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$$\frac{n!}{(n-1)!} p^{m-1} (1-p)^{n-m} = p \sum_{\ell=0}^{n-1} \frac{\ell+1}{n} \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p \frac{n-1}{n} \sum_{\ell=0}^{n-1} \left[ \frac{\ell}{n-1} + \frac{1}{n-1} \right] \frac{(n-1)!}{(n-1-\ell)! \ell!} p^{\ell} (1-p)^{n-1-\ell} = p^2 \frac{n-1}{n} +$$

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# Financial Crime Spillovers. Does One Gain to Be Avenged?

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## **Abstract:**

This paper examines the spillovers of the sanction procedures on listed companies which were victims of others' financial regulatory breaches (i.e. regulated entities or individuals). Market manipulators can be investigated and possibly sanctioned for doing so, according to the French enforcement scheme. This research enriches past literature with a new complementary perspective on victims. Past work typically focused on abnormal returns primarily for investigated and/or sanctioned listed companies, as well as for plaintive firms, in a wide range of jurisdictions. The results demonstrate that victim firms suffer, on average, significant negative abnormal returns after the sanction. Naming victims hence may possibly be synonym of double punishment, as the firms already suffered during the violation period. It demonstrates a market failure where victims are not properly differentiated from wrongdoers. This article investigates the information content of such market behavior. The markets also incorporate the information content of the decision and of the parties at stake. All in all, those results plead for an anonymization of victims over the enforcement process, to protect from being sanctioned, and possibly suggest to name and shame market manipulators.

**JEL:** G14, G18, K42, N24

**Keywords:** Sanction, victim, financial markets, event study, regulation, fraud, information and market efficiency, listed companies

## 1 Introduction

Financial regulatory breaches frequently involve listed companies as victims of others' misconduct. Enforcement procedures may lead to name those firms which suffered due to the defendants' wrongdoing. This article investigates how the market interpret being the victim of others and why.

The most typical misconducts are insider trading, price manipulation, the communication of false information, and regulatory infringements made at the expense of others. The breach perpetrators (referred to as "market manipulators", see Figure 1) can be firms (domestic or foreign, listed or private companies, asset management firms) and/or individuals (top managers, employees, advisers, financial analysts, insider traders, etc.). In most cases, the returns of the firms publicly named as the victim of market manipulators over a sanction procedure (referred to as "victims", see Figure 1) was hampered at the time when the breach was committed (referred to as "violation period", see Figure 2). Only a limited share of these regulatory violations will be detected and even less sanctioned by the Regulator, depending on the probability of being caught, on the means at the Regulator's disposal, and on the seriousness of the misconduct(see Becker, 1968).<sup>2</sup>

The objective of this study is two folds: to deepen the understanding of the impact on returns of financial crime and to enlarge the approach of reputational cost of white-collar crime to the point of view of the victims. More precisely, this article investigates the spillovers of enforcement procedures for victims, without any *a priori* hypothesis. To our knowledge, no work has investigated this issue to date. The results enrich a long history of research on the deterrent effect of sanctions on fraud and on market reactions to being sanctioned by one's Regulator (the cost of being caught) or to suing another entity (the gains for being avenged). In line with the efficient market hypothesis, past literature typically concludes that alleged regulatory breaches and sanctions are priced in by the market beyond the mere impact of the financial fine received. Using an event study methodology, articles typically conclude with significant negative abnormal returns following the sanction, frequently associated to a reputational cost. In the case of victims, one can wonder whether the market should and will reassess – to the upside or to the downside – its views on the victim which is avenged by a regulatory authority. These victims may have already lost value in the past due to the condemned wrongdoings. They would suffer a double punishment in

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<sup>2</sup> Becker (1968) stresses that 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 detected) and 3) the subsequent costs (fines, disciplinary sanctions, jail, and reputational sanction).

case negative abnormal returns would materialize after the condemnation of their past executioner. Conversely, being avenged could lead the market to upside readjustments (long positions) of the outlooks on the victim. A third possibility could be that investors fail to or decide not to sell or buy their stocks in response to regulatory actions on the market manipulators involving a victim, for a wide range of reasons.<sup>3</sup> There could also be “prescription of the past sins”, 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). Hence, justice is done years after the forfeit, possibly weighting on the information content of the sanction for the past victim. Finally, better understanding how the stock market responds over time until recent sanctions with the complementary dimension of victims is all the more relevant that the sanction powers of the French Regulator have been repeatedly enlarged.

This article brings a novel contribution by investigating the repercussions on the past victims of a defendant’s condemnation for financial misconduct. Such perspective was rarely, if ever, envisioned. It also contributes to the current policy debates, at a time when the “name and shame” stance is getting increasing interest, and when Regulatory Authorities are more and more financially constrained in means. The results are also key in terms of protection of regulated entities, if the latter were found to suffer a “double punishment” from being named over the enforcement procedure. This research exploits a unique dataset of all the sanctions made by the French Financial Market Authority (AMF) from its creation in 2004 until late 2018.<sup>4</sup> The data is mostly based on the sanction reports which are published on the website of the Regulator. The credibility of the results is supported by the fact that the dataset is exhaustive (thanks to the cooperation of the AMF, which agreed to share missing regulatory information), covers a long time span (15 years), and is up to date. Additionally, it investigates a key domestic stock market (Euronext Paris), synonym of liquidity, scrutiny, and efficiency.

The methodology is classical for such assessment, capitalizing on a long history of research on financial misconduct: an daily event study to investigate for potential abnormal reactions in stock returns following the last two steps of enforcement procedures by the AMF (the sanction and

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<sup>3</sup> The following reasons could account for the lack of reactions to enforcement procedures: unaware, misunderstanding of the financial market misconduct, not concerned about the wrong-doing, avoidance of the hassle of selling and reinvesting the proceeds elsewhere, avoidance of the tax consequences or an exit fees, or willingness to stay with a risk taking issuer (and potentially more profitable), etc.

<sup>4</sup> <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.

its publication, see Figure 2). It is complemented by a cross-sectional analysis with a wide range of variables. The granularity of the data enables robustness checks, for example depending on the verdicts (acquitted or guilty decision), on the period (peak years), or on the characteristics of the victim (size, sector, whether there were one or several victims, whether it was several times victim, whether it was also sanctioned by the AMF).

The results demonstrate that victims do incur significant abnormal financial losses after the sanction decision. The research further investigates the information content of the sanction decisions. It concludes that markets react differently depending on the regulatory breaches, if the verdict was an acquittal, and depending on the seriousness of the guilty verdict. Under the efficient market hypothesis (financial markets would price in the available information), one can wonder why victims get sanctioned in parallel of the wrongdoers. This research contributes to improving the understanding of financial market regulation and how it is perceived by the market. 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), market capitalization (see Beny, 2008), or liquidity (see Cumming et al., 2011). The results point into two directions in terms of policy recommendations. Firstly, this Regulatory transparency regarding to the victims leads to double punishments and supports an anonymization of the victims, to protect them from any abnormal market reaction. Additionally, the subsequent stigmatization of a victim for being named in a market manipulator's sanction report demonstrates the efficiency of "name and shame" approach, which could efficiently substitute for sanctions. This is also supported by the increasing financial constraints of Regulators.

The rest of this paper is structured as follows. Section 2 describes the French regulatory framework for financial misconduct, followed by a literature review on financial crime and victims. Section 3 summarizes the methodologies, while the section 4 details the data samples. Section 5 presents and discusses the results. Section 6 concludes.

## **2 French legal framework and literature review**

### *2.1 Enforcement of financial laws in France*

The Enforcement Committee of the AMF (EC AMF) has received, since 2003, the mandate to sanction market players which do not comply with the set of rules they are subjected to, by committing regulatory breaches. The goal of sanctions, from the regulatory perspective, is to strengthen the marketplace, by improving practices and setting examples. For a given regulatory breach(es), the AMF pronounces administrative sanctions, which could be complemented – until

2016, when the *non bis in idem* principle was translated into the French law – by criminal prosecutions.<sup>5</sup> From 2004, when the AMF first sanctioned, to 2018, 342 decisions (of which 29 acquittals) were made and published on AMF website, standing for 242 million euros of cumulated fines.<sup>6</sup>

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 meet with professional obligations by regulated professions) and three market abuses (*i.e.* the most serious breaches): 2) breaches of insider dealing regulations (use and/or divulgation of insider information for an investment decision); 3) price manipulations (deliberate misconduct to influence securities prices and a fair price formation); and 4) breaches of public disclosure requirements (failure to comply with financial reporting laws and regulations), either *vis-à-vis* investors or the regulatory authorities (for details see de Batz, 2017 a and b). Only most severe breaches go through the sanction process. The less severe financial misconducts are dealt with bilaterally between the AMF and the alleged regulated market manipulators.

All sanction procedures follow the same milestones (see Figure 2). If a control (to check the compliance with one's professional obligations, 32% of the sanctions) or an investigation (to identify market abuses, 68% of the sanctions) 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. In light of these complementary elements, the Board may transfer the case to the EC AMF, initiating the “judicial part” of the procedure. The latter ends with a public hearing of the EC AMF followed possibly by sanctions (possibly comprised of cash fines<sup>7</sup> and disciplinary sanctions<sup>8</sup>). Once the sanction decision is finalized by

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<sup>5</sup> No one can be condemned twice for the same offence according to the *non bis in idem* principle.

<sup>6</sup> 23 sanctions were made *per* year on average, to which add 8 settlements *per* year since 2012, when this new lighter procedure was first concluded.

<sup>7</sup> There is neither binding rule nor clear guideline on how to value fines. Time consistency and the maximums set by legal are the two key objective parameters to set a fine. Some specificities of the respondent will also be taken into account: gravity and duration of the financial misconduct(s), financial situation, magnitude of the obtained gains or advantages, losses by third parties, recidivism, etc. The thresholds for fines were increased on three occasions over the period under review. They can amount up to 100 million euros for market abuses committed by professionals, or 10 times any profit. The fines are paid to the French Treasury in majority, or to the guarantee fund to which the professional belongs. In practice, 95% of the guilty sanctions (*i.e.* when excluding the 8% acquittal decisions) included a cash fine, for an average 817,000 euros. Fonteny (2017) demonstrated that cash fines are positively correlated with the insider profits.

<sup>8</sup> 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.

the EC AMF and most frequently published (possibly at least partially anonymized) by the AMF,<sup>9</sup> the market manipulator (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. Sanctions were frequently appealed over the period under review (45%), with a limited success (79% of the appeals were rejected to date).

