Model 3</i>	
	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹
Constant	5.076***	(1.27)	4.645***	(1.245)	3.414	(2.263)	12.06***	(2.409)	12.29***	(2.188)
Origin of the sanction:										
Investigation (not control)	-1.168	(0.751)	-0.817	(0.687)	0.624	(1.075)	-3.279**	(1.393)	-5.131***	(1.381)
Characteristics of the sanction decision:										
Duration procedure	-0.754***	(0.234)	-0.723***	(0.220)	-0.428	(0.464)	-2.092***	(0.385)	-1.953***	(0.372)
Lag before publication	-0.178	(0.139)	-0.185	(0.125)	-0.313*	(0.163)	-0.296	(0.246)		
Pub. anonymized by AMF	-1.49**	(0.581)	-1.685**	(0.624)	-2.33***	(0.807)	-1.097	(0.957)		
Listed firm victim			0.781*	(0.453)						
Top mngt involved									-2.064**	(0.927)
Appeals & Media:										
Reject. of appeal or withdrawal	1.082**	(0.511)	0.831*	(0.458)	-0.166	(0.682)	-1.566*	(0.885)		
Articles L'Agefi or Les Echos	-1.334**	(0.555)	-1.579***	(0.514)	-0.913	(0.729)	0.593	(0.962)		
Articles over the week following publication									-0.046***	(0.0167)
Stock market characteristics:										
Survival to sanction	-0.057	(0.632)			-0.807	(0.889)	-5.695***	(1.288)	-5.300***	(0.781)
Euronext Cpt A	-0.0669	(0.6)			0.508	(0.907)	4.122***	(0.905)	3.987***	(0.983)
Indus. sector	-1.341*	(0.677)	-1.399**	(0.630)	-1.277	(1.019)	2.935**	(1.285)	4.541***	(1.250)
Techno. sector	-2.33***	(0.555)	-2.232***	(0.401)	-0.925	(1.001)	-0.489	(1.313)		
Cons. goods serv. sector									5.794***	(1.291)
Legal environment characteristics:										
YoY GDP growth	-0.453***	(0.147)	-0.439***	(0.144)	-0.236	(0.34)	-0.576**	(0.242)	-0.711***	(0.227)
LME law (2008)	-2.143***	(0.751)	-2.278***	(0.708)	-1.571	(1.258)	-4.597***	(1.520)	-4.487***	(1.435)
N	52		52		52		52		52	
R2	0.496		0.522		0.319		0.7049		0.7518	
Ramsey-test Prob > F	0.8797		0.5813		0.1651		0.3203		0.4368	

Sources: AMF, Thomson Reuters, Authors' calculations

Notes: ¹ RSE: White-Robust Standard Errors; *, ** and *** denote statistical significance at the 10%, 5%, and 1% level.

(a), (b) and (c) and Table 6 report the average abnormal returns (AAR_t) and the cumulative abnormal returns ($CAAR_{[t_1;t_2]}$) for the sample ($n = 52$) for the every consecutive steps of the sanction procedure under review over periods. That way, we provide evidence of an adverse and genuine effect of some steps of the sanction procedure on returns of sanctioned listed companies over the period under review.

On the one hand, as expected, the last two steps of the procedure trigger statistically significant “abnormal” reactions in returns. Shareholders suffer a statistically significant abnormal loss in returns following the sanction decision, and its publication. They send negative information to the markets. Average returns contract by an average cumulated abnormal 0.9% over the period $[-1;+3]$ in event time after the sanction decision. They lose 0.8% over the period $[-1;0]$ following the publication of the decision (significant at the 1% level). It is interesting to note that there is some anticipation in the reaction, before the publication, which could result from some leakages of information to insiders. Abnormal returns are negative on the day of the publication of the sanction for 62% of the companies, ranging from -5.3% to +5.0% (1.5% standard deviation). Three days after the publication, 63% of the companies suffer cumulated losses, ranging from -12.1% to +7.8% (4.4% standard deviation). The contraction peak is reached 6 days after the publication, with a cumulated abnormal -1.3% in returns (significant at the 5% level). In the longer run, cumulated average abnormal returns following the sanction remain negative though not significantly (-3.7% cumulated over 60 days following the sanction decision). This higher contraction echoes the lag between the Enforcement Committee hearing and the publication of the decision: 50 trading days in the sample. The cumulated contraction as off 60 days after the sanction incorporates the compounded reactions to the sanction and its publication, with an estimation window excluding the sanction decision.

On the other hand, shareholders do not react significantly to the early stages of the procedure: no significant abnormal reaction in returns follows either the ignition of the procedure, or the statement of objection. Firstly, the beginning of the procedure, marked by the launch of an investigation or a control, does not trigger any significant abnormal movement in returns. This result is in line with expectations. It is reassuring in terms of respect of the confidentiality of the internal procedures by the AMF teams in charge of such procedures: leaks to market players could have caused a reaction in stock returns. Secondly, the statement of objection, when the company learns it is being investigated, does not either lead to any abnormal

reaction in returns. It is also reassuring in terms of insider trading within the company, after learning about a procedure that can end up with a sanction.

All in all, two steps of the sanction procedure impact significantly (negatively) returns: the sanction decision and its publication. Contrary to the efficiency market hypothesis, investors' reactions tend to be scaled in time: spillovers on the stock returns take time to show up fully. Some will react immediately after learning the news (either the sanction, or its publication). Others will need more time, possibly for a wide range of reasons (unaware initially, time to access information, herd behaviors, misunderstanding of the seriousness of breaches which led to the sanction, no straightforward investment alternative, to avoid fiscal consequences, fees associated with portfolio rebalancing, etc.). Our results demonstrate that, over the six months following the sanction (either decision or publication), $CAAR_t$ remain negative, even though they are not significantly different from zero, which could be explained by the high volatility in the long run. Finally, it is likely that the reaction following the sanction decision is partly confounded with the one following the publication. All in all, the cumulated abnormal returns range from -1.3% down to close to 4%⁴⁶.

4.2 Impact on market values of sanctioned companies

We focus on the step which triggers the biggest and most significant reaction on the cumulative average returns: the publication of the decision. From *specifications (7) and (8)*, the impact on their market capitalization $SL_{[-1;+t]}$ is estimated from the cumulated average abnormal return $CAAR_{[-1;+t]}$, from one day before the event until t days after in event time. On average, in event time, sanctioned firms lost in equity $SL_{[-1;0]}$ of -45,200 euros over the period $[-1;0]$, $SL_{[-1;+1]}$ of -75,000 euros over the period $[-1;+1]$, and $SL_{[-1;+6]}$ of -32,000 euros over the period $[-1;+6]$. There is a wide range of reactions, suggesting that not all frauds are equally important. For example, over the period $[-1;+1]$ in event time, losses $SL_{i;[-1;+1]}$ range from a contraction of 2.2 million euros (-6% loss in value) up to an increase of 871,000 euros (+2.7% in value), with a standard deviation of 363,000 euros.

Hence, on average, markets do integrate the information of the sanction sent by the regulator as a negative signal, but to a limited extent. The impact on the market capitalization is

⁴⁶ As stated by Armour *et al.* (2017), multi-stage events makes it difficult to ensure that the later stages really relate 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.

small in absolute as well as in relative terms. For example, average cash fines (882,000 euros on average for the sample) are 12 times higher than the market correction. It is all the more striking that the latter are perceived as low compared to the legal authorized maximums, in absolute (standing for 0.01% of the market capitalization on average), and in international terms. Consequently, following Karpoff *et al.* (2008 a), Murphy *et al.* (2009) and Armour *et al.* (2017), estimating a “reputational” loss $RL_{i,[t_1;t_2]}$ (*specification (9)*) following the sanction by deducting the fines from the market impact would lead to a positive reputational impact on the market. Market efficiency, in that sense, is limited. Such results question the credibility of the sanction by the AMF.

4.3 Robustness checks

4.3.1 Split between before and after the crisis

Several arguments suggested testing the sub-sample of sanctions until (or following) the financial crisis. The Great Financial Crisis was historical in terms of magnitude and of financial spillovers. Additionally, financial companies (banks in particular), which were at the origin of the crisis and suffered most throughout the crisis, are the most frequently sanctioned listed companies. The crisis also translated into a tightening of financial regulation and supervision; in particular regarding sanction powers at the European and French levels (de Batz, 2007 b).

The event studies were re-estimated to test whether or not the financial crisis reinforced the market awareness and risk adverseness, with higher reactions afterwards. In the literature, two dates mark the start of the Great Financial Crisis in the USA: June 2007 (as for example in Armour *et al.*, 2017), with the beginning of the subprime crisis in the USA, or September 2008, with Lehman Brothers’ bankruptcy (as for example in Kirat and Rezaee, 2015). The two dates were tested to search for a turning point in the market reactions, with respectively 14-38 and 19-33 sanctions for every sub-period.

The comparative results for the publication of the sanction reports up to and after the crisis are reproduced in *Table A.5*. They show that the informational content of the publication seems to have increased since June 2007, the news been more taken into account by the market. Given the global financial turmoil, the informational content of sanctions may have increased, being more taken into account in the early stages of the crisis. Conversely, Lehman Brothers’

bankruptcy does not seem to have curbed the market perception of the severity of the sanction, despite the macro-financial evolutions.

4.3.2 Including 4 sanctions of a major international bank quoted in France (52+4=56)

Four sanctions of a given international bank were excluded from the sample to avoid biases. In fact, the weight of trades on Euronext Paris was limited. The market capitalization of the bank was also far bigger than the average of the sample (by 14 times). Being a major foreign bank listed on several markets, the impact of a French sanction would have unlikely led to a significant abnormal reaction in returns. Hence, the impact of a sanction may be hidden or exacerbated by other foreign confounding movements. All in all, it would have introduced bias when assessing the average impact of sanctions on market capitalizations (SL_t).

Still, the model was re-estimated including these sanctions to test its robustness (see Table A.6). The results proved coherent following the publication, with negative less significant abnormal returns: -0.9% in $CAAR_{[-1;0]}$, significant at the 5% level and -1.0% in $CAAR_{[-1;+3]}$ significant at the 10% level. No reaction follows the sanction decision itself.

4.4 Information content of the sanction decisions

4.4.1 Regulatory breaches and market players impacted

Offenses can be sorted into two main categories: whether they hit related or third parties or not. On the one hand, as described by Tibbs *et al.* (2011), examples of related-party offenses include fraud against investors (such as issuing false and/or misleading statements regarding firm profitability), violations of employees' rights (such as improper disclosure of personal information), and fraud against customers (such as engaging in false advertising or falsifying test results). Third-party offenses, on the other hand, are defined as cases involving non-stakeholders or offenses where the damaged party does not engage in a sequential contracting relationship with the offending firm (legal and regulatory violations). Armour *et al.* (2017) also classified sanctions depending on the parties affected by the nature of regulatory breach: second parties (with a contracting relationship *i.e.* customers, investors, or suppliers) from those affecting third parties (market participants, the public, etc.). Murphy *et al.* (2009) similarly split between related (customers, suppliers, providers of financial capital, etc.) and third-party offenses. These studies typically conclude that the reputational cost of wrongdoings against related parties to the offender

is higher, in the USA (see Alexander, 1999; Karpoff *et al.*, 2008a, Murphy *et al.*, 2009, Tibbs *et al.*, 2011) as well as in the UK (see Armour *et al.*, 2017).

By employing the split proposed by the AMF for regulatory breaches (*see Table A.7*), the event studies give the following conclusions. Three financial misconducts lead to higher abnormal negative returns in the aftermath of the publication: insider trading, dissemination of false information (*vis-à-vis* either investors/stakeholders or the regulator), and not complying with one's professional obligations. It is in line with the studies previously mentioned in the sense that investors tend to react more when they are impacted by the financial misconduct.

4.4.2 Does the market take into account the “seriousness” of the verdict?

Two subsamples were defined to characterize the “seriousness” of the decision, capitalizing on the guidelines given by the AMF on how to set the sanction. The hypothesis being tested is that some characteristics of the verdict, or of the company, might convey additional relevant information to the market and influence markets towards stronger or lighter reactions.

The first subsample “3 factors” is defined as the 19 sanctions complying with two out of the three following conditions: a cash fine above the median, a behavioral sanction (warning or blame), and recidivism (pre- and/or post-AMF creation). The second subsample “Average” is composed of the 19 sanctions which were assorted with cash fines above the average.

The results of the event studies (*see Table A.8*) support the following conclusions. On the one hand, the cash fine by itself (“Average”) does not condition on the magnitude of abnormal returns. That may be accounted for by the fact that on average cash fines are limited in amount (in absolute, or compared to the market capitalizations). On the other hand, some cumulated aspects of the decision (“3 factors”) may point to a more severe financial misconduct, leading to stronger abnormal returns. That confirms the initial hypothesis that not only will the mere fact of being sanctioned be priced in abnormal returns, but the nature of the sanction will also negatively influence the results. Investors appear not to take into account exclusively the cash fine. In fact, $CAAR_{[-1;+1]}$ are twice as big as for the sample with the sub-sample including the three factors (-1.4%, significant at the 10% level). They are also persistent in time, 10 trading days after the publication (-2.6%), significant at the 10% level.

4.4.3 Impact of anonymizing the listed company in the sanction report

Out of the initial sample, 7 cases (13% of total) anonymized the names of the listed company being sanctioned when being first published, spanning from 2008 to 2012. Only once the decision

was echoed in the press, naming the listed company being sanctioned. Abnormal market reactions would unlikely follow such news, as the information in 6 of the cases was not public. The event studies were also conducted for this subsample (*see Table A.9*). In line with expectations, no significant abnormal returns were detected for anonymized companies, whatever the step of the procedure. It is reassuring regarding the respect of confidentiality through the process of sanction.

4.5 Complementary approach of the informational content of sanctions: cross-sectional regression

In this section, we attempt to explain the determinants of the variations in market value incurred by each sanctioned firm in the aftermath of the publication of the sanction, using a multivariate analysis. The goal is to infer some conclusions on the factors leading to market reaction (cumulative abnormal returns) for the most significant results, using cross-sectional regressions. The following model (*model 1*), derived from *specification (10)*, was tested from the day preceding the publication until t days after, for every sanction i .

$$\begin{aligned} CAR_i(-1; +t) = & \delta_0 + \delta_1 Investigation_i + \delta_2 Duration_Proc_i + \delta_3 Lag_Pub_i + \delta_4 Publi_Anonym_AMF_i + \\ & \delta_5 Appeal_Reject_Desist_i + \delta_6 Articles_Agefi_Echos_i + \delta_7 Survival_to_Sanction_i + \\ & \delta_8 Euronext_Cpt_A_i + \delta_9 Sect_Indus_i + \delta_{10} Sect_Techno_i + \delta_{11} GDP_YoY_i + \\ & \delta_{12} Law_LME_2008_i + \mu_i \quad \text{and } E(\mu_i) = 0 \end{aligned} \quad (11)$$

Where $CAR_i(-1; +t)$ is the cumulated abnormal returns for the sanction i from the day preceding the publication until the t^{th} day (with $t = 0, +1, +6$), and μ_i is the zero mean disturbance term, uncorrelated with the explanatory variables⁴⁷. δ_i , from $i = 0, \dots, 52$, are the regression coefficients.

