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GESTION STRATÉGIQUE DES RÉSULTATS COMPTABLES, FAILLITE, ET GOUVERNANCE D'ENTREPRISE : TROIS CONTRIBUTIONS À PARTIR DU CONTEXTE FRANÇAIS

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EARNINGS MANAGEMENT, BANKRUPTCY, AND CORPORATE GOVERNANCE : THREE CONTRIBUTIONS FROM THE FRENCH CONTEXT

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RESUME GENERAL

La qualité de l'information comptable est au centre des travaux empiriques en comptabilité financière. L'information financière à plusieurs utilités. Pour le dirigeant, elle permet de mettre en évidence les résultats de l'activité de l'entreprise dans le but de se conformer aux exigences fiscales et contractuelles. L'information financière représente aussi un enjeu pécuniaire dans la mesure où la rémunération est généralement indexée à la performance de la firme.

Pour les potentiels investisseurs, une information financière de qualité permet de réaliser diverses opérations d'évaluation d'une firme (les travaux de *due diligence*) afin d'allouer leurs ressources de manière efficiente. Dans une approche réglementaire, l'information financière permet aux régulateurs de contrôler les fraudes et les dysfonctionnements dans la gestion quotidienne de la firme. Cependant, la littérature montre que les dirigeants sont des acteurs majeurs du processus d'élaboration des états financiers puisque les normes comptables leurs offrent un espace discrétionnaire dans la structuration des comptes, et un jugement sur les variables comptables de régularisation. Dans cette veine, ils ont l'opportunité de communiquer directement, et à moindre coût, les performances de l'entreprise aux potentiels investisseurs. Toutefois, la liberté laissée aux dirigeants de l'entreprise n'est pas sans conséquence puisque de nombreux abus ont été observés, avec les scandales financiers qui ont marqués le début des années 2000. Récemment encore, la presse a largement fait écho de la « machinerie comptable » au sein de divers groupes tels que William Saurin, Wirecard, Carillion, ou encore Autonomy[1].

Il a été documenté que les manipulations comptables ont un effet négatif sur l'image de l'entreprise (Rodriguez-Ariza, 2016), lorsqu'elles sont publiquement dévoilées. De même, la

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[1] https://www.lemonde.fr/economie/article/2020/09/28/scandale-william-saurin-a-chaque-affaire-les-reglementations-rendent-toujours-plus-lourde-et-complexe-la-machinerie-comptable-des-entreprises_6053897_3234.html

littérature montre que les manipulations comptables ont un effet négatif sur la valeur de la firme à long terme. C'est notamment le cas de la gestion réelle des résultats (ou gestion des résultats par les activités réelles) qui modifie durablement et négativement la structuration des cash flows futurs. Dans la même veine, il a été montré que ce type de gestion des résultats est associé significativement avec une forte probabilité de faillite de l'entreprise ex-ante (Lara *et al.*, 2009). Autrement dit, les firmes encourent un risque accru de faillite lorsqu'elles modulent de façon permanente leurs cash-flows. Par conséquent, n'étant pas mutuellement exclusives, les pratiques de gestion des résultats (qu'il s'agisse de la gestion des résultats par les variables comptables de régularisation -*accruals*- ou de la gestion réelle des résultats), sans justification économique sous-jacente (c 'est le cas par exemple d'une gestion des résultats dans le but de signaler une information particulièrement pertinente, comme les opportunités de croissance future certaines), sont potentiellement néfastes pour la firme. Fort de tout ce qui précède, et étant donné que le risque d'expropriation et d'abus existe dans le cadre d'une manipulation des résultats avérée, des travaux ont été diligenté par des autorités pour mettre en évidence l'ampleur de ces pratiques dans des contextes susceptibles de les encourager (voir le travail de Jones, 1991).

Les travaux sur la qualité de l'information financière, et plus particulièrement ceux sur la gestion des résultats, se composent de deux axes de recherche : (*1*) les travaux portant sur les incitations à la gestion des résultats, (*2*) et ceux portant sur les mécanismes de réduction de ces pratiques. La littérature met en évidence que les clauses d'endettement, les notations de crédit, les coûts politiques, et les primes aux employés (dont les motivations liées aux bonus de l'équipe dirigeante) sont les motivations classiques de la gestion des résultats. Toute une littérature met également en évidence que les événements d'entreprise (comme les premières introductions en bourse, les restructurations d'entreprise, les fusions et acquisitions, etc.…) sont propices aux

manipulations comptables. Ce n'est qu'au milieu des années 1990 que des chercheurs se sont intéressés à l'effet de la détresse financière, et de ses signes précurseurs, sur les comportements comptables des entreprises. Les dirigeants et les parties prenantes sont directement concernés par le défaut de l'entreprise dans la mesure où il peut potentiellement conduire à la disparition de l'entreprise, avec des conséquences sociales et économiques dramatiques. Ainsi, les dirigeants des entreprises peuvent être incités à prendre des mesures correctives pour éviter les coûts liés au défaut. Dans cette perspective, ils peuvent gérer les résultats soit à la hausse pour dissimuler leurs faibles performances, soit à la baisse pour obérer davantage leurs résultats en vue de renégocier les contrats d'endettement et obtenir des conditions plus avantageuses, notamment en ce qui concerne le coût de la dette.

Des travaux mettent en évidence que les entreprises disposent de mécanismes internes et externes pour limiter la gestion des résultats. En matière de mécanisme externe, les auditeurs financiers vérifient la conformité des comptes, et contrôlent les erreurs fortuites ou volontaires, ainsi que les pratiques discrétionnaires des dirigeants susceptibles d'exproprier les autres parties prenantes de l'entreprise, des actionnaires à l'Etat. A côté de ce mécanisme traditionnel, les entreprises peuvent également s'appuyer sur des mécanismes de contrôle interne (contrôle comptable, audit interne, etc…), dont les conseils d'administration avec ses comités spécialisés ont pour mission d'éviter de telles pratiques.

Dans le cadre de notre thèse, nous nous focalisons sur le contexte français. Ce contexte est intéressant pour deux raisons. Premièrement, la littérature met en évidence que les entreprises françaises sont caractérisées par un financement dominé par les banques. Puisque les banques s'appuient sur les états financiers pour évaluer la capacité des entreprises à rembourser leurs emprunts, la littérature montre que les dirigeants peuvent moduler leurs états financiers dans le but de faire ressortir de meilleures performances, et de conserver ainsi la confiance des bailleurs

de fonds. Deuxièmement, le contexte français est caractérisé par une forte influence du code des impôts sur la comptabilité. Dans un tel contexte l'administration fiscale cherche avant tout à restreindre les velléités des dirigeants à minorer le résultat imposable. Toute chose égale par ailleurs, les entreprises cherchent concomitamment à maximiser les performances de l'entreprise, et à réduire la base imposable. Dans le cadre de notre thèse, nous prolongeons les deux champs de recherche sur la gestion des résultats (comme énoncé précédemment) à partir du contexte français.

Notre thèse se structure sur quatre (4) chapitres. Dans le premier chapitre (chapitre introductif) nous présenterons l'état de l'art sur les thématiques de notre thèse. Etant donné que nous réfléchissons sur deux problématiques distinctes, et dans un souci de clarté et d'organisation, nous distinguons quatre (4) parties dans le chapitre introductif. La première partie présente un bref état de l'art sur la gestion des résultats. La deuxième partie présente notre revue de littérature sur la détresse financière et la faillite, et la relation entre la difficulté financière/la faillite et la gestion des résultats des firmes. Une troisième partie aborde la question de la gouvernance de l'entreprise au travers de la diversité de genre au conseil d'administration, et le lien entre les quotas de genre et les manipulations comptables. Nous concluons ce chapitre par le développement des questions de recherche.

À partir de tout ce qui précède, notre travail poursuit un double objectif. Premièrement, concernant les incitations à la gestion des résultats, nous prolongeons la littérature sur les incitations de la gestion à partir du lien entre la situation financière et la manipulation des résultats des très petites entreprises. Tout d'abord, concernant la détresse financière et la faillite comme incitation de la gestion des résultats, la revue de littérature montre que les études ont majoritairement été conduites à partir de petites et moyennes entreprises (PME) de tailles relativement importantes, et d'entreprises cotées de grandes tailles.

Ce n'est qu'au début des années 2000 que des travaux ont commencés à modéliser les comportements comptables de ces entreprises. Les données non-financières (âge de la firme, statut du gérant, formation du ou des gérants, structure du capital, parties engagées dans la gestion courante de l'entreprise, expert-comptable, et commissaire aux comptes, etc …) sur les très petites entreprises sont rarement documentées. Cependant, des bases de données comme Altares ou Diane recueillent de plus en plus de données financières et non-financières sur les très petites entreprises (TPE), facilitant ainsi les travaux empiriques à partir de ce groupe d'entreprises.

Nous explorons l'ampleur de la gestion des résultats (*accruals* et activités réelles) parmi les profils des entreprises de TPE françaises (en faillite et saines). La littérature met en évidence que la détresse financière n'est pas identique pour toutes les entreprises, mais aussi que les firmes ne présentent pas les mêmes caractéristiques. Elles ont donc des profils et des trajectoires de déclin différents. Notre thèse prolonge donc ces travaux. En effet, en utilisant deux approches pour classer les TPE, nous avons construit quatre profils d'entreprises : celui des entreprises en difficulté/faillite (SB en anglais) ; celui des entreprises non en difficulté/faillite (NSB en anglais) ; celui des entreprises en difficulté/non en faillite (SNB en anglais) ; et celui des entreprises non en difficulté/non en faillite (NSNB en anglais). Nous faisons des hypothèses et constatons que l'ampleur de la gestion des résultats varie selon les profils des entreprises ; les entreprises en difficulté sont plus enclines à gérer leurs résultats par la manipulation de transactions réelles (gestion des résultats par les activités réelles), qu'elles aient finalement échoué ou qu'elles aient survécu ; inversement, les entreprises en difficulté ont une forte propension à augmenter leurs résultats en utilisant des comptes de régularisation ou *accruals*, par rapport aux entreprises qui ne sont pas en difficulté. Nous constatons également que l'ampleur de la gestion des résultats par les activités réelles est plus importante dans les NSNB

que dans les NSB. Ces résultats suggèrent que les TPE font un arbitrage entre les types de gestion des résultats en fonction de leur situation financière et les coûts inhérents à ces pratiques.

Deuxièmement, concernant l'axe relatif aux mécanismes de réduction de la gestion des résultats, nous nous intéressons aux effets de l'instauration de quotas de genre au conseil d'administration sur la gestion des résultats. En effet, les législateurs ont promulgué une loi en matière de représentation des femmes dans les organes de décision en France. Une telle réforme soulève des questions sur son impact réel sur les résultats d'entreprise. En admettant que la gouvernance d'entreprise peut être directement impactée par une telle réforme, nous avons conduit une étude empirique pour mesurer les effets de cette réforme sur la qualité de l'information comptable. La littérature montre que ce type de réforme, comme cela a été le cas en Norvège et dans plusieurs pays en Europe centrale, génère des coûts substantiels pour les entreprises, et les équilibres en matière de gouvernance d'entreprise. Inversement, ces réformes peuvent être un tremplin pour améliorer la gouvernance des entreprises, puisqu'elles conduisent les entreprises directement affectées par elles à avoir accès à des viviers de femmes administrateurs compétentes.

Dans le troisième chapitre, nous explorons la relation entre la diversité de genre dans les conseils d'administration et la qualité des résultats en France, où une loi imposant des quotas progressifs a été adoptée en 2011. Nous trouvons qu'il existe une relation positive entre la proportion de femmes dans les conseils d'administration et la qualité des résultats depuis l'introduction formelle des quotas. Cependant, les entreprises concernées par les quotas de femmes montrent des signes importants de faible qualité de l'information, alors que les entreprises non concernées montrent une association positive avec la qualité des résultats. La batterie des tests de robustes tendent à valider économétriquement les résultats obtenus dans les

initiaux. Cependant, ce travail met en évidence le risque soulevé par les réformes sur la gouvernance d'entreprise. Bien que l'effet négatif de la réforme disparaisse à long terme, les entreprises subissent les effets pervers des reformes obligatoires à court-terme.

Dans le prolongement du troisième chapitre, nous abordons la légitimité des femmes administrateurs dans le quatrième chapitre. Plus précisément, étant donné que la gestion des résultats par les activités réelles (REM en anglais, *real earnings management*) a un effet causal négatif sur la performance future, nous investiguons le poids modérateur des attributs des femmes administrateurs dans cette relation. Nous faisons l'hypothèse que les femmes ayant des compétences financières, les femmes indépendantes, les femmes ayant plusieurs mandats en tant qu'administrateurs, et les femmes membres des comités d'audit modèrent la relation entre la REM et la performance future. Nous trouvons que les femmes qui occupent plusieurs postes d'administrateur et les femmes administrateurs indépendants modèrent négativement le lien de causalité entre la REM et la performance future pendant la période post-quota. Nos résultats supportent également que l'indépendance et l'exercice de plusieurs mandats par des femmes améliorent directement la performance future. Cette étude contribue à la littérature existante en examinant la légitimité des femmes administrateurs à travers la performance de leurs attributs statutaires et démographiques dans le contexte post-quotas de genre en France.

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Jean-Louis Servan-Schreiber
L'art du temps (1983).

GENERAL INTRODUCTION

With the development of financial markets in industrialized countries, investors and other agents such as regulators and governments have increased their demand for quality financial information. Indeed, quality financial information enables them to carry out various evaluation operations to efficiently allocate their resources, for investors, on the one hand, and to control fraud and malfunctions in the day-to-day management of the firm and its financial flows, for regulators and the government, on the other hand. Managers are at the center of the process of preparing financial statements since "accounting standards provide a relatively low-cost and credible means for corporate managers to report information on their firms' performance to external capital providers and other stakeholders" (Healy and Wahlen, 1999, p. 366). However, the financial scandals that marked the 2000s (Enron, Worldcom, and Tyco) highlighted the risk of fraudulent manipulation of accounting information to have a detrimental effect on the interests of the company's stakeholders. From the investors' standpoint, truncated financial information generates costs that are potential misallocation of resources that proceeds from accounting earnings manipulation. The literature shows that such manipulation also has negative effects on company value (Roychowdhury,2006; Cohen and Zarowin, 2010 ; Cazavan-Jeny *et al.*, 2011 ; Zhao *et al.*, 2012) and reputation (Rodriguez-Ariza, 2016). Based on this observation, stakeholders who run the risk of being expropriated by earnings management (EM) practices rely on various internal and external mechanisms to limit the extent of these practices. Numerous studies have shown, for example, that the quality of internal corporate governance, i.e. the board of directors and its specialized committees (Zalata *et al.*, 2018 ; Man and Wong, 2013 ; García-Meca and Sánchez-Ballesta, 2009 ; Xie *et al.*, 2003), and external control, i.e. the external auditors (Francis and Krishnan, 1999 ; Becker *et al.*, 1998;

DeAngelo, 1981) and creditors such as debtors (Lazzem and Jilani, 2017 ; Gombola *et al.*, 2016 ; Kim *et al.*, 2010 ; Zagers-Mamedova, 2009), curb EM.

Although EM practices are widespread around the world, research shows significant differences in the extent of EM between various institutional contexts. Indeed, the work of Leuz *et al.* (2003) shows that EM is less important in common law countries, compared to civil law countries. There are several reasons for this. The first argument is that common law countries are characterized by higher investor protection. Indeed, in common law countries, compared to civil law countries, the regulatory authorities (mandated by the government or the community) impose various restrictions on the top management. Enomoto *et al.* (2015, p. 185) note that "the degree of restriction is believed to vary with the institutional factor of each country. Many studies attach importance to investors' protection and include corporate law, accounting standards, and security markets as institutional factors." In this vein, each country's investor protection is based on its legal origin and that countries with stronger investor protection have a larger and more open capital market (La porta *et al.*, 1997 ; 1998). A second reason not much advanced by the literature is the horizon over which investors operate in each of the two aforementioned contexts. Indeed, long-term investors are prevalent in countries with strong investor protection; it has been shown that they limit EM practices (Koh, 2007). All of the above raises the need for civil law countries to investigate the incentives for EM practices, as well as the mechanisms that may limit them. Overall, it seems appropriate that improved financial information quality leads to a more efficient allocation of resources for investors, the firm's growth and the performance of economies.

Accordingly, the general subject of my research is the quality of financial information which has been studied from differing perspectives. Since studies have focused on the incentives and

mechanisms that influence the practice of earnings management (EM). My thesis extends these two research areas.