The legal environment of the AMF evolved over the period under review, towards enlarged powers of the AMF and tougher sanctions. On four occasions, its enforcement powers were reformed and reinforced with consecutive financial laws (see de Batz, 2017 a and b). The two latest complementary reforms<sup>10</sup> were enforced in 2016, implying in particular higher maximum legal fine thresholds,<sup>11</sup> longer bans from activity (above 10 years), and larger scope of sanctioned breaches (public offerings of unlisted financial instruments without prospectus, and crowdfunding).

## 2.2 Literature review

For decades, financial markets have been supervised and regulated by Authorities (typically a Securities and Exchange Surveillance Commission, or a Central Bank). The enforcement of specific domestic sets of rules aims at increasing the information available to investors, and at ensuring the soundness of the financial system. By doing so, it reduces the information asymmetry in financial markets, as well as the adverse selection and the moral hazard for investors. Most frequently, the ultimate regulator

tool at the Regulator's disposal is regulatory sanctions, complemented with financial penalties. The Authority hence demonstrates that regulatory breaches are not tolerated, and that the law must

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<sup>9</sup> 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. Finally, as of 2017 and retrospectively, 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 previously, at the discretion of the Chairman of the EC AMF).

<sup>10</sup> 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), labeled "Laws 2016". Earlier reforms included in 2008 Law of Modernization of the Economy (LME) and in 2011 the Law on Banking and Financial Regulation (LRBF).

<sup>11</sup> 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.



be abided in order ensure investors' confidence. Sanctions may also play a future deterrent and disciplinary effect, by dissuading breaches and encouraging best practices considering the risks of being caught and sanctioned.

Assuming financial markets are informationally efficient (Fama et al., 1969), all the available information should be reflected immediately by the market (stock prices/returns of the listed companies). Investors should revise their forecasts following regulatory sanctions and react proportionally to the degree of severity of the financial market misconduct, by modifying behaviors and investment strategies (Choi and Kahan, 2007).

Listed companies can be involved in a financial misconduct in three different ways (see Figure 1): by committing the crime (market manipulator), by suing another market participant for a forfeit committed at one's expense (*i.e.* an active victim), or by being a passive victim. This article focusses on the third option, where a Regulator (in our case the French AMF) sues market participants (individuals, listed or private companies, asset management firms, etc.) for regulatory breaches which were committed at the expense of a listed company.

Past research typically focused on market reactions (mostly returns, but also volatility) to the news of corporate financial misconduct. The results demonstrate that markets significantly discount such bad news (alleged fraud, securities class-action lawsuit filing, accounting restatements for fraud, regulatory enforcement, etc.). They conclude with significant abnormal negative returns following the news, and in particular for sanctions. In the United States of America (USA), where more information is available and the markets are the biggest, studies (such as Feroz et al., 1991; Karpoff and Lott, 1993; Pritchard and Ferris, 2001; Karpoff et al., 2008) covered all the steps of the proceeding, from the very first suspicion of wrongdoings until Regulatory sanctions. They found significant negative abnormal returns or higher volatility, possibly assorted with higher costs of doing business (insurance, risk premium, etc.), and possibly additional negative repercussions (for example dismissal of top managers). Similar event studies were undergone for the sanctions of the AMF in France (Djama, 2013; Kirat and Rezaee, 2015; de Batz, 2018). They concurred with negative abnormal reactions following the latest (and public) steps of the enforcement procedure, though to a limited extent.

Complementarily, some studies, on the United States and the United Kingdom, demonstrated that the cash fine only accounts for (a limited) part of the market correction the firms bear. First of all, the fine can be complemented by behavioral sanctions (such as warning, blame,

or ban on activity in France). From a theoretical perspective, Dantoni and Galbiati (2007) demonstrate that non-monetary sanctions can be optimal, even when the monetary fine set by the regulator is not maximal (*i.e.* at the legal threshold). Additionally, the global aggregated cost of a sanction is typically decomposed between the direct costs (fine, insurance, legal fees, etc.) and the so-called “reputational” cost of financial crime (see Karpoff and Lot, 1993, Karpoff et al., 2008 a, Alexander, 1999, Desai et al., 2006, Murphy et al., 2009, Dyck et al., 2010, Armour et al., 2017). In France, no reputational cost was found, despite the low fines (see de Batz, 2018).

The literature on the “victims of white-collar crime” is limited to those which sue the alleged perpetrator of regulatory breaches (see Figure 1). In such a case, the plaintiffs are active victims: they resort to the legal system to protect their rights. If past studies concord in finding negative significant abnormal returns for the defendants, there is no clear conclusion for the plaintiff.

For example, Bhagat et al. (1994) investigated a large heterogeneous sample of USA anti-trust filings and settlements over 1981-1983 announced in the Wall Street Journal. The defendants’ wealth impact of filing is significantly negative, while is insignificantly different from zero but negative for plaintiffs. Conversely, Koku et al. (2001) conclude that the first news of an interfirm lawsuit, on average, impacts positively (though insignificantly) to corporate plaintiffs and significantly negatively to corporate defendants. Similarly, in Bizjak and Coles (1995), USA plaintiffs experience, over the 1973-1983, significant wealth gains upon the announcement of the filing of an inter-firm antitrust lawsuit (+1.2% of the equity value of the firm on the day of the announcement or equivalently 3 million dollars) whereas the opposing defendant firm suffers a higher 10.2 million dollars loss (-0.6%). Additionally, Koku et al. (2001) conclude that firms become “judgement proof” as a result of being subject to numerous lawsuits (sign of recidivism). In a complementary study, Bhagat et al. (1998) also find “surprisingly” that plaintiffs experience negative abnormal returns using an event study methodology (-0,14% for filing lawsuits and -0.79% for settlements over two days, with a 52% majority of the plaintiffs experiencing negative abnormal returns). Additionally, plaintiff sued by the US Securities and Exchange Commission display the highest abnormal returns in the sample (-0.67%, with a small sample size of 15 cases). The authors reckon that the litigation costs could possibly explain this negative impact: they will offset any expected profit from a settlement or a judgement, and the mere negative information about the firm revealed by filing a lawsuit. Complementary, Bhagat et al. (1994), Bizjak and

Coles (1995) and Koku et al. (2001) concord in that lawsuits are not zero-sum games: corporate defendants lose more than the wealth gains experienced by the corporate plaintiffs.

Conversely, in the AMF sanction procedures (see Figure 2), victims do not initiate any procedure against the defendants. The enforcement (from the detection of the regulatory breach until the sanction publication) is exclusively carried by the AMF. On the base of significant signs of regulatory breaches, the Regulator directly sues the defendants, while the “victim” is only named in the sanction report as such.

To date, no study has directly addressed the issue of potential gains or costs for passive victim firms of financial crime, despite of its potentially important financial or reputational impacts. The central hypotheses are the rational expectations theory and efficient markets (Fama et al., 1969): the market is expected to incorporate into the victim’s and the market manipulator’s stock prices any relevant information regarding of the enforcement procedure and then to adjust further following the publication of the verdict. Given this framework, based on the signaling theory, investors are likely to focus higher attention on associated firms to the sanction. Each firm possesses observable attributes that reduce investors’ uncertainty about its value. In our case, the question is how will investors interpret the fact that a firm was the victim of others’ regulatory breaches? The objective of this study is two folds: to deepen the understanding of the impact on returns of financial crime and to enlarge the approach of reputational cost of white-collar crime to the point of view of the victims.

### **3 Methodology**

Standard event-study techniques (see appendix for details) are conducted to measure the wealth effects of being an avenged victim of others’ financial misconduct. Put it differently, the goal is to challenge the information content of the two public steps of the AMF sanction procedure (*i.e.* “events”): 1) the public hearing by the Enforcement Committee, which sets the verdict, and 2) the publication of the decision. We follow a long and well established methodology (see Dolley (1933), MacKinlay (1997), Campbell et al. (1997), and Kothari and Warner (2008)). The impact of the event is measured as the abnormal returns of the victim company. For every “event”, the abnormality of daily returns is tested over an 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 an estimation window preceding the event window. The abnormal returns

consecutive to a given step of the procedure are taken as unbiased estimates of the total financial consequences of the event (all expected uninsured future costs, including reputational repercussions).

A market model augmented with a sectoral index describes the behavior of returns. This model assumes a stable linear relation between the security return, the market return, and industry returns, as in Sharpe (1970) or Sharpe et al. (1995). The rationale for controlling for the sector is to sort out, to the maximum possible extent, changes in returns caused by the “event” itself, from those caused by any other unrelated movement in prices (overall market effects or industry specific developments). This is supported by the long period under review (2004-2018), and the wide range of sectors of the victim firms. In fact, macro-economic and sector-specific cycles occurred over those 15 years, the most important being the Global Financial Crisis.<sup>12</sup>

The events are assumed exogenous with respect to the firms, as the timing of the sanction procedures results from regulatory decisions, made independently by the AMF. They are unrelated to the corporate agenda, contrary to events such as annual and quarterly publication, or profit warnings.<sup>13</sup> The model assumes a jointly multivariate normal and temporally independent and identical distribution of returns over time. The parameters are estimated under general conditions for every sanction with Ordinary Least Squares, as recommended by MacKinlay (1997) over the estimation window [-120;-11] prior to the event in  $t = 0$  (see Campbell et al., 1997). On every day  $t$  of the event window [-10;+120], the deviation in an individual stock’s daily return (including reinvested dividends) from what is expected based on specification (1) (*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  $t$ :

$$AR_{i,t} = R_{i,t} - \hat{\alpha}_i - \hat{\beta}_i R_{m,t} - \hat{\gamma}_i R_{S_i,t} \quad (1)$$

$AR_{i,t}$  stands for the estimated abnormal returns for the firm  $i$  in  $t$ .  $R_{i,t}$ ,  $R_{m,t}$  and  $R_{S_i,t}$  are respectively the returns in time  $t$  of the actual returns on the security  $i$ , of the market (CAC All-Tradable index)<sup>14</sup>, and of the sector (Euronext sector index of firm  $i$ ).  $\hat{\alpha}_i$ ,  $\hat{\beta}_i$  and  $\hat{\gamma}_i$  are the estimates

<sup>12</sup> Using an augmented market model reduces the variance of the abnormal returns. The results of the event studies are robust when using a market model not adjusted for the sectors though lower. Detailed results are available on demand.

<sup>13</sup> The exogeneity is also supported by the fact that some mentions of sanctions were, in the end, excluded from the sample due to confounding events such as the concomitant corporate events (such as M&As), the publication of the results from another judicial procedure, or major external news (Brexit, industry evolution, etc.).