⁴⁷ For every sanction i , by alphabetical order, the explanatory variables are: *Appeal_Reject_Desist_i* for the rejection of the appeal or the withdrawal of the appeal; *Articles_Agefi_Echos_i* when articles are published following the publication of the sanction either in l'Agefi or Les Echos, *Articles_D + 7_i* for the number of articles mentioning the sanction published over the week following the sanction decision, *Duration_Proc_i* for the duration of the procedure from the ignition of the procedure until the sanction decision, *Euronext_Cpt_A_i* for the companies listed on the Euronext Compartment A, *GDP_YoY_i* for the real GDO YoY growth rate when the sanction was published, *Investigation_i* if the sanction derives from an investigation (not a control), *Lag_Pub_i* for the time between the sanction decision and its publication, *Law_LME_2008_i* for the sanctions published under the financial law LME, *Listed_Firm_Victim_i* if another listed firms was victim of the sanctioned financial misconduct, *Publi_Anonym_AMF_i* if the sanction was published anonymized by the AMF, *Survival_to_Sanction_i* if the sanctioned company survived the sanction, *Sect_Conso_Good_Serv_i* if the sanctioned firm belongs to the Euronext industrial sector, *Sect_Indus_i* if the sanctioned firm belongs to the Euronext industrial sector, *Sect_Techno_i*, if the

Two alternative models (*model 2* and *model 3* respectively) were also estimated:

$$CAR_i(-1; 0) = \alpha_0 + \alpha_1 Investigation_i + \alpha_2 Duration_Proc_i + \alpha_3 Lag_Pub_i + \alpha_4 Publi_Anonym_AMF_i + \alpha_5 Listed_Firm_Victim_i + \alpha_6 Appeal_Reject_Desist_i + \alpha_7 Articles_Agefi_Echos_i + \alpha_8 Sect_Indus_i + \alpha_9 Sect_Techno_i + \alpha_{10} GDP_YoY_i + \alpha_{11} Law_LME_2008_i + \varphi_i \quad \text{and} \quad E(\varphi_i) = 0 \quad (12)$$

$$CAR_i(-1; +6) = \beta_0 + \beta_1 Investigation_i + \beta_2 Duration_Proc_i + \beta_3 Top_Mgt_Involved_i + \beta_4 Articles_D + 7_i + \beta_5 Survival_Sanction_i + \beta_6 Euronext_Cpt_A_i + \beta_7 Sect_Indus_i + \beta_8 Sect_Conso_Good_Serv_i + \beta_9 GDP_YoY_i + \beta_{10} Law_LME_2008_i + \chi_i \quad \text{and} \quad E(\chi_i) = 0 \quad (13)$$

φ_i and χ_i are the zero mean disturbance term, uncorrelated with the explanatory variables. α_i , and β_i , for $i = 0, \dots, 52$, are the regression coefficients.

The three models were estimated using OLS with White-corrected standard-errors. The results are displayed in *Table 7*. The models 1, 2, and 3 for the periods $[-1;0]$ and $[-1;+6]$ give strongly robust results. The fit of the model 3 over the period $[-1;+6]$ is particularly interesting given its robustness, and the fact that more time is given to market players to react to the news of the sanction. The following takeaways can be made regarding the informational content of sanction and their interpretation by the markets.

Firstly, it is interesting to note that the three most straightforward components of the sanctions (cash fine, warning, and blame) do not significantly influence the market reaction. Nor do the regulatory breaches committed by the sanctioned company, and recidivism (either before or after the creation of the AMF), despite being one of the parameters taken into account to set the verdict by the Enforcement Committee. Finally, the Chairmen of the AMF do not appear to have influenced the informational content of sanctions, as perceived by market players.

Secondly, five aspects of the sanction will contribute to significantly stronger abnormal negative returns: being investigated (*versus* controlled), longer procedure (from the investigation or control until the Enforcement Committee), if the top management of the firms is involved, if the media coverage of the sanction is stronger after the publication, and if the economic conditions are better. Markets react more in better economic times, which may be related to the

sanctioned firm belongs to the Euronext technological sector, and $Top_Mgt_Involved_i$ if the top management of the firm was involved in the regulatory breach(es).

fact that, during an economic crisis, stronger forces play and lead to global negative trends. Additionally, the reactions to sanction appear to have declined along time (LME 2008).

Regarding the companies sanctioned, bigger companies (Euronext Compartment A) will tend to suffer lower losses, despite the fact of being frequently more frequently sanctioned. In terms of sectors, being an industrial or a technological company will contribute significantly to higher abnormal losses, conversely to being a consumer goods or services company. We previously noted that financial companies are the most frequently sanctioned companies and more prone to recidivism. Still, this feature does not trigger any abnormal reaction from the market.

Appeals, which were initially thought as being possibly a signal sent by the company of its innocence of the breaches it is being sanctioned for, do not send a straightforward signal.

Finally, some reactions were surprising. Anonymization leads to significantly higher abnormal negative returns, as well as the survival of companies. Additionally, the fact that another public company was victim of the regulatory breaches reduces lower abnormal returns.

5 Information content of other types of decisions made by the Regulator

The previous section investigated the informational content of sanctions of listed companies which proved guilty. The goal of the complementary section is to challenge similarly alternative scenarii: when the verdict was an acquittal (*i.e.* opposite information sent by the EC to the market), for a lighter procedure (settlements, since 2012), and when listed companies were victims of others' financial misconduct.

5.1 Listed companies receiving a non-guilty verdict (11 sanction decisions)

Out of the initial sample of sanctions, 11 daily listed companies were excluded as the verdict was an acquittal. In fact, under the assumption that sanctions do convey information to investors, the expected impact of such decisions was not straight forward. On the one hand, the market could react positively to the news as the company proved, in the end, innocent and as the regulator turned out wrong when deciding to pursue these procedures. On the other hand, as for guilty decisions, reactions could be negative as the company was investigated for serious suspected regulatory breaches. Only the most severe financial wrongdoings are brought to the EC, the others being dealt confidentially with bilaterally between the AMF and the regulated entity. In some cases, the firms are acquitted thanks to procedural irregularities or prescription of the

incriminated regulatory breaches, which do not exonerate from the breach(es). All in all, the market could still assess this company as more risky and adjust its forecasts and portfolio subsequently, impacting negatively returns.

Event studies for the four steps of the procedure were conducted for this sample of decisions, using the augmented market model. As intuitively thought, they demonstrate that the acquittal news would convey mixed information to investors. The results (*see Table 8*) show two contrarian facts: on the day of the sanction, positive significant abnormal returns (+1.1% in AAR_0) and, from 3 days after the publication onwards, a negative abnormal reaction, persistent in the short run, peaking with $CAAR_{[-1;+5]}$ of -3.7%, significant at the 10% level.

5.2 Settlements (5 settlements with subsidiaries of listed companies)

Out of the 32 settlements concluded from 2012 to 2016, 5 concerned subsidiaries of daily listed companies. They targeted branches of three French financial groups. Event studies were similarly conducted on these decisions, to test the information content of this alternative, and shorter kind of sanction dedicated to less severe regulatory breaches (until late 2016). Do settlements convey information to the markets like sanctions? If so, to the same extent? Under the rationality of investors and efficient market hypotheses, it can be expected that abnormal returns should be lower than for the sample of sanctions.

The event studies do not show any abnormal returns following the four steps of the procedure (*see Table 9*). For this limited scope of settlements, the markets do not incorporate the additional information sent by the regulator with these settlement procedures on the quality of the compliance with regulation. Hence, the absence of reaction to settlements questions the information content of such procedures and their credibility *vis-à-vis* investors.

5.3 Equity returns reactions for listed companies victim of others' financial market misconduct

Listed companies were also frequently victims of others' wrong-doing. Our sample is comprised of 65 sanctions mentioning daily listed companies, which suffered from others' financial market misconduct. The victim firms may have already endured losses due to these past regulatory breaches. The question is whether they will undergo additional losses (*i.e.* double punishment) for being mentioned in the sanction procedures of their executioners.

An identical event study methodology was used to test the reaction in returns of listed companies to the fact of being named in sanction reports as victims of others' wrongdoings. The last two steps of the sanction procedure (the sanction decision, and its publication)⁴⁸ were tested, using an augmented market model, based on the activity sector of every victim.

The results show that returns of those victim companies abnormally contracted, on average, 7 to 20 days after the sanction decision, to a larger extent than for sanctioned companies (*see Table 10*). Returns abnormally contract by a -3.2% cumulated 10 days after the sanction (significant at the 5% level). From specifications (7) and (8), the market capitalization of listed companies which were victims of others lost on average 576,000 euros 10 days after the sanction (with a standard deviation of 2.6 million euros, ranging from -18.8 up to +1.4 million euros).

Given the magnitude of such abnormal returns, a one-by-one search for confounding events was conducted for the whole 65 sample. Two sources of confounding events turned out: either external (such as major evolutions in the competitive environment, the spillovers of Brexit on financial companies, and a surge in geopolitical risks) or internal (*i.e.* good or bad news regarding the company itself such as profit/margin warnings, a condemnation of top managers, or M&As involving the company). All in all, for the sanction and the publication steps, 13 cases were excluded. The event studies were conducted again on this 52-sub-sample. The results (*see*) also show negative significant (at the 10% level) abnormal returns following the sanction decision, which take some time to show (8 days).

6 Discussion

What is particularly interesting in France, like in the UK (*see Armour et al., 2017*), is that all the procedure until the Enforcement Committee hearing is, by law, confidential. Hence, no reaction should be measured following the first two steps of the procedure. To access the information at the stage of the Enforcement Committee hearing, investors either have to attend it, or to read articles in the press mentioning a potential sanction of a given entity (which happens in 42% of our sample). Additionally, contrary to the USA, limited research was done on the sanctions of the French AMF. The past studies focused on one kind of breach (only accounting frauds in Djama,

⁴⁸ There is no reason why a regulatory internal procedure would impact the returns of a given company which was presumably victim of others' misconduct. Additionally, the early stages of the procedure (in particular in cases of a quick reaction of the regulator) are the closest to the financial market misconduct itself, which could still impact the returns of the victim. The second step was also excluded as there is no reason why a statement of objection, sent to a company or an individual regarding past regulatory breaches on a given listed company, would impact the latter.

2008) or covered a limited number of sanctions (25 sanctions of listed companies in Kirat and Rezaee, 2015). This gap can be accounted for by the limited open access to data. In fact, not only part of the sanctions were initially published anonymized (28% on average), but the EC also decided *ex post* to anonymize the oldest sanctions reports (see de Batz, 2017 a and b). Consequently, the current rate of anonymization of sanctions is much higher (57% on average). Finally, beyond the impact of guilty decisions on listed companies, this research enriches the understanding of market reactions with alternative scenari: acquittal decisions, settlements, and listed companies being victim of others, named in sanction reports.

A wide range of studies analyzed the impact of sanctions for financial fraud on returns in the USA⁴⁹. The consecutive steps of their specific procedure were studied (Wells Notice issuance, Accounting and Auditing Enforcement (AAER), and SEC sanctions or class action filing). Event studies were typically used, and concluded with negative abnormal returns over the event window $[-1;+1]$ around the event (*see Table 1*). Still, Karpoff *et al.* (2014) stressed that the consecutive nature of the enforcement process biases the estimates of abnormal returns. Similar studies were conducted for other jurisdictions (Europe, Asia⁵⁰). They are scarcer, possibly due the data availability challenges. They also concluded with negative abnormal returns following the news of a financial fraud.

In this literature, the extent of the estimated cumulated average abnormal returns varies substantially, as well as the timing. Still, most of the information is rapidly incorporated into prices. Lin and Rozeff (1995) for example demonstrated that 85 to 88% of private information is incorporated into prices within one trading day. For shorter term reactions (*see Table 1*), average abnormal returns on the day of the event (AAR_0) contract by 3.85%, ranging from -0.6% to -14.9%. The magnitude and the range are similar with slightly lager event windows (-5.84% in $CAAR_{[0;+1]}$, from -0.5% to -20%; -6.27% in $CAAR_{[0;+2]}$, from -0.6% to -16.6%, and -6.48% in $CAAR_{[-1;+1]}$, from -1.1% to -25%). These averages are in line with the two past studies on France (-4.1% in AAR_0 , -5.8% in $CAAR_{[0;+1]}$) and exceeds estimates on Europe and on the UK (-1.3% in AAR_0).

⁴⁹ Amid others, ordered chronologically: Feroz *et al.*, 1991, Karpoff and Lot, 1993, Nourayi, 1994, Dechow *et al.*, 1996, Alexander, 1998, Pritchard and Lewis, 2001, Palmrose *et al.*, 2004, Karpoff *et al.*, 2008 a, Grande and Lewis, 2009, Tibbs *et al.*, 2011, Nainar *et al.*, 2014, Griffin *et al.*, 2016, and Haslem *et al.*, 2017.

⁵⁰ Amid others, ordered geographically: for the European Union (Engelen, 2009), the UK (Armour *et al.*, 2017), France (Djama, 2008, and Kirat and Rezaee, 2015), Japan (Tanimura and Okamoto, 2013), and China (Chen *et al.*, 2015, Liebman and Milhaupt, 2008, Firth *et al.*, 2013, and Xu and Xu, 2017).

On that aspect, this article confirms the direction of the reaction and contributes to improving the quality of the assessment of the spillovers of sanctions. In fact, using an exhaustive sample of daily listed companies through the whole process of the sanction leads to a broader scope of analysis and a higher granularity. The results are coherent with the conclusions of early studies⁵¹, though to a lower extent: sanction decisions and their publications convey information and impact negatively returns of listed companies in the short run (-0.9% and -1.1% in $CAAR_{[-1;+3]}$ respectively). As in previous literature⁵², we found some anticipation in the outcome with the negative correction in prices. In $t = -1$ before the publication, abnormal returns become significantly negative, possibly anticipating the outcome of the decisions. When taking into account the cumulated effect of the two consecutive steps of the procedure, the magnitude of abnormal returns becomes more substantial: -3% to -4% cumulated losses 60 trading days after the sanction.

