ORIGINAL ARTICLE

When private information becomes fraud: evidence from Euronext Paris

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Abstract

This paper analyzes the financial and corporate governance characteristics of firms sanctioned for insider trading and disclosure irregularities on Euronext Paris between 2010 and 2022. We identify criteria that separate fraudulent firms from their peers and show that cash flow volatility and the absence of analyst coverage increase the likelihood of sanctions by the French market authority. Founder CEOs, family board chairs, and dual chair/CEOs are also more likely to be sanctioned for financial market abuses. However, we find that the level of family ownership does not affect the likelihood of sanctions, suggesting that top insiders are willing to extract private benefits at the expense of the company's long-term performance. Our results also indicate that most fraud firms get delisted within a few years of their sanction announcement. Although most surviving companies still have a dual family chair/CEO after their sanction, they include independent board members as recommended by the two French governance codes. Last, this study investigates whether sanctioned companies rely on earning management techniques such as income smoothing to hide their real performance from market participants. Our results show that sanctioned firms are actually less likely to use income smoothing activities. In addition, we find that financial analysts play a mixed role in improving public information disclosure. Although analyst coverage reduces the likelihood of sanctions and earnings smoothing activities, larger pools of analysts are also associated with a greater probability of sanction in family-controlled firms, suggesting that analysts tend to herd and fail to detect fraudulent activities.

Keywords Euronext sanctions · Governance code · Family chair/CEO · Analyst coverage · Income smoothing · Insider trading

Introduction

The effectiveness of the French Financial Market Authority (AMF) hinges on its capability to enforce security regulations. However, prior work (De Batz 2020) has cast doubt on its ability to regulate markets. We further prior work by identifying firm characteristics associated with AMF sanctions and investigating long-term consequences for sanctioned firms.

This study concentrates on non-financial French firms sanctioned for information irregularities and insider trading between 2010 and 2022. A large proportion of firms

that commit fraud on Euronext Paris are financial institutions and investment managers. However, the other sanctioned firms are usually smaller companies with powerful insiders, such as family owners and founder CEOs. In this paper, we analyze the corporate governance characteristics of nonfinancial firms that the AMF sanctioned for insider trading and breaches of public disclosure requirements. We also investigate the association between AMF sanctions and earnings smoothing activities.

Our results are threefold. First, we show that firms with fluctuating cash flows, family/founder CEOs, and without analyst coverage are more likely to be sanctioned for insider trading and information irregularities. Second, we find that income-smoothing activities are not associated with an increased likelihood of being sanctioned by AMF. Our study also highlights the role played by financial analysts in improving information disclosure. Analyst presence reduces the potential for sanctions, but larger pools of analysts seem

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unable to assess fraudulent activities in family-controlled companies.

Last, we examine the governance characteristics of sanctioned firms that were still publicly traded in 2023. Most of them are listed on Euronext Growth, which does not require any reference to a governance code. Although two-thirds of them are still managed by a dual chair/CEO, we find that these companies now clearly refer to a French corporate governance code (AFEP-MEDEF or MiddleNext) in their annual reports. However, we question the impact of AMF sanctions on market fraud deterrence since it takes an average of four years between the fraud event and the sanctioning announcement.

This paper is organized as follows. The second section reviews the existing literature linking securities laws, governance codes, information asymmetries, and corporate governance quality. It also discusses the impact of analyst coverage on public disclosure and reviews the correlation between corporate fraud and earnings management. Our third section concentrates on our sample construction and provides descriptive statistics. Our hypotheses and models are developed in the fourth section. We investigate three hypotheses matched with three logistic regression models to explain the likelihood of sanctions and its association with income-smoothing activities. Regression results are presented and interpreted in the fifth section of our paper. In the next section, we provide robustness checks by testing our results on all industry peers and family-controlled firms. In our seventh section, we examine the characteristics of sanctioned firms that did not get delisted from Euronext Paris and discuss the policy implications of current Euronext sanctions. The last section provides concluding remarks.

Securities laws and corporate governance codes

Securities laws and corporate governance codes differ across countries and generate significant differences in public disclosure and governance quality. La Porta et al. (2006) study the association between stock market development and securities laws and find that regulations emphasizing private enforcement benefit stock markets. In contrast, Jackson and Roe (2009) conclude that public enforcement is necessary for financial market development. Anand et al. (2019) compare insider trading laws in the USA and Canada and find significant differences in enforcement. Canada has a greater intensity of enforcement, but U.S. cases are more likely to result in settlements. Among civil law countries, France has the highest level of disclosure requirements, but it also has limited liability standards for recovering investor losses (La Porta et al. 2006). De Batz (2023) note that enforcement is always country-specific, with different weights given to public (higher in civil law countries like France) or private (conversely higher in common law countries like the U.S.A) enforcement. In addition, national cultures have an impact on internal control disclosure. Hooghiemstra et al. (2015) show that managers are more likely to disclose information in individualistic societies where reputation building is important. In contrast, managers in high uncertainty avoidance cultures will be reluctant to release voluntary information that can trigger legal consequences.

In France, financial abuses can be subject to administrative prosecution by the AMF or criminal prosecution by a public magistrate. The AMF has no power of arrest. De Batz (2020) show that stock markets do not react significantly to AMF sanctions, suggesting they are lenient and weakly enforced. Garrett et al. (2019) also find that corporate prosecutions do not sufficiently impact high-level decision-makers like CEOs and do not incentivize accountability at the top. However, Iwasaki (2020) emphasizes that even if individual wrongdoers escape prosecution, their wealth may be significantly reduced when their firm is sanctioned and suffers from reputational market losses.

Security laws have a significant impact on the detection of corporate fraud and the quality of public information disclosure. In France, De Batz (2023) report that, between 2004 and 2021, 28% of sanctions were for insider trading, 33% for breaches of public disclosure requirements, and the remaining part for breaches of professional obligations. In the U.S.A, Ghoshal et al. (2020) study the impact of SEC enforcement on insider information leakage to outsiders (Reg FD). They find that private information shared with outsiders is significantly reduced when the SEC is active in enforcing and escalating its sanctions. In addition, Call et al. (2018) indicate that whistleblower programs contribute to higher monetary penalties, longer prison sentences, and faster SEC enforcement in cases of financial misrepresentation.