<sup>14</sup> The CAC All-Tradable (which replaced in 2011 the SBF 250) is the largest and most liquid index for listed firms on Euronext Paris. It is comprised of all the firms for which at least 20% of the floating stocks were exchanged over the last year. The goal is to account for the wide range of victims in the sample.

of  $\alpha_i$ ,  $\beta_i$ , and  $\gamma_i$  over the estimation window. Abnormal returns, over the event window, capture 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. The large event window intends to capture potential anticipation by the market (following leakage of information over the days preceding the event for example), as well as the persistence over time of the price effect.

Under the null hypothesis  $H_0$ , the “event” (*i.e.* step of the sanction procedure) has no impact on the distribution of returns for the victim firms (mean or variance effect).

Individual parametric t-statistics are calculated for each victim’s abnormal return, and for every day of the event window. Abnormal returns are aggregated to draw overall inferences for the event of interest, through time and across individual firms. In fact, on a sanction-by-sanction basis, the statistical significance is difficult to detect because of the volatility in stock returns. Hence, abnormal returns are then cumulated over time and averaged across the  $n$  sanctions to get the Cumulative Average Abnormal Returns ( $CAAR_{[t_1; t_2]}$ ) over the period  $[t_1; t_2]$ , including the event. All the victims are treated as a group, for which p-value on the constant of the regression for every period gives the significance of the CAR across all sanctions, with robust standard errors.

$$CAAR_{[t_1; t_2]} = \frac{1}{n} \sum_{i=1}^n CAR_{i,[t_1; t_2]} = \frac{1}{n} \sum_{i=1}^n \sum_{t=t_1}^{t_2} AR_{i,t} . \quad (2)$$

As a second step, for every victim firm  $i$ , the shareholders’ wealth impact (gain or loss)  $SL_{i,[t_1; t_2]}$  is estimated over  $[t_1; t_2]$  by multiplying the market capitalization of the firm  $i$  (in euros) on the day preceding the event  $(t_1 - 1) MV_{i,t_1-1}$  by the cumulative abnormal returns over the period  $[t_1; t_2]$  ( $CAR_{i,[t_1; t_2]}$ ). The average abnormal shareholder loss (or gain) due to the event ( $SL_{[t_1; t_2]}$ ) over the period  $[t_1; t_2]$  is then calculated by averaging all the cumulative market value losses ( $SL_{i,[t_1; t_2]}$ ) through the sample of  $n$  victim firms (in euros):

$$ASL_{[t_1; t_2]} = \frac{1}{n} \sum_{i=1}^n SL_{i,[t_1; t_2]}, \text{ where } SL_{i,[t_1; t_2]} = CAR_{i,[t_1; t_2]} \times MV_{i,t_1-1} \quad (3)$$

Finally, event studies are typically complemented by cross-sectional tests to investigate the determinants of the reactions of financial markets (CAR). The goal is to understand the relationship between the magnitude of the abnormal returns estimated in the aftermath of the event (*i.e.* the cross-sectional differences in the loss or gain incurred by shareholders) and the features of the event (see Table 3). It is particularly interesting given the multiple possible hypotheses on the causes for these abnormal returns (see Figure 1). After suffering from others’ misconduct, the victim is avenged when the AMF sanctions the market manipulator. Hence, its creditworthiness could be

reinforced, possibly implying positive abnormal returns. Conversely, being a victim could send a weakness message or confusing signals regarding the victim and the market manipulator, justifying a negative abnormal market correction and, to some extent, a double punishment. Finally, no significant reaction could follow the mention of victims in sanction reports, if investors clearly differentiate executioners from victims.

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

$$CAR_{i;[t_1;t_2]} = \delta_0 + \delta_1 x_{i,1} + \delta_2 x_{i,2} + \dots + \delta_m x_{i,m} + \mu_i, \text{ where } E(\mu_i) = 0 \quad (4)$$

Where  $x_{i,j}$ , for  $j = 1, \dots, m$ , are the  $m$  characteristics of the  $i^{\text{th}}$  observation,  $\delta_j$ , for  $j = 0, \dots, m$ , are the  $m+1$  parameters of the model, and  $\mu_i$  is the zero-mean disturbance term, that is uncorrelated with the  $x$ 's. As advised by MacKinlay (1997), heteroskedasticity-consistent t-statistics will be derived using White-corrected standard errors.<sup>15</sup>

## 4 The data

### 4.1 Sanctions by the AMF 2004-2018

A unique and exhaustive dataset was built, mostly based on the publicly available reports of the 342 sanction decisions,<sup>16</sup> from January 2004 (the AMF was created in 2003) until December 2018. Most of these distinctive characteristics of sanctions were drawn from the online sanction reports. They were supplemented by publicly available information, and by regulatory confidential information shared by the AMF.<sup>17</sup> The latter covered the names of the sanctioned entities when the sanction report was anonymized (either *ex ante* or *ex post*),<sup>18</sup> some missing dates of procedure, and information on sanctions dating back before the AMF creation. Finally, softwares were used for

<sup>15</sup> No assumption is made on identical finite variance of residuals. In fact, there is no reason to expect the residuals of specification (4) to be homoscedastic.

<sup>16</sup> Published on the AMF website: <http://www.amf-france.org/Sanctions-et-transactions/Decisions-de-la-commission/Chronologique/Liste-Chronologique.html?year=2017&docType=sanction>

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.

<sup>17</sup> The French Regulator of financial institutions (ACPR) was also contacted to share information on its sanctioned financial firms, unsuccessfully, in order to build a cross-Regulator recidivism variable.

<sup>18</sup> Sanction reports can be first (*ex ante*) published anonymized or not, depending on the EC AMF decision. Additionally, reports can be anonymized *ex post*, following decisions of the EC AMF Chairmen (*e.g.*, de Batz, 2017 a and b).

market data (Thomson Reuters for stock prices, market capitalization, and market indices), and for media coverage (Factiva). All in all, over the period under review, more than 40 variables were included in the dataset (see descriptive statistics in Table 3). A comprehensive correlation analysis was carried of the variables in the dataset.<sup>19</sup>

In our data, we have a large set of variables describing the sanction, the defendant, and the global environment: 1) the characteristics of the enforcement (including the type of procedure at the origin with an investigation or a control, the sanctioned regulatory breach(es),<sup>20</sup> the length of the sanction procedure (see Figure 2), the lag to publish the decision, the year of the sanction)<sup>21</sup>; 2) the main features of the decision itself (acquittals, cash fines, warning, blame, ban on activity, anonymization of the decision report,<sup>22</sup> the chairman of the EC AMF, the length of the sanction report, appeal characteristics)<sup>23</sup>; 3) the attributes of the respondents (such as the moral form, whether an individual (employee, manager, other) was sanctioned, the top management involvement)<sup>24</sup>; and 4) some time and legal indicators (AMF chairmen of the board, financial regulations in force, real GDP growth rate, dummy for years).

Further, we have specific variables characterizing victims, mentioned in the sanction reports. In fact, a fourth of the sanctions named one or several listed firms as “victims” from others’ financial misconduct. For that reason, market manipulators are being investigated and possibly sanctioned by the AMF. Their characteristics comprise: the market on which it is listed, the market capitalization on the day preceding the sanction, and the business sector.<sup>25</sup> Additionally, dummy variables were added for cases of multiple victims (more than one firm were targeted by the market

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<sup>19</sup> Detailed results and analyses are available on demand.

<sup>20</sup> AMF classification: insider trading (transmission and/or use of insider information), price manipulation, failure to meet with the information regulatory requirements *vis-à-vis* investors or the Regulator, failure to meet with professional obligations, proceedings, and takeovers.

<sup>21</sup> Complementary variables were built: the duration of the procedure from ignition to the sanction decision, in years, as in Karpoff et al. (2008b), and the lag between the decision and its publication, in months.

<sup>22</sup> Three dummies cover the anonymization: anonymized when first published, partial anonymization, and *ex post* anonymization, at the EC AMF Chairmen’s discretion.

<sup>23</sup> Several variables characterize the appeals: whether the decision was appealed or not by the sanctioned entities, as in Karpoff et al. (2008b); whether the AMF appealed the decision of the EC AMF; the number of courts appealed to; whether the decision was confirmed or not; and the duration of the appeal procedure.

<sup>24</sup> 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. Karpoff et al. (2008b) showed how financial mis-presentation can prejudice careers of top managers: more than 90% of individuals responsible for fraud lose their jobs by the end of the Securities and Exchange Commission enforcement procedure.

<sup>25</sup> Following the Euronext classification of listed companies. The most frequent sectors, with dummy variables, are: financial sector, industry, consumer goods and services, and technology.

failure), for firms which were both sanctioned and victim of others over the period under review, and for firms which were victim of others more than one time. Finally, based on Factiva searches, the media coverage of the victim over the proceeding is taken into account with: the media exposure intensity of the firm before the sanction, the numbers of articles mentioning the firm as a victim published between the decision and its publication and over the week following the publication, and whether articles were published in top-tier journals (*L'Agéfi* and *Les Échos*). The positive correlation between of the media coverage and the market reaction has been widely documented (see Miller, 2006; Fang and Peress, 2009; Fang et al., 2014; Dai et al., 2015; and Rogers et al., 2016).

#### *4.2 Sample of victim firms (2005-2018)*

No listed company was victim in 2004. On average, over the period under review (2005-2018), a fourth of the sanctions involved at least one listed company which was the victim of others (see Table 1). In fact, 114 firms listed in France were mentioned 142 times in 88 sanction decisions as victims of other market participants' regulatory breaches. In order to conduct the event studies and to limit biases, the sample was limited to the firms which were daily listed, from 120 days before the first event (the enforcement committee) until 120 days after the last event (the publication of the decision).

Out of the initial sample, 81 mentions were excluded. Corporate specificities led to the exclusion of 52 victims: 18 due to data frequency problems (either not daily listed, suspended during the process, or listed through the process), 16 delisting during the procedure, 14 mergers and acquisitions over the enforcement process (hence delisting), 2 foreign firms, and 2 firms were twice victims of other companies' regulatory breaches, leading to two parallel sanction procedures. Complementarily (and in 10% of the cases additionally to previous reasons), major confounding events resulted in the exclusion of the victims. To do so, a one-by-one search for confounding events was conducted for the whole sample of victim firms, for both the sanction and the publication dates, using the software Factiva. In fact, the occurrence of any other significant corporate event around the event window could bias the analysis. The range of dates investigated covered the 20 days preceding the sanction decision until one week after the publication of the decision. Possible sources of confounding events can be sorted into two categories: internal events (*i.e.* positive or negative news regarding the company itself such as the publication of the annual



or quarterly results, profit warnings, a confounding condemnation of the victim firm by the AMF, or M&As involving the company) or external (such as significant evolutions in the competitive environment, the possible spillovers of Brexit on financial companies, and a surge in geopolitical risks).