In the longer run, past studies (*see Table 1*) estimated an even larger range of impact from positive (+2.96% in one year stock performance following a 1-standard deviation increase in the financial penalty for 20 countries) to negative, ranging from -13% in on year up to -34.4% in the USA. Some studies concluded that fraud durably affects returns, up to three years after the news, when using for example lower frequency data (Leng et al., 2011, Dyck et al., 2013). Such estimates must be taken with a lot a caution as the further the estimate is from the event, the more likely confounding events will interfere with it. The impact of French sanctions on guilty listed companies in longer run remains limited compared with international estimates.

Some studies compared the estimated “reputational” sanction from the market to the financial sanction, as pronounced by ones regulator. The approach was to deduct the financial sanction from the overall market reaction (*see specification (9)*), as in Karpoff *et al.*, 1991, Murphy *et al.*, 2009, and Armour *et al.*, 2017. The conclusion is typically that the reputational sanction exceeds by far the pure financial sanction set by the regulator. Regarding France, and the sanctions of the AMF in particular, two points need to be stressed and question the current setup of administrative sanctions. Firstly, the financial fines set by the regulator and the market reaction

⁵¹ Kirat and Rezaee (2015) concluded with -1.3% in AAR_0 on the day of the publication of the sanction and a $CAAR_{[0;1]}$ cumulated -3.2%, with a sample of 25 companies. Djama (2008) found no impact of the beginning of the procedure and a significant negative impact of the publication of the decision (-6.9% in AAR_0 , -8.3% in $CAAR_{[0;1]}$), for accounting fraud with a sample of 37 sanctions of 28 listed companies, from 1995 to 2005.

⁵² For example, ordered chronologically: Pritchard and Ferris, 2001, Djama, 2008, Grande and Lewis, 2009, Dyck *et al.*, 2009, Griffin *et al.*, 2010, Nainar *et al.*, 2014, Haslem *et al.*, 2017, Armour *et al.*, 2017.

following the sanction and/or its publication are both limited in absolute terms. Secondly, the fines exceed by far (factor of 12) the market correction. In fact, they stand respectively for 0.01% and 0.001% of the market capitalization on average). Hence, there would be no reputational sanction by the market. Armour *et al.* (2017) concluded that the reputational sanction is unrelated to the size of the financial penalties levied. Such results question the credibility of the sanction procedures and conclusions *vis-à-vis* the market, compared to the USA where SEC or class action financial penalties are by far more significant. It is all the more surprising that several studies⁵³ demonstrated that financial and accounting issues, which are investigated by the article, triggered the strongest stock market reactions, in the USA as well as in other jurisdictions. All in all, the results question the informational content of the sanctions and the usefulness, efficiency, and credibility of cash fines and more generally of the current regulatory policy and enforcement in France. Reputational losses subsequent to sanctions could enhance regulatory enforcement as a complementary device to regulatory sanctions, if they are large enough to stand for a credible threat, without threatening firms' solvency. In case of overshooting and unpredictable reputational consequences, a regulator may be reluctant to disclose its sanctions, in order not to impair survival of firms. Aitken *et al.* (2015) concluded that more detailed exchange trading rules and surveillance over time and across markets significantly reduce the number of suspected cases (of market manipulation, insider trading and broker-agency conflict) but increase the profits per suspected case⁵⁴. D'Antoni and Galbiati (2007) showed that when the sanctioning policy conveys information about the harmfulness of the sanctioned behavior, the use of nonmonetary sanctions can lead to optimal law enforcement, even when the monetary fine is not maximal.

Some studies went into the details of the consecutive steps of an enforcement procedure. In the USA, transparency is higher through the enforcement procedure: the SEC communicates more on the ongoing procedures. They show that markets tend to react to the earlier stages. For example, Feroz *et al.* (1991) found significant negative returns after the news and the disclosure of an ongoing investigation but no abnormal returns after the settlement itself. Similarly, Pritchard and Ferris (2001) found strong negative abnormal returns after the revelation and the complaint filing but not reaction after the decision. Such early reactions did not happen in France.

⁵³ In the USA (Karpoff and Lot, 1993, Griffin *et al.*, 2004, Palmrose *et al.*, 2004), in Japan (Tanimura and Okamoto, 2013), in China (Xu and Xu, 2017).

⁵⁴ "A 1-standard-deviation improvement in trading rule specificity gives rise to a 23.43% reduction in the number of suspected insider trading cases and a 53.17% increase in profits per case."

That confirms the respect of confidentiality through the enforcement procedure until the hearings by the Enforcement Committee.

Some conclusions can be drawn in terms of content of the sanctions. Firstly, anonymizing the sanction report when publishing it appears to protect the sanctioned entity from abnormal returns. Secondly, the sanctions seem to have gained in echo in the markets since the early stages of the Great Financial Crisis, implying higher abnormal returns, in line with Armour *et al.* (2017) for the UK but contrary to Kirat and Rezzaee (2015) for France. Thirdly, a higher cash fine does not trigger by itself a stronger abnormal market reaction. It may be the consequence of its limited absolute amount, in particular when compared with other jurisdictions. In the USA, the use of financial fines is less common than in France (8% of the sample in Karpoff *et al.*, 2008 a) though much more significant (average of 107 million dollars, median of 0.9 million dollars). It could also be the consequence of the “person” being sanctioned: mostly companies, despite the frequent involvement of the top management in the regulatory breaches. Indeed, recent research suggests focusing more on individuals to gain in efficiency in deterring future crime (Jones, 2013; Kay, 2015; and Cullen, 2016). An improvement of the legislation could be to include bans on activity for top management of public companies. Accordingly, the content and the credibility of the AMF decisions are also questioned by the fact that this research did not find any abnormal reaction following settlements. This conclusion is to some extent coherent with Haslem *et al.* (2017) who found that the reaction to settlements being the least negative and negligible ($CAAR_{[-1,+1]}$ of -0.08%), whatever the outcome, with hardly any reaction following the decision.

Other studies found negative impacts of allegations of financial misconduct, demonstrating a reputational penalty to the mere suspicion of misconduct (Murphy *et al.*, 2009, Nelson *et al.*, 2009, Dyck *et al.*, 2010, and Tibbs *et al.*, 2011). Similarly, Pritchard and Ferris (2001) found negative abnormal returns following the revelation of a potential fraud, and the complaint filing of suit, whatever the outcome (whether or not the motion was denied or granted). Regarding the decision itself, they found that the market reacts positively (negatively) if the motion is denied (granted) but insignificantly, suggesting that this information is either costly to obtain or not material. Haslem *et al.* (2017) found that the filing for dismissals is only slightly less negative than it is for losses ($CAAR_{[-1,+1]}$ of -0.1%, comparing with -0.5% for guilty decisions). These results on the mere fact of being investigated echo the results found on the acquittal verdicts. Indeed, being found, in the end, not guilty of the regulatory breaches they were

being charged off leads to opposite reactions: the markets react positively to the sanction decision, before penalizing significantly such companies after the sanction publication.

This research concluded that some financial wrongdoings induce stronger abnormal market reactions, in particular insider trading, and breaches to information obligation, vis-à-vis investors and the regulator. It echoes studies comparing abnormal returns depending on the victim's relationship with the offender: insiders *versus* outsiders, or second and third parties (Nourayi, 1994, Alexander, 1994, Murphy *et al.*, 2009, Tibbs *et al.*, 2011, and Armour *et al.*, 2017). They also demonstrated that markets react more to sanctions of regulatory breaches involving related parties (insiders or second parties). It illustrates the key role played by trust in investment (as well as in commercial) relationships.

The cross-sectional regressions lead to the following remarks. Similarly, some seriousness signs of the sanction decisions are incorporated by the markets, in particular being investigated (not controlled), and longer procedures. The more classical parameters were not significant (such as the cash fines, behavior sanctions, regulatory breaches, or recidivism), which could make a plea for more severe sanctions. In line with past studies, the media coverage of the news after the publication will trigger stronger abnormal negative returns. Conversely, appealing the decisions does not lead to significant abnormal returns. It could be accounted for by the historically low probability of success of appeals. The results also question who to sanction, to gain in efficiency and credibility. In fact, the top management involvement will lead to significantly higher market correction, echoing the results of Jones (2013), Kay (2015), and Cullen (2016). Sanctioning more the top management than the firms themselves could stand for a credible threat to market players, and encourage better compliance with financial laws, for example for the most likely to relapse companies. Lastly, the cross-sectional results point that one of the challenges for regulators stressed by Carvajal and Elliott (2007), the independence from governmental and political process, seems to overcome as the variables for the different presidents through time do not impact significantly market reactions.

Finally, the results question the fact of naming a listed company victim of others in the sanction reports. In fact, financial markets seem to react strongly and negatively to such information. This reaction takes more time to be incorporated into prices (close to two weeks to become significant). Such inflection is counterintuitive as no particular abnormal reaction should

follow such news. The company merely suffered from others' financial wrongdoing, and possibly its returns already abnormally performed during the violation period.

7 Conclusion and next steps

The goal of this paper was to analyze the reactions of investors and shareholders to the news of a sanction by searching for abnormal returns after the four milestones of the sanction procedure. Hence, it aimed at detecting at which stage of the proceeding a reaction, if any, could be seen, and to what extent. Additionally, it meant to understand how the features of the sanctions and of the sanctioned could explain such reactions. To do so, an original dataset was built for the 52 guilty sanctions impacting 40 daily-listed companies from 2004 to 2016. It was completed with similar datasets for acquittal decisions, settlements, and sanctions mentioning listed companies as victims of others' regulatory breaches.

For guilty decisions, the results first show that the confidentiality of the AMF internal procedures, in the early stages of the proceeding, is respected: no abnormal returns can be detected. Additionally, investors react negatively to the news of a guilty sanction, and to its publication, though to a limited extent in absolute or relative terms. Some features of the sanction will influence the reaction: to the upside, the seriousness of the decision (and not the mere cash fine), being sanctioned after the financial crisis, or committing regulatory breaches impacting related parties; and to the downside, being anonymized in a guilty decision. Conversely, settlements, lighter procedures introduced for least severe regulatory breaches, do not trigger abnormal reactions. Additionally, there seems to be hints to a double punishment by markets for being the victim of other's financial misconduct, after being named in a sanction report. Finally, the results are mixed for acquittal decisions, depending of the step of the procedure.

This work also stresses some directions to improve the credibility of sanctions: possibly higher cash fines, and more frequent behavior sanctions, which are not taken into account by the markets over the period under review; sanctioning more individuals, and in particular top managers; increasing the transparency on sanctions, for the market to be able to fully assimilate the information.

The next steps of this research will capitalize on the datasets, which were already constructed into three main directions. Firstly, a similar analysis could be conducted for the second most frequently sanctioned population, the asset management firms (and frequently

associated with specific investments funds). To do so, the biggest challenge will be data availability. It would be particularly interesting as investors in investment funds are allegedly more financially educated investors. Consequently, under the financial market efficiency hypothesis, one could expect a stronger reaction from these investors than for listed companies, in terms of net outflows and/or returns, either at the fund or at the asset management firm levels. Secondly, the sample of victim listed companies will be investigated further, in particular through a cross-sectional regression, to better understand the reasons leading to such negative abnormal returns and challenge the double-punishment observation. Thirdly, and more generally speaking, a meta-analysis will be conducted based on the broad literature review done on market reactions following regulatory sanctions, with a geographical scope as broad as possible.

Future work will contribute to better understand some features stressed in this article and propose some regulatory improvements. For example, does recidivism count from an investor's stand point⁵⁵? Or, conversely, once sanctioned and reputationally penalized, reoffending has a limited influence? How can sanctions act as a deterrent over future crime, for the sanctioned entity and/or its peers? What is the impact of (*ex ante* or *ex post*) anonymization? The media can be an easy way to learn about a sanction for an average investor, beyond searching directly online for any sanction and word of mouth. Higher media coverage (financial press) was demonstrated to increase the market reaction to information (Feroz *et al.*, 1991, Karpoff and Lot, 1993, Nourayi, 1994, Griffin *et al.*, 2010, Tibbs *et al.*, 2011). The business media is also perceived by investors as a watchdog (see Miller, 2006) and a more credible because independent source of information than analysts and corporations (see Kothari *et al.*, 2009). To what extent the media⁵⁶, and in particular of the business press coverage, impact investors' behavior (see Feroz *et al.*, 1991, Choi and Kahan, 2007, Barber and Odean, 2008, Fang *et al.*, 2014, Peress, 2014)? In the end, does the media coverage of a sanction improve or reduce market efficiency and contribute to discipline managers⁵⁷ and to reduce information asymmetry among market participants?

⁵⁵ For example, Karpoff and Lott (1993) found that the probability of committing a corporate fraud conditional on having already a first fraud event increases significantly (+12.5%).

⁵⁶ In the USA a significant share of financial scandals are revealed by the press (see Choi and Kahan, 2007), associated with a statistically significant impact on prices (see Miller, 2006). Conversely, in France, the press is mostly a re-broadcaster of scandal news detected by the regulator (and not a producer of news), hence improving the dissemination of information among actual stakeholders and potential investors and contributing to the efficiency of stock markets (see French and Roll, 1986, Fang and Peress, 2009, Peress, 2014, Fang *et al.*, 2014).

⁵⁷ The media can also contribute to discipline corporate managers by identifying and publicizing financial market misconducts (see Dai *et al.*, 2015, for insider trading).

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Acronyms

AAER	Accounting and Auditing Enforcement Releases
AMF	<i>Autorité des Marchés Financiers</i>
AAR	Average Abnormal Returns
AR	Abnormal Returns
ASE	American Stock Exchange
CAR	Cumulative Abnormal Returns
CAAR	Cumulative Average Abnormal Returns
COB	Commission des Opérations de Bourse
CSRC	China Securities Regulatory Commission)
DOJ	USA Department of Justice
EC	AMF Enforcement Committee
FSA	UK Financial Services Authority
LSE	London Stock Exchange
M&As	Mergers and Acquisitions
NYSE	New York Stock Exchange
SEC	USA Securities and Exchange Commission
SHSE	Shanghai Stock Exchange
SZHE	Shenzhen Stock Exchange
TOPIX	Tokyo Stock Exchange)
UK	United Kingdom
USA	United States of America

Table 1: Examples of Stock Market Reaction to Sanctions by Regulators

This table summarizes various papers that focused on regulating and sanctioning financial market misconduct. The authors, year of publication, country being studies, period under review, data type, methodology, main and additional findings and remarks are summarized. The studies are classified by geographies (Global, United States of America, Europe, and Asia) and then chronologically. The main findings are largely paraphrased and/or copied from the abstracts of the papers to best and succinctly represent the authors' contributions, but are not meant to exhaustively represent all of the findings from the papers.