In accordance with the *"sacred cow" theory* which neglect empirical work on the quality of financial and accounting information among very small businesses (VSBs) and small and medium entreprises (SMEs)[2], we firstly conduct our study from very small French businesses (VSBs) . We investigate EM in VSBs for various reasons: VSBs, are characterized by their great diversity. VSBs and SMEs[3] make up the bulk of the French economic fabric. Indeed, the *Banque de France* counts nearly 4 million VSBs-SMEs (representing 99% of French companies). In 2019 alone, there were nearly 815,257 business creations (+17% compared to 2018). In addition, these companies represent 6.3 million employees (49% of French employees) accumulating 43% of the wealth produced by VSE-SMEs. VSEs and SMEs produce each year about a third of the total sales of French companies. This represents €1,300 billion in sales for VSBs/SMEs. With all this, François Villeroy de Galhau, Governor of the *Banque de France* argues that "the development of VSBs is a major challenge for growth, employment and the vitality of the regional economic fabric."[4]

Baering all this in mind, with regard to EM incentives, we study the overlooked subject of financial distress—and its ultimate stage, bankruptcy—among VSBs. Results of studies of the relationship between EM and financial distress/bankruptcy are not consistent; some show

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[2] . It is only very recently that work has begun to focus on very small enterprises and small and medium-sized enterprises, mainly in civil law countries. There are several reasons for this growing interest in very small enterprises and small and medium-sized enterprises.

[3] The differences between VSBs and SMEs, although they are generally grouped together, need to be clarified. A VSE has less than 10 employees. Its turnover is less than or equal to 2 million euros.Conversely, an SME (small and medium enterprise) has less than 250 employees. It has sales of less than or equal to €50 million or a balance sheet of less than or equal to €43 million. It is also called SMI, it is rarer (small and medium industry).

[4] https://entreprises.banque-france.fr/en/node/5516

financial distress/bankruptcy can be a major EM incentive, whereas others find financial distress/bankruptcy limits the ability to practice EM, because EM generates costs that only healthy firms can bear. Therefore, in Chapter 1, "Earnings management and firm profiles of small French firms," we investigate the extent of EM (both accruals and real activities) practiced by French VSBs. I use a sample of 2,700 firm-year observations of bankrupt firms and 2,700 firm-year observations of non-bankrupt firms, from 2012 to 2014, to build four firm profiles: stressed/bankrupt (SB), non-stressed/bankrupt (NSB), stressed/non-bankrupt (SNB), and non-stressed/non-bankrupt (NSNB). According to these profiles, I analyze the relationship between firms' financial situations and the extent and forms of their EM. Results show (1) bankrupt VSBs manage earnings more extensively than non-bankrupt VSBs; (2) the magnitude of EM varies among VSBs; (3) stressed/bankrupt VSBs exhibit lower levels of accrual earnings management (AEM) and real earning management (REM) than other businesses; and (4) non-stressed/bankrupt VSBs show higher levels of AEM and REM than other businesses. In addition to shedding light on the EM practices and financial situations of VSBs—areas that literature rarely has explored—my study offers a novel perspective on the French context that can inform policy making by civil law regulators.

Government reforms on businesses raise many questions. Indeed, corporate reforms are bringing about changes in corporate behavior, particularly in terms of management and compliance with regulations. In the field of accounting management, the impact of reforms must be measured in terms of the general ethical behavior of firms subject to them. Since the general accepted accounting principles (GAAP) offer a latitude in structuring accounts, managers can modulate the earnings so as to extract a personal rent, when the reform changes the balance of the monitoring of the accounting and financial decision-making process.

Bearing this in mind, in terms of governance, public authorities have legislated diversity quotas in corporate decision-making bodies. Numerous studies conclude that the introduction of diversity within companies gives them access to hitherto unknown talent pools that can improve corporate performance. It is in this vein that it has been clearly established that gender diversity in decision-making bodies (top management and board of directors) improves the ethical behavior of organizations.

With regard to the constraints mechaninsim of EM, in Chapters 2 and 3, we investigate the effect of gender quotas on corporate outcomes. Following the model of several European countries, France enacted a law that required corporations to have a minimum of 20% women directors in 2014 and 40% in 2017. In Chapter 2, "Board gender diversity and earnings quality: Evidence from a gender quota in France," we explore the relationship between board gender diversity and earnings quality (EQ) in France, where a law imposing progressive quotas was passed in 2011. Using a sample of 143 firms listed on the Euronext Paris index from 2011 to 2017, we find that since the introduction of the gender quota, there has been a positive relationship between the proportion of women directors and EQ. However, firms affected by the gender quota show extensive signs of low EQ, whereas unaffected firms show a positive association with EQ. Results show women directors perform well in low-debt firms and low-performing firms—both contexts in which board gender diversity tends to be particularly challenging. These results should be useful to regulators who need to be aware of the real effects of quotas on corporate outcomes. Shareholders or investors also can use this study's results to determine whether firms' corporate governance, through the quality of their board members, is sufficient to protect their interests.

Finally, in Chapter 3, "Women directors' attributes, real earnings management, and FP," I study the effect of women directors' attributes on the causal relationship between REM and future performance (FP). I hypothesize that financially literate women directors, independent women directors, interlocked women directors, and women directors who serve as audit committee experts moderate the relationship between managers' REM activities and FP, approximated through return on assets (ROA) and Tobin's Q (Q) in year t+1. From a sample of 155 non-financial firms listed on the Euronext Paris index during the post-gender quota period, I find that interlocked women directors moderate the causal link between managers' real activities-based EM and FP. Robustness tests show that (1) independent directors act as moderators of REM when the outcome is return on equity (ROE) in year t+1 and (2) REM strengthens the relationship between interlocked women directors and Q in year t+1. My study contributes to extant literature by examining the legitimacy of women directors through the performance of their statutory and demographic attributes.

The thesis is structured as follows: The introductory chapter presents a literature review of main themes and outlines the research questions. Chapter 1 presents the study "Earnings management and firm profiles of small French firms"; Chapter 2 offers the empirical study "Board gender diversity and earnings quality: Evidence from a gender quota in France"; and Chapter 3 provides the study "Women directors' attributes, real earnings management, and future performance.

Insert Table 1 about here

INTRODUCTORY CHAPTER

In this chapter we make a literature review of the main lines of research of our thesis. We conclude this part by developing the questions of the research on which we have conducted our doctoral essays.

I. EARNINGS MANAGEMENT AS GENERAL SUBJECT OF RESEARCH

1. Overview of earnings management

As both Casta and Stolowy (2012) and Colasse (2009) note, the U.S. Financial Accounting Standards Board (FASB) was the first to define the quality of financial statement information. In general, as advocated by the board's Statement of Financial Accounting Concepts (SFAC) No. 2 (FASB, 1980), the quality of financial information is summarized by three words that describe the qualitative characteristics of EQ: relevance, reliability, and comparability. According to Stolowy and Breton (2003), companies disclose financial information to reduce the cost of financing projects. Indeed, potential investors have an interest in transparency; they seek to assess the actual performances of companies, evaluate future cash flows, and determine the financial equilibriums of companies before putting their money in market shares. In such a context, the financial information disclosed must be sufficiently reassuring; it must show signs of reducing the wealth-transfer risks associated with firms. Accordingly, according to the authors, managers can modulate wealth-transfer risks by modifying both earnings and debt–equity balances. In particular, they can adjust accounting to modify variations in earnings per share and debt-to-equity ratios. Much literature shows EQ may be compromised by extensive EM that is incentivized by corporate contracts that lead managers to practice accrual rather than cash accounting—that is, choosing the timing of income and expense recording over the short

term (Stolowy and Breton, 2003). Managers' treatments of accrual accounting versus cash accounting may be considered EM that recognizes revenue in the year in which the need arises and carries forward expenses to future years. Auditing imperfections further explain the widespread use of EM using flexible accounting choices and estimates that do not reflect firms' underlying economics (Healy and Wahlen, 1999).

Although there is no consensus on the definition of EM (Beneish, 2001), literature proposes several versions. Schipper (1989, p. 92) defines EM as "purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain." Degeorge *et al.* (1999, p. 2) identify EM as "the use of managerial discretion to influence the outcome disseminated to stakeholders." Whereas Schipper's (1999) definition seems rather reductive because of the recurrent lack of the strict monotony of incentives (which infers that managers are not always opportunistic in terms of accounting choices), Degeorge *et al.*'s (1999) approach breaks with the dominant thinking of the "Rochester" school; it involves other concepts such as managerial discretion and stakeholders, in consideration of their interplay of influence (Jensen, 2001). Definitions by Healy and Whalen (1999) and Degeorge *et al.* (1999) focus on managerial incentives. For instance, Healy and Whalen (1999, p. 368) note "earnings management [EM] occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers." Stolowy and Breton (2003) define EM as the use of management discretion to make accounting choices or structure transactions with the intention of influencing firms' wealth-transfer risks, as perceived by the market. Finally, Davidson *et al.* (1987) refer to EM as "deliberate action" through "accounting standard constraints," with the goal of reaching earnings thresholds. Their definition counters the traditional assumption of manager opportunism and defends a more consensual, social vision of EM, in which the

practice is a mechanism for adjusting earnings for the benefit of companies, firms, and stakeholders. These adjustments depend on firm's contingencies, obligations, and environments.

The preceding review suggests the definition of EM has evolved since the first models for its estimation emerged and confirms EM is a widespread phenomenon within companies.

2. <u>Earnings management tools and relative benefits and costs</u>

Generally, EM takes place via accruals and real activities. The practice of EM through accounting choices (or accruals) results from "changes in accounting policies and estimates used in the presentation of financial statements" (Zang, 2012, p. 676). Such practices stem from managers' freedom to assess certain accounts on a discretionary basis while respecting normative frameworks. Accruals are the result of standard-setting regulatory requirements; they refer to the substantial discretionary space that accounting standards allow. Numerous studies have examined the effects of accruals on earnings. For example, Roychowdhury (2006) argues they have no effect on cash flow from operations (CFO), whereas JeanJean (2001) takes a more complex approach by retaining "the condition of non-compensation." According to this condition, accruals items have minor effects on earnings only if they have inverse effects on cash flows. Moreover, beyond the debate on the effects of accruals on earnings, the problem of accruals nullity arises. Literature generally accepts that ultimately, accruals are null and void. JeanJean (2001) argues AEM consists simply of spreading the "secretion" of earnings, and Healy (1985) concludes the major effect of accruals is to modify the "temporality" of earnings. Another aspect of accruals is their "mean reversion" effect, that is, the property that accruals cannot be managed indefinitely over long-time horizons, either up or down; AEM occurs after the fiscal year, at the time of the establishment of financial statements (Zang, 2012). Li *et al.* (2011) note accruals help shift or adjust cash flows over time. Therefore, because AEM has no effect on cash flow, it has a transitional effect on earnings (Graham *et al.*, 2005).

Both Dechow and Skinner (2000) and Healy and Whalen (1999) study firms that manage earnings through real transactions accounts; they adjust the timings and scales of underlying business activities (Xu *et al.*, 2007). According to Sellami (2015, p. 207), REM is not "a simple accounting choice or estimate but rather a strategic management decision that have a direct

impact on cash flow." It occurs in three different forms that represent company financial cycles: operating activities, investing activities, and financing activities. In the operating-activities cycle, managers can undertake different forms of management of operational activities, such as sales manipulation, overproduction, inventory manipulation, manipulation of discretionary expenditures including research and development (R&D) and selling, general, and administrative (SG&A) expenses (Sellami and Adjaoud, 2010; Roychowdhury, 2006; Jackson and Wilcox, 2000; Dhaliwal *et al.*, 1994). Studies show managers use REM mainly to meet or beat earnings thresholds (Roychowdhury, 2006). In the investing-activities cycle, managers may manage earnings by selling long-term assets or adjusting asset impairments and R&D expenditures (Herrman *et al.*, 2003; Poitras *et al.*, 2002; Black *et al.*, 1998). Finally, REM may occur when managers manipulate accounts related to financing activities, such as stock options, stock repurchases, or hedge and debt-equity swaps (Kolsi and Matoussi, 2011; Dechow *et al.*, 2010; Hribar *et al.*, 2006; Dechow *et al.*, 2005; Shakespeare, 2003).

The cost of EM reflects the various efforts that management dedicates to discretionary activities. Eisele (2012) argues the cost of EM also involves accounting for its negative effects on current and corporate FP. As with timing, the cost of EM differs according to whether it is AEM or REM. According to literature, AEM is less costly than REM, because accounting manipulations by accruals reverse over the long run (JeanJean, 2001). Das *et al.* (2011) note investors recognize when earnings have been income-increasing accruals, which is consistent with the market efficiency hypothesis as it applies to EM levels: If the market already incorporates accounting manipulation into the stock price structure, any aggressive form of EM should lead investors to discount premiums paid for meeting or beating earnings benchmarks.

The practice of AEM generates reputational costs for companies because it falls under the scrutiny of auditors. Indeed, auditors exercise increased oversight over accruals (Gunny, 2010).

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In scenarios in which managers practice aggressive AEM, their companies' reputations could be seriously damaged in the eyes of stakeholders. Much literature has documented the reputational consequences of materially detecting aggressive AEM practices (Chang *et al.*, 2010; Prior *et al.*, 2008; Kaplan and Ravenscroft, 2004; Desai *et al.*, 2006). Moreover, corporate boards can be particularly harsh with managers who engage in aggressive AEM or violate generally accepted accounting principles (GAAP) (Desai *et al.*, 2006). Desai *et al.* (2006) note there are reputational penalties to managers of firms that announce earnings restatements; they find firms that violate GAAP are prone to management turnover and suggest "private penalties for GAAP violations are severe and may serve as partial substitutes for public enforcement of GAAP violations" (p. 83).

Numerous studies have developed models to detect whether REM, compared to AEM, has detrimental effects on company—and ultimately—shareholder value (Cohen and Zarowin, 2010; Gunny, 2010; Taylor and Xu, 2010; Leggett *et al.*, 2009; Cohen *et al.*, 2008). Research shows REM has a set of properties per se that cause it to have negative effects on future cash flow (Chen, 2009). That is, cash flow items have a persistent effect on earnings: REM is resource-consuming for earnings that are well below amounts expected in normal activities. More specifically, REM occurs via "unusual discounts that would, at the same time, increase the level of sales and accelerate the availability of (abnormally lower) cash" (Campa and Camacho-Miñano, 2015, p. 228). Similarly, to increase their earnings punctually, firms can increase their production by drastically reducing unit production costs. Such production, which can be described as excessive, may at the same time increase inventory costs, thus reducing FP. Overall, as confirmed by Sellami (2015), REM increases long-term costs to company shareholders and is more likely than other management approaches to increase the uncertainty of future earnings (Kim *et al.*, 2010). Beckmann *et al.* (2019) show REM relates negatively to long-run performance before and after major corporate events.

Insert Table 2 about here

3. Earnings management incentives

3.1. Capital market incentives.

Any approach to understanding EM practices must incorporate the needs and flexibilities available to managers (Stolowy and Breton, 2003). Managers can take advantage of information asymmetry to engage in EM practices. However, EM can be the result of a wider strategy that includes the consent of managers and shareholders.

Literature highlights two main motivations for practicing EM: (1) capital market motivations and (2) opportunistic motivations. With regard to capital market motivations, managers may practice unexpected EM behavior in periods that surround capital market transactions, to meet analyst or investor expectations and smooth earnings. Several studies find widespread use of EM in periods surrounding capital market transactions such as seasoned equity offerings (SEOs) (Teoh *et al.*, 1998a) and mergers and acquisitions (M&As) (Erickson and Wang, 1999). Teoh *et al.* (1998b) find that 48 months after equity issuance, the highest discretionary accruals are associated with the lowest returns, whereas the lowest discretionary accruals are associated with the highest returns. Similarly, and according to a quarterly analysis of 230 firms, Rangan (1998) finds discretionary accruals increase around the periods when share issues are announced. Cohen and Zarowin 2010) find firms tend to manage earnings during run-ups to share issues. Erickson and Wang (1999) study whether acquiring firms attempt to reduce their stock prices prior to stock merger acquisitions, with a view to reducing the costs of acquiring targets; the authors find evidence that acquiring firms practice income-increasing EM in periods that precede merger agreements.

Firms may manipulate earnings to meet earnings thresholds (Davidson *et al.*, 1987). Burgstalhler and Dichev (1997) initiate a transversal approach known as "accounting

thresholds," that is, accounting manipulations intended to reach pre-established thresholds. The authors highlight two discontinuities in a sample of more than 4,000 firms: the zero-earnings threshold and the threshold for zero variations in earnings (Vidal, 2010). They find that when the zero threshold is approached, there is an abnormal discontinuity, that is, an abnormally low level before the threshold and an abnormally high level after the threshold. They also observe that companies in their study are more inclined to manipulate earnings to avoid losses (30%– 44%) than to avoid declining earnings (8%–12%). Their results are corroborated by Degeorge *et al.* (1999), who sample more than 5,000 U.S companies. Herrmann *et al.* (2003) find Japanese companies manage earnings via income from asset sales to reduce management-forecast errors, whereas Roychowdhury (2006) find evidence consistent with the notion that managers engage in REM activities to meet analysts' forecasts (Sellami, 2015).