All in all, the final sample covers 61 occasions on which 50 daily listed companies were mentioned in 42 sanction reports as victims of others' regulatory breaches.

#### *4.3 Features of the sanctions of the AMF mentioning victims*

For the sample of sanctions under review (see Table 2), the sanctioned entities received lower fines than the average (617,000 euros on average for the sample, with a median of 215,000 euros). Still, the sanctions resulted overwhelmingly from investigations, which target the most severe regulatory breaches. This can be accounted for by the fact that individuals (and not top managers) were much more frequently than the average the defendants (86% *versus* 71%). This is also consistent with the sanctioned regulatory breaches: 52% for insider trading and 17% for price manipulation (comparing with 28% and 9% on average). The decisions in the sample were appealed more frequently than on average (55% *versus* 45%), but with a lower rate of success (87% of the appeals were rejected, against 79% on average). In 12% of the sanctions, the verdict was an acquittal. Additionally, behavior sanctions (warning, blame, and ban on activity) were less frequent than the average (21%).

Regarding the victims, they are large firms (average market capitalization on the day preceding the sanction of 8.8 billion euros, half of them being listed on the biggest stock market, Compartment A of Euronext Paris). Half of them are either consumer goods and services or industrial firms, followed by technology and financial firms (respectively 16% and 13%). These companies were on average victim 1.2 times of others' wrongdoings. Put into differently, 18% of the firms were victims several times, on average 2.3 times. Finally, 18% of these companies were both sanctioned by the AMF and victims of others' wrongdoings, 21% being financial companies.

## **5 Impact of sanctions on companies which were victim of others' financial misconduct**

The consequences for listed firms of being named in a regulatory sanction report as a victim are investigated in this section. The victim of investigated and possibly sanctioned regulatory breaches may have already endured losses due to these past regulatory breaches (for example following

insider trading or price manipulation), during the violation period. Most frequently, the market surveillance of the AMF detects such abnormal price developments, leading to an investigation regarding the returns of a given entity. After further examination, it can end with a sanction of the wrongdoer (due to price manipulation, insider trading, or any other regulatory breach). The research question is whether such a mention in a sanction will trigger a significant abnormal reaction in the market? If so, will the victims undergo additional losses (*i.e.* double punishment) for being named in the sanction procedures of their executioners, or conversely gain from being avenged?

### *5.1 Impact on stock returns for listed companies as victim of others' financial market misconduct*

Daily listed companies were, on 61 occurrences, victims of others' financial market misconduct over the period 2005-2018.<sup>26</sup> The previously described event study methodology is 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 scope of the study is limited to the reactions to the last two steps of the sanction procedure (the Enforcement Committee making the sanction decision, followed by its publication). In fact, the first two steps of the enforcement procedure (the start of an investigation or a control, followed by the statement of objection) are, by law, confidential. Past studies (such as Kirat and Rezaee, 2015; de Batz, 2018) concluded that, even for defendants, these early steps did not significantly impact returns.

The augmented market model (see specification (1)) is based on the activity sector of every victim (as in Sharpe, 1970). It was estimated to test the information content of sanctions for daily listed victim mentioned in sanction reports. Cumulative Abnormal Returns for every victim were investigated both following the enforcement committee (see Table 4) and the publication of the decision.

The results averaged across victims (see Table 5) demonstrate hardly significant cumulative average abnormal returns either following the sanction decision or the publication of the latter. Average cumulated loss in returns of 2.6% is recorded 10 days after the sanction, significant at the 10% level. They rise close to 4% after 40 days. Over the period [-1;+10], 56% of the sample suffered negative abnormal returns. Still, either for the sanction decision or for its publication, the

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<sup>26</sup> Given the density distribution of events over time, the event study was re-estimated for the sub-samples with higher events (2011 and 2018). The results are available in Table 7. Complementarily, dummy variables were added for those years in the cross-sectional regressions (see part 5.3).

results converge with time-persistent negative abnormal returns. As previously described, the sample was purged from any confounding event. Hence, the negative reaction is most likely to be related to the fact of being mentioned as a victim of others. The magnitude is additionally greater than for defendants (see de Batz, 2018). So, it is likely that, to some extent, being named as a victim sends a negative message to the market. As most of these companies already suffered over the violation period, the results point to a double punishment of the victims.

We conduct two folds of robustness checks in an attempt to ensure documented abnormal returns, and the reliability of statistically significant relation between being a victim and negative abnormal returns. We obtain coherent and more significant results.

Two complementary tests on the sample were conducted, given the limited (though exhaustive) number of observations. The goal is to ensure that the presence of outliers does not bias the results. The results confirm the conclusions previously described. Firstly, a bootstrapped analysis of the robustness of standard errors was undergone 1,000 times, with a confidence interval of 95%.<sup>27</sup> Secondly, abnormal returns were Winsorized before estimating the test statistics, as in Armour et al. (2017). All abnormal returns' outliers to a 90<sup>th</sup> percentile were excluded from the data, meaning that all data below the 5<sup>th</sup> percentile are set to the 5<sup>th</sup> percentile, and data above the 95<sup>th</sup> percentile are set to the 95<sup>th</sup> percentile. The magnitudes of the cumulative average abnormal returns were confirmed and turned out to be more significant and more persistent in time with Winsorized abnormal returns (see Table 6).

Finally, the 30 mentions of victim listed companies assorted with confounding events were reintegrated into the sample, to challenge the robustness of the hypothesis and results (see Table 5). The results for the 91 victim sample also confirm negative reaction of markets, but turned out to be more important and more significant in particular following the sanction (CAAR[-1;+2] of -1.3%, significant at the 5% level) and in the long run its publication (CAAR[-1;+9] of -2.1%, significant at the 5% level).

## *5.2 Impact on market values of sanctioned companies*

The average market value loss for victims is estimated for the sample of 61 victims based on specification (3). The most significant cumulative average abnormal returns are used: CAAR[-

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<sup>27</sup> Detailed results are available on demand.

1;+10] from the day preceding the sanction decision and over the next trading 10 days (or two weeks), which are significant at the 10% level.

Market capitalization of victims lost on average 296,100 euros from the day preceding the sanction until 10 days after the sanction decision (with a standard deviation of 1.5 million euros, ranging from -10.1 up to +1.7 million euros).

### *5.3 Complementary approach of the information content of sanctions: cross-sectional regression*

In this section, we use a cross-sectional multivariate analysis to explain the determinants of the abnormal returns incurred by each victim in the aftermath of the sanction decision. The goal is to infer some conclusions on the factors contributing to market reactions for the most statistically significant results.

The dependent variable is the significant cumulative abnormal returns  $CAR_i(-1; +10)$  for every victim  $i$  over the event window  $[-1;+10]$ , as defined in specification (4). The explanatory variables (see Table 3) range from characteristics of the sanction (the origin of the sanction, the verdict, and possibly the appeal), of the parties involved (victim and market manipulator), to the media coverage and environment characteristics (time, legal, and economic).

The underlying hypotheses are made regarding the choice of explanatory variables. Karpoff and Lott (1993) demonstrated that the abnormal returns for market manipulators vary depending on the types of financial misconducts. Drake et al. (2014) stressed that 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 of the AMF could be less understandable for investors than more notorious regulatory breaches such as market abuses such as insider trading or price manipulation. That would dampen their impact. Consequently, two dummies control for the nature of the process which detected the regulatory breach (investigation or control) and for the breach by itself (dissemination of insider trading). The length of the sanction report controls for the complexity of the case. Additionally, 4 variables describe the decision: a dummy variable for the verdict (acquittal or not), the financial penalty (log of cash fine, in euros), and two dummies for behavioral sanctions (warning and blame). A dummy variable controls for the status of the report when published regarding the anonymization of the market manipulator (whereas the identity of the victims is never anonymized). Echoing Karpoff et al. (2008b) regarding the impact of being sanctioned on future careers, a dummy indicates whether

a top manager was involved in the regulatory breach. A dummy variable controls for the presence amid the sanctioned entities of a listed company, as the latter will receive a higher media coverage for being sanctioned. Hence, the victim will also receive a higher echo in the press. Finally, appealing a decision sends a signal of innocence to the market. *A fortiori*, the number of appeals of a decision (either different sanctioned entities or individuals, or to several courts) signals a strong disagreement to a regulatory decision.

The hypothesis is made that a higher media coverage could lead to stronger market reactions, following Barber and Odean (2008) and Rogers et al. (2016) for example. More generally, being under the media scrutiny contribute to investors' knowledge and news dissemination (see Griffin et al., 2000). The Media Coverage Intensity variable is the ratio between the number of headlines mentioning the victim over the twenty days preceding the event and the total number of headlines received in the previous year, as in Capelle-Blancard and Laguna (2010). This variable is meant to capture the media visibility of the firm at the time of the event. Using the ratio should control for the fact that some firms are more present in the media, contrary to the press intensity variable of Miller (2006), which is a ratio of the number of articles over the violation period to the number of months of this period.

Regarding the victims, two sectors were included as explanatory variables: being a technological and a consumer goods or services firms. As in Karpoff et al. (1993), these dummy variables also control for the size of the firms and for the sector specificities. This echoes the results of Griffin et al. (2000) for the United States and Armour et al. (2016) for the United Kingdom: the (reputational) cost of being sanctioned is smaller for larger firms and more mediatized firms. The larger amount of information in the market proportionally reduces the informational value of a regulatory communication.

Finally, the long timespan under review leads to consecutive chairmen of the AMF (named by Presidential decree), different chairmen of the EC AMF, and peak years, for which some variables are included.