Study	Country	Period	Event	Data Type	Methodology	Sample size	Main Results	Additional results	Remarks
Global studies:									
Fiordelisi <i>et al.</i> (2014)	USA and Europe	1994 - 2008	Announced operational losses for 163 (investment and commercial) banks	Daily stock returns	Event study, using market model	430 (o.w. 135 regulatory sanctions, 80 USA, 52 Europe)	-0.54% CAAR[0;+1] -3.3% CAAR[-5;+5] For sanctions: -0.33% CAAR[0;+3] -0.46% CAAR[-5;+5]	The larger reputational losses are not linked to lawsuits or regulatory sanctions, but mainly follow the announcement of 'pure' operational losses to the market.	Operational losses occurring in Europe generate greater reputational damage than those occurring in North America.
Koster and Pelster (2017)	20 countries of which USA (SEC, FIRA), UK (FSA), France, China, Japan, Australia	2007 - 2014	Financial penalties	Stock perf. adj. for dividends and splits stock prices	Estimates of the effect of financial penalties on the systemic risk of banks	671 financial penalties of 68 international listed banks	+2.96% in 1-year stock perf. following a 1-standard deviation increase in the financial penalty (positive relation between financial penalties and buy-and-hold returns)	Reasons: investors' positive reaction to the closing cases, to the banks' successful management of the consequences of misconduct, and to the financial penalties imposed (smaller than the accrued economic gains from the banks' misconduct) Negative relation between financial penalties and pre-tax profitability but no relation with after-tax profitability	Average cash penalties = 0.04% of total assets for financial institutions listed (3.862% maximum, for USD 374.25 million in financial penalties in one year). Highest financial fine: USD 27 billion (i.e. 1.285% of total assets) Higher average in the US (0.0401 % of the banks' assets) than in Europe (0.0013%)
United States of America:									
Feroz <i>et al.</i> (1991)	USA	1982 - 1989	Accounting and auditing enforcement releases of SEC (<i>i.e.</i> publication of an AAER misstatement announcement)	Daily stock returns	Event study	58 first disclosure, 45 SEC investigations	-14% CAAR[-1;+1] after first disclosure in the media -8.9% CAAR[-1;+1] after the disclosure of SEC investigations, conditional on prior knowledge of the dispute	No statistically significant abnormal returns following the settlement of the investigations (sample size: 33)	Inclusion criteria: press coverage of the disclosure and stock price data availability [-10 days;+5 days].
Karpoff and Lott. (1993)	USA	1978 - 1987	Alleged (press reports) and actual (federal investigation) corporate frauds	Daily stock returns	Event study using the CRSP value-weighted index of market returns	132	-1.04% AAR[0] -1.58% CAAR[0;+2] -4.66% CAAR[0;+2] for financial reporting fraud	90% of the loss due to market-imposed reputational penalties	

Nourayi (1994)	USA	1977 - 1984	SEC litigation releases (enforcement actions of US NYSE and ASE listed companies)	Daily stock returns	Event study, using a market model	82	-0.62% CAAR[0;+2]	Stronger negative reaction to injunctive actions than administrative proceedings	Violations of disclosures and record-keeping requirements impacted most negatively returns. Financial press coverage increases market reaction. Reactions in stock prices proportional to the severity of the enforcement actions. Market reactions depend on who committed the violation (insignificant for outsiders or employees).
Dechow <i>et al.</i> (1996)	USA	1982 - 1992	Earning manipulations investigated by the SEC (<i>i.e.</i> publication of an AAER misstatement announcement by the SEC)	Daily stock returns	Event study using the CRSP value-weighted-with-dividends index	78 firms	-8.8% AAR[0]	Significant increases in the costs of capital when accounting manipulations are made public (increase in the bid-ask spread) Decline in analyst coverage around the disclosure . <i>i.e.</i> downward revision of firms' future economic prospects and credibility of firms' financial disclosures	Main motivation for earnings manipulation: attract external financing at low cost Firms manipulating earnings are: (i) more likely to have boards of directors dominated by management; (ii) more likely to have a Chief Executive Officer who simultaneously serves as Chairman of the Board; (iii) more likely to have a Chief Executive Officer who is also the firm's founder, (iv) less likely to have an audit committee; and (v) less likely to have an outside block holder
Alexander (1999)	USA	1984-1990	Sanctions by Federal courts (not only by the SEC)	Daily stock returns	Market adjusted 2-day return	60	-2.26% in day 0 and 1 (mean, <i>versus</i> -1.0% median); +0.44% for third-party related offenses -3.06% for related-party offenses		
Griffin <i>et al.</i> (2000)	USA	1995 - 1997	Federal securities class action filing	Daily stock returns	Event study	283	-6.8% CAAR[-1;+1] -4.2% CAAR[+2;+15]	Stronger impact for smaller issuers	
Pritchard and Ferris (2001)	USA	1995 - 1999	3 steps of the litigation process: (1) the revelation of potential fraud, giving rise to the lawsuit; (2) the filing of a lawsuit; and (3) the decision of judicial resolution of the lawsuit	Daily stock returns	Event study, using a market model	89	-25% CAAR[-1;+1] after the revelation date -3.5% CAAR[-1;+1] after filing the notice of complaint	No significant reaction to the resolution of the motion to dismiss The outcome of litigation generally not anticipated by the market Market returns not influenced by the outcome of litigation	

Palmrose <i>et al.</i> (2004)	USA	1995 - 1999	SEC AAER or company disclosure of fraud (irregularities): financial restatements, involving fraud	Daily stock returns	Market adjusted event study	83	-20% CAAR[0;+1]	-9.2% (-4.6%) mean (median) CAAR [0;+1] market reaction to restatement announcements for a 403 financial restatement sample.	Sources of identification of the the need for a restatement: the company, the SEC, an independent auditor or a combination there of the 3
Griffin <i>et al.</i> (2004)	USA	1990 - 2002	3 steps of a federal class action securities lawsuit: beginning of fraud, correction of the information deficiency (disclosure, accounting restatement), and naming of the defendant (class action filing date)	Daily stock returns	Event study (industry adjusted), using CRSP index	2,133	-16.6% CAAR[-1;+1] for end of class period (-13.7% median) -4.1% CAAR[-1;+1] for class action filing (-1.7% median)	Markets interprets the 3 events not in isolation but as sequential and conditional events. Investor response differs on the basis of the characteristics of the issuer, the allegations in the complaint, and the outcome of the litigation. Greater cost imposed by the market when the allegations relate to accounting issues.	
Karpoff <i>et al.</i> (2008a)	USA	1978 - 2002	SEC and DOJ enforcement actions for financial mis- presentation	Daily stock returns	Event study using the CRSP value-weighted index of all stocks	194	-34.4% CAARj (-24.84% median) in abnormal returns over all days for which the firms (which survived the enforcement period) were subject to a regulatory event	Reputational penalties: 7.5 times higher than the legal and regulatory average sanction of 23.5 million USD (expected loss in the present value of future cash flows due to lower sales and higher contracting and financing costs) SEC cash penalties (47 cases): avg. 107 million USD (median 0.89 million)	
Grande and Lewis (2009)	USA	1996 - 2003	Shareholder-initiated class action law suits	Daily stock returns	Event study using a market model NYSE, AMEX and NASDAQ)	377 class- actions against 328 firms	-4.66% CAAR[-1;+1]		Shareholders partially anticipate these lawsuits; filing date effects understate the magnitude of shareholder losses; prior expectations about the likelihood of being sued are important determinants of the losses anticipated prior to filing an actual lawsuit, and on the lawsuit filing date.
Murphy <i>et al.</i> (2009)	USA	1982 - 1996	Allegation of corporate misconduct impact on profitability and cost of capital (via press)	Daily stock returns	Event study using the single-index market model and the CRSP value-weighted index	394	-1.4% CAAR[-1;0]: -2.3% CAAR[-1;0] for related-party related offenses -0.8% CAAR[-1;0] for third-party related offenses	-2.1% CAAR[-3;+3]: -3.4% CAAR[-3;+3] for related-party related offenses -1.1% CAAR[-3;+3] for third-party related offenses	Direct cost from sanctions (fines) , can explain only a small portion of the firms' losses

Nelson <i>et al.</i> (2009)	USA	2002 - 2007	Company disclosures of receipt of a Wells notice from the SEC (investigations)	Daily stock returns	Event study, market adjusted	58	-2.59% AAR[0]	-2.84% AAR[0] for the 10 formal investigation disclosed at initial disclosure	Market participants discern firm-specific differences across announcements of receipt of Wells notices (17 out of 58 disclosures associated with statistically significant market-adjusted stock price declines)
Dyck <i>et al.</i> (2010)	USA	1996 - 2004	Alleged corporate frauds of companies (assets > 750 mns USD)	Daily stock returns	Event study around the whistle blowing date, using S&P250 and median regression	216	-20% CAAR[-1;+1]		The SEC accounts for only 7% of the cases of fraud. Sources of information detectors (SEC, auditors, media, employees, non-financial-market regulators, etc.)
Leng <i>et al.</i> (2011)	USA	1982 - 2004	Publication of SEC's AAERs	Monthly buy-and-hold abnormal returns	Event study, industry adjusted	239 firms	-13% CAAR in the first year -23.6% CAAR in the second year; -26% CAAR in the third year	Long-lasting negative implications influencing durably operating and stock performances and life expectancy of firms (higher failure risk), when benchmarked to peers	
Tibbs <i>et al.</i> (2011)	USA	1982 - 1996	Discovery of alleged corporate misconduct from the press	Daily stock returns	Event study	401	-1.9% CAAR[-1;0]: -2.9% CAAR[-1;0] for related-party related offenses -1.3% CAAR[-1;0] for third-party related offenses	-4.0% CAAR[-3;+3]: -6.4% CAAR[-3;+3] for related-party related offenses -2.3% CAAR[-3;+3] for third-party related offenses	
Nainar <i>et al.</i> (2014)	USA	1999 - 2007	First time Wells disclosure in current 8-K filings	Daily stock returns	Event study	77	-3.3% in CAAR[-1;+1]		
Dyck <i>et al.</i> (2013)	USA	1996 - 2004	Detected frauds	Market capitalization	Estimation of the expected cost of fraud, over the fraud period, using industry multiples	210	Average fraud cost: 20% of the enterprise value (30% for detected frauds, <i>versus</i> 17% for not-detected frauds)	The average fraud lasts for 1.67 year and costs -380 million USD a year to large US corporations.	1/4 frauds are detected. 1/7 of large publicly traded companies engage in fraud, most of which are undetected.
Karpoff <i>et al.</i> (2014)	USA	1978 - 2011	All cases of SEC regulatory action for financial mis-presentation	Daily stock returns	Event studies comparing databases	944 hand-collected	-14.91% AAR[0] (-7.8% median)		Comparison of 4 databases with a hand-collected one illustrating 4 main limitations/sources of biases to the results based on their exploitation: (1) late initial revelation dates (2) scope limitations (3) potentially extraneous events, and (4) complete and partial data omissions
						260 GAO	-7.06% AAR[0] (-2.13% median)		
						137 AA	-4.83% AAR[0] (-1.67% median)		
						300 SCAC	-5.43% AAR[0] (-1.21% median)		
						637 AAER	-4.03% AAR[0] (-1.13% median)		

Griffin and Sun (2016)	USA	2000 - 2009	SEC Wells Notices (first-time current 8-K, quarterly 10-K or yearly 10-Q)	Daily stock returns	Event study using the CRSP value-weighted index of all stocks	80	-1.84% CAAR[-1;+1] after the first-time SEC 8-K disclosures -4.54% CAAR[-1;+1] after first-time 8-K disclosures with timely litigation (within 12 months), sample size: 23	No significant CAAR for firms that wait to disclose their first-time Wells disclosure in a 10-K or 10-Q	Wells notices are perceived by investors as a significant negative event (in particular when recidivism).
Haslem <i>et al.</i> (2017)	USA	1995 - 2006	Securities litigation, out of lawsuits filed in US Federal District courts	Daily stock returns	Event study	3,968	-1.227% CAAR[-1;+1] -8.427% CAAR[-10;+1]	General results for litigations (6,091 cases): -0.615% CAAR[-1;+1] (median -0.224%) -1.425% CAAR[-10,+1] (median -0.409%)	
Europe									
Engelen (2009)	Belgium, France, Germany, Lux, Netherlands, UK	1995 - 2005	Public announcement of illegal insider trading in the financial press	Daily stock returns	Event study, using a market-adjusted model	101	-1.68% AAR(0) -2.52% CAAR[-1;+1]	-3.56% CAAR[-2;+2]	
Djama (2008)	France	1995 - 2005	3 steps of the sanctions for accounting fraud: earning manipulation, control/investigation start, sanction date	Daily stock returns	Event study	37 sanctions of COB/AMF France over	-6.9% AAR[0] on the day of the sanction of the AMF -8.3% CAAR[0;+1] after the sanction	+10.3% investors' reactions to the news of false information No statistically significant market reaction to the start of the procedure (control or investigation). Investors seem to anticipate sanctions.	Characteristics of the efficiency of the market regulators: 1) the speed of investigations, 2) the amount of the fines, and 3) the almost certain confirmation of the verdict in case of appeal
Kirat and Rezaee (2015)	France	2006 - 2011	AMF sanctions of of listed companies	Daily stock returns	Event-study following the publication of the sanction, compared with the CAC 40 index.	25	-1.3% AAR(0) -3.2% CAAR[0;+1]	Weak negative reaction when notification to the firm, no evidence of the sanction itself.	Amount of the cash fine (negligible compared to the market capitalization of firms) and of the post-crisis dummy (after 09/2008) not significant.