Finally, according to Sellami (2015), managers may be encouraged to manage earnings to avoid fluctuations from levels considered normal for their firms. This strategy is known as earnings smoothing.[5] Earnings smoothing is the form of EM that obeys the principle of earnings linearity. According to Mard and Schatt (2011), earnings are smoothed to reduce earnings volatility, which in any case changes both stakeholders' perceptions of risk and the financial positions of companies. Attia (2013) argues that intentional earnings smoothing is a modality

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[5] The two measurements for smoothing of t results are: (a) change in earnings and change in sales and (b) change in earnings and variability of cash flows from operations. Initial studies, in line with those of Eckel (1983), measured earnings smoothing by developing criteria related to variation in earnings and variation in turnover, such that the differences between these measures of variation reflect the magnitude of the smoothing of results over a given period. Unlike the measurement for discretionary accruals, the method of estimating the manipulation of results by change in sales and change in earnings makes it possible to account for "the natural smoothing produced by the accounting process, as well as shocks linked to activity" (Mard and Schatt, 2011, p. 314). The estimator used is a coefficient that discriminates between "smoothers" and "non-smoothers." A coefficient of variation in earnings that is lower than the coefficient of variation in sales indicates the firm in question is smoothing its earnings. However, literature highlights the relationship between changes in earnings and changes in cash flows from operations. This approach was influenced by the emergence of measures of discretionary practices in the compilation of accounting numbers, that is, accruals. As reflected in the work of Roychowdhury (2004, 2006), this estimate accounts for the fact that "cash flow from operations is largely a matter of management's control and results are managed primarily through accruals" (Mard and Schitt, 2011, p. 314). As with the first estimate, a change in income greater than a change in operating cash flow reflects a desire to smooth results through accruals.

of EM that managers use to moderate fluctuations in earnings from one year to the next; it consists of manipulating real activities to reduce earnings volatility.

3.2. Opportunistic motivation

Managers may have opportunistic motivations for engaging in EM. Overall, though conceptual frameworks promote the use of good accounting practices, legal conceptual frameworks may allow suppliers of financial statements to alter the exact meanings of performance achieved; *positive accounting theory* proposes the mapping of empirically validated behaviors that constitute a general theory of accounting practices (Casta, 2009). The determinants of this theory relate exclusively to the underpinning of factors associated with accounting choices, the managerial motivations of accounting practices, and the forecasting of accounting choices made by managers with regard to the characteristics of companies.

Chalayer-Rouchon (1994) identifies accounting manipulations (accounting choices) according to the importance of the contractual and political costs of firms' economic transactions. In this approach, EM results from the structure of the costs incurred by companies. According to the author, empirical work carried out to explain accounting choices from a political–contractual approach has produced three hypotheses: First, the political costs hypothesis specifies that managers undertake EM to minimize political costs. This approach defines accounting choices by the relationships that companies have with both public authorities and setters of accounting standards. In the context of financial accounting, it is a matter of complying with the formalities and rules of accounting standards; it assumes the validity of the *theory of regulation* and recognizes that standards-setters introduce rules for reporting economic and financial transactions between agents. Zimmerman (1983) proposes a measure of the intensity of political costs according to firm size, inferring that larger firms are much more likely to bear the most important political costs (e.g., taxes, levies, public pressure) (Chalayer-Rouchon, 1994). The

author posits that other measures can be used to measure political costs to firms: industry ownership, industry concentration, company market share, capital intensity, systematic risk, and variability of earnings. Studies conclude that as firms become larger, they are tempted to lower their earnings (Morse and Richardson, 1983; Hagerman and Zmijewski, 1979). According to Leuz *et al.* (2003), EM is more important to listed companies in civil law countries than to listed companies in common law countries, because institutional pressures differ. In a different context, Othman and Zeghal (2006) deduce that French firms practice income-increasing EM to minimize political–contractual costs, whereas Canadian firms do so because of market pressure.

Second, the incentive compensation hypothesis postulates that the existence of variable compensation contracts justifies EM; that is, managers use their accounting judgments to increase earnings-based compensation and bonuses. An empirical study by Healy (1985) tests the agency hypothesis, that is, that executives manipulate accounts to maximize their bonuses; the author establishes an explicit parameter for executive incentive schemes, arguing that executives interfere with the structure of accounting earnings to increase the present value of their bonuses. Cormier *et al.* (2006) find EM is driven by various incentives, including stock options; using panel and timing studies, they find that as the difference between a current year's earnings and the previous year's earnings increases, stock-option bonuses decrease. Similarly, Bergstresser and Philippon (2006) find the number of stock-based executives and option-based executives has increased since the end of the 20th century; they note that because CEOs are at the center of management, CEO compensation plans should align upper-management incentives with the interests of shareholders. The authors confirm their hypothesis that companies with "more 'incentivized' CEOs—whose overall compensation is more sensitive to company share prices—have higher levels of earnings management" (p. 513). Li *et al.* (2017) find certain market-related firm characteristics influence the relationship between managers'

equity incentives and EM; for companies with low growth potential, equity incentives incentivize executives to modulate earnings, but companies with higher growth potential are more likely to reduce EM, because companies with high growth potential reach certain thresholds more easily.

Although the conventional assumption is that clauses in executive compensation contracts are a function of accounting manipulations (to the benefit of the executives), most studies show the opposite result. Indeed, in contrast to the hypothesis of *agency theory*, Bebchuk and Frield (2003) find a non-convergence of interests between shareholders and executives, even in the presence of compensation contracts; the authors maintain that managers seek to increase their usefulness by preserving the managerial discretion to manipulating earnings, even by receiving stock options. Huang *et al.* (2012) examine the effects of compensation contracts on investment decisions, concluding that ownership-share compensation induces managers to issue debt, whereas performance-based bonus compensation induces them to be averse to issuing debt. The authors highlight the complex association between compensation contracts and incentives to manage accounting earnings, showing that though bonus-based compensation incentivizes managers to accelerate investment, the managers have no incentive to use debt financing when they are remunerated solely by cash or bonuses. Moreover, managers resort to borrowing when they are remunerated with both cash and property shares. However, the authors observe that to the extent that compensation packages include cash bonuses—linked to earnings and ownership shares—executives are aligned with shareholder expectations. Ownership shares and performance-based bonuses have different—and even opposite—effects on investment and financing decisions. These decisions can affect EM (for example, by changing working capital requirements for accruals and interest charges for the estimation of abnormal cash flows).

Third, positive accounting theorists posit the debt contract hypothesis, which postulates that company managers manipulate earnings to minimize debt costs. Kelly III (1983) observes that debt contracts are mechanisms for controlling manager's latitudes of discretion. For example, covenants are tools used to protect creditors against possible expropriations and transfers of wealth to shareholders. Shareholders also are major stakeholders in EM (Stolowy and Breton, 2003). For instance, He *et al.* (2017) studies the relationship between dividend policy and EM; in a sample of 23,429 firms from 29 countries, the authors find a negative association between dividend payout status and EM. Their finding supports the notion that companies that pay dividends have an incentive to avoid EM. Moreover, non-payment of dividends systematically leads to payment of a private product to majority shareholders (at the expense of minority shareholders). This product, also known as "private control benefits" or "private benefits linked to control," disappears when dividends are paid. When dividends are paid, it becomes a private control benefit. Accordingly, there is no need to manage earnings to conceal the payment of this extraordinary income (He *et al.*, 2017).

4. <u>Earnings management (quality): influence of the legal protection system</u>

Several studies suggest legal protection systems significantly influence EM—and therefore EQ. Ball *et al.* (2000) study the quality of outcomes in common law and civil law countries, showing firms that operate in common law countries have more up-to-date and conservative EM than firms that operate in civil law countries. Leuz *et al.* (2003) argue that degree of development of financial markets, ownership structures, and extent of investor rights influence EM; they find firms that operate in pro-creditor legal protection systems (common law) have differing levels of accounting flexibility than firms that operate in pro-debtor legal protection systems (civil law). Their results show that strong protection of outsiders reduces the appropriation of private profits—thus changing the incentive to manage earnings—and firms that operate in clusters in countries with developed financial markets, diffuse shareholdings, and investors with strong rights (common law) engage less in EM than firms in countries with weak legal protection (civil law). According to Boonlert-U-Thai *et al.* (2006), the effect of legal protection on EQ depends on the choice of measure of EQ; they find less earnings smoothing in countries in which institutional characteristics (legal protection system) are strong, and that quality of accruals and predictability of earnings are better in countries in which legal protection is weak. Shen and Chih (2005) study EM in banks in 48 countries, finding strong legal protection for investors limits the incentive to manage performance. Enomoto *et al.* (2015) show pro-creditor countries have negative REM; however, they also show that REM associates positively with investors'-rights measures, suggesting REM can substitute for AEM.

In a recent study of the effect of strategic shareholding (i.e., bank equity investments and shareholder investments with long-run expectation of profitability) on quality of outcomes, Zhong *et al.* (2017) find strategic shareholding is associated with better EQ (estimated by performance-adjusted short-term accruals); they also find this relationship becomes more

positive as degree of legal protection increases. However, studies have found different results from those of Leuz *et al.* (2003), noting cultural and organizational differences within clusters that have similar legal protection systems. For example, Wright *et al.* (2006) find that prior to management buyout (MBO) operations, British company managers manage their earnings downward, whereas U.S. companies manage their earnings more aggressively. Studies show global financial crises and corporate financial distress are likely to alter the influence of legal protection systems on EM. According to Dimitras *et al.* (2015), the 2008 financial crisis profoundly changed the accounting behaviors of firms operating in pro-creditor systems; the authors observe that during the financial crisis, Irish firms had amplified EM, despite the non-permissive nature of the Anglo-Saxon system

II. FINANCIAL DISTRESS AND BANKRUPTCY

1. Overview of financial distress and bankruptcy

In this section, we present the theoretical framework of financial distress and bankruptcy.

1.1. Financial distress

Financial distress is a particularly sensitive situation for companies. In this chapter, we discuss the main points related to its definitional framework and determinants. A recent article by Sun *et al.* (2014) provides an exhaustive review of the multiple definitions of financial distress; several authors note that financial distress is the situation of companies that are experiencing difficulties and tensions in meeting their debt obligations (Sun *et al.*, 2014; du Jardin and Sévérin, 2011; Lin, 2009; Wruck 1990). There is a fundamental distinction between failing firms and firms that are in a state of bankruptcy; the latter firms are in situations of definitive cessation of activity, that is, bankruptcy is a legal conception of financial failure.

1.2. Economic and financial concepts of financial default

According to Baldwin and Mason (1983), company failure is the result of poor economic conditions, declining performance, and poor management quality. Economic conditions are endogenous to the situation of financial failure. Indeed, difficult economic conditions, lower growth, tighter margins as the result of competition, and lack of financing (Kherrazi and Ahsina, 2016) weigh on the financial balances of companies. Low quality of management refers to limited competence and numerous agency incidents that make it difficult to develop optimal management frameworks (Zona, 2016). According to Sun *et al.* (2014, p. 42), there is an "inability to pay debts or preferred dividend and the corresponding consequences such as overdraft of bank deposits, liquidation for interests of creditors, and even entering the statutory

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bankruptcy proceeding." There are many determinants of financial failure, making it complex to select an estimate conventionally relevant to all types of financial failure.

Foster (1986) defines financial distress as a serious liquidity problem that cannot be solved without large-scale restructuring of the activity or structure of economic entities. Liquidity refers to the problem of operational solvency; it differs from structural solvency, which reflects situations in which the value of a company's assets is lower than the value of its debts, implying negative equity (Ben Jabeur, 2011) and stemming from chronic inability to have the cash flow to cover due dates. Doumpos and Zopounidis (1999) conclude financial failure not only is the inability to repay large mandatory payments, but also a situation of negative net-asset value; that is, from an accounting point of view, the firm's total liabilities exceed its total assets. In attempting to provide a generic definition of financial failure, Ross (1984) argue it is the result of four conditions: (1) business failure, that is, inability to pay outstanding debts after liquidation, (2) legal bankruptcy, that is, application to the court to declare bankruptcy, (3) technical bankruptcy, that is, inability to repay principal and interest, and (4) accounting bankruptcy, that is, net book assets are negative.

1.2.1. Legal concepts and treatment of distressed firms

In France, the legal framework for the supervision of distressed firms provides the elements of its explanatory factors. The reference laws are those of March 1, 1984 (amicable settlement) and January 25, 1985 (collective procedure and common regime for the treatment of creditors). These laws replaced the law of July 13, 1967 relating to liquidation, bankruptcy, and bankruptcy proceedings. The legal framework is intended to prescribe a legal force likely to prevent firm failure. However, according to both Kherriza and Ahsina (2016) and Ben Jabeur (2011), the legal characteristics of the situation of financial failure are specific to each context and to the legislation in force. The transition period between healthy-firm status and failing-firm status

follows a procedure that is initiated by action brought before a competent court to account for (1) inability to meet deadlines and (2) the need to reorganize. Ben Jabeur (2011) provides an interesting review of the effect of the evolution of legal provisions on the treatment of failing firms. The author classifies the legal treatment of financial failure into (1) safeguard provisions and (2) procedural treatment of distressed firms.

1.2.2. Financial determinants of financial distress

With regard only to the legal reorganization procedure, Séverin (2006) observes that financial default cannot be conditional only on cessation of payment; difficulties exist before the reorganization procedure. Following the recurrent observation of the endogenous link between difficulty and cash flow problems, the author notes the definition of financial difficulty is limited and does not consider the factors that may be at the origin of cash flow problems.

According to Ben Jabeur (2011), Ooghe and Van Wymeersch (1990) identify two criteria for the deterioration of firm solvency: (1) absence of sustained added value and (2) continuous increase in structural costs. Positive profitability (ROA or ROE) is a relevant indicator of a firm's equilibrium and ability to create value in terms of the mobilization of the assets made available. However, profitability alone is not sufficient to classify a firm as healthy, so it is by parsimony that such an indicator is admitted. The same is true for the ownership of liquidity: A firm with a positive cash position can meet its most current liabilities.

According to Blazy and Combier (1997, p. 39), "the immediate causes of failure are financial." The authors refer to the procedural framework for firms in financial difficulty: The procedure begins at the precise moment when the firm is no longer able to meet its liabilities as they fall due. Moreover, they note that the factors that explain financial failure are of various origins and are not necessarily financial. Several elements must be mobilized to evaluate the real causes of

the deterioration of a firm's financial equilibrium. Moreover, evaluation of the deterioration of a firm's financial equilibrium cannot be linked exclusively to analysis of financial data but must include in-depth investigation of the causes of the difficulties further upstream (Blazier and Cornier, 1997). Azzi (2012) notes the main causes of financial distress are debt granted to mitigate conflicts of interest and information asymmetries between the principal and the agent. The debt is regarded as a disciplinary mechanism, according to *prediction of agency theory*. According to literature, debt is the major explanatory variable of financial distress.

1.2.3. Economic determinants of financial distress

There is a paucity of literature on the treatment of the macroeconomic factors of financial distress (Ben Jabeur, 2013). Macroeconomic variables are absent from models of the prediction of financial distress. Thus, financial analysis that uses ratios, in the traditional posture, already has considered the macroeconomic aggregates associated with financial distress.

A study by Ben Jabeur (2013) focuses on the link between failure and the macroeconomic factors of French firms. Its results help establish a reading grid on the cyclical forces that weigh on French companies. The author focuses mostly on identifying the most important macroeconomic variables, to estimate their usefulness in a prediction approach, noting that according to Zopounidis (1995), economic failure refers to the lack of profitability and economic efficiency of the productive apparatus. Altman (1983, 2006) argues macroeconomic conditions can interfere in a non-negligible way with the financial equilibrium of firms; Ben Jabeur (2013) maintains that macroeconomic factors also can trigger firm failure, identifying the factors as "the economic situation, the number of start-ups, the money market, credit policy on the foreign exchange market, the evolution of the price level and the opening of the economy to foreign trade" (pp. 103–104). According to the author, younger companies are more vulnerable than older companies; their failure is linked to a lack of experience in financial

management, whereas older companies have difficulty adapting to changing environments. Poor adaptation of the oldest firms and endogenous crises among small firms exemplify the multifactorial meaning of failure (the weakness of management and persistent macroeconomic complexity).

1.3. Bankruptcy

1.3.1. Definition and causes of bankruptcy

Bankruptcy is the culmination of worsening financial distress. Empirical work has shown that the inability to pay debts when they are due (Piesse *et al*., 2006). Piesse *et al*. (2006) note that the bankruptcy is commonly defined as such ''because insolvency can be explicitly identified and also serves as a legal and normative definition of the term ''bankruptcy'' in many developed countries'' (p. 478). Beyond this financial definition, unlike financial distress, bankruptcy is mainly characterized by the initiation of legal proceedings.

Ress (1990) listed the ten most common reasons for bankruptcy : low and declining real profitability; inappropriate diversification : moving into unfamiliar industries or failing to move away from declining ones; import penetration into the firm's home markets; deteriorating financial structures; difficulties controlling new or geographically dispersed operations; over-trading in relation to capital base; inadequate financial control over contracts; inadequate control over working capital; failure to eliminate actual or potential loss-making activities; and adverse changes in contractual arrangements. Beyond these common causes, Piesse et al. (2006) show that younger firms are at greater risk of failure than younger firms. The authors argue that although these characteristics characterize bankruptcy, firms can be rescued from financial distress by government intervention. From the legal standpoint, the legal treatment in civil law

countries is similar with regard to the process of managing this incident. In our thesis, we focus exclusively on the French context.

1.3.2. *Legal proceedings of bankruptcy*

The French legal framework retains the following procedural approach to companies in difficulty (a) the *''ouverture de la procedure de redressement judiciaire''*, (b) the *''procédure de sauvegarde''*, (c) the *''procédure de redressement judiciaire''*, and (d) the *''procédure de liquidation judiciaire''*.