The Sarbanes–Oxley Act (SOX) also led to significant changes in corporate reporting. Donelson et al. (2016) study firms that were not compliant with financial reporting rules before SOX and find that mandated increases in board independence significantly reduced their rate of fraud. Lawrence et al. (2021) show that regulatory changes such as SOX significantly impact corporate governance. However, they also cite the costs that SOX imposed on founding family firms instead of reducing the expropriation of minority shareholders. Corporate governance codes and voluntary disclosures also contribute to stock markets' transparency and expansion. Aggarwal et al. (2019) analyze mandated governance provisions in the USA and find they positively affect governance culture. In Europe, Akyol et al. (2014) find that governance codes have greatly improved since they started including SOX-like provisions. Assidi (2020) suggests that

French firms should combine good governance mechanisms with voluntary disclosure to attract investors.

Since 1995, AFEP (French Association of Large Companies) and MEDEF (Movement of the Enterprises of France) have published corporate governance recommendations that large publicly traded French firms usually adopt. However, as stated in the 2016 AMF study of corporate governance codes in Continental Europe, three countries (France, Spain, and Italy) make implementing the code voluntary and follow a "comply-or-explain" principle. AFEP-MEDEF released their latest code version in 2022. It emphasizes that independent directors should account for half the board members in widely held corporations and at least a third of board members in controlled companies. Another corporate governance code, MiddleNext, was introduced in 2009 for small and medium companies. While 100% of CAC 40 firms use the AFEP-MEDEF governance code, only 37% of CAC small firms choose this code. SMEs often choose the MiddleNext governance code instead since it is more flexible than the AFEP-MEDEF code and recognizes the dominant roles of family owners/founders as shareholders, managers, and directors (Gomez 2015; MiddleNext 2021). It is also used by firms traded on Euronext Growth, even though they are not legally asked to refer to a corporate governance code.

Another specificity of the French governance structure is that it allows firms to choose between a unitary board and a two-tier board structure. One-tier boards consist of a chairman (who can also be the CEO) and a board of directors. Two-tier boards rely on two structures: a supervisory board with a chairman and directors and a management board (with a maximum of 5 members) where the chairman is often the CEO. Although two-tier boards delineate the directors' responsibilities, their structure is often motivated by political reasons and may lead to directors' entrenchment. Consequently, directors' independence is more difficult to assess in this setting and is addressed differently in the AFEP/MEDEF and Middlenext governance codes. Millet-Reyes and Zhao (2010) also show that ownership and board structures are used together as corporate governance tools. Their findings indicate that French institutional shareholders play a positive role as monitors of one-tier structures but are more likely to misuse the two-tier board system by promoting interlocked directorship, board opacity, and their interests as creditors.

Corporate governance of fraudulent firms

The existing literature provides overwhelming evidence that corporate governance characteristics impact the potential for corporate fraud. Several studies focusing on the USA emphasize the role played by board and ownership structures in fraud cases. Uzun et al. (2004) use a sample of US companies accused of committing fraud and find it is correlated with the absence of audit or compensation committees coupled with a lack of independent members on these committees. Agrawal and Chadha (2005) analyze companies that had to restate their earnings and conclude that the probability of restatement is higher in firms whose CEO belongs to the founding family. Fich and Shivdasani (2007) focus on fraud-affiliated directors and show they are likelier to lose directorships at firms with strong corporate governance.

In contrast, Agrawal et al. (1999) find that the revelation of fraud does not increase the net benefits of changing the firm's leadership structure. Farber (2005) also shows that sanctioned companies have the same board characteristics as non-fraudulent firms three years after their financial statement manipulation event. In addition, Marciukaityte et al. (2006) report that, after accusation of fraud, firms increase board independence and committee monitoring, resulting in long-term stock price performance similar to that of non-fraudulent companies.

Recent empirical studies provide more international evidence on the association between board structure, directors, and corporate fraud. Hoberg and Lewis (2017) find that fraudulent firms issue abnormal text disclosure and that top managers discuss fewer details about the firm's performance in their 10-Ks in order to hide fraud and maintain access to capital. Dimungu-Hewage and Poletti-Hughes (2023) provide international evidence that family firms are more likely to commit fraud, but they conclude that board diversity can mitigate this issue. In contrast, Salleh and Othman (2016) do not find any association between board size, CEO duality, and corporate fraud in Malaysia. However, they suggest that the frequency of board meetings can be used to deter fraudulent behavior. Gam et al. (2021) study the scheduling of annual general meetings in South Korea and show that firms clustering their meetings around popular dates are more likely to commit corporate fraud.

Family firms and information disclosure

Anderson et al. (2009) define family firms as companies with founders or heirs still present as shareholders, directors, chair(s) of the board(s), or CEO. Family firms may be less sensitive to market scrutiny and minority shareholders' pressure to improve corporate governance. In addition, family/founder CEOs can have incentives to prioritize their extraction of private benefits by exploiting information asymmetries. The existing literature reaches mixed conclusions on the association between family ownership and public disclosure quality.

On the one hand, Mullins and Schoar (2016) note that founders and CEOs of firms with greater family involvement also have a broader stakeholder focus. Prencipe et al. (2011)

show that family CEOs emphasize the firm's long-term horizon and are less sensitive to short-term earnings targets. Fan and Yu (2022) study related party transactions and find that shareholder expropriation is decreased when family members act as a firm's controlling decision-makers. Achleitner et al. (2014) show that in Germany, family-controlled firms use earnings management activities to retain transgenerational control, but avoid earnings manipulation that jeopardizes the firm's long-term survival. Several existing studies (Ali et al. 2007; Wang 2006) also report better disclosure practices for family firms. Khalil et al. (2023) show that family firms are less likely to receive an SEC comment letter for poor tax disclosure. Chen et al. (2014) also find that financial conservatism increases with family ownership.