Armour <i>et al.</i> (2017)	UK	2001 - 2011	Unique public announcement following FSA/LSE legal penalties (violations of financial regulations and listing rules)	Daily stock returns	Event study of the impact of the unique announcement of regulatory sanctions on disciplined firms	40 cases of enforcement	-1.26% -1.68% 1;+1]: -2.6% for second-party wrongs +0.24% CAAR[-1;+1] for third party wrongs	AAR[0] CAAR[-1;+1] CAAR[-1;+1]	Reputational losses (stock price impact) nearly 9 times the size of fines imposed by the FSA, and associated with misconduct harming customers or investors, but not third parties. Average cash fines = 0.26% of market capitalization (median of 0.01%, ranging from 0 to 2.51%)	Reputational losses only for misconduct that directly affects second parties who trade with the firm (customers, investors) Higher post crisis (June 2007) reputational sanctions
Asia:										
Tanimura and Okamoto (2013)	Japan	2000 - 2008	Corporate incidents: frauds of stakeholders or governments, <u>financial reporting frauds</u> (39), regulatory violations, individual frauds	Daily stock returns	Event study, based on a market model (TOPIX)	160	-5.1% in CAAR[-1;+1] on average -6.2% CAAR[-1;0] for the financial reporting frauds		"News of the scandal reaches the financial markets (<i>i.e.</i> "leaks" to the markets) before the first public news report."	Businesses in Japan face low regulatory fines, and the legal system generally shields them from large punitive damages in consumer lawsuits.
Chen <i>et al.</i> (2005)	China	1999 - 2003	Impact of the CSRC's enforcement actions (sanctions issued by public regulators)	Daily stock returns	Event study	169	-1.12% +1] -1.87% CAAR[-2,+2]	CAAR[-1, CAAR[-2,+2]	Firms have a greater rate of auditor change, a much higher incidence of qualified audit opinions, increased CEO turnover, and wider bid-ask spreads.	
Liebman and Milhaupt (2008)	China	2001 - 2006	Public criticisms (<i>i.e.</i> CRSC regulatory tool to sanction listed companies) by the Shanghai and Shenzhen Stock Exchanges	Daily stock returns	Event study	109 + 149 criticisms against 89 + 116 companies	-2.1% SHSE and -1.0% SZSE 1;+1] -2.7% SHSE and -0.6% SZSE CAAR[-2;+2]	- CAAR[-1;+1] - CAAR[-2;+2]	For company disclosure: -3.7% SHSE and -4.2% SZSE CAAR[-1;+1] -3.6% SHSE and -3.9% SZSE CAAR[-2;+2]	
Firth <i>et al.</i> (2011)	China	2000 - 2005	Financial restatement, resulting of deliberate manipulation of financial reports	Daily stock returns	Event study	267	-0.87% CAAR[0;+5] -1.74% CAAR[-5;+5]	CAAR[0;+5] CAAR[-5;+5]		
Xu and Xu (2017)	China	2011 - 2016	Sanctions issued by Regional Offices of CSRC and disclosed by sanctioned listed firms (regulatory requirement)	Daily stock returns	Event study	442	-0.735% CAAR[0,+1] -0.594% AR(0) -0.441% AAR[0] after adjusting for a vector of firm-specific characteristics		Costs (sanctions) deemed to be economically negligible by the market hence their deterrence effects may be limited Misconducts in information disclosure imply additional negative shocks (maybe due to the potential civil litigation initiated by harmed investors against such firms)	

Kwan and Kwan (2011)	Malaysia	2005 - 2009	Public reprimand by the Bursa Malaysia	Daily stock returns	Event study using a market model	41	-1.4% CAAR[-2;+2]
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Note: SEC Wells notices, issued by the SEC regarding a possible violation of securities laws, can lead to a securities class action from investors claiming for damages or to a possible SEC fraud investigation. Firms are not obliged to disclose the Wells notices.

Table 2: 39% of the Sanctions of Listed Companies in the Scope of the Event Study

			52 in the sample
			5 confounding excluded
129 sanctions of 105 companies = 134 sanctions + companies	74 daily listed companies over the event study window	63 guilty	6 excluded (duplicates and too big)
		11 acquittals	
		35 not listed over the whole period	20 bankrupted
	60 companies without daily listed prices		8 M&As
		25 data problems	7 withdrawals
			5 data unavailable over the whole period
			15 frequency problem (not daily)
			5 suspended quotation during part of the procedure*

Source: AMF, Author's Calculations (de Batz, 2017 b) * One firm went into bankruptcy after the sanction.

Table 3: Characteristics of Sanctions of Listed companies versus the Samples

	Listed companies ***	Sample listed companies	Sample victim listed companies
Number of sanctions	129	52	65
Sanctioned companies	105	40	53
<i>Of which bankrupted</i>	23 (19 before sanction)	2	0 ^{v*}
Investigations (as % of total)	88	81	95
Number of reg. breaches per sanction	1.5	1.4	1.3
Main activity sectors:			
Financials (as % of total)	25	38	22
Consumer goods or services (as % of total)	22	15	22
Industrials (as % of total)	22	15	23
Technology (as % of total)	13	13	12
Average cash fine * (as thousand euros)	688	882 ^{iv*}	978 ^{iv* & vi*}
Average duration of procedure (as years)	2.7	2.6	2.7
Average market capitalization (as billion euros) **	11.9 (6.9 ^{vii*})	9.8	13.9

Sources: AMF, Thomson Reuters, author's calculations. * Excluding acquittals ** For companies still listed when being sanctioned guilty, on the day of the sanction decision *** Listed companies cover all the sanctions of listed companies, including acquittals ^{iv} Excluding the sanctions with only a disciplinary sanction (meaning a null cash fine) ^{v*} Some companies disappeared following mergers and acquisitions or changed corporate names ^{vi*} Excluding acquittals ^{vii*} Average market capitalization when excluding the 4 sanctions on the major international bank excluded from the sample.

Table 4: Sample Selection from the 52 Sanctions Pronounced by the AMF in the Scope

Number of observations: 52	Mean	Std. dev.	Min	Max	Expected impact on stock value ²
Origin of the sanction:					
Investigation (not control)	0.81	0.40	0	1	+

Breaches of insider dealing regulations	0.29	0.46	0	1	+
Price manipulations	0.10	0.30	0	1	+
Breaches of public disclosure requirements	0.63	0.63	0	2	+
Breaches of the Monetary and Financial Code and the AMF General Regulation	0.38	0.50	0	1	-
Characteristics of the sanction decision:					
Cash sanction (as 000 EUR) ¹	860	1,354	0	8,000	+
Warning	0.25	0.44	0	1	+
Blame	0.04	0.19	0	1	+
Duration of procedure (start to sanction, as years)	2.65	1.01	1.14	5.98	+
Lag from sanction to publication (as months)	1.82	1.69	0.03	8.47	?
Actual state of online anonymization	0.65	0.48	0	1	
Partial anonymization	0.25	0.44	0	1	
First publication anonymized	0.35	0.48	0	1	
Top management involved in the breach(es)	0.46	0.50	0	1	+
Sanctioned individuals	0.69	0.47	0	1	?
Public company victim of breach(es)	0.25	0.50	0	1	?
Sanction report nb. of pages	11.73	5.95	3	34	?
Details of the appeals:					
Appeal	0.48	0.50	0	1	-
Nb of appeals	0.81	0.99	0	4	-
Rejection of the appeal	0.40	0.49	0	1	+
Appeal by AMF	0.04	0.19	0	1	+
Duration of appeals (from the sanction, as years)	0.99	1.40	0	7.17	+
Media coverage of the sanction procedure:					
Media coverage intensity before the sanction	0.06	0.05	0	0.38	+
Nb of articles published between the sanction and its publication	10.5	37.0	0	248	+
Number of articles published during the week following the sanction	13.8	23.0	0	114	+
Articles published in L'Agéfi or les Echos	0.71	0.46	0	1	+
Recidivism:					
Recidivism pre-AMF	0.27	0.45	0	1	+
Recidivism post-AMF	0.29	0.46	0	1	+
Stock market characteristics:					
Market capitalization (on the sanction day, as 000 EUR)	9,812	15,511	8	69,393	?
Survival to sanction (still listed)	0.88	0.32	0	1	?
Euronext Compartment A	0.56	0.50	0	1	?

Euronext Compartment B	0.17	0.38	0	1	?
Euronext Compartment C	0.19	0.39	0	1	?
Financial sector	0.38	0.49	0	1	+
Industry sector	0.15	0.36	0	1	?
Consumer goods or services sector	0.15	0.36	0	1	?
Technological sector	0.13	0.34	0	1	?
Legal environment characteristics:					
Year of the sanction	2009	3.4	2004	2016	+
LME 2008	0.24	0.42	0	1	+
LRBF 2010	0.40	0.49	0	1	+
President J.P. Jouyet	0.35	0.48	0	1	+
President G. Rameix	0.23	0.43	0	1	+

Note: The 52 sanctions in the scope cover all the listed companies which were sanctioned (*i.e.* guilty) by the AMF from 2004 to 2016 and which were listed all through the sanction process. Some have delisted since the sanction. The dataset was built based mostly on publicly available data. Complementary data were extracted from softwares (Thomson Reuters and Factiva) or shared confidentially by the AMF (anonymized sanctioned companies, missing dates in particular).

Notes: ¹ Sanctions which only involved a disciplinary sanction were assigned a zero euro cash fine. ² The expected impact means, a priori and intuitively based on the existing literature, whether the variable will lead to higher (+) or lower (-) abnormal returns.

Table 5: Cumulative Abnormal Returns Following the Publication of the Sanction Decisions

This table reports the cumulative abnormal returns (CAR_t) from one day preceding the event to one day following the event ($t = 0$ for the publication of the sanction decision) and their significance levels at 5% and 10%. The abnormal returns (AR_t) are computed given the augmented market model parameters, which are estimated with OLS with White-corrected standard errors over the period [-120;-11] *vis-à-vis* the event. The sample covers all the sanctions of daily listed companies over the 2004-2016 period (*i.e.* 52 sanctioned companies, sorted by date of publication).

Sanction	Sanction year	t = -1	t = 0	t = +1	Sanction	Sanction year	t = -1	t = 0	t = +1
SAN-1	2004	0.4%	-0.8%	-0.3%	SAN-27	2009	-2.7%	-3.2%	-5.3%
SAN-2	2004	-2.3%	-2.1%	5.4%	SAN-28	2010	-3.9%	-4.0%	-3.3%
SAN-3	2004	-0.2%	-0.4%	-0.2%	SAN-29	2010	-2.7%	-3.0%	-1.7%
SAN-4	2004	-0.5%	-0.3%	-0.6%	SAN-30	2010	-0.4%	-5.7%	-6.0%
SAN-5	2005	-0.1%	-1.9%	-1.9%	SAN-31	2010	0.8%	0.2%	-0.1%
SAN-6	2005	-1.9%	-3.9%	-0.1%	SAN-32	2010	-0.6%	4.5%	3.2%
SAN-7	2005	-0.3%	-1.3%	-1.2%	SAN-33	2011	-0.8%	-0.6%	-0.2%
SAN-8	2005	0.5%	2.3%	2.2%	SAN-34	2011	-1.1%	-0.8%	-0.9%
SAN-9	2005	1.4%	-0.1%	1.4%	SAN-35	2011	-2.1%	-3.4%	-5.3%
SAN-10	2005	-0.7%	0.3%	-0.7%	SAN-36	2011	0.3%	1.4%	1.3%
SAN-11	2005	-1.3%	-2.0%	-2.1%	SAN-37	2011	-0.3%	0.2%	-0.4%
SAN-12	2006	0.0%	0.9%	0.8%	SAN-38	2011	-0.2%	-0.3%	-1.5%
SAN-13	2007	0.5%	-0.1%	0.3%	SAN-39	2011	-0.7%	-0.1%	-0.5%
SAN-14	2007	-0.9%	-1.2%	-1.7%	SAN-40	2012	1.6%	0.4%	2.6%
SAN-15	2007	-0.2%	-1.8%	-2.9%	SAN-41	2012	0.5%	1.1%	1.3%
SAN-16	2006	1.1%	-0.2%	-0.7%	SAN-42	2012	-3.7%	-4.4%	-7.0%
SAN-17	2007	-1.1%	-3.1%	-5.3%	SAN-43	2013	-0.7%	0.0%	0.1%
SAN-18	2008	-2.6%	-3.0%	-0.3%	SAN-44	2013	1.6%	1.2%	0.2%
SAN-19	2008	0.1%	-0.9%	<i>-1.6%</i>	SAN-45	2014	2.2%	2.7%	1.9%
SAN-20	2008	-0.4%	-1.1%	<i>-4.3%</i>	SAN-46	2014	-0.2%	-3.1%	-3.9%
SAN-21	2008	1.5%	1.7%	3.1%	SAN-47	2014	-0.2%	1.5%	0.7%
SAN-22	2008	-0.2%	0.2%	0.5%	SAN-48	2015	-3.0%	-3.8%	0.7%
SAN-23	2009	0.2%	0.5%	1.3%	SAN-49	2015	0.5%	-1.8%	-1.6%
SAN-24	2009	-0.6%	-1.6%	1.1%	SAN-50	2016	-0.2%	-1.1%	-1.0%
SAN-25	2009	-0.5%	-1.8%	-3.9%	SAN-51	2016	-1.3%	2.0%	2.5%
SAN-26	2009	-0.9%	-1.6%	-2.0%	SAN-52	2016	0.1%	0.2%	2.2%

Source: AMF, Thomson Reuters, Author's Calculations

Notes: Statistically significant at the 5% level in bold, statistically significant at the 10% level in italic. In some cases, a sanction involved several listed companies.

Table 6: Cumulative Abnormal Returns Following the 52 Sanctions of the Guilty Listed Companies

This table reports the cumulative average abnormal returns ($CAAR_t$) up to a specified day t in event time for the four main steps of the sanction procedure. Event time is days relative to the step of the sanction procedure being analyzed and $t = 0$ is the event itself. Abnormal returns are computed given the market model parameters, which are estimated with OLS through the period $[-120; -11]$ in event time. The sample is composed of the 52 companies which were sanctioned guilty by the AMF from 2004 to 2016 and were daily quoted all through the sanction procedure.

t	Beginning of procedure (control or investigation)		Statement of objection		Enforcement Committee and sanction decision		Publication of the sanction decision	
	$CAAR_t$	t-stat	$CAAR_t$	t-stat	$CAAR_t$	t-stat	$CAAR_t$	t-stat
-1	0.4%	0.8	0.7%**	2.2	-0.4%	-1.2	-0.5%***	-2.7
0	1.4%	0.7	0.8%	1.5	-0.6%*	-1.7	-0.8%***	-3.0
1	2.0%	1.0	0.4%	0.5	-0.6%	-1.7	-0.7%*	-2.0
2	1.5%	0.7	-0.1%	-0.1	-0.9%*	-1.9	-0.9%*	-1.9
3	1.9%	0.9	0.4%	0.5	-0.9%*	-1.8	-1.1%*	-1.7
4	2.0%	1.0	0.0%	0.0	-0.8%	-1.3	-0.9%	-1.5
5	2.6%	1.3	0.0%	0.0	-0.8%	-1.2	-1.1%*	-1.8
6	3.3%	1.6	-0.2%	-0.2	-1.3%	-1.6	-1.3%**	-2.2
7	2.6%	1.2	-0.2%	-0.3	-1.3%	-1.5	-1.3%*	-1.8
8	1.0%	0.4	-0.3%	-0.4	-1.4%	-1.7	-0.9%	-1.2
9	1.2%	0.5	-0.4%	-0.4	-1.1%	-1.3	-0.8%	-0.9
10	0.8%	0.3	0.0%	0.0	-1.0%	-1.1	-1.5%	-1.6
20	3.9%	1.4	-0.7%	-0.4	-1.3%	-1.0	-0.8%	-0.6
40	7.4%	1.5	-1.8%	-0.7	-1.9%	-1.0	1.2%	0.6
60	9.1%*	1.7	-0.2%	-0.1	-3.7%	-1.4	0.2%	0.1
120	11.8%*	1.7	3.6%	0.6	-7.1%	-1.5	-6.6%	-1.5

Sources: AMF, Thomson Reuters, Authors' calculations

Notes: *, ** and *** denote statistical significance at the 10%, 5%, and 1% level.