Firstly, the *"ouverture de la procedure de redressement judiciaire''* includes three determinants, namely, "illiquidity", the existence of the incident on the day of the judgment and the exercise of recourse by the debtor. Insolvency is the situation that accounts for the inability to meet the requirements, illiquidity is by definition the fundamental criterion leading to the cessation of payment. The opening of the reorganization procedure being exclusively the responsibility of the judicial authorities, the incident must necessarily exist not on the day of the declaration of the state of cessation of payment but on the day of the judgment. The exercise of recourse is a benefit granted to the debtor to eventually raise funds to pay off the most demanding debts.

Secondly, the *'' procédure de sauvegarde''* is open to companies which are not in a state of cessation of payments but which are experiencing difficulties which they cannot overcome and which are likely to lead them to a state of *''cessation de paiement[6]''*. The individual debtor (or the representative of the legal entity) must refer the matter to: (i) the Commercial Court if the debtor is a trader or registered in the trade register, and (ii) the High Court in other cases. If the

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[6] At the legal level, the ''cessation de paiement'' defines a situation where a company in difficulty is in "... the impossibility to face the due liabilities with its available assets" (article L631-1 of the ''Code de commerce''). https://www.economie.gouv.fr/entreprises/cessation-paiement-entreprise.

safeguard procedure is accepted by the competent courts, a safeguard plan is drawn up based on the company's prospects for recovery, the state of the market and the means available. This safeguard framework also specifies the terms and conditions for the settlement of debts.

Thirdly, the *''procédure de redressement judiciaire''*, unlike *''la procedure de sauvegarde''*, is conditioned by the existence of a situation of cessation of payment. The procedure of legal redress is a state of restructuring of companies in cessation of payment. It is opened : (i) at the request of the debtor no later than 45 days following the cessation of payment; (ii) at the request of a creditor, unless conciliation proceedings are underway; (c) at the request of a public prosecutor unless conciliation proceedings are underway. The observation period of this procedure is 6 months maximum, renewable up to 18 months. The insolvency plan is based on drastic financial restructuring measures and may eventually lead to a sale of the company. The literature commonly stresses that the decision to reorganize a business depends exclusively on its value, because the courts choose reorganization if its value (after valuation) is greater than the case of liquidation (Baird, 1986).

Fourthly, the *''procédure de liquidation judiciaire''* is pronounced against a debtor in cessation of payments and whose recovery is obviously impossible. It takes the form of the sale of the company's assets to pay off its debts. As for the judicial recovery procedure, the opening of a judicial liquidation procedure must be requested within 45 days.

1.4. Consequences of bankruptcy and financial distress/bankruptcy costs

Bankruptcy is a major event in the life of a company, the consequences of which literature has discussed widely. Theories have emerged to describe the actors involved in bankruptcy, its effects, and the economic implication of the event. Tchemeni and Wokmeni (1994) note that in practice, French and U.S. legislation (through Chapter 11 of the Bankruptcy Code) is oriented

primarily toward the reorganization of companies rather than the repayment of creditors. From an economic standpoint, bankruptcy law should not focus on business turnarounds, but rather on aspects related to the economic efficiency of companies.

1.4.1. Theoretical discussions on indirect costs

Modigliani and Miller (1958, 1963) constructed the first model including the costs of bankruptcy, known as the MM theorem. The authors studied the effects of capital structure decisions on bankruptcy in a tax-less world. Their major hypothesis is that financial policies, whatever their nature, and the mechanisms by which companies structure their capital, have no impact on firm value. From the authors' perspective, firm value and decisions about debt maturity are independent factors (Senbet and Wang, 2012), such that financial-structure decisions cannot lead to bankruptcy, because there is no causal effect of financing cycle decisions on asset value and cash flow cycle.

Senbet and Wang (2010) observe that according to the MM model, default is a state of insolvency that activates creditors' rights; therefore, bankruptcy is essentially a transfer of ownership from shareholders to creditors when the value of assets becomes lower than the value of debt. The authors highlight the difference between financial distress and economic distress: According to the MM model, companies in financial distress have difficulty meeting contractual obligations, whereas companies in economic distress experience operational incapacity. Financial distress also may be the result of market conditions: Difficulty arises as the result of a difficult economic context, rather than management-team inefficiency or allocation of resources.

Haugen and Senbet (1978) review Modigliani and Miller's (1958, 1963) and Stiglitz's (1974) models to understand whether there is an optimal capital structure and whether bankruptcy costs

are significant. Specifically, they hypothesize there is an optimal debt–equity ratio that maximizes the trade-off between the expected value of bankruptcy costs and the tax savings associated with tax benefits of interest payments. Haugen and Senbet (1978) assert that the cost of bankruptcy (not insolvency) associated with court reorganization should be limited merely to bankruptcy costs, to which are added transaction costs[7] associated with informal reorganization of capital by the firms in the capital market; they conclude bankruptcy costs have an insignificant or negligible impact on capital structure decisions in financial markets in which rational investors competitively determine prices. Their discussion shows that bankruptcy costs—and more broadly the event of bankruptcy—have little impact on capital structure, when it is optimal; that is, bankruptcy costs already are included in debt transaction costs, because it is generally accepted that creditors are rational.

However, bankruptcy is not related exclusively to market valuation; it also has an impact on other dimensions of the firm. Some theories suggest bankruptcy has detrimental effects on some stakeholders and on the transfer of wealth between creditors and debtors.

Theorists stress that bankruptcy has a detrimental social effect; *social welfare theory*[8] postulates that social welfare must be maintained when firms are in financial distress or economic difficulties. Creditors are more interested in the availability of assets and the tools at their disposal to collect their claims than in the possibilities of saving companies and continuing their activities. According to this reasoning, creditors are inclined to seize available and assessable assets for future liquidation. They decide to continue businesses only if they can withdraw net benefits from the businesses' going concerns. In turn, the social dimension of bankruptcy may

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[7] In this regard, the authors note the transaction costs associated with the debt issuance are insignificant compared with the tax subsidy granted on the payment of interest.

[8] It is more of a theoretical corpus that encompasses an entire series of studies than a single theory developed by theorists.

consist of resolving the default by cooperation between creditors to save businesses, despite high coordination costs (Onakoya and Ayooluwa, 2017).

Moreover, bankruptcy systems can have a strong social dimension and delay creditors' recovery efforts (Adler, 2002). In the short term, they can have catastrophic social consequences. In such bankruptcy systems, it is the courts (judges in charge of investigating operations to liquidate assets or restructure the firm) that determine the duration of bankruptcy proceedings, not the creditors. Bankruptcy tears apart the network of reciprocal relationships that underlie society (Zywicki, 2000). Indeed, bankruptcy is perceived as the breaking of social promises between creditors—who can use bankruptcy to collect their claims to the detriment of the fulfillment of the underlying contracts that bind them to other stakeholders—and other stakeholders—whose employees are the first concerned.

Because social trust is essential to effective economic activity (Zywicki, 2000), one of the challenges of bankruptcy systems also may be a mechanism to facilitate transactions between creditors and other stakeholders during pre-bankruptcy financial distress. Another issue is the implementation of a system of trust that guarantees social welfare. Conversely, a loss of trust on the part of other stakeholders results in additional costs of enforcing promises (Zywicki, 2000), which can have a negative effect on companies, especially employees. Indeed, a popular example of the social consequences of bankruptcy is the vulnerable situation of employees. Jeweler (2003) examines the situation of employee wages and benefits, including retirement benefits, when an employer declares bankruptcy. In the U.S. context, the author highlights that pension plans are generally well-protected by the bankruptcy code, whereas health insurance benefits are less protected. This finding suggests bankruptcy is costlier for employees (Verwijmeren and Derwall, 2010). Specifically, Verwijmeren and Derwall (2010) show employees of liquidating firms lose income and non-pecuniary benefits of working for the

firms; the authors also show that companies with the highest *ex-ante* employee well-being levels significantly "reduce the probability of bankruptcy by operating with lower debt ratios" (p. 956). Moreover, Korobin (1996) notes employees' interests in the bankruptcy law increase to the extent that specific rights and remedies had already been granted under the non-bankruptcy law.

1.4.2. *Financial/bankruptcy costs*

Literature finds financial distress/bankruptcy generates both direct and indirect costs. Direct costs include all costs related to the direct costs of default (i.e., costs arising from the insolvency of the firm, most often debt). More specifically, direct costs consist of administrative and legal costs (Pindado and Rodrigues, 2005), notably the fees of lawyers, accountants, advisors, experts, and other professionals; these costs may represent 3.1% of the accounting firm value and market value of shares (Ben Jabuer, 2011).

These direct costs are borne by firms as well as creditors. If a firm is not a sole proprietorship, the direct costs of financial distress or bankruptcy are borne by the firm as a legal entity. However, ultimately, financial distress or bankruptcy results in direct costs to creditors. Ben Jabeur (2012) notes financial distress/bankruptcy is an expensive event for creditors because: (1) Their shares and profits tend to decrease in relation to the value of the assets; and (2) their performance tends to deteriorate when there is a loss of commercial efficiency because of doubts about the growth potential of the operation. From a broader perspective, a firm's loss generates profits for other entities in the same industry, which can be considered a cost to the firm and its creditors. Moreover, according to the author, financial distress/bankruptcy leads firms to focus on the short term rather than the long term. This tendency puts pressure on firms' units, focusing firm productivity exclusively on short-term needs to avoid shortages. As a result, firms may, to maintain the operating activity, take aggressive actions.

In contrast to direct costs, indirect costs are unobservable and therefore difficult to specify and measure empirically. Researchers have attempted to measure the determinants of the indirect costs of bankruptcy. Warner (1977) considers the indirect costs of financial distress/bankruptcy to be opportunity costs. Although these costs are unobservable, empirical work has attempted to measure them. These costs mainly concern: departure of employees and difficulty in recruiting new ones; loss of customers or decrease in margins per customer; decrease in the range of suppliers; increase in unpaid trade receivables; forced liquidation of assets to improve cash flow; loss of reputation; and decrease in interest margin; and liquidity crisis.

 The well-known method for measuring indirect costs of financial distress is Altman's (1984) approach. Altman (1984) notes that the difficulty stems from the inability to distinguish whether the poor performance of a financially distressed firm is caused by the financial distress itself or is caused by other factors. Using a sample of bankrupt firms' *ex-post*, Altman (1984) found that indirect bankruptcy costs are the lost profits that a firm can be expected to suffer due to significant bankruptcy potential.

Opler and Titman (1993) develop a model where a firm's customers, workers, and suppliers suffer when they go to bankrucpty. They stress that these actors are reluctant to do business with failing firms. In the same vein, Opler and Titman (1994) find that financial distress results in a drop in performance and a loss of customers even before the receivership period.

Andrade and Kaplan (1998) attempt to measure the indirect costs of financial distress from operating and net cash flow margins. They found that operating and net cash flow margins decline when firms become distressed. Their results show that these costs are 10% to 15%. They estimatethe cost as 10% to 20% the extent of these costs by using capital values—debt and equity market values.

Molina and Preve (2009) study the trade receivables policy of firms in financial distress. They stress that firms with declining sales may be tempted to finance their market share by increasing their trade receivables. In this view, trade receivables could be considered as financial distress costs. Molina and Preve find that financially distressed firms have a reduction in sales in the range of 20% to 28%.

Based on the Opler and Titman's (1994) model, du Jardin *et al.* (2015) develop a model to capture the indirect cost by approximating the impact of declining customer credit on firm performance (decline in sales or earnings) for distressed firms. More precisely, they hypothesize and find that if a high level of debt coupled with a decrease in customer credit leads to a decrease in sales, then it will be possible to highlight the indirect costs of bankruptcy linked to customer reluctance.

In view of all the above, managers can take corrective actions to limit these costs. Among the corrective actions, EM is one of them.

2. Financial distress and earnings management

Extant studies have investigated the effect of financial distress situations on EM, showing firms manage their earnings to avoid losses and earnings declines (Gunny, 2010; Vidal, 2010; Roychowdhury, 2006; Mard, 2004; Degeorge *et al.*, 1999; Burgstalher and Dichev, 1997). Burgstalher and Dichev (1997) show firms are abnormally underrepresented just before the zero threshold, and overrepresented just after the zero threshold, reflecting behavior aimed at avoiding losses and earnings declines; moreover, firms are more likely to manage earnings upward to avoid losses (30% to 44% of firms) than avoid losses (8% to 12% of firms). In their study of more than 5,000 other American companies, Degeorge *et al.* (1999) corroborate these results.

Similar studies have been conducted in the French context. Mard (2004) observes discontinuity in the results and variations in the results before and after the zero threshold. Vidal (2010) develops a parametric approach to earnings distribution, showing that amounts manipulated to avoid losses are not exclusively marginal. Halaoua *et al.* (2017) shows French firms manage earnings more than British firms: Because French firms are financed mainly by banks, they are incentivized to avoid negative earnings to maintain creditor confidence.

Literature has discussed extensively the use of EM to avoid losses and declines in performance (Caylor, 2010; Cohen *et al.*, 2010; Gunny, 2010; Roychowdhury, 2006; Altamuro *et al.*, 2005; Beaver *et al.*, 2003). Although the common configuration is to increase accounting earnings to avoid losses, modalities differ from one study to another. Graham *et al.* (2005) find EM is driven primarily by real activity and accounting choices, whereas Halaoua *et al.* (2017), Beaver *et al.* (2003), Moerhle *et al.* (2002), and Peasnell *et al.* (2000), observe a AEM to avoid losses and profit decreases. These studies focus on adjustments to discretionary accruals (Halaoua *et al.*, 2010; Peasnell *et al.*, 2000) and reversals of restructuring provisions (Moerhle *et al.*, 2002).

Beaver *et al.* (2003) observe that reversals of loss provisions are used by U.S. insurance companies to avoid reporting weak negative results. The second REM modality concerns adjustments on actual business, which are used to meet or beat earnings thresholds. From this perspective, authors have studied the use of trade receivables and deferred income (Caylor, 2010), reductions in advertising expenditures (Cohen *et al.*, 2010), reductions in administrative and R&D expenses, and increased sales and overproduction (Zang, 2012; Gunny, 2010; Roychowdhury, 2006). Xu and Ji (2016) find previous studies have failed to detect AEM to meet or beat thresholds because of the measurement bias of the threshold used (i.e., output/market value), such that discretionary accruals are associated with the zero earnings per share (EPS) threshold, suggesting executives manage earnings to meet or beat zero EPS thresholds. Finally, authors such as Burgstalher and Dichev (1997) and Zang (2012) have studied the complementarity of the two EM approaches to avoid losses and earnings declines. Zang evidenced that managers use REM and AEM as substitutes.

In the same way as firms may manage losses and earnings declines, they may manage earnings in response to possible debt covenants violations. DeFond and Jiambalvo (1994) find abnormal accruals and abnormal working capital are positive in years preceding debt covenant violations. However, the authors observe that during years of debt covenant violations, EM levels drop significantly. Sweeney (1994) argues two factors condition EM in this context: (1) the costs imposed by creditors in the event of technical default and (2) the flexibility allowed by accounting standards. The author finds that in years prior to debt covenant violations, managers change accounting methods if technical default is likely to occur under an accounting method. According to Peltier-Rivest (1999), distressed firms that violate debt covenants, change management, are subject to government investigation, or are in negotiation with unions are significantly and negatively associated with discretionary accruals. Jaggi and Lee (2002) find discretionary accruals are significantly positive for firms that have violated their debt covenants

and significantly negative for firms that have undergone debt restructuring. Franz *et al.* (2014) find firms that are close to violating and those that have violated debt covenants have high levels of EM, and financial distress amplifies EM in this context.

However, other authors find firms that are close to violating debt covenants and those that are violating debt covenants manage earnings downward. For example, DeAngelo *et al.* (1994) find firms that incur losses and violate debt covenants (close to dividend payment covenants) lower their earnings; managers who engage in this EM configuration are unaware of their firms' difficulties and seek to renegotiate debt contracts on better terms. Healy and Wahlen (1999) acknowledge such firms tend to manage CFOs by reducing dividend payments and restructuring their operations and contracts. Saleh and Ahmed (2005) point out that discretionary accruals are positive in the second and third years before renegotiation but become negative in the year just before renegotiation.

2.1. Bankruptcy and earnings management

Academic work shows the EM of bankrupt companies oscillates between two behaviors: upward and downward EM. Martikainen and Kallunki (1999) and Campa and Camacho-Miñano (2014) find upward EM in the three years before bankruptcy. Rosner (2003) finds that compared with the financial statements of non-failed firms, the financial statements of bankrupt firms show signs of greater EM, specifically overstatements of accounts receivable, inventories, fixed assets, sales, working capital requirements, and accruals. Charitou *et al.* (2007a) study the EM of 455 U.S. bankrupt firms, finding that though they show upward AEM, their managers also manage earnings downward. For example, in the Australian context, Smith *et al.* (2001) find bankrupt firms manage upward earnings less than healthy firms; the authors suggest managers of bankrupt firms fear consequences such as lawsuits against directors and auditors if overstatements of earnings are detected. Leach and Newson (2007) find bankrupt firms

manage earnings downward from Year t-2 prior to bankruptcy. Similarly, Etemadi *et al.* (2012) study EM practices of Iranian firms five years before bankruptcy, highlighting a downward trend in EM in the three years before bankruptcy.