On the other hand, founders and family CEOs may be seen as expropriators of shareholders' wealth who protect their interests through opaque decision-making. Earning management may be used by families and their CEOs to hide their extraction of private benefits or to meet analysts' and shareholders' expectations (Yang and Abeysekera 2019). Gopalan and Jayaraman (2012) study twenty-two countries and show that insider-controlled firms operating in low investor protection countries are associated with more earnings management. They find that the extent of earnings management within insider-controlled firms is increasing in the extent of divergence between cash-flow rights and control rights. Family firms can also increase their private benefits through concentrated board power and by appointing family members to serve as CEO and/or chair of the board. Li and Srinivasan (2011) show that boards with founder directors offer greater financial incentives to their CEOs than other firms. Stockmans et al. (2013) argue that a higher proportion of outside directors and CEO non-duality can constrain earning management in family firms when agency conflicts exist.

Analyst coverage and insider trading

Existing studies provide contradictory results on the association between analyst coverage and ownership structure. DeFond and Hung (2007) indicate that analyst forecasts can be useful in countries with weak investor protection. However, Boubaker and Labégorre (2008) find a negative association between analyst following and concentrated control in France, a civil law country where investor rights are usually limited compared to common law countries. Millet-Reyes (2018) also show that financial analysts are more likely to follow French IPOs with large institutional investors since they usually promote good corporate governance practices. Lehmann (2019) study corporate governance analyst coverage in the UK and find that they respond positively to board independence, market liquidity, and broader institutional ownership.

The association between analyst coverage and information quality is difficult to assess. On the one hand, Eugster (2019) find that analyst forecasts are more accurate for Swiss family firms when fewer analysts follow these companies. The author suggests that it is because the interests of minority and majority owners are better aligned in family-controlled firms. Kim and Lim (2017) examine the relationship between earnings comparability and information asymmetry and find that this association is stronger in big companies with large analyst coverage. Yu and Wang (2018) also indicate that Asian firms with good governance ratings have better analysts' earnings forecasts, especially in countries with strong investor protection. On the other hand, Ulupinar (2018) find that analysts provide biased research because it is demanded by entrenched managers who do not act in the shareholders' best interests. In fraud cases, Black et al. (2021) note that adding too many specialists has a negative effect. They conclude that herding among specialists impair their ability to detect fraud. Fei (2022) also find that firms redacting information from public disclosure have a higher analyst following since their investors demand more analyst outputs.

Insider trading may also be dependent on the firm's ownership structure. According to Demsetz (1986), CEOs from family-owned firms earn greater profits on their trading than CEOs without family control. Anderson et al. (2012) study short sales from founder and heir-controlled firms and find that informed trading accounts for a large percentage of their short selling. In their paper, private benefits are generated when informed traders of family firms use negative news to earn abnormal returns. The authors suggest insider trading regulations are less effective in family-controlled firms than non-family-controlled firms. Cline et al. (2017) also show that persistent insider trading profitability is more pronounced for managers rather than large shareholders and for firms with weaker corporate governance and greater information asymmetries. Li et al. (2016) find that the likelihood of IPOs securities fraud allegations is higher when CEOs receive abnormal equity incentives, have longer tenure, and are also founders. De La Brunière et al. (2020) study insider trading in France and show that management insiders outperform directors' abnormal returns. Wang et al. (2012) compare the returns of CEOs and CFOs and find that CFO purchases are associated with more positive future earnings surprises than CEO purchases.

Data

Sample construction and methodology

Our sample started with all firms and individuals (245 sanctions) sanctioned by AMF (Financial Markets Authority for

Table 1 Corporate governance of sanctioned firms

Sanction	Euronext	Fraud Period	Sanction Year	Board Type	Family CEO	Family Chair	Listing status as of 2023
#1	C	2006–2009	2010	One-tier	Yes*	Yes*	Delisted in 2013
#2	C	2010–2012	2014	One-tier	Yes*	Yes*	Delisted in 2013
#3	C	2011–2011	2014	Two-tier	Yes	No	Delisted in 2023
#4	C	2009–2011	2014	One-tier	Yes*	Yes*	Euronext growth
#5	B	2012–2012	2014	One-tier	No	No	Delisted in 2022
#6	C	2011–2012	2015	One-tier	Yes*	Yes*	Delisted in 2014
#7	B	2011–2012	2015	Two-tier	No	Yes	Delisted in 2017
#8	B	2013–2013	2016	One-tier	Yes*	Yes*	Euronext B
#9	ALT	2013–2014	2017	One-tier	No	Yes	Euronext growth
#10	A	2014–2014	2019	One-tier	Yes*	Yes*	Delisted in 2021
#11	C	2014–2015	2018	One-tier	Yes*	Yes*	Euronext growth
#12	C	2013–2014	2018	One-tier	Yes*	Yes*	Delisted in 2014
#13	A	2013–2016	2019	Two-tier	No	Yes	Delisted in 2018
#14	C	2014–2014	2019	One-tier	Yes*	Yes*	Delisted in 2021
#15	C	2015–2015	2020	One-tier	Yes*	Yes*	Euronext growth
#16	A	2013–2015	2020	One-tier	No	No	Delisted in 2023
#17	B	2014–2016	2020	Two-tier	Yes	Yes	Delisted in 2016
#18	B	2017–2018	2021	One-tier	No	No	Euronext A
#19	B	2017–2018	2022	One-tier	Yes*	Yes*	Euronext B

(*) when combined chair/CEO

The sample includes 19 firms sanctioned by AMF (Financial Markets Authority for Euronext Paris) for breaches of information requirements or insider trading. Each sanction includes the firm's Euronext trading compartment, years of fraudulent activity, and the year the firm was officially sanctioned. Board type indicates whether the firm has a unitary or two-tier board structure. Family CEO indicates if the firm has a family/founder CEO. Family Chair indicates if the board chair is a family member. Listing status provides the trading status of the firm by the end of 2023

Euronext Paris) for insider trading, market manipulation, and public disclosure irregularities between 2010 and 2022. During this period, financial institutions and/or investment professionals accounted for 56% of Euronext sanctions (137 observations) and were excluded from this study. In addition, AMF did not include the names of individuals and firms involved in 82 sanctions. Last, because of delisted status, Bloomberg information was unavailable for 7 of the 26 sanctions imposed on non-financial firms. Our final sample consists of nineteen sanctions imposed on non-financial firms and their top managers between 2010 and 2022. Appendix 1 provides details on sanction types, involved parties, and monetary sanctions. Among these 19 sanctions, 15 firms were sanctioned for breaches of information requirements, and 6 cases included insider trading. In 12 of the 19 sanctions, the CEO was also involved. Almost all disclosure irregularities consisted of hiding poor operational results and minimizing poor business growth from the public and financial analysts. This scenario is consistent with the conclusions of Hoberg and Lewis (2017) who find a link between US fraudulent firms and the under-reporting of accounting performance by managers. They suggest that fraudulent managers have incentives to conceal details that may increase fraud detection and that they grandstand growth and performance to increase the impact of their manipulation.