For a cross-section of victims of sanctions, we run OLS regressions with robust White-corrected standard errors of  $CAR_i(-1; +10)$  against all the explanatory variables from the dataset (see Table 3), based on specification (4).<sup>28</sup> The detailed results are available on demand. The results

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<sup>28</sup> For every sanction/victim  $i$ , by alphabetical order, the explanatory variables are:  $AMF\_Chairman\_Rameix_i$  equals 1 if the decision was made when G. Rameix was chairman of the AMF (2012-2017), 0 otherwise;  $Acquittal_i$  equals 1 if the verdict was an acquittal, 0 otherwise;  $Blame_i$  equals 1 if the decision comprised a blame of the market

for three following models (specification 5, 6, and 7), derived from specification (4), are presented. They are robust with the exhaustive cross-sectional test. The results are displayed in Table 8.

$$CAR_i(-1; +10) = \delta_0 + \delta_1 Investigation_i + \delta_2 Transm\_inside\_info_i + \delta_3 Acquittal_i + \delta_4 Blame_i + \delta_5 Length\_Sanction\_Report_i + \delta_6 Nb\_Appeals_i + \delta_7 Top\_Mgt\_Invol_i + \delta_8 AMF\_Chairman\_Rameix_i + \delta_9 Techno_i + \delta_{12} Law\_LME\_2008_i + \mu_i$$

and  $E(\mu_i) = 0$  (5)

$$CAR_i(-1; +10) = \alpha_0 + \alpha_1 Transm\_inside\_info_i + \alpha_2 Blame_i + \alpha_3 Publi\_anonym\_AMF_i + \alpha_4 Length\_Sanction\_Report_i + \alpha_5 Nb\_Court\_Appealed_i + \alpha_6 Sanctioned\_Pub\_Firm_i + \alpha_7 EC\_Chairman\_MHT_i + \alpha_8 Year\_2011_i + \alpha_9 Conso\_G\&S_i + \alpha_{10} Media\_Cov\_Intensity_i + \varphi_i$$

and  $E(\varphi_i) = 0$  (6)

$$CAR_i(-1; +10) = \beta_0 + \beta_1 Transm\_inside\_info_i + \beta_2 Log\_Cash\_Fine_i + \beta_3 Warning_i + \beta_4 Blame_i + \beta_5 Publi\_anonym\_AMF_i + \beta_6 Length\_Sanction\_Report_i + \beta_7 Nb\_Court\_Appealed_i + \beta_8 EC\_Chairman\_MHT_i + \beta_9 Year\_2011_i + \beta_{10} Techno_i + \chi_i$$

and  $E(\chi_i) = 0$  (7)

$CAR_i(-1; +10)$  are the cumulated abnormal returns for the victim  $i$  from the day preceding the sanction decision until the 10<sup>th</sup> day.  $\mu_i$ ,  $\varphi_i$  and  $\chi_i$ , for  $i = 0, \dots, 61$ , are the respectively zero mean disturbance term, uncorrelated with the explanatory variables.  $\delta_i$ ,  $\alpha_i$ , and  $\beta_i$  are the regression coefficients, for  $i = 0, \dots, 61$ .

The following takeaways can be made on the statistically significant explanatory variables regarding the information content of being a victim of a sanctioned regulatory breach and its interpretation by financial markets, beyond the high explanatory power of the models.

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manipulator, 0 otherwise; *Conso\_G&S<sub>i</sub>* equals 1 if the victim firm belongs to the Euronext consumer goods or services sector, 0 otherwise; *EC\_Chairman\_MHT<sub>i</sub>* equals 1 if the Chairman of the Enforcement Committee was M.H. Tric, 0 otherwise; *Investigation<sub>i</sub>* equals 1 if the sanction derives from an investigation (not a control), 0 otherwise; *Law\_LME\_2008<sub>i</sub>* equals 1 for the sanctions published under the financial law LME, 0 otherwise; *Length\_Sanction\_Report<sub>i</sub>* represents the number of pages of the sanction decision; *Log\_Cash\_Fine<sub>i</sub>* represents the log of the cash fine (in euros); *Media\_Cov\_Intensity* accounts for the media coverage intensity of the victim before the sanction, and equals the ratio of the number of articles mentioning the firm of the 20 days preceding the enforcement committee to the total number of articles over the last year; *Nb\_Appeals<sub>i</sub>* equals the number of courts appealed to regarding the AMF decision; *Publi\_anonym\_AMF<sub>i</sub>* equals 1 if the sanction was published anonymized by the AMF, 0 otherwise; *Sanctioned\_Pub\_Firm<sub>i</sub>* equals 1 if one of the market manipulator was a listed firm, 0 otherwise; *Techno<sub>i</sub>* equals 1 if the victim firm belongs to the Euronext technological sector, 0 otherwise; *Top\_Mgt\_Invol<sub>i</sub>* equals 1 if the top management of the firm was involved in the regulatory breach(es), 0 otherwise; *Transm\_inside\_info<sub>i</sub>* equals 1 if the sanctioned regulatory breach was the transmission of insider information, 0 otherwise; *Warning<sub>i</sub>* equals 1 if the verdict included a warning of the market manipulator, 0 otherwise.

For the origin of the sanction, when the sanctioned regulatory breach is one of the three market abuses (or put differently when an investigation is at the origin of the sanction), the market correction for victims tends to be lower (*i.e.* positive impact). Conversely, the regulatory breach of disseminating insider information will lead to more negative abnormal returns.

The variables characterizing the proceeding and the verdict lead to the following considerations. An acquittal of the market manipulator contributes to reinforce negative abnormal returns, as if the defendant's innocence would imply or suggest a guilt of the victim. Conversely, the three main components of the guilty verdict (cash fine, warning, and blame) reduce the negative market correction. In that sense, a tougher sentence can be understood as a vengeance of the victim, which returns will benefit from being avenged. Similarly, not anonymizing the decision (which would have protected the market manipulator's reputation) will profit to the victim. Finally, longer sanction reports, which are a sign of the complexity and seriousness of the financial misconduct, will also impact positively the victim's abnormal returns. Indeed, the length of sanction reports is positively and significantly correlated to the duration of the sanction procedures, from the ignition of the investigation or control until the Enforcement Committee hearing.

Regarding the parties involved, the victim's returns are positively correlated with decisions in which market manipulators include the top management of the firm and/or listed companies. Technological and consumer goods or services firms will suffer more from being an avenged victim, possibly due to their relative smaller size and their listing on less liquid stock markets. Such firms receive less media attention. The mere mention of their names in a sanction could send a negative message, as market participants could fail to distinguish the defendant from its victim. This is also supported by the fact that the higher the media coverage intensity of the victim, the more negative its abnormal returns. By appealing the decision, and *a fortiori* to several courts, the defendant pleads its innocence. This reaction penalizes the victim firm.

Finally, regarding time and legal variables, the most significant variables point to higher market corrections in the recent years.

Complementarily, the results for insignificant variables lead to the following comments. Being one out of many victims does not significantly protects listed firms from a negative market reaction. It could even be the opposite as the dummy variable for one of the two years with most multiple victims' decisions (decisions made in 2011) reinforces the negative market reaction. Having a history with the AMF – as a victim and a sanctioned market manipulator – does not

significantly influences the reactions. Similarly, recidivism for listed firms (*i.e.* being repeatedly sanctioned by the AMF) did not influence significantly market reactions to the publication of the decision (see de Batz, 2018). Being repeatedly a victim over separate enforcement procedures turned also insignificant. Regarding the market failures, only the transmission of insider information significantly (and negatively) influences abnormal returns. Still, price manipulation and breaches to information obligations send a positive (though insignificant) message on the victim. Finally, and surprisingly, none of the variables of size ((log of) market capitalization and listing compartments of Euronext) were significant influencers of market perception, contrary to past results.<sup>29</sup> For example, Palmrose et al. (2004) stress that market manipulators' stock price reactions to the news of earning restatements are reinforced for smaller firms, and conversely attenuated for larger firms. Our results can be explained by conflicting market influences: on the one hand, bigger companies get a higher media coverage, hence the fact of being a victim should be more widely and quicker public information; on the other hand, size can protect as the fundamentals of the firms are more resilient to any financial misconducts committed by market manipulators.

All in all, the results question the usefulness of naming victims over enforcement procedures. In fact, financial markets seem to react negatively to such information. This reaction takes more time to be statistically significantly incorporated into prices (1 to 2 weeks) than for guilty listed firms and is persistent in time. Such inflection suggests a double-punishment of the victims, far from the alternative hypotheses of a premium for being avenged (positive abnormal returns) or from being neglected by the markets (no abnormal reaction). The victim company most probably suffered from others' financial wrongdoing over the violation period: its returns possibly already abnormally underperformed during or after the violation period. They are penalized again when the market manipulator is prosecuted by its Regulator. This research demonstrates a market failure where victims are not properly differentiated from wrongdoers. That may plead for an anonymization of victims in the sanction reports, to protect them from any additional abnormal negative costs in the aftermath of the sanction of its offender. This is all the most relevant that there is an increasing regulatory shift toward "name and shame", substituting for sanctions. Additionally,

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<sup>29</sup> In the literature on market manipulators, the market value before the event frequently significantly explains for width of abnormal returns, either in absolute terms (Miller, 2006; or Kirat and Rezzaee, 2015), or in log (Murphy et al., 2009; or Armour et al, 2016).



anonymization of victims would echo a compulsory anonymization of sanctioned individual after 5 years, as a result of the French regulatory changes enforced in 2016. In that sense, victims should be anonymized also retrospectively, contributing to the prescription of past sins. The results finally demonstrate the market efficiency of naming firms in sanction reports, from another perspective. Echoing the United Kingdom stance, it could plead for more “naming and shaming” for market manipulators, substituting, at a lower cost, to long sanction procedures.

## **6 Conclusion**

This research exploits a French specificity of the enforcement of financial laws and regulations. It challenges the information content, for a listed company, of being a victim of market manipulators. A fourth of the sanction decisions names at least one public firm which suffered from others’ regulatory breaches. More specifically, it investigates abnormal market reactions (either positive or negative) to the news that a listed company was the victim of another regulated market participant and that this market manipulator is sanctioned by its Regulator. To do so, events studies were conducted to search for abnormal market reactions following the Enforcement Committee and the publication of its decision. Complementarily, it aims at understanding the features of the sanctions and of the parties at stake leading to such reactions.

For the exhaustive sample of sanctions involving victims published from the AMF creation in 2003 until late 2018, the event studies demonstrate negative, persistent in time and – to some extent – statistically significant negative abnormal returns following the Enforcement Committee hearings, which leads to the decision making. Consequently, those firms, which possibly already suffered over the violation period from the investigated regulatory breaches, get penalized for a second time when their executioner is sanctioned. In that sense, victims are double sentenced when being avenged. The results demonstrate a market failure where victims are not properly differentiated from wrongdoers.

Consequently, in terms of policy recommendations, and echoing a current push towards name and shame regulatory stance, the results suggest a systematic anonymization of victims of market manipulators. The goal would be to protect victim firms from suffering a double punishment when being avenged from past regulatory breach(es) they endured from regulated market participants. Complementarily, naming and shaming market manipulators could prove efficient in terms of enforcement.

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**Table 1: 12% of the Sanctions in the Scope of the Event Study**

This table describes how the initial exhaustive sample of sanctions pronounced by the AMF from 2004 to 2018 was reduced to the final sample of 61 cases when 50 daily listed companies were victim of other market participants' misconduct. Additionally, 30 occurrences of victims had to be expelled from the sample due to major confounding events (major events specific to the company such as financial communication publication, M&As, etc. or external events such as other sanctions, Brexit, etc.).