Other papers explore EM in terms of degree of financial difficulty prior to bankruptcy. For example, Rosner (2003) classifies firms into four categories, depending on whether they are in financial difficulty ex-ante or whether they are bankrupt ex-post. The authors finds firms that are not in financial difficulty ex-ante, but fail ex-post, manage earnings more than other firms. García Lara *et al.* (2009) study the management of results (accruals and actual activities) in terms of the probability of ex-ante bankruptcy, finding firms with low probability of ex-ante bankruptcy tend to manage earnings upward through accruals and firms with high probability of *ex-ante* bankruptcy tend to manage earnings upward through actual activities. Campa and Camacho-Miñano (2015) study whether level of financial difficulty prior to bankruptcy determines the choice between actual management of results and management of results by accruals; they find firms in financial difficulty prior to bankruptcy manage outcomes through actual activities rather than through accruals, suggesting that REM is a less detectable and more effective strategy than AEM—particularly for concealing the consequences of bankruptcy despite its effects on firms' long-term performance.

Generally, bankrupt firms manage earnings by accruals to hide their poor ex-ante performance (Leach and Newsom, 2007) and anticipate the costs of bankruptcy (Campa and Camacho-Miñano, 2015). Empirical literature shows other factors can explain EM of the low-performing of failing firms, for example, the arrival of a new manager (Charitou *et al.*, 2007b), the influence of a strong legal protection system (Leach and Newson, 2007; Kallunki and Martikainen, 1999), control of strong institutional ownership (Charitou *et al.*, 2007b), recognition of bad debts and reversal of overstatements by financial auditors (Rosner, 2003; Charitou *et al.*, 2007a, 2007b),

and reversal of accruals (García Lara *et al.*, 2009). However, it is possible that, even in a context of bankruptcy, managers may manage earnings upward to maximize their personal gains (Charitou *et al.*, 2007b).

2.2. Performance declines, debt covenants' violations, and earnings management

Declining performance and violation of debt covenants may be considered as signs of default. Thus, periods of poor performance may prompt executives to adjust their earnings up or down (Mard, 2004). Moreover, research shows firms manage earnings to avoid losses and earnings declines (Mard, 2004; Degeorge *et al.*, 1999; Burgstalher and Dichev, 1997), and avoid debt covenant violations (Franz *et al.*, 2014; DeAngelo *et al.*, 1994; DeFond and Jiambalvo, 1994).

In the same way as companies manage losses and earnings declines, they manage earnings in response to possible debt covenant violations. Defond and Jiambalvo (1994) find abnormal accruals and abnormal working capital requirements are positive in the years preceding the violation of debt covenants; however, they observe that in years of debt covenant violations, EM declines significantly. Sweeney (1994) argues two factors may encourage GR in this context: the costs imposed by creditors in the event of technical default and the flexibility allowed by accounting standards; in the years prior to the breach, managers change methods if the technical default is likely to occur under an accounting method. Peltier-Rivest (1999) finds distressed firms that violate debt covenants, change management, are subject to government investigation and negotiation with a union, are significantly and negatively associated with discretionary increases. Jaggi and Lee (2002) find discretionary increases are significantly positive for firms that have abandoned debt covenants and significantly negative for firms that have undergone debt restructuring. Franz *et al.* (2014) find firms close to debt covenants violation and those that effectively violate debt covenants have high levels of EM, and financial distress amplifies EM in this context.

However, other authors find that companies close to debt covenant violation and those violating debt covenants manage earnings downward. For example, DeAngelo *et al.* (1994) find firms that incur losses and violate debt covenants (close to dividend payment covenants) lower their earnings. They also find managers who engage in this EM pattern are unaware of their firms' difficulties and seek to renegotiate debt contracts on better terms. Healy and Wahlen (1999) acknowledge these firms tend to manage CFOs by reducing dividend payments and restructuring their operations and contracts. Saleh and Ahmed (2005) point out that discretionary increases are positive in the second and third years before renegotiation and become negative in the year just before renegotiation.

2.3. Corporate failure and EM: influence of the legal protection system

Distressed firms may choose REM rather than AEM to show better immediate performance (Campa and Camacho-Miñano 2014, 2015), regardless of the characteristics (permissive vs. aversive) of the legal protection system. Moreover, financial distress likely encourages firms to manage earnings despite institutional contexts that are hostile to EM (Dimitras *et al.,* 2015). Studies that have been developed in a pro-creditor context attest to this finding (Charitou *et al.*, 2007a and 2007b; Rosner, 2003; Smith *et al.*, 2001; Kalunki and Martikainen, 1999). However, studies also show financial crises in pro-creditor clusters associate negatively with EM (Persakis and Iatridis, 2015; Filip and Raffournier, 2014). These mixed results may be the result of the intrinsic characteristics of companies: The level of deterioration in financial ratios (e.g., Laitinen, 1991) and costs of EM (e.g., Campa and Camacho Miñano, 2014) may influence the behavior of distressed firms, regardless of the permissive or aversive characteristics of the legal protection system.

III. BOARD GENDER DIVERSITY AND QUOTAS

1. Overview of board gender diversity

In this section, we review some key theoretical arguments that explain the effects of board gender diversity on corporate outcomes; *agency theory* provides a good perspective for understanding the positive effect of board gender diversity. Jensen and Meckling (1976) argue managers have a propensity to maximize their private profits at the expense of shareholder wealth; to control discretionary actions of managers, shareholders can use corporate governance mechanisms to implement discipline mechanisms that limit agency costs. Overall, a greater presence of women on boards through coercive legislation can be considered an instrument in the service of shareholders and potential investors to ensure better quality financial information. Furthermore, according to *resource dependence theory*, diversity provides resources such as information and expertise (Pfeffer and Salancik, 2003). Carter *et al.* (2010) note that half the pool of available human capital is composed of women and minorities. In this context, diverse organizations have greater access to talent, such that gender diversity provides boards of directors and shareholders access to previously unexploited resources. *Human capital theory* also supports arguments for a positive effect of board gender diversity on EQ. Terjesen *et al.* (2009) note that differences in gender result in directors having unique forms of human capital. Relatedly, Chen and Nowland (2010) maintain that board effectiveness requires a diversity of knowledge, skills, and organizational values to generate and contribute to organizational learning and strategic decision making, and Labelle *et al.* (2010) note diversity can enable boards of directors to shape environments that are conducive to management decision making and organizational culture.

However, theory demonstrates that gender quota laws interfere with firm ownership in terms of appointment of legitimate candidates; indeed, gender quota laws may affect board balance, thus decreasing board monitoring. With regard to the gender quota context, Demsetz and Lehn (1985) assert that women directors may be appointed even when they are not the most talented candidates, on the basis of the need to comply with coercive gender quotas rather than on the basis of quality (Allemand *et al.*, 2016). Accordingly, it is plausible that quota laws have reduced levels of board monitoring and lowered EQ.

Empirical papers argue women have different behavioral characteristics than men, particularly in terms of risks and ethics. For example, women are more risk averse than men: Sunden and Surette (1998) examine how gender affects the allocation of assets in defined contribution pension plans, finding that compared with men, women invest their funds in less risky assets. Barber and Odean (2001), using a sample of 35,000 households referenced in a discount brokerage firm, find men invest 45% more than women in financial markets. In the Australian context, Duong and Evans (2016) highlight that compared with men, women choose less risky remuneration (consisting of more salary and less bonus). Other work examines whether the gender of directors affects corporate risk: In the United States, Lenard *et al.* (2014) study the relationship between gender diversity of boards of directors and risk, as measured by the volatility of share returns in the market; they show that the higher the percentage of women on a board, the lower the volatility of equity returns. Bernile *et al.* (2018) construct a diversity index that aggregates demographic (gender, ethnicity, age) and cognitive (education, financial expertise of directors) factors. By selecting the individual components of the index, they show that gender diversity, measured by the percentage of women on a board, associates negatively and significantly with profitability volatility. Jin *et al.* (2014) and Chen *et al.* (2016) find companies with high proportions of women on their board of directors are associated with the lowest levels of debt and research and development (R&D) spending.

These studies support the idea of risk reduction through gender diversity of boards. However, not all research verifies this negative influence; Adams and Ragunathan (2015) find that during the financial crisis, gender diversity associated positively with risk taking in banks. Other studies (Harjoto *et al.*, 2015; Collins, 2000) argue women are more ethical than men in their behavior and judgments. Harjoto *et al.* (2015) find having women on boards of directors increases companies' abilities to address the interests of different stakeholders; moreover, men are more likely to break the rules, suggesting that compared with women, men are more interested in economic benefits and career success, because women are socialized in more common and ethical values than men (Harjoto *et al.*, 2015; Hillman, 2007). Similarly, Bear *et al.* (2010) find gender diversity (number of female directors) associates positively with corporate social responsibility.

Researchers also have investigated the relationship between board gender diversity and quality of financial information. Because feminization not only broadens the pool of talent and responds better to skills shortages, but also provides access to resources with specific, distinct, and complementary traits and skills (St-Onge and Magnan, 2010), women directors participate in improving the monitoring function of boards of directors (Adams and Ferreira, 2009).

According to Kim and Starks (2016), boards of directors have two roles: monitoring and advisory. By increasing gender diversity, firms improve their performance, because women contribute to better monitoring (Kim *et al.*, 2016; Adams and Ferreira, 2012). Women directors add value to firms through their advisory roles by (1) providing higher quality advice that positively affects firm value, and (2) increasing their boards' advisory effectiveness—such that

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the basic argument for the contribution of women is that they improve board heterogeneity and

"functional expertise,[9]" leading to higher firm value (Kim *et al.,* 2016).

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[9] For Kim*tl*(2016) functional expertise is a critical factor for director nomination, because it serves as a source of advisory opinions.

2. <u>Determinants of boards gender diversity</u>

Reddy and Jadhav (2019) note that external factors, such as firm size, board size, industry, type of ownership, the firm's strategy.customer base, andsocial and cultural characteristics positively influence the board gender diversity.

Firstly, the Reddy and Jadhav's (2019) study supports that the firm'size is an increasing function of the representation of women directors. However, Dang and Teulon (2015) and Allemand et al. (2016) find no relationship between gender diversity and firm size.

From the prism of customer base, empirical studies such as that of Brammer *et al.* (2007) reveals greater representation of women directors in industries such as utilities, retail, banking, and media that mainly serve end-consumers. Their results also support that a company is more likely to have female board representation when that company has a relationship with another firm with strong board representation. The ownership structure has also been identified as a driver for the representation of women board. Studies such as those of Nekhili and Gatfoui (2013) and Moulin and Point (2012), based on French contexts, find a positive influence of family ownership on board gender diversity. Moulin and Point (2012) found that the opposite from institutional ownership.

From the prism of the company's strategy, Moulin and Point (2012) show that the firm size and diversification are contingent on the representation of women on boards. For clarity, the authors find that the larger the firm, the more women there are on boards. Conversely, although contingent, the relationship between diversification and the presence of women on boards is negative. This suggests that less diversified firms are more likely to have women directors.

Under the prism of social, political and economic structures, empirical papers such as those of Terjesen and Singh (2008), from 43 countries, find greater gender diversity on the board in

countries with a high proportion of women in the legislature, high official and top management positions Surprisingly, the authors found an under-representation of women in countries with a historical entrenchment of women in politics. Finally, Terjesen and Singh (2008) found that countries that have opted for gender parity have a greater representation of women on boardrooms.

From the cultural prism, works such as those of Carrasco *et al.* (2015), based on the cultural dimensions developed by Hofstede and Bond (1984) reveal from 32 countries, a low representation of women in countries with low intolerance for unequal practices in power distribution.

3. <u>Board gender quotas</u>

Historically, women have been underrepresented in business leadership positions across the world. Although women generally are well-educated, they face a glass ceiling that prevents them from reaching leadership positions in companies (Pande and Ford, 2012). On average, women have less experience than men and are therefore less likely to enter leadership positions. Although women have less experience, literature has not clearly established that experience is correlated with leadership performance. With high economic stakes and pressure from civil society, several countries have legislated the adoption of gender quotas, notably in boardrooms. Gender quotas have changed board composition significantly in countries that have adopted them; indeed, gender quotas have led to equitable representation of seats in decision-making bodies at corporate levels. Although women long have been perceived as less ambitious than men, surveys, including those conducted by Catalyst (2004), show that senior-level businesswomen, like businessmen, aspire to occupy the highest positions.

Contrary to prevailing arguments, the representation of women in leadership positions does not correlate with economic development. Pande and Ford (2011) find GDP per capita does not predict the share of women legislators from 126 countries across the globe; the authors therefore suggest the implementation of quotas generally depends on political factors. Empirical research also shows the number of women has increased exponentially on Norwegian corporate boards, from 5% in 2001 to 40% in 2008 (Eckbo *et al.*, 2016). This evolution represents an exogenous shock that has upset board composition and affected company behavior.

3.1. Barriers to women on boardrooms

There have been several barriers to women's access to leadership positions. Pande and Ford (2012) propose both "supply-side" and "demand-side" arguments for explaining the low

number of female leaders: From the supply-side perspective, women are likely to have less experience, because they bear greater responsibility for childcare; lack of aspiration is a distinguishing feature between men and women, making them less likely to be promoted to leadership positions; and women are averse to competition. Indeed, research has shown women perform less well than men in competitive environments (Gneezy *et al.*, 2003).

From the demand-side perspective, the low number of women in leadership positions is linked to taste-based discrimination, that is, social norms proscribe that women should not be leaders or that their leadership is a male activity. Consequently, there is discrimination between women and men. Indeed, the number of women leaders is very low compared with that of men. The lack of information about women leaders can make it difficult to co-opt them into the highest positions of the corporate hierarchy. Finally, Pande and Ford (2012) note that selection systems are biased; recruitment of women may be influenced and directed toward more traditional choices, that is, toward male candidates who have a greater ability to be part of male networks and thus have greater representation.

Hills (2015), in the context of South Africa, identifies other barriers to greater representation of women on boards of directors, noting women tend not to take ownership. Indeed, women have no weight in terms of capital ownership, remuneration, or various benefits linked to participation in companies. According to the author, this combination of factors explains why South African women are poorly represented and non-legitimized. Moreover, the women face internal barriers related to diffuse social beliefs in the population, especially in companies and decision-making groups. Further, in practice, diversity is a difficult concept for management teams, who consider it useful only when they are convinced diversity adds functional value to boards, as indicted by corporate performance. Finally, according to the author, studies suggest

diversity causes conflict, worsens communication, and to a lesser extent reduces workplace trust.

Other studies have questioned the determinants of low/no female representation on boards. Kesner's study (1988) highlights that experience is necessary to serve on board's influential committees. As a result, women directors are less likely to serve on board influence committees because they are less experienced than men. As noted by Reddy and Jadhav (2019) in a paper on gender diversity review, The Kesner's results were challenged by Bilmoria and Piderit (1994), who find that the low representation or lack of women directors stems primarily from a '' systematic sex-based bias against women director membership'' (Reddy and Jadhav (2019, p.3) In the same vein, from 278 survey responses from women directors serving on Canadian boards, Burke (1997) evidenced the existence of a gnder biais in the attitude of CEOS and board chaimen; For instance,the respondents argued that, "Male CEOs were seen as thinking that women were not qualified, they were afraid to take on new and untried women or were fearful that women might have a women's agenda." [Burke (1997), p.913]

3.2. Debate related to board gender quotas

Pande and Ford (2012) outline the key "pro" and "anti" gender-quota arguments; they note the arguments fall into two main groups of equity and efficiency. The adoption of gender quotas has sparked a debate between those who favor implementing affirmative action to achiever representation of women on boards, and those who are against such action. From the equity standpoint, the first argument for quotas is that their adoption directly improves the descriptive representation of women in leadership positions (Pande and Ford, 2012). Thus, quotas can force gender parity, or at least greater representation of women in leadership positions. The second argument is that quotas "improve the substantive representation of women" (Pande and Ford, 2012), which leads directly to greater representation of women's interests. In contrast, according

to the authors, those who are anti-quota argue that gender quotas crowd out other minorities; by reserving certain positions for women, other underrepresented minorities are disadvantaged and their chances of entering leadership positions are reduced. Moreover, according to the authors, from the efficiency standpoint, gender quotas are a way to account for women's talents, which until now have been underestimated. From the pro-quota perspective, gender quotas reduce the likelihood of discrimination, and women change attitudes and social norms in the long run. Gender quotas increase corporate efficiency by correcting beliefs about the benefits of including women on boards. The authors note that by increasing information about women, statistical discrimination (i.e., numbers of women directors) is reduced. Finally, gender quotas create a virtuous circle that has a "role model effect" by attracting more women with leadership potential and increasing women's performance, as women legitimize themselves to men.

Those who are opposed to quotas assert gender quotas reduce the efficiency of firms by assigning leadership positions to worse-performing leaders. Indeed, gender quotas seem to encourage the promotion of inexperienced women directors. According to Pande and Ford (2012), because experience predicts performance, inexperienced women directors may contribute to the reduction of corporate performance; the authors note gender quotas can have negative externalities. Indeed, on the question of legitimacy, women recruited through gender quotas may have incentives to invest less, because they may believe their paths to recruitment have been eased by quotas rather than by recognition of their talents; gender quotas may reduce efficiency, because women who have been recruited by gender quotas may be stereotyped by their male counterparts as less qualified. In this context, gender quotas worsen attitudes towards women, reducing the benefits of greater board gender diversity.