The investigation process followed by AMF consists of three main stages (De Batz 2020): initial internal investigation, the official letter sent to the firm, and final sanction. An average of two years takes place between the period under investigation and the letter received by the firm, and an average of 3 years elapses between the letter and the (potential) sanction. In our sample, we include a time period starting two years before and ending one year after the fraud occurred (but before the firm was notified by the AMF letter).

Next, we use a propensity score matching process (per industry, sanction year, and Euronext compartment) to select one non-fraudulent peer for each sanctioned firm. Euronext compartments are included in the matching process to proxy for public information requirements and corporate governance codes.[1] This process creates a balanced panel of 170 observations (85 for fraudulent firms and 85 for their peers).

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[1] https://www.euronext.com/en/raise-capital/how-go-public/choosing-market

Table 2 Descriptive statistics for balanced panel

Variable	Min	25%	Mean	75%	Max	Median Full Sample	Median Fraud = 1	Median Fraud = 0	Median Fam < 50%	Median Fam > = 50%
Sales	1.1	40.8	4255	900.5	75,006	189	151.5	231.4	217.5*	183.6*
Assets	4.8	50.6	10,529	1069.9	278,941	259	220.4	304.4	357.4	235.3
Debt	0	0.047	0.169	0.215	1.019	0.123	0.157	0.108	0.124	0.114
PM	− 18.467	− 0.025	− 0.551	0.065	1.625	0.022	0.005*	0.030*	0.02	0.029
ROA	− 1.16	− 0.021	− 0.033	0.046	0.357	0.018	0.009*	0.028*	0.014	0.027
CF	− 1.191	0.016	0.027	0.093	0.309	0.053	0.041*	0.061*	0.056	0.051
SDCF	0.003	0.015	0.056	0.1	0.269	0.034	0.042*	0.031*	0.034	0.042
Fam %	0	12.4	42.7	62.7	90.1	51.6	51.6	59.3	12.4*	62.7*
Smoothing	0.108	0.34	1.137	1.086	22.995	0.584	0.760*	0.471*	0.585	0.471
Analyst	0	0	5.6	7	26	2	1	2	1	2
Observations						170	85	85	82	88

Sales and assets are reported in millions of Euros

(*) Non-parametric Wilcoxon tests report a Pr > ChiSq lower than 0.05

Table 2 presents descriptive statistics of the balanced panel. Sales are the total sales measured in millions of Euros. Assets equal the total assets in millions of Euros. Debt equals long-term debt divided by assets. PM is the profit margin defined as net income divided by sales. ROA is the return on assets defined as net income divided by assets. CF is equal to cash flows from operating activities divided by assets. SDCF is the standard deviation of CF. Fam % is the percentage of family/founder ownership. Smoothing is the standard deviation of net income divided by the standard deviation of operating cash flows. Analyst is the number of analysts following the firm

Table 1 provides corporate governance characteristics for the 19 sanctioned firms. A large proportion of these companies (85%) include a family member or founder as board chair or CEO. Fifty-five percent of the fraudulent firms have a unitary board structure with a combined family chair/CEO. Twenty-five percent of sanctioned firms have a two-tier board structure, which is a much higher proportion than the 5% reported for CAC 40 firms, but closer to the 20% reported for CAC small companies (Deloitte 2015). In our sample, 80% of these two-tier firms have a family member chairing the Supervisory board, and 60% of them have a family/founder CEO. Information on directors' independence was unavailable for the early sample years, so we assume that the level of family ownership and the CEO/chair status (family or non-family) are inversely correlated to board independence.

Table 1 also reports the Euronext compartments where sanctioned firms were listed when fraud occurred. They include the following categories: A for large caps, B for medium caps, C for small caps, and ALT for Alternext (now called Euronext Growth). At the time of fraud, 45% of sanctioned firms were traded on compartment C or Alternext (which has lower listing requirements). As of December 2023, 13 of the 19 sanctioned firms were delisted. We provide more information on the "surviving" firms in Sect. 6.

Descriptive statistics

Univariate statistics are reported in Table 2, and variable definitions are provided in Appendix 2. Non-parametric

Wilcoxon tests are run on the two fraud categories (their statistical significance at the 5% level is indicated by *). Results indicate that sanctioned firms are smaller (Sales and Assets) and less profitable (PM, CF, and ROA) than their peers. In addition, fraudulent companies generate more cash flow volatility (SDCF) but do not smooth their income as much as their peers. Family ownership and analyst coverage are also similar for these two categories, with an overall median of 51.6% for family control and two analysts per firm. Last, we divide the sample based on family control (greater or less than 50%). Our results do not find any statistical difference between these two subcategories, except for Sales.

Table 3 provides Pearson correlations for variables measuring sales, assets, leverage, performance, family ownership, income smoothing, and analyst coverage (p-values are below correlation coefficients). Results show that firm size (measured by Sales and Assets) is associated with less cash-flow volatility but greater income smoothing activities. In contrast, family ownership is correlated with smaller firm size and lower analyst coverage. Last, we can see that analyst following increases with firm size, profitability, and reduced cash-flow volatility.