Table 7: Determinants of Abnormal Returns Following the Publication of Sanction Decisions

This table reports results from least squares regressions (using White-corrected standard errors) for specifications (11) (model 1), (12) (model 2), and (13) (model 3). The dependent variables are the Cumulative Abnormal Returns from one day before the publication of the sanction decision until t days following it: $CAR_{i,[0;+t]}$, for $i = 1, \dots, 52$ and $t = 0, +1$ and $+6$. Abnormal returns are computed using the market model. The sample is composed of the 52 companies which were sanctioned guilty by the AMF from 2004 to 2016 and were daily quoted all through the sanction procedure.

	CAR [-1;0]				CAR [-1;+1]				CAR [-1;+6]			
	<i>Model 1</i>		<i>Model 2</i>		<i>Model 1</i>		<i>Model 1</i>		<i>Model 3</i>		<i>Model 3</i>	
	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹	Coef	RSE ¹
Constant	5.076***	(1.27)	4.645***	(1.245)	3.414	(2.263)	12.06***	(2.409)	12.29***	(2.188)		
Origin of the sanction:												
Investigation (not control)	-1.168	(0.751)	-0.817	(0.687)	0.624	(1.075)	-3.279**	(1.393)	-5.131***	(1.381)		
Characteristics of the sanction decision:												
Duration procedure	-0.754***	(0.234)	-0.723***	(0.220)	-0.428	(0.464)	-2.092***	(0.385)	-1.953***	(0.372)		
Lag before publication	-0.178	(0.139)	-0.185	(0.125)	-0.313*	(0.163)	-0.296	(0.246)				
Pub. anonymized by AMF	-1.49**	(0.581)	-1.685**	(0.624)	-2.33***	(0.807)	-1.097	(0.957)				
Listed firm victim			0.781*	(0.453)								
Top mngt involved									-2.064**	(0.927)		
Appeals & Media:												
Reject. of appeal or withdrawal	1.082**	(0.511)	0.831*	(0.458)	-0.166	(0.682)	-1.566*	(0.885)				
Articles L'Agefi or Les Echos	-1.334**	(0.555)	-1.579***	(0.514)	-0.913	(0.729)	0.593	(0.962)				
Articles over the week following publication									-0.046***	(0.0167)		
Stock market characteristics:												
Survival to sanction	-0.057	(0.632)			-0.807	(0.889)	-5.695***	(1.288)	-5.300***	(0.781)		
Euronext Cpt A	-0.0669	(0.6)			0.508	(0.907)	4.122***	(0.905)	3.987***	(0.983)		
Indus. sector	-1.341*	(0.677)	-1.399**	(0.630)	-1.277	(1.019)	2.935**	(1.285)	4.541***	(1.250)		
Techno. sector	-2.33***	(0.555)	-2.232***	(0.401)	-0.925	(1.001)	-0.489	(1.313)				
Cons. goods serv. sector									5.794***	(1.291)		
Legal environment characteristics:												
YoY GDP growth	-0.453***	(0.147)	-0.439***	(0.144)	-0.236	(0.34)	-0.576**	(0.242)	-0.711***	(0.227)		
LME law (2008)	-2.143***	(0.751)	-2.278***	(0.708)	-1.571	(1.258)	-4.597***	(1.520)	-4.487***	(1.435)		
N	52		52		52		52		52			
R2	0.496		0.522		0.319		0.7049		0.7518			
Ramsey-test Prob > F	0.8797		0.5813		0.1651		0.3203		0.4368			

Sources: AMF, Thomson Reuters, Authors' calculations

Notes: ¹ RSE: White-Robust Standard Errors; *, ** and *** denote statistical significance at the 10%, 5%, and 1% level.

Table 8: Abnormal Returns for Sanctions of not-Guilty Listed Companies (11 decisions)

The sample excluded acquittal decisions, as the goal was to search for a reaction in returns following a negative news sent by the regulator. Still, companies could be penalized by the market for the mere fact of being investigated by its regulator. This table reports the cumulative average abnormal returns (CAAR_t) up to a specified day *t* in event time for the four main steps of the sanction procedure. Event time is days relative to the step of the sanction procedure being analyzed and *t* = 0 is the event itself. Abnormal returns are computed given the market model parameters, which are estimated with OLS through the period [-120;-11] in event time. The sample is composed of the 11 companies which were acquitted by the AMF Enforcement Committee from 2004 to 2016 and were daily quoted all through the sanction procedure.

<i>t</i>	Beginning of procedure		Statement of objection		Sanction decision		Publication of the sanction decision	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
0	0.6%	0.7	-0.6%	-1.4	1.1%*	2.2	-0.4%	-0.4
1	1.0%	0.9	0.1%	0.0	1.6%	1.4	-0.9%	-0.7
2	0.0%	0.0	2.0%	0.6	1.2%	1.1	-3.5%	-1.6
3	0.7%	0.5	1.6%	0.6	1.0%	0.6	-3.1%*	-2.2
4	2.3%	1.8	1.3%	0.4	0.9%	0.3	-2.9%*	-2.0
5	1.2%	0.9	0.6%	0.2	0.8%	0.5	-3.7%*	-2.0
6	0.6%	0.4	1.4%	0.4	2.5%	1.3	-3.5%*	-1.8
7	1.3%	0.7	-0.1%	0.0	3.2%	1.3	-2.8%	-1.4
8	1.2%	0.6	-0.5%	-0.1	1.7%	0.8	-3.3%*	-1.9
9	0.4%	0.3	-1.6%	-0.3	0.2%	0.1	-3.5%*	-1.9
10	-0.3%	-0.2	-1.1%	-0.2	0.6%	0.3	-3.4%*	-2.0
20	-3.4%	-1.0	-2.2%	-0.3	-0.9%	-0.2	-4.1%	-1.3
40	-6.3%	-1.0	-4.0%	-0.3	2.5%	0.5	-3.6%	-0.8
60	2.3%	0.3	-0.6%	0.0	-1.5%	-0.2	-7.4%	-1.3
120	1.2%	0.1	-14.7%	-1.1	-8.4%	-0.9	-11.8%	-1.2

Sources: AMF, Thomson Reuters, Authors' calculations * $p < 0.1$

Table 9: Abnormal Returns for Settlements of Listed Companies (5 Cases)

Out of the 32 settlements concluded over the period under review, 5 involved subsidiaries of listed companies. This table reports the cumulative average abnormal returns (CAAR_t) up to a specified day t in event time for the four main steps of the settlement procedure. Event time is days relative to the step of the sanction procedure being analyzed and $t = 0$ is the event itself. Abnormal returns are computed given the market model parameters, which are estimated with OLS through the period [-120;-11] in event time. The sample is composed of the 5 daily-listed listed companies which settled with the AMF Enforcement Committee from 2012 to 2016.

t	Beginning of procedure		Statement of objection		Sanction decision		Publication of the sanction decision	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	0.1%	0.1	0.2%	0.2	0.2%	0.3	-1.3%	-1.0
0	0.2%	0.3	0.3%	0.8	1.9%	1.1	-0.7%	-0.6
1	0.2%	0.2	1.4%	1.0	1.4%	1.3	-1.8%	-2.0
2	-0.5%	-1.1	2.2%	1.5	2.1%	1.5	-2.0%	-1.2
3	-0.4%	-0.4	1.9%	1.4	2.1%	1.3	-2.0%	-1.3
4	-0.3%	-0.6	-0.3%	-0.3	1.8%	0.8	-3.5%	-1.9
5	0.5%	0.6	0.8%	0.8	1.3%	0.4	-3.0%	-1.2
6	1.1%	0.7	0.5%	0.2	4.6%	1.1	-2.9%	-1.1
7	1.7%	1.3	2.0%	0.7	5.1%	1.3	-3.0%	-1.2
8	0.3%	0.4	1.2%	0.4	4.8%	0.9	-3.7%	-1.3
9	-0.1%	-0.1	2.0%	0.6	4.6%	0.9	-3.1%	-0.8
10	-1.2%	-0.7	2.5%	0.9	4.2%	0.8	-2.8%	-0.7

Sources: AMF, Thomson Reuters, Authors' calculations

Table 10: Cumulative Abnormal Returns Following the Last Steps of the Sanctions for Companies Being Named as Victims (65 Cases)

This table reports the cumulative average abnormal returns (CAAR_t) up to a specified day t in event time for the two last steps of the sanction procedure. Event time is days relative to the step of the sanction procedure being analyzed and $t = 0$ is the event itself. Abnormal returns are computed given the market model parameters, which are estimated with OLS through the period [-120;-11] in event time. The sample is composed of the 65 daily listed companies which were victim of others' financial misconduct mentioned in sanction reports of the AMF from 2004 to 2016.

t	Sanction decision		Publication of the sanction decision	
	CAAR _t	t-stat	CAAR _t	t-stat
-1	0.1%	0.3	-0.5%	-1.6
0	-0.2%	-0.6	-0.1%	-0.2
1	-0.5%	-1.0	-0.2%	-0.3
2	-0.6%	-1.2	-0.2%	-0.3
3	-0.7%	-1.4	0.1%	0.2
4	-1.1%	-1.6	0.3%	0.4
5	-1.1%	-1.5	-0.4%	-0.4
6	-1.0%	-1.2	-0.5%	-0.5
7	-1.5%*	-1.8	-0.7%	-0.7
8	-2.8%**	-2.6	-1.3%	-1.4
9	-2.8%**	-2.6	-1.6%	-1.6
10	-3.2%**	-2.6	-1.0%	-0.9
20	-3.4%**	-2.0	1.0%	0.7
40	-2.5%	-1.0	1.3%	0.5

Sources: AMF, Thomson Reuters, Authors' calculations ** $p < 0.05$, * $p < 0.1$

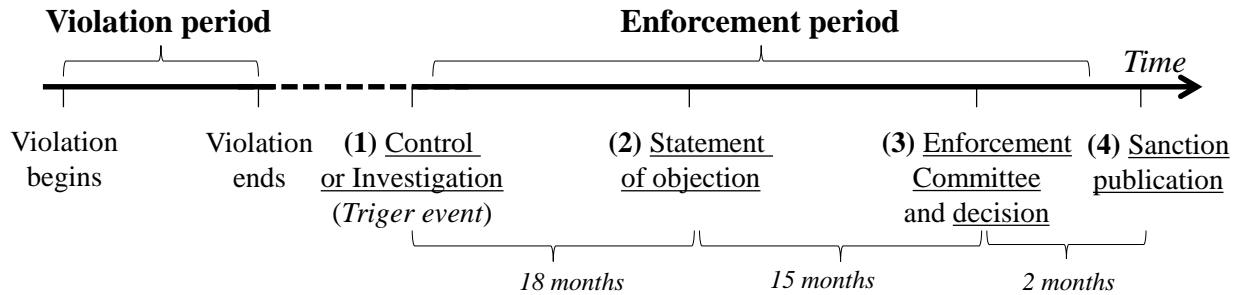
Table 11: Cumulative Abnormal Returns Following the Last Steps of the Sanctions for Companies Being Named as Victims, excluding confounding events (52 Cases)

This table reports the cumulative average abnormal returns ($CAAR_t$) up to a specified day t in event time for the two last steps of the sanction procedure. Event time is days relative to the step of the sanction procedure being analyzed and $t = 0$ is the event itself. Abnormal returns are computed given the market model parameters, which are estimated with OLS through the period $[-120;-11]$ in event time. The sample is composed of the 52 daily listed companies which were victim of others' financial misconduct mentioned in sanction reports of the AMF from 2004 to 2016.

t	Sanction decision		Publication of the sanction decision	
	$CAAR_t$	t-stat	$CAAR_t$	t-stat
-1	0.1%	0.444	-0.5%	-1.267
0	-0.1%	-0.287	0.0%	0.0232
1	-0.2%	-0.426	0.0%	-0.0502
2	-0.6%	-0.84	0.1%	0.176
3	-0.4%	-0.585	0.8%	0.896
4	-0.7%	-0.939	1.1%	1.062
5	-0.5%	-0.625	0.7%	0.742
6	-0.5%	-0.513	0.6%	0.615
7	-0.9%	-0.92	0.3%	0.367
8	-2.0*	-1.714	-0.5%	-0.505
9	-1.8%	-1.592	-0.7%	-0.688
10	-2.1%	-1.637	-0.1%	-0.088
20	-1.7%	-0.943	1.9%	1.228
40	-1.2%	-0.399	1.9%	0.673

Sources: AMF, Thomson Reuters, Authors' calculations * $p < 0.1$

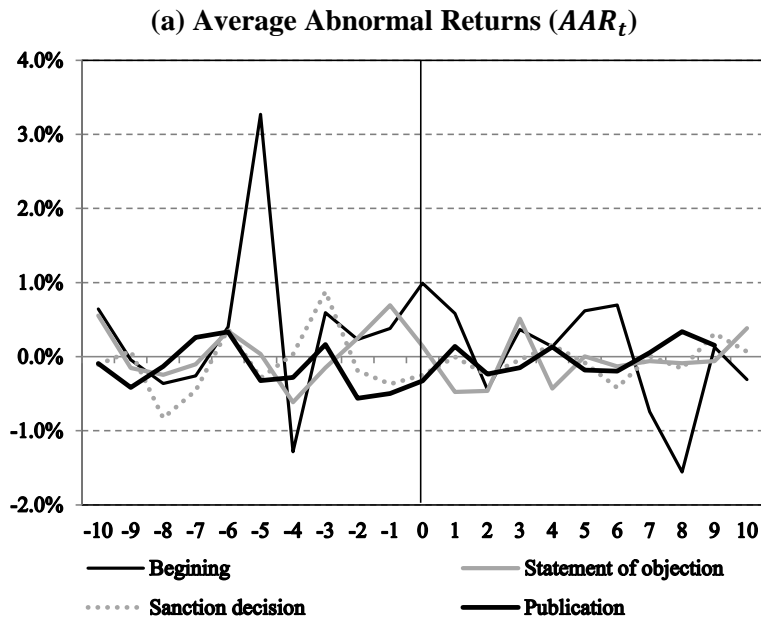
Figure 1: Timeline of an AMF Enforcement Action