With regard to the gender quota in France (the research field of this thesis), the debate on board gender diversity highlights the close link between the "business case for diversity and

foundational concerns about the legitimacy of democratic policy-making" (Suk, 2012, p. 449). In this context, the debate that arose was whether the introduction of gender quotas would invalidate the legitimacy of boards to appoint their own directors. according to the expected skills and real needs of companies (Bender *et al.*, 2015). In France, the debate on gender diversity of boards has focused on the argument that board gender diversity is a '"business case." Indeed, the business case related to board gender diversity stems from two arguments: (1) Board gender diversity provides equal opportunities to women and minorities to advance to the highest echelons of the business world; and (2) diverse boards improve companies' bottom lines (Suk, 2012).

The debate on gender diversity also questions the legitimacy of public authorities. Indeed, in Norway, according to Suk (2012), the Norwegian Director General of the Ministry of Children, Equality, and Social Inclusion defended the law by observing: "The lessons learned are certainly positive and serve both economic goals as well as democracy and fairness. Research has shown that diversity is good for businesses' bottom line;" the Director General argues Norwegian businesses were losing value by failing to make use of all the talent available in Norway.

In some non-European countries, such as South Africa, the failure (i.e., slowness) of the voluntary regime has sparked debate about moving to a compulsory regime. Path dependency in South Africa is conducive to the opening of a debate on board gender parity; Hills (2015) notes South Africa performs relatively well in the global movement to close the gender gap, and the debate focuses on gender quotas becoming law in South Africa in the foreseeable future, with a target of 50% of each gender. In contrast to European countries, in which women were more represented in the workforce, South Africa's move to parity was more sclerotic because of several factors: lack of education of a large part of the female population, harmful domestic

and cultural practices, unemployment rates of women, disparity between types of employment for men and women, limited pools of women who possess the required skills, and lack of access to finance—one of the biggest deterrents of women establishing their own ventures (Hills, 2015). As in other contexts, certain key elements favored the introduction of quotas into the debate, including (1) the "business case'" argument that women on boards increase profits, because women's participation improves the reputations and images of companies; (2) increase of diversity of thought in the boardroom, with women directors having alternative approaches to the troublesome issues that confront companies; (3) women's more humane approach to the analysis process; (4) women's focus on inclusion and consultation; and (5) women's tendencies to be more humane, nurturing and empathetic (Hills, 2015).

Finally, the debate on gender diversity also has focused on the right proportion or number of women needed to improve corporate governance. Zaichkowsky (2011) studies the effect of number of women on corporate governance, approximated by scores, finding companies that have three or more women on their boards do not have the highest governance scores; on the contrary, companies with only one woman have the highest scores. The author suggests having a single woman dominated by men can reveal either that a company dominated by men already has a better governance (which suggests an endogeneity effect) or that companies dominated by men with only one woman have criteria for co-opting the woman director according to skills criteria similar to those for men. In such a context, single-woman-director boards are associated with better-governed and perhaps even more stable companies. This Canadian study opens the debate on the usefulness of quotas and its potential effects on the quality of governance. Although its results show a significant relationship between the dummy variable (three women = critical mass) and relationship scores, the latter are less significant. Thus, quality of diversity depends less on a drastic increase in the number of board seats for women than on the intrinsic qualities of women; other factors, such as general company atmosphere, information

asymmetry, reasons for the co-option of women, industry type, board and firm size, and most importantly, the way in which boards co-opt women directors, also have effects.

3.3. Institutional factors that drive gender quotas

In this section, before I highlight the specificities of countries that apply gender quotas, I review the main factors that affect the pre-quota-legislation percentages of women on boards. As suggested by Terjessen *et al.* (2015), institutional factors explain the variety of forms of set gender quotas (with percentages ranging from 33%–50%), transition periods (often three–five), and compliance penalties. Institutionalization is a process that has the ultimate goal of normalizing behavior. In this sense, the law is an instrument to help set up such a process. Terjesen *et al.* (2015, p. 236) identify three main institutional factors that determine the presence of gender quotas in a particular context: "existing gender welfare policy to support women's labor market participation, nature of the political coalition in power, institutional policy legacies in the effort toward gender equality."

First, from the standpoint of welfare policy, measures such as progressive social policies, larger public sectors, and greater family benefits result in higher participation of women in the labor market; Terjesen *et al.* (2015) posit that a country's level of welfare provision in terms of family services is related to the legislation and regulation of gender quotas in corporate boards. The rationale is that "women who are in the labor force and in managerial positions are likely to have the ability to also sit on boards, if provided with the opportunity—relative to women who are outside the labor force" (p. 237). All else being equal, countries with limited family policy provisions are unlikely to develop and enact gender quota policies. Second, the role of government is essential to determining the propensity of countries to implement gender quotas. Indeed, the partisan assumption often is highlighted: Governments must choose policies that are consistent with their electorates. Terjesen *et al.*'s (2015) findings support their hypothesis

that countries with left-leaning governments are more likely to establish gender quotas for boards of directors. Third, Terjesen *et al.* (2015) note that a country's propensity to adopt quotas stems from path dependence of gender equality initiatives. The decision to adopt quotas is strongly influenced by previous decisions. The authors argue that some types of path dependency predict legislation for board gender quotas; the adoption of gender quotas is therefore a process that stems from the existence or non-existence of an underlying (previous) process of gendered equality policies embedded within particular institutional environments. In general, these three arguments seek to justify the choices of some countries to engage in "hard law" and others to engage in "soft law." In the following section, we present the Norwegian case, which is the forerunner country with regard to integrating board gender quotas.

3.4.The Norwegian case: the forerunner country concerning the board gender quota.

Norway's parliament passed gender quota legislation in 2003. It required a minimum of 40% of each gender on the boards of large Norwegian companies, specifically, public limited firms, and more specifically, stock-listed companies. The law affects between 1,000 and 1,500 firms. Teigen (2012) notes that about 160,000 private limited liability companies are not subject to the quota law. The gender quota law was a political process that lasted 10 years. Indeed, the first motion was passed in 1999 and the full implementation of the law was not implemented until 2009. Distinctive aspects of the nation have been the driving force behind the adoption of gender quota reform in Norway; Teigen (2012) notes two main drivers: (1) a context that is conducive to debate, notably through the existence of the Norwegian state-feminist tradition, (which promotes the debate on equality and the problems linked to the glass-ceiling phenomenon), and (2) involvement of the state in the debate, which has contributed greatly to legislating gender quotas. Indeed, the gender equality political tradition in the relationship between politics and economy spheres has fostered the emergence of this innovative law.

3.5. Gender quota diffusion: explanation and various cases

3.5.1. How diffusion takes place

First, *diffusion theory* implies that the success of gender quotas in countries that have applied them influences policy making in other countries (cf. Dobbin and Kalev., 2007); there is a tendency to mimic. Second, experts play a major role in the gender quota mechanism. As Teigen (2012) notes, experts participate in international debates on gender quotas; they have demonstrated the positive effect of women managers and leaders on corporate outcomes and highlighted that greater representation of women inevitably leads to increased corporate profitability. Their influence has led to the consideration that women's participation is a "business case." Third, the mechanism of competition explains how gender policies spread. Teigen (2012) notes the rationale that having more women on boards is good for business lends itself to board quota legislation. Fourth, the mechanism of coercion explains the impact of gender quotas. Teigen (2012) refers to the power asymmetries between certain actors who can impose their preference for reform on other groups. In such a context, the adoption of a gender quota law—especially in countries with path dependencies toward gender parity—increases the likelihood of adopting gender parity policies. Fifth, the learning is an explanatory mechanism. Teigen (2012, p. 138) notes "the main idea is that policies may shift as a result of changes in the understanding of the relationship between causes and effects." More explicitly, the learning process takes place in the context of sanctions for non-compliance with quotas. According to the author, when Norway initiated sanctions, other countries did the same, suggesting they learned from another country.

3.5.2. Various cases

Iceland adopted board quota reform in 2010. It required all publicly listed companies and companies with more than 50 employees to have at least 40% of each gender represented on boards from 2013 on. However, unlike Norway, it has not yet established any penalties for non-compliance (Teigen, 2012). Some other European countries also have legislated the balanced representation of men and women on management boards. For example, Belgium has adopted a minimum of 33% of each gender from 2017. Once again, a parity law preceded gender quotas in political decision- making assemblies. In the Netherlands, legislators have enacted a corporate-board quota law that requires 30% representation of each gender on both executive and supervisory boards of firms (listed and unlisted) with more than 250 employees. Teigen (2012) points out that the adoption of gender quotas is linked to political configuration, according to a system in which men and women should alternate.

3.6. The French case: a phased approach

In France, it was around the time of the quota implementation period in Norway that legislators began to develop an approach aimed at gender parity at the highest levels of decision making, notably administrative and supervisory boards. More generally, however, the debate was launched by the European Union (EU) over the period from 2008. In this context, Vinnicombe *et al.* (2015) explores how an environmental threat (i.e., possible quotas for female supervisory directors) may have changed supervisory board gender composition of Société des Bourses Françaises (SBF) 120 French company boards between 2008 and 2010 (i.e., before France's 2011 board gender quota).

France adopted a law requiring gender quotas on corporate boards in 2006; initially, the Conseil constitutionnel invalidated the law (Suk, 2012), but in 2008 adopted a constitutional amendment that required the law to encourage equal access by men and women to professional

and social responsibility (Suk, 2012). Vinnicombe *et al.* (2015) find "significant increases over 2008–2010 in SBF120 board female representation and significant cohort differences between recent and earlier appointees, as well as evidence that newcomer women appointees differed from male peers and from appointed women and males appointed earlier, '"bringing youth and international experience'" (p. 551). For instance, they show newcomer women were more likely to gain Cotation Assistée en Continu (CAC) 40 seats than their male peers and an increase of number of female directors. This result suggests there was an anticipation effect of the law, even though the National Assembly had not yet voted on it; the board gender quota had resulted in canvassing of the talent pool for female directors. Vinnicombe *et al.* (2105) suggest appointment of a wide range of directors, including foreign English-speaking women, as was the case in France, brought a range of new insights and experience of international governance practice to traditional French boardrooms (Vinnicombe *et al.*, 2015)

France displays unique characteristics, particularly in relation to structuring of boards. Rebérioux and Roudaut (2019) note French companies are characterized by substantial shares being held by non-financial companies and by many large listed companies being family-owned. They also note that institutional investors possess a large part of the capital based on remuneration in Chief Executive Officers (CEOs). French companies are free to choose between a unitary system and a two-tier system. In France, the AFEP-MEDEF governance code encourages firms to have at least 50% of members as independent directors, except for firms with large blockholders (33%). Finally, the authors note a peculiarity of the French context is that in the majority of companies, the chief executive officer (CEO) both sits on the board and chairs it in more than half the cases.

The ''general principle of a gender quota" for listed companies was adopted by the French National Assembly, in first reading, on January 20, 2010. It was only on January 27, 2011 that

France— "the first large country to have implemented mandatory legislation as a way to address gender imbalance in corporate boards" (Rebérioux and Roudaut, 2019, p. 429)— adopted a graduated gender quota law. Indeed, this law provided for a 20% interim period of women's representation by the end of 2013, and 40% by the end of 2016, for all listed companies with more than 500 employees or revenues of more than €5 million. The law applies to all listed firms and to non-listed firms that have had at least 500 employees and revenues or total assets over €50 million, for at least three consecutive years. Failure to comply results in voided appointments and suspended remuneration for directors (Rebérioux and Roudaut, 2019). In contrast, some companies are not subject to the law for reasons related to size (firms with less than 500 employees and revenues or total assets over €50 million) and location of the company's head office (companies with head offices outside France are not subject to the law). As noted by Teigen (2012), quota tradition in France goes back to the 2000s, when the National Assembly voted for parity in the representation of men and women. Thus, in such a context, the culture of gender parity in France is not new. It is unlike other contexts, making it interesting to study, especially because it can be used to observe the behavior of companies during the transition between the two gender quota periods.

4. <u>Board gender quotas and corporate outcomes</u>

4.1. Impact of gender quotas on board functioning and processes

Terjesen and Sealy (2012) note that little is known about the effect of quotas on board functioning and processes; they suggest *status expectations theory*, human capital, fault lines, and social capital provide good perspectives for understanding the effects of board gender quota on corporate outcomes. From the perspective of status expectations theory, one of the issues related to gender quotas is the ability of women to overcome the stereotypes that suggest they are less qualified than men. In this regard, Terjesen and Sealy (2012, p. 39) note women are ''frequently assessed as having lower potential and less favorable evaluations of their performance compared to men." Moreover, gender quotas are likely to raise questions related to the relational and cognitive aspects of social capital, such as board networks. Indeed, according to the authors, gender quotas may increase problems arising from the cognitive dimension of social capital, because some boards already have operating methods and even cultures that hinder the "proper" integration of women into boards—ultimately leading to their underperformance. The authors note another question related to the study of quotas is how post-quota board directors develop social capital, recognizing there may be downsides to social capital (Portes, 2014) that suggest negative implications; however, they echo theories of human capital (Becker, 1975) that suggest gender quotas may provoke boardroom heterogeneity that enhances thought and perspective; the question is whether women contribute to cognitive diversity.

From the fault line perspective, Terjesen and Sealy (2015) describe the boardroom as a field composed of different types of subgroups (i.e., threat of identities, fragmentation, asymmetric perception of fairness, and centralization of power). Precisely, centralization of Lau and

Murnighan, 1998 stress that he fault lines of gender, age, experience and other pertinent characteristics that surround post-quota boards may affect board functioning.

From the perspective of *resource dependency theory*, boards integrate directors whose competencies fill firms' needs (Hillman *et al.*, 2000); quotas inevitably lead firms to remove some male directors in favor of female newcomers. At this stage, it is obvious that quotas affect board resource management, especially with regard to the cognitive abilities of new and former directors. In certain situations, women directors can outnumber men, leading the latter to be in the minority; it is men who become tokens. In view of this phenomenon, gender quotas can have a counterproductive effect; legislators may need to put in place adjustment mechanisms for regulating and limiting each gender (Terjesen and Sealy, 2015).

Another issue related to board gender quotas is the presence of women on major decision-making committees, such as audit, remuneration, and nomination committees. Rebérioux and Roudaut (2019) note that in France, the gender quota has induced the massive arrival to boards of a new population: women with no prior board experience. The authors find that "conditional on their individual characteristics and firm effects, rookie female directors have had a limited access to the key female directors and have suffered from a significant compensation gap." (Rebérioux and Roudaut, 2019, p. 423). They suggest that because firms have great flexibility in terms of board composition and roles within boards, boards set up their own forms of functioning, with few obligations, and that gender quotas have focused only on women's underrepresentation in board seats without attempting to regulate the distribution of positions and fees across genders.

Gender quotas have changed the composition of boards of directors both qualitatively and quantitatively; several studies show the effect of gender quotas on board composition (Pastore, 2018; Ferreira *et al.*, 2017; De Wulf, 2014; Smith, 2014; Huse, 2011). Smith (2014) finds

Finland and France are now the two countries with the highest shares of female directors. In terms of board dynamics, Ferreira *et al.* (2017) find the annual rate of turnover of female directors fell by about one-third following the introduction of board gender quotas in 2011, but the quota had no effect on male director turnover. Similarly, Pastore's (2018) empirical study of the impact of the mandatory gender balance in Italy shows the number of board seats held by women has increased so significantly, Italy now exceeds the European average and positions itself among the best European practices. The authors note that gender quotas imposed by law have led to a few women having an excessive concentration of positions (similarly to male colleagues). Huse (2011, p. 1) identifies the changes in board composition following gender quotas on corporate boards in Norway from 1990 to 2002, showing "the traditional old boys network on corporate boards are replaced by 'Golden Skirts' and 'Gold Sacks'.These studies suggest gender quotas have boosted the number of women on boards of companies in countries in which quotas have been introduced. They also suggest there is an effect of higher-positioned women holding multiple directorships, as companies seek not only to achieve gender quotas but also to maintain or even increase the quality of their boards; the companies regard the most talented women as those who hold the most mandates in various companies.

4.2. Impact of board gender quotas on firm performance

First, with regard to firm performance, and according to Suk (2012), women's differing styles—along with the increasing presence of women in corporate management—leads to better corporate governance and improves company performance in the long run. Second, the classifications in this thesis include work that has investigated the effect of gender quotas on performance. In Norway, for example, Eckbo *et al.* (2016) question the cost of forcing gender balancing of corporate boards; their results fail to reject the hypothesis that quotas have zero effect on valuation, no matter whether they consider announcement returns, long-term stock

returns, operating performance, or changes in Tobin's Q. The first studies of gender performance as it relates to firm performance were carried out in the Norwegian context. Ahern and Dittmar (2012) find the gender quota caused a significant drop in the stock price when the law was announced, as well as a large decline in Q over the following years; they suggest that the personal characteristics of board members, such as age, education, and professional experience, directly affect directors' abilities to monitor and advise. Their empirical evidence suggests new female directors were substantially different than the existing male directors and that compared to retained male directors, new female directors had significantly less CEO experience and were younger, more highly educated, and more likely to be employed as non-executive managers.