Hypotheses and models

We develop three hypotheses regarding the corporate governance characteristics of sanctioned firms and their potential to use earnings management techniques. The first hypothesis (H1a and H1b) tests whether family/founder

Table 3 Pearson's correlation coefficients for balanced panel

	Sales	Assets	Debt	PM	ROA	CF	SDCF	Fam	Smoothing	Analyst
Sales	1.000									
Assets	0.971 (<.001)	1.000								
Debt	0.030 (0.694)	0.024 (0.758)	1.000							
PM	0.075 (0.331)	0.054 (0.484)	−0.572 (<0.001)	1.000						
ROA	0.103 (0.181)	0.069 (0.374)	−0.581 (<0.001)	0.788 (<.001)	1.000					
CF	0.063 (0.417)	0.033 (0.667)	-0.585 (<.001)	0.824 (<.001)	0.756 (<.001)	1.000				
SDCF	−0.274 (<0.001)	−0.217 (0.004)	0.225 (0.003)	−0.600 (<.001)	−0.613 (0.001)	−0.590 (0.001)	1.000			
Fam	−0.451 (<.001)	−0.343 (<.001)	−0.017 (0.825)	−0.076 (0.323)	−0.016 (0.832)	−0.057 (0.463)	0.064 (0.268)	1.000		
Smoothing	0.144 (0.060)	0.164 (0.033)	0.103 (0.183)	−0.089 (0.249)	−0.182 (0.017)	−0.148 (0.054)	−0.111 (0.148)	−0.031 (0.693)	1.000	
Analyst	0.616 (<.001)	0.476 (<.001)	0.114 (0.139)	0.075 (0.329)	0.178 (0.020)	0.147 (0.057)	−0.398 (<.001)	−0.463 (<.001)	0.024 (0.752)	1.000

Table 3 provides the Pearson correlations for the balanced panel, which is composed of 170 observations. Sales equals the total sales measured in millions of Euros. Assets equal the total assets in millions of Euros. Debt equals long-term debt divided by assets. PM is the profit margin defined as net income divided by sales. ROA is the return on assets defined as net income divided by assets. CF is equal to cash flows from operating activities divided by assets. SDCF is the standard deviation of CF. Fam % is the percentage of family/founder ownership. Smoothing is the standard deviation of net income divided by the standard deviation of operating cash flows. Analyst is the number of analysts following the firm. The p-value for each correlation is in parentheses

CEOs and large family owners are more likely to extract private benefits from their firm through insider trading and private information irregularities. We also investigate whether analyst coverage reduces the likelihood of fraud by improving public disclosure quality.

H1a Family/founder CEOs and board chairs increase the likelihood of fraud

H1b Analyst following reduces the likelihood of fraud

In order to test H1, we construct a logistic regression model where the probability of sanction (variable FRAUD) is equal to one for sanctioned firms and equal to zero for their non-sanctioned peers. This logistic model aims to identify financial factors and corporate governance characteristics that differentiate sanctioned firms from their peers. The following explanatory variables are used in our logistic regression model. First, we measure insider control by including the level of family/founder ownership and adding two dummy variables for family CEO/chairs and dual chair/CEO positions. We also include a dummy variable to measure the impact of analyst presence (coverage) and investigate whether larger analyst following (Analyst) improves information quality and reduces the likelihood

of sanctions. Next, we measure corporate performance by including the following variables: sales growth (Lsales), ROA, long-term debt ratio (Debt), and the standard deviation of operating cash flows (SDCF). We hypothesize that firms with fast growth and uncertain cash flows may be more likely to hide their real performance from markets and outside investors. Model 1 also includes industry and year-fixed effects and clusters standard errors by industry codes (at the two-digit level), as emphasized by Affes and Jarboui (2023). Model 1 takes the form:

$$
\begin{aligned}
\text{Logit}(\text{FRAUD}) = \ & \alpha + \beta_1 \text{Lsales} + \beta_2 \text{ROA} \\
& + \beta_3 \text{Debt} + \beta_4 \text{SDCF} \\
& + \beta_5 \text{Fam} + \beta_6 \text{Coverage} \\
& + \beta_7 \text{Analyst} + \beta_8 \text{Dual} \\
& + \beta_9 \text{Chair} + \text{Industry Dummies} \\
& + \text{Year Dummies}.
\end{aligned}
$$

(Model 1)

The second hypothesis, H2 (H2a and H2b), investigates whether earnings management is motivated by the same financial and corporate governance characteristics as fraudulent behavior. We also focus on the impact that insider control (measured by family ownership and family chair/CEO positions) and analyst coverage have on income smoothing activities.

H2a Family/founder CEOs and board chairs increase the likelihood of earnings smoothing

H2b Analyst following reduces the likelihood of earnings smoothing activities

H2 is tested with Model 2. We pool sanctioned firms and their peers together to provide a baseline model for our income-smoothing behavior model. One form of earnings management, income smoothing, consists of accrual-based techniques reducing the variability of earnings reported in financial statements. Less income smoothing is associated with higher earnings quality and greater financial transparency. In Model 2, we create a variable SMOOTH that takes a value of 1 when the variable Smoothing is less than 1. The variable Smoothing is constructed as the standard deviation of net income divided by the standard deviation of operating cash flows. When Smoothing is less than one, it can be assumed that earnings management mechanisms are used to smooth reported income. Income smoothing may not have a long-term effect on the firm, but it affects the quality of public disclosure available to outside investors and can hide the extraction of private benefits by insiders. It differs from real earnings management (REM), which often impacts future cash flows. Boujelben et al. (2020) report that French companies manipulating their earnings upward adversely affect the value relevance of current cash flows for predictive purposes. Model 2 uses the same explanatory variables as Model 1. Model 2 takes the form:

$$
\begin{aligned}
\text{Logit}(\text{SMOOTH}) = {} & \alpha + \beta_1 \text{Lsales} + \beta_2 \text{ROA} \\
& + \beta_3 \text{Debt} + \beta_4 \text{SDCF} \\
& + \beta_5 \text{Fam} + \beta_6 \text{Coverage} \\
& + \beta_7 \text{Analyst} + \beta_8 \text{Dual} \\
& + \beta_9 \text{Chair} + \text{Industry Dummies} \\
& + \text{Year Dummies}
\end{aligned}
$$
$$\text{(Model 2)}$$

Our third hypothesis, H3, tests whether firms using income smoothing techniques are also more likely to be sanctioned for insider trading and information irregularities.