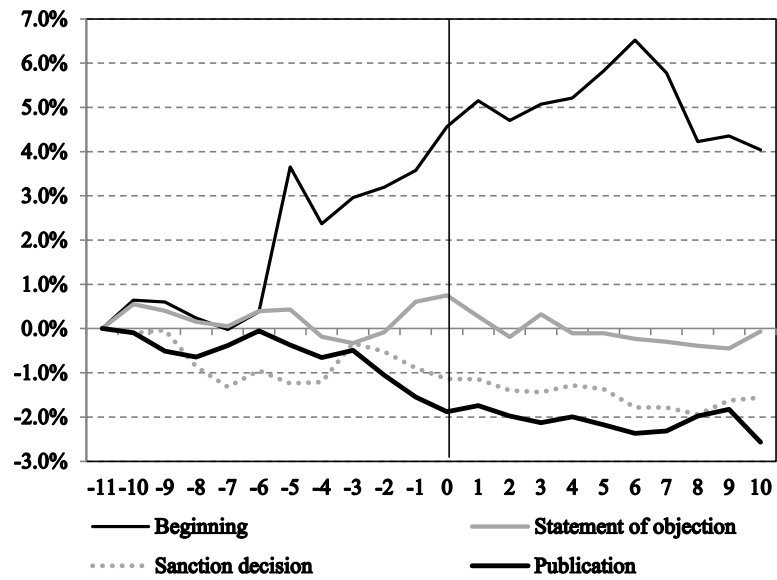
Sources: AMF, Author

Figure 2: Average Abnormal Returns and Cumulative Average Abnormal Returns for the Different Milestones of the Sanction Procedures

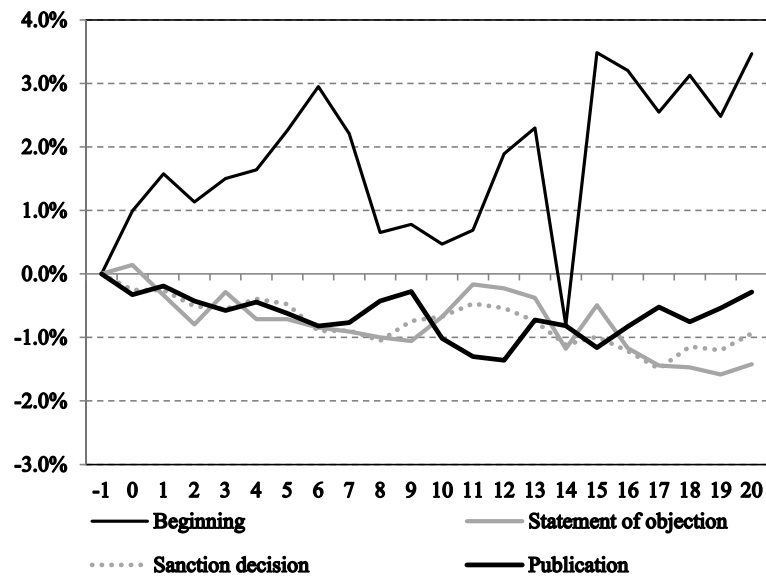
Abnormal returns are computed given the market model parameters estimated with OLS with White-corrected standard errors, through the period $[-120;-11]$ in event time. Event time is days relative to the step of the step of the sanction procedure under review. The sample is composed of 52 sanctions of daily-listed companies over the period 2004-2016. Average abnormal returns AAR_t are calculated using specification (4) and $CAAR_{[t_1;t_2]}$ using specification (9).



(b) Cumulative Average Abnormal Returns ($CAAR_t$) around the event [-10;+10]



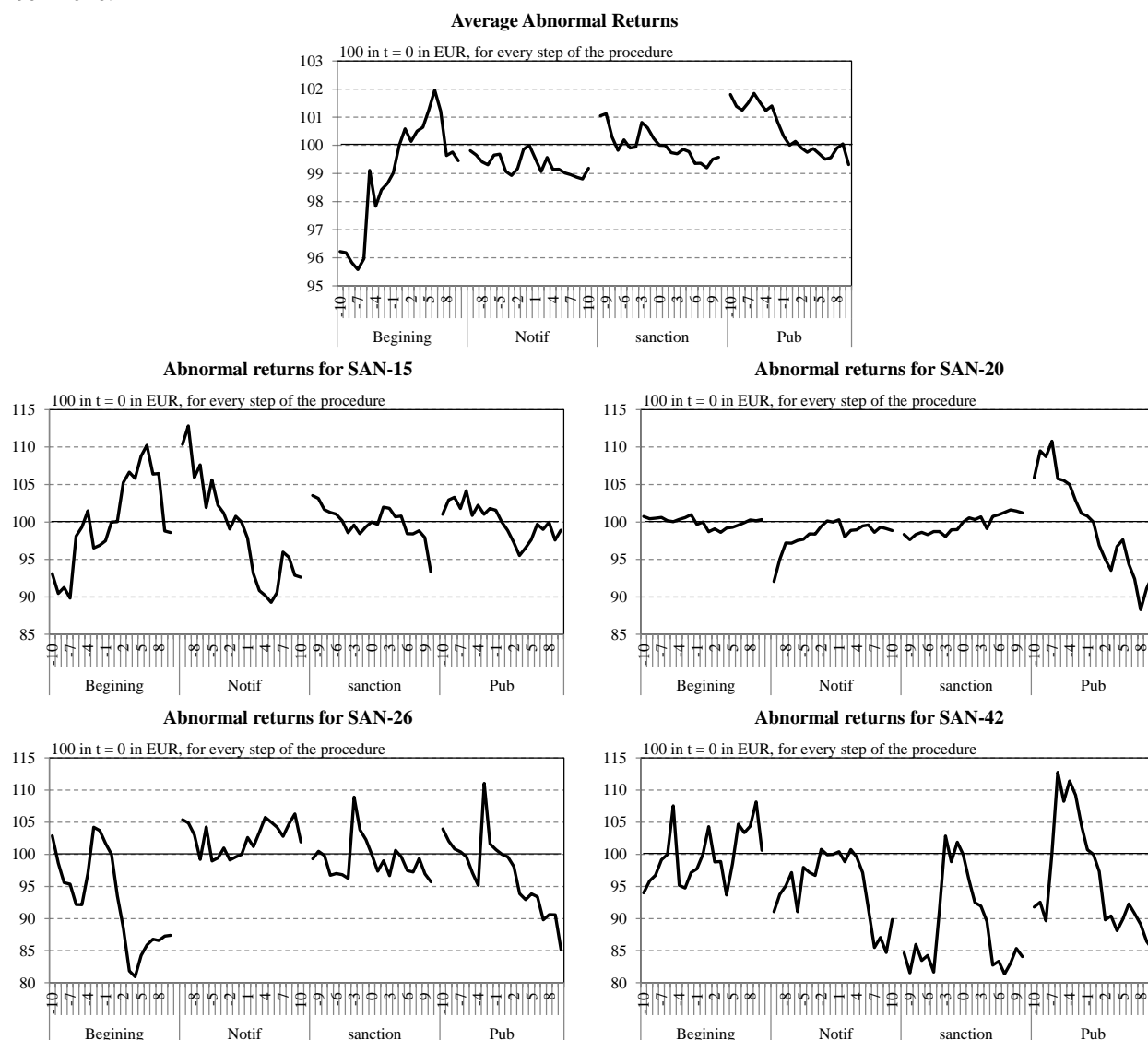
(c) Cumulative Average Abnormal Returns ($CAAR_t$) after event [-1;+10]



Sources: AMF, Thomson Reuters, Authors' calculations

Figure 3: Average Abnormal Returns and Abnormal Returns for Some Sanction Procedures

Abnormal returns are computed given the market model parameters estimated with OLS with White-corrected standard errors, through the period $[-120; -11]$ in event time. Event time is days relative to the step of the step of the sanction procedure under review. The sample is composed of 52 sanctions of daily-listed companies over the period 2004-2016.



Sources: AMF, Thomson Reuters, Authors' calculations

Appendix

Table A.1: Composition of Euronext Sectors

The sectors are classified by declining frequency order for the sample of 52 sanctions.

CAC main sector		CAC sub-sectors (level 3)				
Financials (38%)	Banks	Nonlife Insurance	Real Estate	General Financial		
Industrials (15%)	Aerospace & Defense	Electronic & Electrical Equipment	Industrial Engineering	Industrial Transportation	Support Services	Automobiles & Parts
Technology (13%)	Software & Computer Services	Technology Hardware & Equipment				
Consumer goods (8%)	Beverages	Food Producers	Household Goods	Leisure Goods	Personal Goods	
Consumer services (8%)	General Retailers	Media	Travel & Leisure			
Health care (6%)	Health Care Equipment & Services	Pharmaceuticals & Biotechnology	Foods & Drug Retailers			
Basic materials (6%)	Construction & Materials					
Telecommunications (2%)	Fixed Line Telecommunications					
Utilities (2%)	Gas, Water & Multi-utilities					
Oil & gas (2%)	Oil & Gas Producers					

Source: Euronext

Table A.2: Future of Sanctioned Companies, Sanction by Sanction

129 sanctions of 105 companies = 134 sanctions + companies	90 survivals to sanction (still listed)	75 still listed (o.w. 6 acquittals)	
		15 non longer listed (o.w. 2 acquittals)	7 before the sanction
			8 after the sanction
	44 disappeared companies	24 bankruptcies	20 before the sanction
			4 after the sanction
			7 before the sanction
		20 M&As	13 after the sanction

Source: AMF, Author's Calculations, in December 2017 Note: Recidivist companies were included for every sanction.

Table A.3: Future of Sanctioned Companies, by Companies

105 companies (sanctioned 134 times, in 129 sanctions)	64 survivals to sanction	51 still listed (<i>o.w. 5 acquittals</i>)	
		13 non longer listed	6 before the sanction
			7 after the sanction
	41 disappeared companies	23 bankruptcies	19 before the sanction
			4 after the sanction
		18 M&As	8 before the sanction
			10 after the sanction

Source: AMF, Author's Calculations, in December 2017 Note: Recidivist companies were counted one time.

Table A.4: Abnormal Returns for Sanctions of Listed Companies using a Market Model Not Adjusted for Sectors (52 sanctions)

Given the wide range of sectors covered by the listed companies sanctioned by the AMF, and the major financial crisis happening in the middle of the period under review (financial companies being the most frequently sanctioned), the market model was adjusted for the sectors, using the Euronext classification. It enables to reduce the variance of abnormal returns, without changing the signs of the estimates.

t	Beginning of procedure		Statement of objection		Sanction decision		Publication of the sanction decision	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	0.1%	0.3	0.7%**	2.2	-0.4%	-1.2	0.0%	-0.1
0	1.0%	0.5	0.8%	1.5	-0.6%*	-1.7	-0.5%*	-1.7
1	1.5%	0.8	0.4%	0.5	-0.6%	-1.7	-0.4%	-1.1
2	1.2%	0.6	-0.1%	-0.1	-8.8%*	0.5	-0.8%	-1.6

Sources: AMF, Thomson Reuters, Authors' calculations ** $p < 0.05$, * $p < 0.1$

Table A.5: Comparison of Abnormal Returns Following the Publication of Sanctions for the Subsample of Sanctions Before and After the Great Financial Crisis

As financial companies were the most frequently sanctioned companies (38% of the sample) and given the systemic consequences of the Great Financial Crisis and the subsequent strengthening of financial regulation (in particular reinforced sanction power of the AMF), the impact following the publication of the sanction decision was re-estimated for sub-samples of sanctions depending on the dates: before and after the outburst of the subprime crisis in the USA (up to June 2007, after July 2007), and before and after Lehman Brothers' bankruptcy (up to August 2008, after September 2008).

t	Sample		Sub-sample before June 2007		Sub-sample after July 2007		Sub-sample before Aug. 2008		Sub-sample after September 2008	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	-0.5%***	-2.7	-0.4%	-1.4	-0.5%**	-2.3	-0.4%	-1.7	-0.5%**	-2.2
0	-0.8%***	-3.0	-0.7%*	-1.8	-0.9%**	-2.4	-1.0%***	-3.0	-0.7%*	-1.8
1	-0.7%*	-2.0	0.1%	0.2	-1.0%**	-2.2	-0.5%	-1.0	-0.8%	-1.7
2	-0.9%*	-1.9	0.3%	0.9	-1.4%**	-2.2	-0.5%	-0.9	-1.2%*	-1.7
3	-1.1%*	-1.7	0.8%	1.3	-1.8%**	-2.2	-0.6%	-0.7	-1.3%	-1.6
4	-0.9%	-1.5	0.6%	1.0	-1.5%*	-1.8	-0.2%	-0.2	-1.4%	-1.6
5	-1.1%*	-1.8	1.7%*	2.0	-2.2%***	-2.9	0.3%	0.4	-2.0%**	-2.4
6	-1.3%**	-2.2	1.1%	0.9	-2.2%***	-3.3	-0.5%	-0.4	-1.8%**	-2.5
7	-1.3%*	-1.8	1.2%	1.2	-2.2%**	-2.7	-0.5%	-0.5	-1.7%*	-1.9

8	-0.9%	-1.2	1.4%	1.3	-1.8%*	-1.9	-0.1%	-0.1	-1.4%	-1.4
9	-0.8%	-0.9	1.2%	1.0	-1.5%	-1.5	0.0%	0.0	-1.2%	-1.1
10	-1.5%	-1.6	1.2%	1.0	-2.5%**	-2.2	-0.5%	-0.3	-2.1%*	-1.8
Sample size	52		14		38		19		33	

Sources: AMF, Thomson Reuters, Authors' calculations *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.6: Abnormal Returns for the Sanctions of Listed Companies Including the 4 Sanctions of the subsidiary of a Major International Bank (56 Cases)

Four sanctions of a major international bank were excluded from the sample given the size of the market capitalization of the company and its global nature. The latter could have biased the calculations of the loss or gains in capital following the event (the publication of the sanction). The event studies were re-estimated including these sanctions to test the robustness of the model.

<i>t</i>	Beginning of procedure		Statement of objection		Sanction decision		Publication of the sanction decision	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	0.4%	1.0	0.6%**	2.2	-0.3%	-0.9	-0.6%**	-2.3
0	-0.3%	-0.4	0.7%	1.4	-0.5%	-1.4	-0.9%**	-2.6
1	0.2%	0.3	0.3%	0.4	-0.5%	-1.5	-0.7%**	-2.0
2	-0.2%	-0.2	-0.2%	-0.2	-0.7%	-1.6	-0.9%*	-2.0
3	0.1%	0.1	0.3%	0.4	-0.8%	-1.7	-1.0%*	-1.7
4	0.2%	0.2	-0.1%	-0.1	-0.7%	-1.2	-0.9%	-1.4
5	0.9%	0.9	0.0%	0.0	-0.7%	-1.1	-1.0%	-1.6
6	1.5%	1.4	-0.2%	-0.2	-1.1%	-1.4	-1.1%*	-1.8
7	0.8%	0.7	-0.2%	-0.2	-1.1%	-1.3	-1.1%	-1.7
8	-0.6%	-0.4	-0.3%	-0.4	-1.2%	-1.5	-0.7%	-1.0
9	-0.6%	-0.3	-0.4%	-0.5	-0.9%	-1.1	-0.7%	-0.8
10	-0.9%	-0.5	-0.4%	-0.1	-0.8%	-0.9	-1.4%	-1.6

Sources: AMF, Thomson Reuters, Authors' calculations ** $p < 0.05$, * $p < 0.1$

Table A.7: Abnormal Returns by regulatory breaches, following the publication

This table summarizes the results of the event study following the publication of the sanction reports, split by the four main regulatory breaches, as defined by the AMF. On average, every sanction of the sample involves 1.4 breaches.