342 sanctions 2004-2018	88 sanctions with listed companies named as victims (114 firms)	<b>42 sanctions in the sample (50 listed companies "victim")</b>
		15 sanctions involving 30 confounding events (27 firms) ⇒ Robustness check
		31 sanctions out of the sample Causes: data problem (not daily listed, not listed over the whole period, M&As, foreign firms)
254 sanctions without "victims"		

Source: AMF, Author's Estimations

**Table 2: Characteristics of All the Sanctions, of All Sanctions Involving Victim Listed companies, and of the Sample**

This table compares the main features for 3 different samples of sanctions: 1) the whole set of sanctions made by the AMF from its creation in 2003 until late 2018; 2) the sub-sample of sanctions in which listed companies (at least one) were named as victims of market manipulators (either guilty or acquitted in the end); and 3) the final sample of victims which were daily listed over the estimation and the event windows.

	All sanctions	All sanctions with victim firms	Sanction with victim daily listed firms
Number of sanctions	342	88	42
Sanctioned listed companies	-	115	50
<i>Number of times victim</i>	-	<i>1.23</i>	<i>1.22</i>
<b>Main features of the sanctions</b>			
Investigations (as % of sanctions)	68.4	94.0	97.6
Average cash fine* (as thousand euros)	775	1,123	617
Warning, blame, activity (as % of sanctions)	33	31	21
Publication anonymized (as % of sanctions)	27	40	30
Acquittals (as % of sanctions)	8.5	10	12
Average duration of procedure (as years)	2.7	2.9	3.0
Appeals (as % of sanctions)	45	61	55
Rejection of appeals (to date, as % of appeals)	79	76	87
Number of reg. breaches per sanction	1.3	1.3	1.2
Sanctioned regulatory breaches (as % of sanctions):			
Insider trading	28	55	52
Non-compliance with regulatory rulebooks	48	28	29
Information	36	22	26
Price manipulation	9	15	17
Top management involved (as % of sanctions)	50	33	43
Individuals sanctioned (as % of sanctions)	71	90	86
<b>Main features of victims (as % of total victim listed companies if not specified)</b>			
Average market capitalization (as billion euros)	-	9.8	8.8
Median market capitalization (as billion euros)	-	0.5	0.6
Listed on Euronext Compartment A	-	43	49
Main sectors:			
Consumer goods and services	-	22	23
Industry	-	21	25
Finance	-	16	13
Technology	-	16	16

Sources: AMF, Thomson Reuters, author's calculations. \* Excluding acquittals

**Table 3: Features of the Sanctions Sample: 61 Victims of Market Manipulators**

The sample is comprised of the 61 firms which were named as victim of other market participants in AMF sanction reports (whatever the verdict) from 2005 to 2018 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).

Number of Observations: 61	Mean	Std. Dev.	Min	Max
<b>Origin of the Sanction and Sanctioned Regulatory Breaches:</b>				
Investigation (not Control) <sup>1</sup>	98%	0.13	0	1
Transmission of Insider Information <sup>1</sup>	18%	0.39	0	1
Use of Insider Information <sup>1</sup>	41%	0.50	0	1
Price Manipulations <sup>1</sup>	38%	0.49	0	1
Breaches of Public Disclosure Requirements <sup>1</sup>	20%	0.40	0	1
Breaches of the Monetary and Financial Code and the AMF General Regulation <sup>1</sup>	20%	0.40	0	1
<b>Characteristics of the sanction decision:</b>				
Acquittals <sup>1</sup>	10%	0.3	0	1
Average cash Fine (as 000 EUR) <sup>2</sup>	473	827	0	4,000
Warning <sup>1</sup>	14.7%	0.36	0	1
Blame <sup>1</sup>	8.2%	0.28	0	1
Ban on Activity <sup>1</sup>	3%	0.18	0	1
Duration of Procedure (Start to Sanction, as Years)	3.0	1.1	1.1	11.8
Lag from Sanction to Publication (as Months)	1.8	2.7	0.0	11.8
Sanction Report Nb of Pages	11	5.5	4	35
Partial Anonymization <sup>1</sup>	15%	0.36	0	1
First Publication Anonymized <sup>1</sup>	33%			
Top Management Involved in the Breach(es) <sup>1,3</sup>	30%	0.45	0	1
Sanctioned Individuals <sup>1</sup>	82%	0.39	0	1
Sanctioned Public Firms <sup>1</sup>	8%	0.28	0	1
<b>Chairmen of the Enforcement Committee (EC AMF):</b>				
Chairman C. Nocquet <sup>1</sup>	28%	0.45	0	1
Chairman D. Labetoulle <sup>1</sup>	23%	0.42	0	1
Chairman M.H. Tric <sup>1</sup>	31%	0.47	0	1
<b>Details of the appeals:</b>				
Appeal <sup>1</sup>	57%	0.50	0	1
Nb of Appeals	0.7	0.75	0	3
Rejection of the Appeal <sup>1</sup>	34%	0.48	0	1
Duration of Appeals (from the sanction, as years)	0.9	0.96	0	4.5
<b>Media Coverage of the Sanction Procedure:</b>				
Media Coverage Intensity before the Sanction <sup>4</sup>	0.05	0.03	0	0.14
Nb of Articles Published Between the Sanction and its Publication	11	24	0	160

Number of Articles Published during the Week Following the Sanction	5	8.5	0	56
Articles Published in <i>L'Agéfi</i> or <i>Les Échos</i> <sup>1</sup>	54%	0.5	0	1
<b>Characteristics of the Victim:</b>				
Market Capitalization (on the Sanction Day, as 000 EUR)	8,820	19,972	8	103,367
Euronext Compartment A <sup>1,5</sup>	49%	0.50	0	1
Euronext Compartment B <sup>1,5</sup>	21%	0.41	0	1
Euronext Compartment C <sup>1,5</sup>	13%	0.41	0	1
Financial Sector <sup>1,6</sup>	13%	0.34	0	1
Industry Sector <sup>1,6</sup>	25%	0.43	0	1
Consumer Goods or Services Sector <sup>1,6</sup>	23%	0.42	0	1
Technological Sector <sup>1,6</sup>	16%	0.37	1	1
<b>Victims and the AMF:</b>				
Firm Victim Several Times <sup>1,7</sup>	38%	0.49	0	1
Firm Both Sanctioned and Victim <sup>1,8</sup>	15%	0.36	0	1
More than One Victim per Sanction <sup>1,9</sup>	47%	0.50	0	1
<b>Legal Environment Characteristics:</b>				
Year of the Sanction	2013	3.8	2005	2018
LME 2008 <sup>1</sup>	28%	0.45	0	1
LRBF 2010 <sup>1</sup>	34%	0.48	0	1
Laws 2016 <sup>1</sup>	30%	0.46	0	1
President AMF J.P. Jouyet <sup>1,10</sup>	38%	0.49	0	1
President AMF G. Rameix <sup>1,11</sup>	20%	0.40	0	1
President AMF R. Ophèle <sup>1,12</sup>	23%	0.42	0	1

Source: AMF, Factiva, Thomson-Reuters, Author's Calculation

Notes: <sup>1</sup> Dummy variables equal to 1 if corresponding to the variable description, to 0 otherwise; <sup>2</sup> Sanctions which only involved a disciplinary sanction or acquittals were assigned a zero-euro cash fine; <sup>3</sup> Top management includes Chairman, Chief Executive Officer, Chief Financial Officer, and Human Resources Director; <sup>4</sup> The Media Coverage Intensity is the ratio between the number of headlines mentioning the victim in the twenty days before the event and the total number of headlines received in the previous year. This variable is meant to capture the visibility of the firm at the time of the event. Using the ratio should control for the fact that some firms are more present in the media; <sup>5</sup> Three dummy variables control for the segments on which the victim firms are listed. In fact, 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. And 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; <sup>6</sup> Euronext classifies firms into the 10 following sectors: basic materials; consumer goods; consumer services; financials; health care; industrials; oil & gas; technology; telecoms; utilities; <sup>7</sup> This dummy variable equals to 1 when the firm was more than one time named in sanction reports as victim of market manipulators; <sup>8</sup> This dummy variable equals to 1 when the firm was both a market manipulator and a victim for different sanction procedures; <sup>9</sup> This dummy variable equals to 1 when several victims were named in a given sanction report; <sup>10</sup> This dummy variable equals to 1 when J.P. Jouyet was chairman of the AMF (December 2008 to July 2012); <sup>11</sup> This dummy variable equals to 1 when G. Rameix was chairman of the AMF (August 2012 to July 2016); <sup>12</sup> This dummy variable equals to 1 when R. Ophèle was chairman of the AMF (since July 2016).

**Table 4: Cumulative Abnormal Returns Following 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 Enforcement Committee and 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 victims named in sanctions over the 2005-2018 period (*i.e.* 61 victim companies, sorted by dates of sanction).