H3 Income smoothing activities increase the likelihood of AMF sanctions

Model 3 takes the form:

$$
\begin{aligned}
\text{Logit}(\text{FRAUD}) = {} & \alpha + \beta_0 \text{SMOOTH} + \beta_1 \text{Lsales} + \beta_2 \text{Market} + \beta_3 \text{Coverage} \\
& + \beta_4 \text{Analyst} + \beta_5 \text{Debt} + \beta_6 \text{ROA} + \beta_7 \text{SDCF} + \beta_8 \text{Fam} \\
& + \beta_9 \text{Chair} + \beta_{10} \text{Dual} + \text{Industry Dummies} + \text{Year Dummies}
\end{aligned}
$$
$$\text{(Model 3)}$$

Table 4 Logistic regression results for balanced panel

	Dependent variable:		
	FRAUD	SMOOTH	FRAUD
	Model (1)	Model (2)	Model (3)
SMOOTH			−2.279**
			1.124
Lsales	1.670***	−0.556	1.775**
	0.540	0.376	0.439
ROA	−11.877	8.316***	−14.364
	8.635	3.010	9.556
Debt	10.984*	2.384	13.719**
	6.175	2.466	6.681
SDCF	0.502*	0.189	0.725**
	0.275	0.140	0.284
Fam	0.007	0.016	0.010
	0.023	0.021	0.021
Coverage	−2.078**	1.339	−1.900***
	0.816	0.975	0.574
Analyst	−0.127	−0.012	−0.104*
	0.106	0.127	0.056
Dual	2.954***	−2.074*	2.799***
	1.007	1.205	0.863
Chair	2.063**	−0.344	2.639***
	0.914	0.490	0.954
Constant	−14.474***	5.395	−15.411***
	4.821	3.930	3.118
Observations	170	170	170
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Likelihood ratio	97.88	59.61	108.58
Pr > Chi-square	<0.0001	<0.0001	<0.0001
Pseudo R-square	0.584	0.423	0.629

Significance levels: *$p < 0.1$; **$p < 0.05$; *** $p < 0.01$

Table 4 presents the logistic regression results for the balanced panel. FRAUD is a dummy variable equal to one for sanctioned firms and equal to zero for their non-sanctioned peers. SMOOTH is a dummy variable equal to one when the standard deviation of net income divided by the standard deviation of operating cash flows is greater than one and equal to zero otherwise. The independent variables are as defined in Appendix 2. Standard errors are clustered at the two-digit industry level

Regression results

Logistics regression results for our three models are reported in Table 4. Model 1's results support H1a and H1b and show that the likelihood of being sanctioned increases significantly when firms are growing faster than their peers, hold more debt, and have higher cash-flow volatility. Our findings also indicate that companies with a family/founder CEO, family board chair, or dual chair/CEO position are more likely to be sanctioned for fraudulent activities. This result complements De Batz (2020), which finds that sanctioned firms have larger negative abnormal stock returns when top management is involved. Our results show that inside CEOs and chairs have incentives to extract private benefits when their interests are not aligned with shareholders' objectives. However, the level of family ownership by itself does not increase the likelihood of fraud. Our matched sample size is too small to measure the impact of full family control (greater than 50% of ownership), but we include additional tests in our robustness checks section. Our findings about the role of family ownership are actually compatible with the conflicting evidence found at the international level. On one hand, Fan and Yu (2022) show that family involvement reduces suspicious related party transactions in China. On the other hand, Dimungu-Hewage and Poletti-Hughes (2023) argue that family firms are more likely to commit fraud in weak regulatory systems.

Our results also indicate that analyst coverage significantly reduces the potential for sanctions, suggesting that it improves public disclosure quality. This is consistent with the findings of Lehmann (2019) who show that corporate governance analysts promote external monitoring and information dissemination in the UK.

Model 2 results reject H2a and H2b since corporate governance characteristics related to family and analyst involvement do not impact the likelihood of income smoothing activities. The sample includes 121 observations with smoothing activities (SMOOTH = 1) and 49 without smoothing activities. Model 2's likelihood ratio is 59.6, which is not as good a fit as Model 1 (likelihood ratio of 97.9). Our results show that firms are more likely to use earnings smoothing techniques when they are profitable. These findings contradict the conclusions of Beneish et al. (2013), who use the accounting-based manipulation model (M-score) to characterize earnings manipulators. They show that the profile of a typical earnings manipulator is a company that is growing quickly and is experiencing deteriorating fundamentals (eroding profit margins and increased leverage). We also find that family owners and board chairs do not have a significant impact on the likelihood of income smoothing activities. However, firms with a dual/CEO position reduce the potential for income smoothing, which may

be explained by the CEO's better alignment with the firm's objectives. Li and Kuo (2017) explain that the positive association between CEO and earnings manipulation can actually be mitigated by using equity incentives when firms have good growth opportunities.

Results for Model 3 show that the regression fit is improved (likelihood ratio is 108.6) when the variable SMOOTH is added to the FRAUD model. However, our results clearly reject H3 since they indicate that income smoothing activities are associated with a lower likelihood of AMF sanctions. All other explanatory variables generate results similar to Model 1. Model 3's findings suggest market sanctions and earnings management activities are not always correlated. Market sanctions target firms and their top managers who try to expropriate wealth from minority shareholders. In contrast, income smoothing activities do not impact the firm's real performance or survival but decrease public disclosure quality. These findings contradict the results of Beneish and Vargus (2002), who argue that earnings manipulation can be predicted by looking at insider trading activities.

Robustness checks

We provide robustness checks by including all industry peers in our sample instead of only one matched peer per firm. The unbalanced panel now has 520 observations (85 fraud and 435 non-fraud observations). Univariate statistics are presented in Table 5. Non-parametric Wilcoxon tests indicate that, in the unbalanced sample, non-fraud firms have more debt, are more profitable, and smooth their earnings more than sanctioned firms. These univariate statistics are similar to those of the matched sample (except for debt). Again, family ownership is not significantly different between the fraud and non-fraud firms. Since our sample size is now larger, we can now test Model 3 on the unbalanced panel as well as on two subcategories based on family control (greater or lower than 50%).