Sample			Insider trading		Information		Professional obligations		Price manipulation	
<i>t</i>	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	-0.5%***	-2.7	-0.8%**	-2.4	-0.6%**	-2.6	-0.4%	-1.2	0.1%	0.1
0	-0.8%***	-3.0	-1.0%**	-2.6	-1.1%***	-2.9	-0.8%*	-1.8	-0.5%	-0.5
1	-0.7%*	-2.0	-1.0%	-1.6	-0.6%	-1.2	-1.0%*	-1.9	-0.1%	-0.1
2	-0.9%*	-1.5	-1.7%	-1.4	-1.2%*	-1.8	-0.8%	-1.2	-0.7%	-0.7
3	-1.1%*	-1.8	-2.0%	-1.6	-1.3%	-1.4	-1.2%	-1.5	-1.3%	-0.8
4	-0.9%	-2.2	-1.2%	-0.8	-1.1%	-1.2	-0.8%	-1.2	1.1%	1.3
5	-1.1%*	-1.8	-2.4%	-1.6	-1.7%*	-1.9	-0.8%	-1.1	-1.9%	-1.2
6	-1.3%***	-1.2	-2.8%*	-2.0	-2.3%***	-2.9	-0.9%	-0.9	-4.0%	-2.1
7	-1.3%*	-0.9	-3.2%*	-2.1	-1.7%*	-1.8	-2.0%*	-1.9	-6.0%*	-2.3
8	-0.9%	-1.6	-3.6%**	-2.3	-1.4%	-1.3	-1.7%	-1.4	-6.1%	-1.9
9	-0.8%	-0.6	-4.1%**	-2.3	-1.4%	-1.1	-0.9%	-0.8	-4.8%	-1.7
10	-1.5%	0.6	-4.6%*	-2.1	-2.3%	-1.7	-2.2%	-1.6	-7.0%	-1.6

Sample size	52	15	29	20	5
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Sources: AMF, Thomson Reuters, Authors' calculations *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.8: Abnormal Returns following the Publication for the Subsamples of Seriousness of the Sanction Decision (19 Sanctions each)

Two sub-samples were defined to characterize the “seriousness” of the sanction decision. The first one (“3 factors”) is defined as sanctions which comply with at least two of the three following conditions: cash fine above the median of the sample; disciplinary sanction; and recidivism before and/or after 2004. The second one (“Average”) only covers the sanctions which cash fines exceed the average. The model was re-estimated for those two sub samples in order to challenge the extent to which the assumption that markets would take into account the content of the sanction decision.

<i>t</i>	Sample		3 factors		Average	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	-0.5%***	-2.7	-0.9%*	-1.8	-0.4%*	-1.9
0	-0.8%***	-3.0	-1.1%*	-1.8	-0.5%*	-1.9
1	-0.7%*	-2.0	-1.4%*	-1.9	-0.3%	-1.1
2	-0.9%*	-1.9	-1.5%	-1.4	-0.1%	-0.1
3	-1.1%*	-1.7	-1.7%	-1.6	-0.6%	-1.2
4	-0.9%	-1.5	-1.8%	-1.6	0.0%	0.1
5	-1.1%*	-1.8	-1.6%	-1.4	0.0%	0.0
6	-1.3%**	-2.2	-1.1%	-0.9	0.2%	0.3
7	-1.3%*	-1.8	-1.6%	-1.3	0.2%	0.3
8	-0.9%	-1.2	-1.3%	-0.9	0.4%	0.5
9	-0.8%	-0.9	-1.7%	-1.2	-0.1%	-0.1
10	-1.5%	-1.6	-2.6%*	-1.8	0.1%	0.2
Sample size	52		19		19	

Sources: AMF, Thomson Reuters, Authors' calculations *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.9: Abnormal Returns following the Publication of the Sanction Decision for Companies Anonymized or Not in the Decisions (8 and 49 Cases)

Out of the 52 sample of decisions, 8 sanctions impacted listed companies which names were anonymized when the decision was first published. The model was re-estimated for the two sub-samples depending on whether or not the name of the company appeared.

<i>t</i>	Sample		Sub-sample anonymized		Subsample not anonymized	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	-0.5%***	-2.7	-0.8%	-1.3	-0.5%**	-2.4
0	-0.8%***	-3.0	-1.3%	-1.0	-0.8%***	-2.9
1	-0.7%*	-2.0	-1.6%	-1.1	-0.5%	-1.6
2	-0.9%*	-1.9	-2.6%	-1.4	-0.7%	-1.4
3	-1.1%*	-1.7	-2.8%	-0.9	-0.8%	-1.5
4	-0.9%	-1.5	-3.1%	-1.1	-0.6%	-1.0
5	-1.1%*	-1.8	-4.2%	-1.7	-0.6%	-1.1
6	-1.3%**	-2.2	-3.2%	-1.8	-1.0%	-1.6
7	-1.3%*	-1.8	-0.8%	-0.4	-1.3%*	-1.8
8	-0.9%	-1.2	-0.6%	-0.4	-1.0%	-1.2
9	-0.8%	-0.9	-0.2%	-0.1	-0.9%	-1.0
10	-1.5%	-1.6	0.2%	0.1	-1.8%*	-1.8
Sample size	52		7		45	

Sources: AMF, Thomson Reuters, Authors' calculations *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table A.10: Abnormal Returns following the Publication of the Sanction Decisions of Guilty Listed Companies, Depending on the Length of the Estimation Window (52 Sanctions)

The “normal” returns were re-estimated over two different estimation windows, shorter and further to the event (in $t = 0$): 100 days with an estimation window $[-120; -21]$; and 90 days with an estimation window $[-120; -31]$. The goal is to test the robustness of the central scenario, which follows the most frequent hypothesis in the literature: a 110-day estimation window over the period $[-120; -11]$ in event time.

	Sample (110 days)		100 days		90 days	
	CAAR _t	t-stat	CAAR _t	t-stat	CAAR _t	t-stat
-1	-0.5%***	-2.7	-0.5%**	-2.6	-0.5%**	-2.7
0	-0.8%***	-3.0	-0.8%***	-2.9	-0.8%***	-2.9
1	-0.7%*	-2.0	-0.7%*	-2.0	-0.7%**	-2.1
2	-0.9%*	-1.9	-0.9%**	-2.0	-1.0%**	-2.1
3	-1.1%*	-1.7	-1.1%*	-1.8	-1.1%*	-1.8
4	-0.9%	-1.5	-1.0%	-1.6	-1.0%	-1.6
5	-1.1%*	-1.8	-1.2%*	-1.9	-1.3%*	-2.0
6	-1.3%**	-2.2	-1.4%**	-2.3	-1.5%**	-2.4
7	-1.3%*	-1.8	-1.3%*	-2.0	-1.5%**	-2.1
8	-0.9%	-1.2	-1.0%	-1.4	-1.1%	-1.5
9	-0.8%	-0.9	-0.9%	-1.1	-1.0%	-1.2
10	-1.5%	-1.6	-1.6%*	-1.8	-1.7%*	-1.8

Sources: AMF, Thomson Reuters, Authors' calculations *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Remark 1. News extracts: Perceived impacts of sanctions, via press articles

A review of the articles commenting sanctions demonstrates that there is no consensus of the impact of sanctions on stock prices. Journalists and analysts forecast no reaction or a negative one depending on the cases. Below, two examples of articles illustrate such uncertainty. The first concludes with no reaction whereas the second one details the view of an analyst which downgraded its outlook to negative.

Altran techn. : Bryan Garnier minimise l'impact des sanctions de l'AMF (June, 1 2007)

“Brian Garnier reckons that the 1.5 million euros sanction [...] will not impact Altran Technology stock price”.

*Bryan Garnier **ne pense pas que l'amende** de 1.5 Million d'euros annoncée jeudi par la commission des sanctions de l'AMF à l'encontre d'Altran Technologies **aura d'impact significatif sur l'action**. Le broker rappelle que cette amende renvoie à faits anciens et que tous les dirigeants impliqués dans les scandales ont quitté le groupe. En outre, l'éventualité d'une sanction était provisionnée dans les comptes de la société. Le courtier maintient néanmoins sa recommandation à "vendre" sur Altran, avec un objectif de cours de 6.4 euros. Bryan Garnier motive son opinion par la prime de 18%, non justifiée selon le courtier, avec laquelle se négocie la valeur par rapport à ses comparables.*

Source: <https://www.tradingsat.com/altran-techn-FR0000034639/actualites/altran-techn-bryan-garnier-minimise-l-impact-des-sanctions-de-l-amf-390295.html>

Les sanctions de l'AMF pèsent sur notre opinion de Petercam (April, 24 2015)

“The AMF sanctions against Petercam and two of its employees lead us to downgrade our opinion on the company to “negative”.”

*Les sanctions prononcées par l'AMF à l'encontre de Petercam et de deux de ses employés nous conduisent à **abaisser notre appréciation de la société à « Négative »**.*

En avril 2015, l'Autorité des Marchés Financiers (AMF) a prononcé une sanction pécuniaire à l'encontre de Petercam pour manipulation de cours, concernant des transactions effectuées sur l'un de ses fonds (Petercam Equities Agrivalue) le dernier jour de bourse de 2011. L'AMF a également sanctionné à titre personnel le trader et le gérant de portefeuille qui étaient à l'origine de ses opérations. Nous estimons que Petercam a depuis lors mis en œuvre des mesures appropriées pour que ce type d'agissement ne puisse plus se reproduire. [...] En revanche, nous sommes déçus que Petercam n'ait pas pris de mesures à l'encontre du gérant concerné, afin de restaurer la confiance des investisseurs. [...] La plupart des gérants sont investis à titre personnel dans les fonds qu'ils gèrent, une bonne façon d'aligner leurs intérêts sur ceux des investisseurs. La communication avec les investisseurs est de bonne qualité et les frais sont en ligne avec les pratiques de l'industrie. Néanmoins, la récente sanction de l'AMF milite pour la prudence et nous conduit à abaisser notre appréciation à « Négative ».

Source: <http://www.morningstar.fr/fr/news/137057/les-sanctions-de-lamf-p%C3%A8sent-sur-notre-opinion-de-petercam.aspx>

Remark 2: Collinearity analysis for the set of 43 variables

Firstly, by construction, there is a strong significant correlation (above 0.7) for variables which are, by construction, linked: appeal, time, and anonymization⁵⁸. Additionally, recidivisms (before and after 2004) are strongly correlated. Finally, being a financial institution is positively and strongly correlated with recidivisms. Their explanatory power will be tested.

Additionally, moderate correlation (0.5 to 0.7) brings the following information. As for strong correlation, logical relationships were observed for the following variables: in between stock markets, and between stock markets and market capitalization (by construction and definition); having a person or a top manager involved (positively); between being first published anonymized and the current state of anonymization (positively); depending on the regulatory breaches (negatively between failures to meet with professional obligations and information); appeals (positively between their duration and rejection decision); and the Chairman and the financial law. Three evolutions along time are demonstrated by correlations: a reduced lag between the sanction decision and its publication; a stronger resort to anonymization under a Chairman; and as increase in the length of sanction reports. Being listed on the Compartment A is positively correlated with receiving a warning. It echoes a similar correlation with belonging to the financial sector. The latter is also moderately correlated with regulatory breaches (positively to failures to meet with professional obligations, negatively to information) and with the involvement of top managers (negatively). Recidivisms are similarly correlated with regulatory breaches (before and after AMF negatively for information, after positively for failures to meet with professional obligations) and positively with warnings. Finally, the media coverage over the week following the publication appears to stronger for bigger firms (by market capitalizations), for higher cash fines, when articles were issued before the publication of the decision, and for consumer goods and services firms.

Finally, the following observations can be made regarding weak though significant correlation at 5%.

Firstly, some correlations **result from the legal framework of sanctions**. Regarding the decisions, cash fines are positively correlated with the size of the entity and warnings with recidivism. Anonymization is positively correlated with the involvement of individuals and/or top managers in the breach(es). Despite the positive correlation of first publication anonymization along time, the will for more transparency is notable with the positive correlation between current online anonymization rates and time. This will is also visible with a reduction of the lag before publication, despite the lengthening of

⁵⁸ The three following families of variable are strongly correlated: 1) appeal, number of appeals, conclusion of the appeal, and duration of the appeals; 2) years and financial laws (LRBF 2010); 3) anonymization when first published with partial anonymization.

sanction procedures. The sample confirms that the less severe regulatory breaches (failures to meet with regulatory obligations) are detected by controls, while market abuses are positively correlated with investigation. Conversely, despite the increase in the maximum authorized cash fines, fines are not significantly (though positively correlated) with time.

Regarding the **sanctioned regulatory breaches**, the following correlations are demonstrated. Insider trading involves individuals after investigations, the sanction reports are longer, more partially anonymized, and more appealed for (unsuccessfully). Price manipulation impacts smaller companies and negatively correlated with the current rate of anonymization. Breaches to information are positively correlated with top management involvement and the industrial sector, and negatively to warnings, the financial sector, recidivisms, and market capitalization. Finally, failures to meet with financial obligations hits more frequently bigger, financial and/or recidivist companies, is correlated positively with warnings and negatively with the top management involvement.

The **length of the sanction reports**, which can signal the seriousness and complexity of the case, is positively correlated with the cash fines (which are– as well as with the last president of the AMF – positively correlated with the procedure duration) as well as with the length of procedures, the frequency of appeal by the AMF, and with the subsequent media coverage over the week following the decision publication.

Sanctions involving **individuals and top managers** involvements are positively correlated with dissemination of false information (negatively with failures to meet with professional obligations), with the length of the sanction reports, and with all the aspects of appeals (appeals, number of appeals, length of appeals and rejection rate). Conversely, they are negatively correlated with warnings, the size of the firms, their recidivism, and the media coverage of the decision.

The **media coverage** will increase with the size of the sanctioned entity, its survival to the sanction, the length of the sanction reports, and along time, while the involvement of individuals and/or top managers and the current rate of anonymization will have the opposite correlation.