Sanction	Sanction year	t = -1	t = 0	t = +1	Sanction	Sanction year	t = -1	t = 0	t = +1
SAN-1	2005	-1.5%	-1.2%	-1.8%	SAN-32	2011	6.3%	11.7%	9.0%
SAN-2	2007	-1.1%	-0.7%	-0.5%	SAN-32	2012	-0.6%	0.2%	-1.0%
SAN-3	2008	3.5%	0.3%	-0.7%	SAN-34	2012	-0.7%	0.5%	-1.5%
SAN-4	2008	0.4%	-3.2%	0.7%	SAN-35	2012	0.2%	-0.2%	0.3%
SAN-5	2008	0.9%	0.6%	-0.3%	SAN-36	2013	0.7%	-0.3%	0.4%
SAN-6	2008	-0.5%	1.2%	1.5%	SAN-37	2013	-0.2%	-1.1%	0.0%
SAN-7	2008	<b>-2.8%**</b>	<b>-5.7%**</b>	<b>-8.8%**</b>	SAN-38	2013	2.4%	-3.4%	-1.7%
SAN-8	2009	-0.4%	-0.5%	2.3%	SAN-39	2014	0.4%	-1.2%	1.4%
SAN-9	2009	-1.5%	<i>-1.8%*</i>	<b>-2.3%**</b>	SAN-40	2014	-0.2%	<b>-0.2%**</b>	<b>-0.3%**</b>
SAN-10	2009	2.1%	1.7%	1.5%	SAN-41	2014	1.3%	<b>2.6%**</b>	<b>3.2%**</b>
SAN-11	2009	-4.4%	-2.5%	-1.2%	SAN-42	2015	0.1%	1.2%	1.3%
SAN-12	2009	-1.3%	0.3%	0.0%	SAN-43	2016	-0.7%	<b>-2.1%**</b>	<b>-3.5%**</b>
SAN-13	2009	0.4%	1.3%	<b>3.5%**</b>	SAN-44	2016	-1.0%	-1.6%	<b>-4.6%**</b>
SAN-14	2009	-1.7%	-2.8%	2.7%	SAN-45	2016	-0.3%	<b>-1.0%**</b>	<b>-1.4%**</b>
SAN-15	2009	1.0%	8.1%	7.2%	SAN-46	2017	-0.4%	-0.8%	-6.2%
SAN-16	2010	1.3%	0.1%	-0.3%	SAN-47	2017	-1.3%	-0.7%	-1.1%
SAN-17	2010	1.3%	-11.6%	-15.0%	SAN-48	2017	-2.1%	1.6%	2.2%
SAN-18	2010	-1.6%	<i>-2.0%*</i>	<b>-3.2%**</b>	SAN-49	2018	7.1%	8.5%	9.0%
SAN-19	2010	0.0%	2.9%	1.3%	SAN-50	2018	0.0%	-0.4%	0.7%
SAN-20	2010	1.2%	-0.1%	-5.0%	SAN-51	2018	-0.5%	-0.4%	-0.3%
SAN-21	2010	1.3%	1.9%	0.1%	SAN-52	2018	0.6%	-5.2%	-7.9%
SAN-22	2010	1.8%	2.8%	2.2%	SAN-53	2018	-2.1%	-2.1%	<i>-4.2%*</i>
SAN-23	2011	-1.9%	-1.6%	0.3%	SAN-54	2018	-2.6%	-2.5%	0.6%
SAN-24	2011	0.3%	0.8%	0.1%	SAN-55	2018	-1.2%	-0.4%	5.7%
SAN-25	2011	0.6%	0.6%	0.1%	SAN-56	2018	2.9%	5.5%	3.4%
SAN-26	2011	0.6%	0.4%	-1.8%	SAN-57	2018	0.2%	1.9%	-0.3%
SAN-27	2011	-1.6%	-1.8%	-7.0%	SAN-58	2018	-5.4%	-6.4%	<i>-7.8%*</i>
SAN-28	2011	1.0%	0.7%	2.0%	SAN-59	2018	-1.4%	-1.6%	2.6%
SAN-29	2011	-0.9%	-0.7%	3.0%	SAN-60	2018	0.7%	3.4%	3.2%
SAN-30	2011	<b>3.2%**</b>	<b>4.6%**</b>	<b>6.5%**</b>	SAN-61	2018	-2.3%	-3.9%	-3.1%
SAN-31	2011	-0.2%	0.0%	-1.1%					

Source: AMF, Thomson Reuters, Author's Calculations. Notes: Statistically significant at the 5% level in bold, statistically significant at the 10% level in italic.



**Table 5: Cumulative Abnormal Returns for the Sanctions Naming Listed Firms as Victims**

This table reports the cumulative average abnormal returns (CAAR<sub>t</sub>) from the day preceding the event up to a specified day  $t$  in event time for the last two 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 augmented market model parameters, which are estimated with OLS through the period [-120;-11] in event time. The sample is composed of the 61 daily listed companies which were victim of others' financial misconduct mentioned in sanction reports of the AMF from 2004 to 2018 (excluding all confounding events). The results are compared with the initial sample including the 30 confounding events (*i.e.* total sample size of 91 victims).

$t$	1) Excluding Confounding Events (61)				2) Including Confounding Events (91)			
	Sanction Decision		Publication of the Sanction Decision		Sanction Decision		Publication of the Sanction Decision	
	CAARt	$t$ -stat	CAARt	$t$ -stat	CAARt	$t$ -stat	CAARt	$t$ -stat
-1	0.0%	0.0	-0.1%**	-2.2	-0.2%	-1.0	-0.1%*	-1.9
0	-0.1%	-0.3	-0.3%	-0.5	-0.5%	-1.3	-0.2%	-0.4
-1	-0.3%	-0.5	-0.5%	-0.7	-0.7%	-1.5	-0.7%	-1.2
2	-0.6%	-0.8	-0.5%	-0.5	-1.3%**	-2.2	-0.8%	-1.3
3	-0.7%	-0.9	0.0%	0.0	-1.5%**	-2.4	-0.5%	-0.6
4	-1.1%	-1.2	0.3%	0.3	-1.6%**	-2.4	-0.5%	-0.6
5	-1.0%	-1.0	-0.1%	-0.1	-1.8%**	-2.3	-0.9%	-1.1
6	-1.0%	-0.9	-0.3%	-0.3	-1.6%**	-2.0	-1.1%	-1.2
7	-1.4%	-1.3	-0.4%	-0.4	-2.2%**	-2.4	-1.2%	-1.2
8	-2.1%	-1.6	-0.9%	-0.9	-3.0%***	-2.9	-1.7%*	-1.9
9	-2.0%	-1.7	-1.3%	-1.2	-3.1%***	-3.1	-2.3%**	-2.4
10	-2.6%*	-2.0	-1.1%	-1.0	-3.8%***	-3.4	-2.1%**	-2.1
20	-3.0%	-1.7	0.1%	0.1	-4.5%***	-3.0	-1.0%	-0.7
40	-3.9%	-1.4	-1.0%	-0.4	-6.6%***	-2.7	-3.2%	-1.3

Sources: AMF, Thomson Reuters, Authors' calculations

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

**Table 6: Cumulative Winsorized Abnormal Returns for the Sanctions Involving Listed Companies as Victims**

This table reports the Winsorized cumulative average abnormal returns ( $CAAR_t$ ) up to a specified day  $t$  in event time for the two last steps of the sanction procedure, the Enforcement Committee with the sanction decision and the publication of the sanction report. Event time  $t$  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 augmented market model parameters, which are estimated with OLS through the period  $[-120;-11]$  in event time. Abnormal returns were Winsorized before estimating the test statistics, as in Armour et al. (2017). All abnormal returns' outliers to a 90<sup>th</sup> percentile were excluded from the data, meaning that all data below the 5<sup>th</sup> percentile are set to the 5<sup>th</sup> percentile, and data above the 95<sup>th</sup> percentile are set to the 95<sup>th</sup> percentile. The sample is composed of the 61 daily listed companies which were victim of market manipulators' financial misconduct as mentioned in sanction reports of the AMF from 2005 to 2018.

$t$	Sanction Decision		Publication of the Sanction Decision	
	$CAAR_t$	$t-stat$	$CAAR_t$	$t-stat$
-1	-0.1%	-0.6	-0.3%*	-1.8
0	-0.1%	-0.3	0.0%	-0.1
-1	-0.3%	-0.9	-0.4%	-1.1
2	-0.7%*	-1.8	-0.2%	-0.5
3	-0.7%	-1.6	-0.2%	-0.4
4	-1.0%*	-1.9	0.0%	0.0
5	-1.0%*	-1.8	-0.4%	-0.7
6	-1.0%*	-1.7	-0.5%	-0.7
7	-1.2%*	-1.9	-0.6%	-1.0
8	-1.6%**	-2.2	-1.2%*	-1.9
9	-1.9%**	-2.6	-1.6%**	-2.3
10	-2.3%***	-2.9	-1.7%**	-2.3
20	-3.5%***	-2.8	-1.7%	-1.5
40	-5.4%***	-2.8	-3.8%*	-1.9

Sources: AMF, Thomson Reuters, Authors' calculations

Note: \*, \*\*, \*\*\* denotes statistical significance at the 10%, 5%, and 1% levels.

**Table 7: Cumulative Abnormal Returns for the Sanctions Involving Listed Companies as Victims for the Years 2011 and 2018**

This table reports the cumulative average abnormal returns (CAAR<sub>t</sub>) up to a specified day  $t$  in event time for the two last steps of the sanction procedure for two subsets of the sample: all the decisions which impacted listed companies as victim in 2011 (10 cases) and in 2018 (13 cases). In fact, in these years there were the highest number of victims, partly due to the fact that, in some cases, several firms were victims of a given breach investigated by the AMF (up to 40 victims for a given sanction procedure). Event time  $t$  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 augmented market model parameters, which are estimated with OLS through the period [-120;-11] in event time.

$t$	1) 2011 (10)				2) 2018 (13)			
	Sanction Decision		Publication of the Sanction Decision		Sanction Decision		Publication of the Sanction Decision	
	CAARt	$t$ -stat	CAARt	$t$ -stat	CAARt	$t$ -stat	CAARt	$t$ -stat
-1	0.8%	1.0	-0.1%	-0.2	-0.3%	-0.4	0.1%	0.1
0	1.5%	1.2	-0.6%	-1.1	-0.3%	-0.2	0.5%	0.5
-1	1.1%	0.8	0.2%	0.2	0.1%	0.1	-0.2%	-0.1
2	1.3%	0.8	0.1%	0.1	-0.6%	-0.3	-1.2%	-0.5
3	0.8%	0.5	0.5%	0.4	-1.6%	-0.6	-1.7%	-0.7
4	0.6%	0.3	1.0%	0.7	-2.1%	-0.8	-1.7%	-0.6
5	0.8%	0.5	1.1%	0.7	-2.1%	-0.8	-1.6%	-0.6
6	0.6%	0.4	1.8%	1.1	-2.1%	-0.7	-2.1%	-0.6
7	0.5%	0.3	1.1%	0.7	-2.6%	-0.7	-1.5%	-0.4
8	-0.2%	-0.1	0.4%	0.2	-2.1%	-0.5	-1.2%	-0.4
9	-0.1%	-0.1	0.2%	0.1	-1.7%	-0.6	-2.8%	-0.9
10	0.2%	0.1	0.2%	0.1	-3.4%	-1.1	-4.3%	-1.4
20	2.8%	0.9	1.9%	0.8	-6.8%	-1.4	-7.1%	-1.5
40	7.4%*	2.1	5.2%	1.2	-15.7%**	-2.4	-12.7%**	-2.2

Sources: AMF, Thomson Reuters, Authors' calculations

Note: \*, \*\*, \*\*\* denotes statistical significance at the 10%, 5%, and 1% levels.