Logistic regression results for Model 3 are presented in Table 6. The use of the unbalanced sample generates a lower likelihood ratio than the matched sample (72.3 instead of 108.8). In addition, although most coefficient estimates have similar values and signs, they generate lower statistical significance than for the matched sample. We also note that analyst following has a mixed impact on fraud. Analyst presence decreases the likelihood of sanctions, but larger pools of financial analysts do the opposite. This result is consistent with those of Black et al. (2021), who note that in fraud cases, large pools of analysts tend to herd and rely on biased information, thus increasing their inability to illuminate fraud.

Table 5 Univariate statistics

Variable	Balanced Sample	Unbalanced Sample	Fraud = 1	Fraud = 0	Fam < 50%	Fam > = 50%
Sales	189	163	151.5	163.5	155	170
Assets	259	157	220.4	154.7	128	170.1
Debt	0.123	0.080	0.157*	0.074*	0.069*	0.086*
PM	0.022	0.026	0.005	0.028	0.021*	0.036*
ROA	0.018	0.026	0.009*	0.028*	0.020*	0.029*
CF	0.053	0.055	0.041*	0.057*	0.051	0.057
SDCF	0.034	0.034	0.042*	0.033*	0.033	0.036
Fam	51.6	50.6	51.6	50.2	14.4*	61.7*
Smoothing	0.584	0.661	0.76*	0.645*	0.727*	0.651*
Analyst	2	1	1	1	1	1
Observations	170	520	85	435	252	268

(*) Non-parametric Wilcoxon tests report a Pr > ChiSq lower than 0.05

Table 5 presents univariate statistics for the balanced and unbalanced samples. The variables are as defined in Appendix 2. The first column compares the balanced sample with the unbalanced sample. The second column compares the sanctioned firms with the unsanctioned firms. The third column compares the firms with less than 50% family ownership with firms with 50% or greater family ownership

Next, we split the unbalanced sample based on family control (less or greater than 50%) and run Model 3 on each category. The regression fit for these two subsamples is actually better than the whole unbalanced sample. Although family ownership (as a continuous variable) did not have any impact on our previous findings, the sample split allows us to investigate whether full family control modifies the association between sanctions, financial performance, and corporate governance characteristics. First, we find that both subcategories generate statistically positive coefficients for the dual chair/CEO variable, confirming that family/founder CEOs have strong incentives to prioritize their interests at the expense of shareholders. In addition, we find that firms with lower family shareholdings benefit from analyst presence by reducing the potential for sanctions. In contrast, large pools of financial analysts are associated with an increased likelihood of sanctions, suggesting that they are unable to detect fraud in companies fully controlled by families/founders.

Surviving firms characteristics and governance implications

Table 7 summarizes corporate governance characteristics for the six sanctioned firms that were still listed on Euronext Paris as of December 2023. In their annual reports, most of them clearly adopted one of the two governance codes used in France (AFEP-MEDEF or MiddleNext) and used the "comply or explain" principle for missing governance mechanisms. In addition, except for one company that became a limited partnership, all of our surviving firms now have a unitary board and the minimum number of independent directors recommended by French governance codes (one-third of directors for family-owned companies and 50% of directors for widely held firms). These results are compatible with the findings of Goktan et al. (2018), who study governance features that determine a firm's exit. They show that firms with less independent boards and management teams with large shareholdings are more likely to go private.

Table 7 also highlights changes in ownership characteristics after fraud. Family ownership dropped from an average of 26% in 2018 to 12% in 2023. In addition, French and foreign institutional investors now account for 13% of shareholdings, which is usually associated with improved governance and disclosure quality. However, 50% of our surviving companies still have a family member or founder as dual chair/CEO, which may limit transparency and maintain private benefits for these powerful insiders.

Last, we note that four out of our six surviving firms are traded on Euronext Growth, which only requires two years of financial statements and allows firms to choose between IFRS and GAAP rules. In addition, these companies use local auditors instead of Big Four auditing firms. The hiring of a Big Four auditing team can signal that controlling shareholders (such as families) are ready to align their interests with those of minority investors. However, De Carvalho Pereira et al. (2023) show that concentrated ownership tends to discourage hiring Big Four auditors, especially in countries with weak legal protection. In addition, changing an auditing team has a high cost and often leads to more mistakes in the first-year audit (De Jong et al. 2020).

The profiles of our surviving firm characteristics support the conclusions of Arcot and Bruno (2018) who show that firms with a dominant shareholder are less likely to comply with corporate governance standards and provide good disclosure to minority investors. However, they also find that

Table 6 Logistic regression results for unbalanced panel

	Dependent variable:			
	FRAUD			
	Fam >= 50%	Fam < 50%	Unbalanced	Balanced
SMOOTH	1.458	− 1.412*	− 0.216	− 2.279**
	1.336	0.793	0.738	1.124
Lsales	− 0.181	0.998***	0.092	1.775**
	0.265	0.364	0.275	0.439
ROA	− 12.589***	− 0.332*	− 0.071	− 14.364
	4.627	0.188	0.176	9.556
Debt	− 1.042	0.289	0.200	13.719**
	4.775	0.344	0.226	6.681
SDCF	0.147	0.022	0.006	0.725**
	0.115	0.027	0.031	0.284
Fam			− 0.011	0.010
			0.020	0.021
Coverage	0.335	− 3.346***	− 1.101**	− 1.900***
	1.727	0.454	0.874	0.574
Analyst	0.258**	− 0.041	0.103**	− 0.104*
	0.108	0.076	0.042	0.056
Dual	2.217**	2.780**	1.943	2.799***
	0.977	1.205	1.410	0.863
Chair	0.811	2.306	0.867	2.639***
	0.816	1.995	1.090	0.954
Constant	− 4.711**	− 5.355**	− 2.326	− 15.411***
	1.922	2.115	1.554	3.118
Observations	268	262	520	170
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Likelihood ratio	94.37	75.62	72.27	108.58
Pr > Chi-square	< 0.0001	< 0.0001	< 0.0001	< 0.0001
Pseudo R-square	0.503	0.440	0.220	0.629