Eckbo *et al.* (2016) seek to measure the cost of forced gender balancing of corporate boards; they fail to reject the hypothesis that there is zero effect of the quota on valuation, no matter whether they consider announcement returns, long-term stock returns, operating performance, or changes in Q. According to the authors, gender quotas are negatively perceived by investors, who see them as a way of delegitimizing the right of firms to choose the human capital that is most likely to increase their firm's value. The authors maintain that firms may take three actions to minimize the perceived negative consequences of appointing relatively inexperienced female directors: First, they may implement actions to preserve overall pre-quota levels of directors' CEO experience; second, they may increase board sizes to make room for new female directors without terminating existing male directors; and third, they may opt out of quota constraints entirely by converting from ASAs to ASs[10].

Comi *et al.* (2017) seek to determine the effect of board gender diversity on firm performance and productivity in European countries that have implemented board gender quotas; they show

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[10] Allmennaksjeselskap (ASA) is the Norwegian term of public companies subject to the quota law, whereas Aksjeselskap (AS) is the Private limited liability companies (AS) not subject to the quota law.

gender quotas have had no significant effect on firm profitability and have had either negative or insignificant effects on productivity, with the exception of Italy, in which gender quotas have affected firm productivity positively. The authors suggest Italian firms complied with the law by hiring highly educated women, most of whom were graduates of fields such as law, management and economics and had the same amount of managerial work experience as the incumbents. They find that in this context, gender quotas actually triggered a thorough restructuring of the board, with a potential subsequent positive impact on firm productivity (Comi *et al.*, 2017).

In the U.S. context, according to 602 Californian firms, Greene *et al.* (2020) find (1) announcement returns average -1.2%; (2) the returns are more negative when the gap between the mandated number and the pre-Senate Bill (SB) 826 number of female directors is larger; and (3) these negative effects are less severe for firms with greater supplies of female candidates and for those that can replace more easily male directors or attract female directors. Similarly, Meyerinck *et al.* (2018) investigate how board gender quotas affected firm performance after the introduction of mandatory board gender quotas that were applicable to all firms headquartered in California. They show the introduction of a quota was associated with significantly negative announcement returns to California-headquartered firms, and firms headquartered in California had a 0.47% lower announcement return on the first day after the quota announcement than a group of control firms matched to firm size and industry. Further empirical results reveal that this effect was greater among the panel of firms that required more female directors to comply with the quota.

These reductions in value may be attributable to investors' assessments that gender quota laws will lead to the appointment of less-qualified directors and subsequent firm underperformance. The tests in this thesis support this contention, finding there are spillover effects in industries in

which competition for directors is more intense and that firms reacting to the law are appointing younger, less-experienced directors to corporate boards. A second interpretation of Meyerinck *et al.*'s (2018) results are more in line with the skepticism that the investor reaction is related to an assessment of the willingness of California (and other similarly politically aligned states) to impose non-economic legislation on firms headquartered in the state.

Gordini and Rancati (2017) find that gender diversity, as measured by the percentage of women on a board and by the Blau's and Shannon indices, has a positive and significant effect on Q, whereas the presence of one or more women on the board per se has an insignificant effect on firms' financial performance.

With regard to the Norwegian experience, research generally finds a negative relationship between gender quotas and firms' outcomes, at least in the short run (Comi *et al.*, 2017). However, beyond the Norwegian borders, it is necessary to ensure external validity of the results found in literature. Indeed, recent studies have emphasized the need for comparative empirical research to extend single-country study results (Terjesen *et al.*, 2015; Terjesen and Singh, 2008).

<div align="center">Insert Tables 3, 4 and 5 about here</div>

IV. DEVELOPMENT OF RESEARCH QUESTIONS

Our first research question relates to EM within French bankrupt VSBs. Our study builds on research on EM within VSBs, a field that literature often overlooks. Peterson *et al.* (1986) define a small business as an entity that is owned and operated independently and is not dominant in its field of operation. Other definitions use financial criteria to delimit small-sized firms from big firms: value of assets, annual sales, and number of employees.

According to d'Ambroise and Muldowey (1988), VSBs are majority-owned by entrepreneurs and owners–managers; an undifferentiated overview of the characteristics of these enterprises shows they are characterized by individualistic actions, considerable risk-taking, and propensity to adopt strategies that increase profit and growth. Further, these companies are characterized by revenue-driven management through extensive allocation of resources and time and by high risk of failure and management. For example, Welsh and White (1981) note that small-sized businesses, and indirectly VSBs, are cash-flow deficient. In addition, studies argue that bankrupt small-sized firms' managers lack managerial experience.

According to Longenecker *et al.* (1989), small-sized firms cannot be characterized as more or less ethical. Consistent with this finding, numerous studies have explored how small-sized firms report accounting (Uddin *et al.*, 2017; Adams, 2016; Peel and Wilson, 1996; Longenecker *et al.*, 1989). Howorth and Westhead (2003) note small firms may make too much effort to manage poorly performing working capital (WC) areas. Similarly, Peel and Wilson (1996) show managers of small-sized firms are more likely to use quantitative capital budgeting and WC techniques and to manage their WC situations. Small firms can be incentivized to act to monitor the performance of their activities and adapt strategies when the need arises (Stefanitsis *et al.*,

2013). Accordingly, it is reasonable to conclude that VSBs manage their accounting numbers in a discretionary way.

Vinten *et al.* (2005) study whether firms engage in "big bath" accounting techniques and whether this type of management varies according to firm size; they find small firms have a greater propensity to take big bath charges. Similarly, Ball and Shivakumar (2005) find small firms enjoy greater freedom than large firms in developing financial statements; the authors argue that regulators, auditors, and the market restrict large firms' discretionary accounting practices, whereas the strategies of small firms depend on managers and owners.

Because VSBs likely manage earnings, in this thesis I seek to determine whether VSBs' pre-bankruptcy financial situations influence their accounting behavior. Indeed, extant studies reveal that failing firms do not have similar intrinsic characteristics, a finding that leads to distinctions between various types of failure trajectories (du Jardin, 2015; Crutzen and Van Caillie, 2007, 2009; Ooghe and De Prijcker, 2006, 2008; Argenti, 1976). Moreover, financial distress likely is an EM incentive (Persakis and Iatridis, 2015; Kousenidis *et al.,* 2013; Nwaeze, 2011; Rosner, 2003). Therefore, it is legitimate to explore EM across the profiles of firm failure.

The preventive approach of bankruptcy suggests financial distress is a dynamic process (Crutzen and Van Caillie, 2007, 2009). The proper characteristics of firms significantly influence their behaviors during failure (Crutzen and Van Caillie, 2009; Ooghe and De Prijcker, 2008). Ooghe and De Prijcker (2008) identify failure as a non-monotonous phenomenon that may lead firms to follow differing bankruptcy paths. Literature highlights the existence of processes, profiles, and trajectories that failing firms follow (Crutzen and Van Caillie, 2007, 2009; Ooghe and De Prijcker, 2008; Laitinen 1991, 1992; Argenti, 1976). The process of financial failure is a dynamic sequence of organizational and financial events that reflect either

decisions taken by firms' managers or events in firms' environments, which, taken together, lead to bankruptcy (Crutzen and Van Caillie, 2007). Failure profiles are various static categories (at a given point in time) of firms in difficulty. These categories consist of firms with homogeneous intrinsic (organizational and financial) characteristics (Crutzen and Van Caillie, 2007). Financial trajectories are the paths that firms take within various risk classes over time. These risk classes describe a hierarchy of profiles that summarize the full range of financial situations of firms studied, ranging from those that are particularly healthy to those that are in the worst financial health (du Jardin and Séverin, 2015). Work has focused on both organizational (Ooghe and De Prijcker, 2006; Hambrick and D'Aveni, 1988; Malecot, 1981; Argenti, 1976) and financial (du Jardin and Séverin, 2015; Van Wymeersch and Wolfs, 1996; Laitinen 1991) typologies of failing firms.

Argenti (1976) highlights three specific profiles of failing firms; they concern the failure of (1) small firms, (2) newly created firms, and (3) mature firms that have been successful or have survived for years or decades, but fail because of a defect in management, accounting, or an abrupt change in environment. Ooghe and De Prijcker (2008) observe an additional trajectory of inert firms, and Laitinen (1991) finds not all failing firms have financial ratios that reflect the same behavior toward bankruptcy, suggesting the behavior of financial ratios reflects the existence of failure processes.

Crutzen and Van Caillie (2009) highlight seven trajectories related to 50 micro and small failing firms. They classify these seven firm failure profiles into two categories: dominant and minor. Dominant profiles relate to firms that are in difficulty following one or more external shocks and firms that have performed poorly since their creation. Minor profiles relate to firms that are in difficulty as a result of poor management of their growth, lack of dynamism and loss of

motivation of their members, personal problems, divergence of interests (personal or professional) between the managers and their firms, or poor management of their transfers.

In a recent study, du Jardin and Séverin (2015) use a Kohonen's self-organizing map to group firms into homogeneous risk classes according to 10 defined ratios. They find four classes along which the paths taken by healthy firms evolve and two classes that represent the paths taken by failing firms, suggesting healthy firms present a greater variety of profiles than failing firms. Accordingly, consistent with EM costs identified by Eisele (2012), Cohen and Zarowin (2010), and Chen (2009), we propose that the trade-off between AEM and REM within failing firms varies across firms' profiles.

With regard to AEM and REM, I use the model of Mckeown *et al.* (1991), which includes four groups of firms: (1) stressed/bankrupt (SB), (2) non-stressed/bankrupt (NSB), (3) stressed/non-bankrupt (SNB), and (4) non-stressed/non-bankrupt (NSNB), to explore whether EM varies among VSB profiles.

> Question 1: Does degree of financial distress prior to bankruptcy lead to differentiated EM within VSBs?

We expect the financial statements of pre-bankrupt distressed VSBs (SB profile) have a greater propensity to overstate their earnings via accruals than distressed/non-bankrupt VSBs (SNB profile), for two reasons. First, managers can undertake AEM after fiscal years in which they actually know whether EM is needed (Zang, 2012). Second, such manipulation incurs lower costs to long-term performance than REM (Zang, 2012; Cohen and Zarowin, 2008; Gunny, 2005). Indeed, the choice of REM versus AEM also depends on firms' abilities and the costs of doing so; according to Cohen and Zarowin (2010), firms' abilities to use accrual components to manipulate earnings include their net operating assets (NOA) positions, and the cost of

accrual manipulation estimated by the firms' auditors' characteristics, their analyst following, and their litigation risk. we extend these studies by claiming that the ability to manage earnings via real transactions for pre-bankrupt distressed VSBs is constrained, but achievable, through accrual manipulation, despite the costs of such behavior. Similarly, according to the model of my Hypotheses 3 and 4, *ceteris paribus*, firms with SB profiles are more likely than firms with SNB profiles to select and manipulate accruals components.

Our second and third essays deal with EM from the perspective of gender diversity. In the second essay, we study whether the relationship between gender diversity and quality of accounting information has been positive since the introduction of the gender quota law in France. During the pre-quota enactment, board gender diversity of French firms was the result of specific factors. Moulin and Point (2012) show firm size and diversification are contingent to the presence of women on boards; they find that the larger the firms, the more women they have on their boards. Conversely, although contingent, the relationship between diversification and the presence of women on board is negative, suggesting less-diversified firms are more likely to have women directors. The authors also show that firms under family control tend to appoint women directors, and firms under institutional control tend to appoint fewer women directors. However, both Dang and Teulon (2015) and Allemand *et al.* (2016) find no relationship between gender diversity and firm size.

In January 2011, France passed a law that imposed gender quotas on boards (Copé-Zimmerman law). This law required 20% of directors to be women in 2014 and 40% to be directors in 2017, on boards of companies that have more than 250 employees and a total balance sheet or turnover of more than €50 million (public limited companies and limited partnerships limited by shares). The introduction of board gender quota legislation has created ethical tensions and dilemmas

which can be categorize according to motivations, legitimacy, and outcomes (Terjesen and Sealy, 2016).

We study the impact of board gender quotas on board composition and EM practices of French listed companies. Indeed, given the binding nature of this law, there has been growth in the number of women on the boards of directors of French companies (Allemand *et al.,* 2016). Allemand and Brullebaud (2017) show the criteria for selecting directors have been independent of gender bias (discrimination) since the gender quota was introduced. Similarly, Allemand *et al.* (2016) find that since the enactment of the law, the share of women directors has more than doubled from 12.5% to just over 27% in 2014; they find that between 2011 and 2014 the number of companies with at least one female director increased from 37% to 94%. Because board gender quotas have changed the traditional ways of recruiting directors, we investigate whether there has been a change in corporate financial governance, particularly in terms of the scrutiny of accounting and financial information. Accordingly, we ask:

> Question 2: Has gender diversity improved the quality of accounting information since board gender quotas were introduced?

The qualitative presence of female members before introduction of the gender quota determines the impact of quotas on the ex-post period (Scapin, 2015). Therefore, we also investigate whether firms with less-gender-diverse boards have borne the highest costs. There are several reasons for the negative influence of the gender quota on the board monitoring: First, firms with less-gender-diverse boards do not have mechanisms for identifying and recruiting women candidates. This weakness delays the process of identifying suitable women directors. There is a high risk of recruiting unqualified women directors, because the exogenous pressure of the law forces companies to increase the participation of women on boards. Because firms with

fewer women on their boards are those that have undergone major changes in board composition, it is possible that as in the Norwegian context, as noted by Scapin (2015), the gender quota law has negatively affected the level of monitoring exerted by boards (at least in the short term) in France. Second, it is reasonable to expect that the firms with fewer women on boards have experienced board restructuring problems; however, firms with the most number women on their boards at the time of the announcement already had a mechanism for acquiring knowledge about pools of potential women directors, which was a substantial advantage.

In the third essay we study the legitimacy of women directors since the introduction of quotas. Gull *et al*. (2017, p. 18) stress that women directors count more for the effective monitoring of EM than simply the presence and/or the percentage of women on the board. Therefore, the authors seek to measure the impact of women directors' demographic (independence) and statutory (measure women directors' financial literacy/expertise and board experience) attributes on EM. The Gull *et al.*'s (2017) study was conducted in a pre-quota period (2001-2009). Their results evidence that interlocks women directors contribute significantly to the amplification of AEM. It seems that before the introduction of the quota law, under-represented women directors could face obvious *busyness* and *contagion* issues[11]. Conversely, business expertise and audit committee memberships of women directors appear to reduce EM. In our thesis, we extend these studies from REM, and its effect on future performance. Indeed, the literature has shown that REM has a negative effect on future performance (Filip *et al.*, 2015; Tabassum *et al.*, 2015; Zhang, 2015). Thus, we investigate whether the attributes of women

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[11] Busyness hypothesis suggests that multiple directorships reduce the monitoring quality of the board because executives with multiple seats have less time to efficiently analyze financial data and managerial behavior. The contagion hypothesis supports that EM is comparable to a virus that spreads through multiple directorships.

directors reduce the magnitude of REM, and its moderation in the causal link between REM and future performance. We ask :

Question 3 : Have women directors' board attributes mitigated REM, and moderated the causal link between REM and future performance ?

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.

Appendix : Figures and Tables

Table 1 : Number of firms by categories

	Large firms	Intermediate-sized firms	Small medium entreprises	Very small firms	Total
Industries	989	1 081	798	244	3 111
	712	*1 025*	*752*	*230*	*2 719*
Construction	234	141	495	440	1 309
Trade	608	684	804	571	2 667
Transportation	664	224	245	77	1 210
Market services (non-financial)	776	906	1 267	936	3 885
Total	3 270	3 037	3 609	2 267	12 183

Source : Insee, Ésane 2017 (données individuelles).