**Table 8: Determinants of Abnormal Returns Following the Sanction Decision**

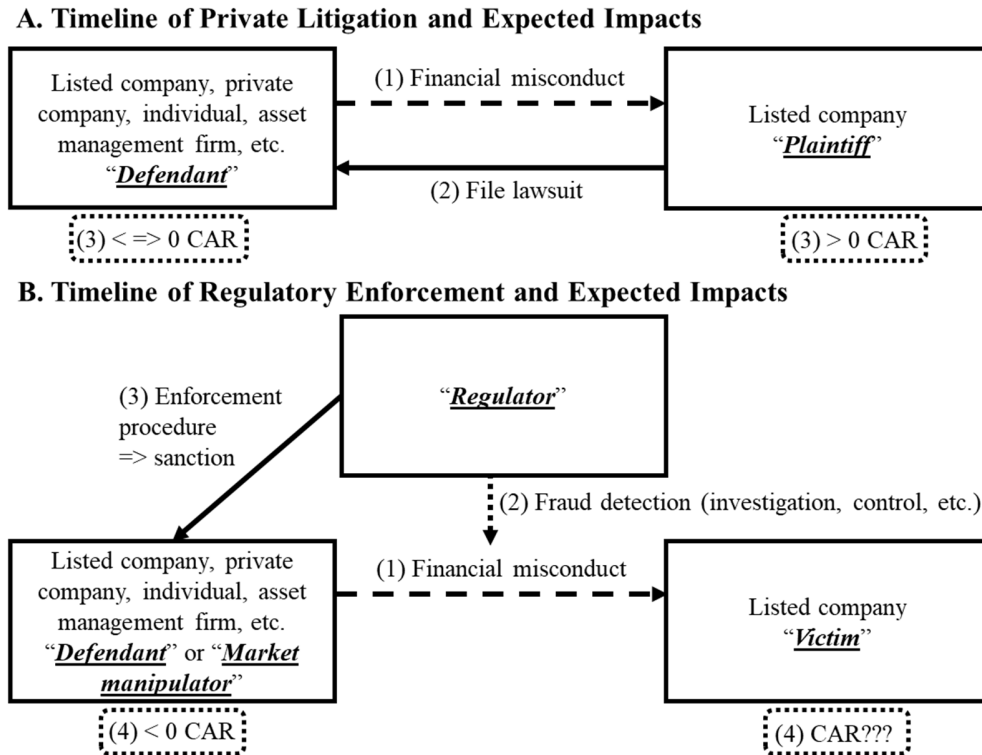
This table reports results from least squares regressions (using White-corrected standard errors) for specifications (5) (model 1), (6) (model 2), and (7) (model 3). The dependent variables are the Cumulative Abnormal Returns from one day before the publication of the sanction decision until 10 days following it:  $CAR_{i,[-1,+10]}$ , for  $i = 1, \dots, 61$ . Abnormal returns are computed using the market model. The sample is composed of the 61 victims mentioned in sanction reports of the AMF from 2005 to 2018 and were daily quoted all through the sanction procedure. A negative coefficient (as percentage) means a reduction in abnormal returns (a higher loss or a lower gain), and conversely for a positive coefficient.

	Model 1		Model 2		Model 3	
	Coef. <sup>1</sup>	RSE <sup>2</sup>	Coef. <sup>1</sup>	RSE <sup>2</sup>	Coef. <sup>1</sup>	RSE <sup>2</sup>
<b>Origin of the Sanction:</b>						
Investigation (not Control)	16.07***	(3.60)				
Transmission of Insider Information	-17.95***	(4.90)	-19.65***	(3.79)	-18.09***	(3.59)
<b>Characteristics of the Sanction Decision:</b>						
Acquittal	-6.01*	(3.32)				
Cash Fine (as log)					1.29***	(0.48)
Warning					6.69**	(2.79)
Blame	8.49**	(3.51)	10.73***	(2.05)	9.49***	(3.00)
Sanction Report Nb. of Pages	1.01***	(0.25)	1.36***	(0.25)	0.84***	(0.24)
First Publication Anonymized			-9.77***	(2.50)	-5.67***	(2.05)
Top Management Involvement	5.74**	(2.77)				
Sanctioned Public Firm			12.77***	(3.78)		
EC AMF Chairman (M.H. Tric)			-9.42***	(3.01)	-7.30**	(2.79)
<b>Appeals :</b>						
Number of Appealed Courts	-3.54**	(1.56)	-4.63***	(1.32)	-4.38***	(1.33)
<b>Media Coverage:</b>						
Media Coverage Intensity Before the Sanction			-84.04*	(46.23)		
<b>Time and Legal:</b>						
AMF Chairman G. Rameix	-6.17***	(2.14)				
Year 2011			-8.16***	(2.44)	-5.23*	(2.65)
<b>Characteristics of the Victims:</b>						
Technological Sector	-9.82**	(3.82)			-10.07**	(3.88)
Conso. Goods and Services Sector			6.35**	(2.38)		
<b>Constant</b>						
	-22.85***	(5.46)	-2.63	(3.21)	-6.42**	(2.51)
Observations	61		61		61	
R-squared	0.465		0.528		0.521	
Ramsey-test Prob > F	0.2773		0.205		0.1714	

Sources: AMF, Thomson Reuters, Authors' calculations

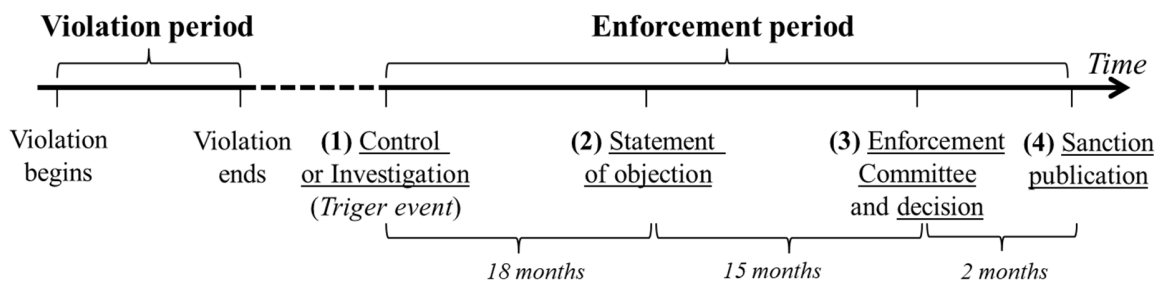
Notes: <sup>1</sup>As %; <sup>2</sup>RSE: White-Robust Standard Errors; \*, \*\* and \*\*\* denote statistical significance at the 10%, 5%, and 1% level.

**Figure 1: Comparison Between the Timelines for Private Litigation and Regulatory Enforcement and Expected Market Reactions**



Source: Author

**Figure 2: Timeline of an AMF Enforcement Action**



Sources: AMF, Author

## APPENDIX

### Detailed Methodology for Event studies

The event studies have been long used to challenge the information content of corporate news, called “events” (for example Dolley (1933), MacKinlay (1997), Campbell *et al.* (1997), and Kothari and Warner (2008)). The impact of each event is measured as the abnormal returns. For every “event”, the abnormality of daily returns is being tested over an 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 an estimation window preceding the event window. The abnormal returns consecutive to a given step of the procedure are taken as unbiased estimates of the total financial consequences of the event. For a firm  $i$ , over the period  $\tau$ , the abnormal returns are:

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

$AR_{i,\tau}$ ,  $R_{i,\tau}$ , and  $E(R_{i,\tau}/X_\tau)$  respectively capture abnormal, actual, and normal returns on the security  $i$  over  $\tau$ , given the conditioning information  $X_\tau$  for the normal performance model. Equity returns are defined as the daily log difference in value of the equity.

A market model augmented with a sectoral index describes the behavior of returns, to sort out, to the maximum possible extent, changes in returns caused by the “event” itself, from those caused by any other unrelated movement in prices: overall market effects or industry specific developments. This market model assumes a stable linear relation between the security return, the market return, and industry returns, as in Sharpe (1970) or Sharpe *et al.* (1995). The event is assumed exogenous with respect to the firm. It also hypothesises a jointly multivariate normal and temporally independent distribution of returns. For every security  $i$  of sector  $s$ , the augmented market model is in  $t$ :

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \gamma_i R_{s_i,t} + \varepsilon_{i,t}, \text{ with } E(\varepsilon_{i,t}) = 0 \text{ and } Var(\varepsilon_{i,t}) = \sigma_\varepsilon^2 \quad (II)$$

$R_{i,t}$ ,  $R_{m,t}$  and  $R_{s_i,t}$  are the returns in  $t$  respectively on the stock  $i$ , on the market portfolio, and on the sector portfolio  $s_i$  of company  $i$ .  $\varepsilon_{i,t}$  is the zero-mean disturbance term.  $\alpha_i$ ,  $\beta_i$ ,  $\gamma_i$ , and  $\sigma_\varepsilon^2$  are the parameters of the model.

Under general conditions, abnormal returns parameters ( $\hat{\alpha}_i$ ,  $\hat{\beta}_i$  and  $\hat{\gamma}_i$ ) are estimated for every event 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  $t$  of the event window, the deviation in an individual stock’s daily return (including reinvested dividends) from what is expected based on specification (II) (*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  $t$ :

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

$R_{i,t}$  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  $\alpha_i$ ,  $\beta_i$ , and  $\gamma_i$ , from specification (II) over the estimation window. Abnormal returns over the event window capture 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 a [-10;+120] event window, including the event day ( $t = 0$ ). This large event window questions potential anticipation by the market (following leakage of information over the days preceding the event for example), as well as the persistence over time of the price effect. Under the null hypothesis  $H_0$ , the “event” has no impact on the distribution of returns (mean or variance effect). Individual parametric t-statistics are calculated for each firm’s abnormal return, and for every event day.

Abnormal returns must be aggregated to draw overall inferences for the event of interest, through time and across individual firms. In fact, on a case-by-case basis, the statistical significance is difficult to detect because of the volatility in firms’ stock returns. Hence, abnormal returns are then cumulated over time ( $CAR_{i,[t_1;t_2]}$ ) and averaged across the  $n$  victims to get the Cumulative Average Abnormal Returns ( $CAAR_{[t_1;t_2]}$ ) over the period  $[t_1; t_2]$ , including the event (specification (IV)). All the events are treated as a group, for which p-value on the constant of the regression for every period gives the significance of the  $CAR$  across all sanctions, with robust standard errors.

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

Complementarily, for every firm  $i$ , the shareholders’ loss (or gain)  $SL_{i,[t_1;t_2]}$  is estimated over  $[t_1; t_2]$  by multiplying the market capitalization of the firm  $i$  on the day preceding the event  $(t_1 - 1) MV_{i,t_1-1}$  (in euros) by the cumulative abnormal returns over the period  $[t_1; t_2]$ :

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

Finally, 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 cumulative market value losses ( $SL_{i,[t_1;t_2]}$ ) across the sample of  $n$  victim firms (in euros):

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

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