Significance levels: $*p < 0.1$; $**p < 0.05$; $*** p < 0.01$

Table 6 presents the logistic regression results for the balanced panel. FRAUD is a dummy variable equal to one for sanctioned firms and equal to zero for their non-sanctioned peers. SMOOTH is a dummy variable equal to one when the standard deviation of net income divided by the standard deviation of operating cash flows is greater than one and equal to zero otherwise. The independent variables are as defined in Appendix 2. Standard errors are clustered at the two-digit industry level

Table 7 Surviving firms characteristics

Firm	Euronext	CAC Index	Fam % 2018	Fam % 2023	Auditor 2023	Board Type	Direct 2023	Indep 2023	Fam Chair	Fam CEO
#4	Growth	Small	38.8	12.7	Local	Unitary	5	2	Yes	No
#8	Comp B	Small	41.3	36.3	Grant Thornton	Unitary	8	4	Yes*	Yes*
#9	Growth	Small	50.8	0	Local	Other	3	n/a	No	No
#11	Growth	Small	17.2	16.6	Local	Unitary	4	1	Yes*	Yes*
#15	Growth	Small	4.9	4.9	Local	Unitary	8	4	Yes*	Yes*
#18	Comp A	Mid60	0	0	KPMG	Unitary	14	7	Yes*	Yes*

(*) when combined chair/CEO

Table 7 provides information about the remaining six firms sanctioned by AMF (Financial Markets Authority for Euronext Paris) and still listed as of 2023

companies with inside control do not have lower performance, suggesting that standard governance practices, such as board independence, are less relevant when a large shareholder monitors the firm. Our findings strongly suggest that the impact of AMF sanctions is significantly diminished in insider-controlled companies. In addition, AMF took an average of four years to reach a decision, which may be long enough for markets to forget previous information irregularities. We expect that improvements in corporate governance will largely be initiated by large institutional shareholders.

Conclusion

Our study focuses on non-financial French firms sanctioned for information irregularities and insider trading between 2010 and 2022. Results show that firms with a family chair/CEO and high cash flow volatility are more likely to be sanctioned by the French Market Authority. However, family ownership by itself is not associated with fraudulent behavior. These findings strongly suggest that controlling insiders, such as family CEOs and board chairs, have incentives to extract private benefits from the firm and misuse their access to inside information. Financial analysts have a mixed impact on public disclosure quality and the ability to deter fraudulent behavior. Although analyst presence decreases the likelihood of sanctions, large numbers of analysts generate biased estimates in family-controlled firms, which hinder their ability to detect fraud.

Next, we investigate whether sanctioned firms are more likely to rely on income smoothing techniques to hide their real earnings from market participants. We find that market sanctions are associated with reduced income smoothing activities. Earning management is more prevalent in profitable firms with increased leverage and reduced analyst coverage. These results demonstrate that earnings management is not a good predictor of market fraud, especially when top family insiders use their privileged access to information to mislead stock markets, minority shareholders, and analysts. However, by using private information for their own benefit, powerful insiders also jeopardize the firm's long-term market survival. By 2023, only one-third of previously sanctioned firms were still listed on Euronext Paris. Although these surviving firms started referring to French governance codes and included independent board directors, two-thirds of them were still managed by a dual chair/CEO who is a family member or founder.

Our findings also support the role of outside investors in improving corporate governance quality. In a regulatory environment that does not mandate the application of governance codes and generates lenient financial sanctions, market participants such as institutional shareholders can provide enough market pressure to improve voluntary disclosure.

Appendix 1: Sanction types and involved parties

Sanction	Industry	Fraud type	Firm	CEO	Board	Other	Monetary sanction
#1	Chemicals	Financial disclosure	X	X	X		€150,000
#2	Beverage	Ownership disclosure	X	X			€165,000
#3	Leisure	Market disclosure	X	X	X		€200,000
#4	Entertainment	Market disclosure	X				€200,000
#5	Automobile	Market disclosure	X	X			€2,100,000
#6	Building	Market disclosure	X	X			€150,000
#7	Transportation	Market disclosure and insider trading	X		X	X	€670,000
#8	Biotechnology	Market disclosure	X	X			€400,000
#9	Industrials	Market disclosure	X		X		€2,170,000
#10	Technology	Insider trading	X	X			€700,000
#11	Technology	Ownership disclosure	X	X			€300,000
#12	Electricals	Financial disclosure	X	X			€140,000
#13	Aerospace	Insider trading				X	€530,000
#14	Apparel	Market disclosure and insider trading	X	X		X	€830,000
#15	Software	Market disclosure	X				€150,000
#16	Utilities	Market disclosure	X	X			€5,050,000

Sanction	Industry	Fraud type	Firm	CEO	Board	Other	Monetary sanction
#17	Beverage	Insider trading		X			€50,000
#18	Technology	Insider trading				X	€500,000
#19	Biotechnology	Market disclosure	X				€1,000,000

Appendix 2: Variable definitions

Variable	Definition
Assets	Total assets in millions of Euros
Sales	Total sales measured in millions of Euros
LSales	Natural log of Sales
Debt	Long-term debt/Assets
CF	Cash flows from operating activities/Assets
SDCF	The standard deviation of CF
Smoothing	The standard deviation of net income/standard deviation of operating cash flows
Smooth	Dummy variable equal to 1 when smoothing < 1, 0 otherwise
PM	Net Income/Sales
Working	(Current assets – Current liabilities)/Assets
Market	Dummy variable equal to 1 if the Euronext compartment is for Small Caps (compartment C or Alternext), 0 otherwise
Analyst	Number of analysts following the firm
ROA	Net Income/Assets
Fam	% of family/founder ownership
Chair	Dummy variable equal to 1 if the CEO or board chair is a family member, 0 otherwise
Dual	Dummy variable equal to 1 if the firm has a combined chair/CEO, 0 otherwise, and only applies to unitary boards

Declarations

Conflict of interest The authors declare no conflicts of interest.

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