Figure 1 : Holistic presentation of research areas
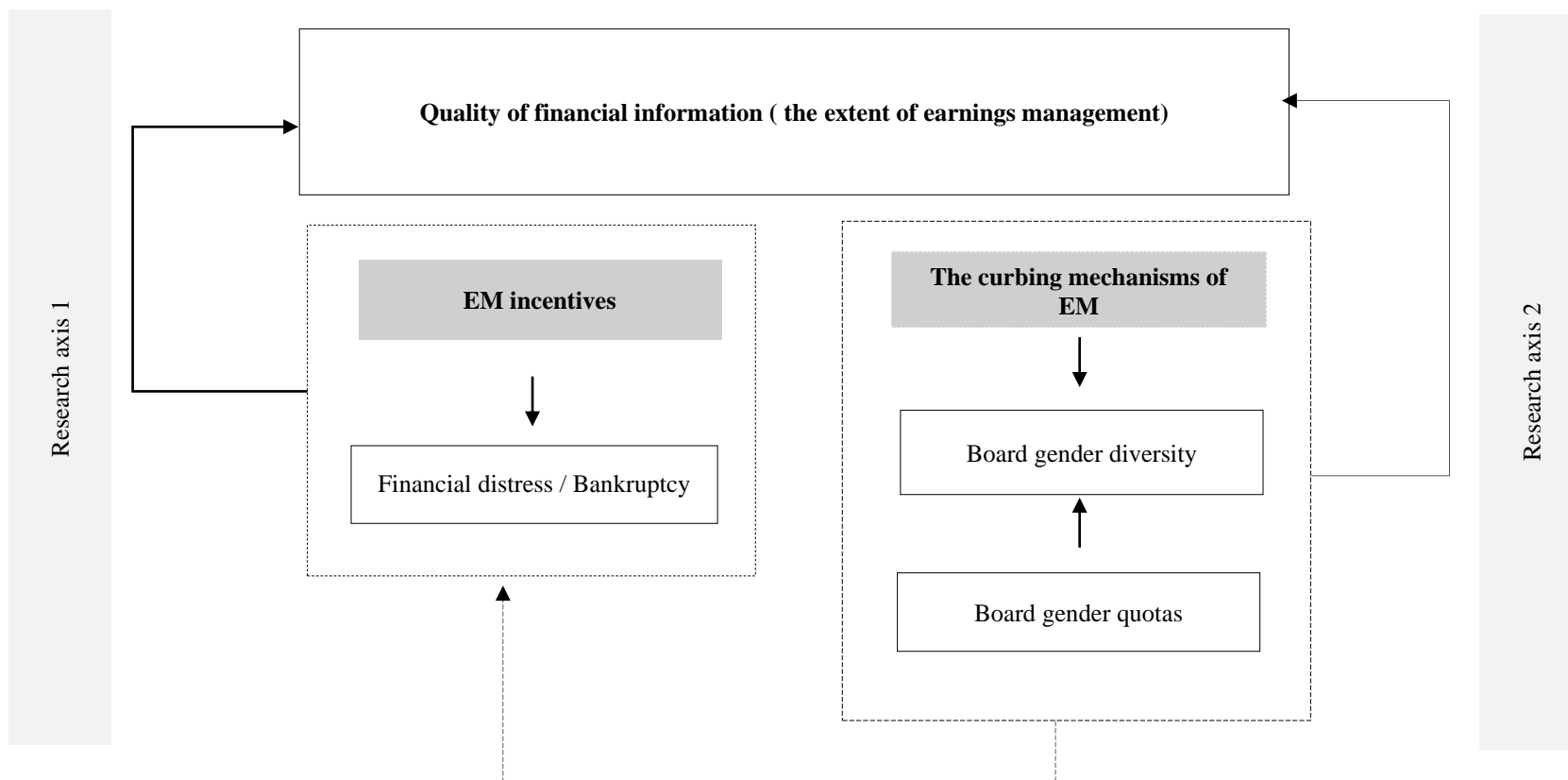
Notes to Figure 1 : This table presents the two research axes of our thesis. In the first axis (see Chapter one of our dissertation), we extend the empiral studies related to the effect of financial distress and bankruptcy, as EM incentives, on the extent of EM. In the second axis, we investigate the potential of gender diversity as a mechanism for reducing EM, and the effect of gender quotas on the quality of financial information (see Chapter two of our dissertation). This axis will also allow us to measure the legitimacy of women directors in their ability to limit the detrimental effect of EM on the firm value (see Chapter three of our dissertation). Our dissertation does not investigate the link between the curbing mechanisms of EM and its motivations

Table 2 : Studies related to the costs and benefits of AEM and REM

Studies	Costs		Benefits	
	AEM	REM	AEM	REM
Jiang et al. (2018)				Future operating performance improves when REM is undertaken by firms in strong institutional environments only during non-economic crisis periods, not during economic crisis periods.
Ahmadi and Dorseh (2016)				Abnormal discretionary expenses and abnormal operating cash flows have significant positive effects on future stock price crashes.
Cupertino et al. (2016)		There is a negative relationship between EM by using real operating activities and future returns.		
Francis et al. (2016)		REM firms experience significant increases in crash risks in following years.		
Vorst (2016)		average, reversing cuts are associated with lower future operating performance		
Chan et al. (2015)		REM decreases stock performance three years after clawback adoption.		Boosts clawback adopters' short-term profitability and stock performance
Filip et al. (2015)		REM reduces FP.		Firms suspected of postponing goodwill impairment losses

			exhibit significantly positive discretionary cash flows.
Tabassum et al. (2015)	Firms with higher REM levels experience worse financial FP.	Increase earnings in current year	
Zhang (2015)	REM is negatively associated with underperformance post-M&A.		Managers undertake REM in current periods of M&As.
Zhu (2015)	There is a negative association between REM and post-M&A performance (it brings about underperformance of post-M&A).		
Ge and Kim (2014)	Overproduction impairs credit ratings and sales manipulation and overproduction are associated with higher bond yield spreads.	Increase earnings in current year	
Alhadab et al. (2013)	IPO firms audited by big-N audit firms experience severe declines in post-IPO return performance because of extensive use of sales-based manipulation that takes place during offer years.		
Henri et al. (2013)	SEO firms that engage in REM and/or AEM significantly underperform those that do not engage in REM and/or AEM in post-offering periods.		
Kim and Sohn (2013)	The cost of capital is positively associated with the extent of EM through real activities manipulation.	Increase earnings in current year	

Cazavan-Jeny et al. (2011)		The decision to capitalize R&D is generally associated with a negative or neutral impact on FP.	Increase earnings in current year
Ibrahim et al. (2011)	Firms with higher AEM levels are subsequently sued (litigation risk).		Increase earnings in current year
Cohen and Zarowin (2010)		REM drives post-SEO performance.	Managers lead to increase pre-SOX performance.
Chen et al. (2010)		Firms that use REM exclusively to meet analysts' expectations outperform firms that use AEM in the longer term and perform no worse than firms that meet without EM. These findings suggest REM possesses positive signaling effects about future FP.	
Gunny (2010)			Managers use REM to beat earnings benchmarks to attain benefits that allow their firms to perform better in the future or signal future firm value.
Osma and Young (2009)		Investors place less weight on earnings increases accompanied by unexpected cuts in R&D spending to beat earnings benchmarks.	Cuts in R&D spending allow managers to beat earnings benchmarks.
Cohen et al. (2010)			Managers use REM to achieve important earnings benchmarks in current year.
Prevost et al.(2008)	Non-investment grade bonds in particular are penalized for higher abnormal accruals.		Increase earnings in current year

Charitou et al. (2007a)	Firms with the highest accruals portfolios are associated with subsequent low profitability.		Boosts significantly earnings in current year
Leggett et al. (2009)		REM is negatively associated with FP, measured by ROA and CFO.REM for companies that avoid accounting losses is significantly associated with poor FP.	Boosts significantly earnings in current year
Haw et al. (2005)	Investors put less value on earnings suspected of a having a greater degree of EM.	Increase earnings in current year	
Rangan (1998)	Negative effect on FP	Increase earnings in current year	
Teoh et al. (1998)	Negative effect on FP	Increase earnings in current year	
Beneish (1997)	Negative effect on market stock price	Increase earnings in current year	
Dechow et al. (1996)	Negative effect on market stock price	Increase earnings in current year	
Bartov et al. (1993)			Manipulation from timing through recognizing income from long-lived asset and investments.

Notes to Table 2.

This table presents the studies were listed from most recent to oldest. In this table, we report the costs and benefits of managing outcomes through accruals and actual

activities. We leave the columns blank when the papers do not highlight costs or benefits.

Table 3 : Quota regulations around the world

	Compliance year for quota	Quota (private-sector companies)	Gender diversity in guide-lines for good corporate governance (GCG)	Increase female share on boards, 2003-2013
EU countries with quota and/or GCG regulations				8% to 20%
EU countries with no quota or GCG regulations				9% to 11%
Finland	2010	≥ 1 woman, binding	GCG 2010	12% to 30%
Spain	2015	40%, not binding	GCG 2006	3% to 15%
France	2014, 2017	20%, 40% binding	GCG 2010	5% to 30%
Belgium	2017-19	33% binding	GCG 2009	6% to 17%
The Netherlands	2015	30% not binding	GCG 2010	8% to 25
Italy	2015	30% binding		2% to 15%
Germany	2016	30% binding	GCG 2009	10% to 21%

UK	2015	25% not binding	GCG 2010	15% to 21%
Denmark	2013	Flex "quota", not binding	GCG 2008	11% to 23%
Sweden			GCG 2004	18% to 26%
Luxembourg			GCG 2009	4% to 11
Austria			GCG 2010	6% to 13%
Poland			GCG 2010	9% to 12%
Countries outside EU:				
Norway	2008	40% binding	GCG 2009	20% to 42%
Iceland -	2013	40% binding		4% to 48%
Australia -			GCG 2010	-? to 15%
US -			GCG 2009	? to 16%

Notes to Table 3.

Sources: Table extracted in Smith (2014).

Table 4: Studies related to the effects of gender quotas on corporate outcomes

Classification criteria	Authors	Sample and period	Country	Research question	Key results
Composition.					
	Huse (2011)	1990–2008	Norway;	What is the change in board composition following gender quotas on corporate boards?	Overall, women are obtaining independent director positions. The traditional "old boys" network on corporate boards is replaced by "Golden Skirts" and "Gold Sacks."
	Pastore (2018)		Italy	What is the effect of the mandatory gender balance in Italy?	(i)The number of board seats held by women has increased significantly enough to allow Italy to exceed the European average and to position itself among the best European practices; (ii) gender quotas imposed by law led to an excessive concentration of positions on a few women (similar to male colleagues).
	Ferreira *et al.* (2017)		France	What is the effect of the mandatory gender balance in France ?	(i) the annual rate of turnover of female directors fell by about one-third following the introduction of a quota in France in 2011; (ii) the quota has no effect on male director turnover.

	De Wulf (2014)			Nonetheless, there are serious methodological doubts about these studies; at most, the studies show a certain relationship between women in boards and financial performance, but they do not establish a causal link between the former and the latter: correlation is interchanged with causation and presented as an empirical, generalizable fact without having a sound scientific background.
	Smith (2014) (Theorical study)	-	28 EU countries	-	(i) Finland and France are now the two European Union (EU) forerunner countries with the largest shares of female board members; (ii) Malta, Estonia, Cyprus, Greece, Romania, and Portugal have less than 10% of females on the boards of their largest companies; (iii) all 28 EU countries are far below the level of 40% proposed by the European Commission in 2012;

Performance.

	Greene *et al.* (2020)	602 firms; 2018	U.S. (California)	Do board gender quotas affect firm value?	(i) Announcement returns average -1.2%;(ii) returns are more negative when the gap between the mandated number and the pre-SB-826 number of female directors is larger;(iii) these negative effects are less severe for firms that have a greater supply of female candidates, and for those that can more easily replace male directors or attract female directors.

Ecko *et al.* (2018)	402 listed firms; 724 unlisted firms; 1998–2013	Norway	How costly is forced gender balancing of corporate boards?	(i) Results fail to reject the hypothesis of a zero-valuation effect of the quota, no matter whether announcement returns, long-term stock returns, operating performance, or changes in Tobin's Q are taken into account;(ii) overall, firms have maintained board CEO experience and refrained from either increasing board size (to keep male directors) or changing legal form to avoid mandatory gender balancing.
Ferrari *et al.* (2018)	245 firms; 2011–2014	Italy	What is the effect of board gender diversity on firm performance?	The share of female directors has no significant impact on firms' performance. The share of female directors is associated with a lower variability of stock market prices A positive effect of the quota law on stock market returns emerges at the date of the board's election.
Meyerinck *et al.* (2018)	2462 firms; 2018	U.S. (California)	How do board gender quotas affect firm performance after the introduction of mandatory board gender quota applicable to all firms headquartered in the state?	Introduction of the quota is associated with significantly negative announcement returns of California-headquartered firms.
Ahern and Dittmar (2012)	437 firms; 2001–2009	Norway	What is the impact on firm valuation of mandated female board representation?	The constraint imposed by the quota caused a significant drop in the stock price at the announcement of the law and a large decline in Tobin's Q over the following years.

	Comi *et al.* (2017)	9,341 firms; 2004–2014	Belgium; France; Italy; Spain	What is the effect of board gender diversity on firm performance and productivity across European countries that have implemented board gender quotas?	Results show gender quotas have no significant effect on firm profitability and either a negative or an insignificant effect on productivity. Italy is a major exception: Unlike from other countries, gender quotas had a positive effect on firm productivity.
	Gordini and Rancati (2017)	918 firms; 2011–2014	Italy	What is the board gender diversity on firm performance?	Gender diversity, as measured by the percentage of women on a board and by the Blau's and Shannon indices, has a positive and significant effect on Tobin's Q, whereas the presence of one or more women on the board *per se* has an insignificant effect on firm financial performance.

expertise. and structure.

	Lending and Vähämaa (2017)	2590 Nordic company/year observations;3741 Southern European company/year observations.	Nordic countries: Norway, Sweden, Denmark, Finland, Iceland Southern European countries: Spain, France, Greece, Italy, Portugal	What is the impact of quotas on European board structure and director expertise?	In the Nordic countries, female representation is associated with greater board independence. In Southern Europe, female representation relates positively to board expertise but the pending gender quota decreases this relationship.

Bøhren and Staubo (2016)	696 firms; 2003–2008	Norway	What is the effect of mandatory gender balance on board independence?	A mandatory 40%-women gender quota shifted the average fraction of independent directors from 46% to 67%, because female directors are much more often independent directors than males are (the average fraction of independent directors rises by 21 from the date when the gender board law was passed until it became mandatory)Firms affected the most are those that need independence the least. Such firms have low need for the monitoring provided by independent directors and high need for the advice provided by dependent directors; these firms tend to be small, young, non-listed, profitable, owned by powerful stockholders, and to have had few female directors before the quota became mandatory.
Singh et al. (2008)		France	How did an environmental threat (e.g., possible quotas for female supervisory directors) change supervisory board gender composition in SBF120 French company boards between 2008 and 2010?	Newer female appointees differed from male peers and from earlier-appointed females and males, bringing youth and international experience. New female directors were more likely than their male peers to gain CAC40 seats. There was an increase in boards with multiple female directors.

General.

	Heidenreich (2013)	(i)Female directors are less likely to be owners/partners or self-employed; (ii) female directors are more likely to have higher levels of education, especially in law; (iii) post-quota boards with more women consider new perspectives and engage in more discussion; (iv) the numbers of male directors who have multiple directorships also increase for a short period. incentives can be positive and include, for example, extraordinary budget allocations to reward the appointment of female professors in departments where they are underrepresented, negative sanctions for failing to reach particular targets of female members on boards, such as automatic exclusion from public bids (as in France), or dissolving public- listed companies (as in Denmark).

Notes to Table 3.

In this table we have grouped the different studies in alphabetical order according to their themes. We distinguish studies that have worked on the effect of gender quotas on board composition, firm performance, board expertise and structure, and general aspects of corporate governance.

Table 5 : The effect of board gender diversity and firm performance among comply or explain and mandatory contexts

Authors(s) (year)	Sample and period	Country	Gender diversity proxies	Economic firm's performance measures	Main results
Comply or explain Context					
Bennouri et al. (2018)	394 firms 2001-2010	France	Women's ratio; Female director's attributes	ROA; ROE; Q	Positive relationship (ROA, ROE); Negative relationship (Q); Positive relationship (Female director's attributes)
Conyon et He (2017)	3000 firms 2007-2014	US	Proportion of female directors; Dummy variable (1 at least to 1 female director)	Q	The presence of women on the board has a positive effect on firm performance, and this effect varies at different parts of the performance distribution.
Reguera-Alvarado et al. (2017)	125 firms 2005-2009	US	Proportion of female directors; Blau index; Shannon index	Q	Positive relationship between female directors and economic results.
Terjesen et al. (2016)	3876 public firms	47 countries	Proportion of female directors; Dummy variable (at least 1 female);	ROA ; Q	Positive and significant relationship between gender diversity an market and accounting performance.

			The proportion of independent female directors.		
Low et al. (2015)	308 firm-observations from Hong Kong; 2941 firm-observations from South Korea; 1241 firm-observations from Malaysia; 1013 firm-observations from Singapore	Hong Kong; South Korea; Malaysia; Singapore	Proportion of female directors	ROE	Female directors have positive effect on firm performance.
Chapple and Humphrey (2014)	300 listed companies	Australia	Number of female and male directors	Industry-adjusted Q (Ahern and Dittmar, 2012); retunr(one-factor and four-factor models)	No difference in the performance of gender diverse and all-male board portfolios
Joecks et al. (2013)	151 listed firms 2000-2005	Germany	Blau index	ROE	U-shape relationship (gender diversity to at first negatively affect firm performance and- only after a 'critical mass' of about 30 % women is associated with higher firm performance).
Mahadeo et al. (2012)	371 directors of 39 companies 2007	Mauritius	Women's ratio	ROA	Positive association

He and Huang (2011)	530 manufacturing firms (2001-2007)	US	Blau index	ROA	Negative association
Torchia et *al*. (2011)	317 companies 2005/2006	Norway	No. of women; four groups: (1) no, (2) one, (3) two, (4) three? Women	Innovation	Three women are positively related to innovation
Lindstaedt et *al*. (2011)	160 firms 2002-2010	Germany	Women's ratio	ROA ; ROE ; PBV	Positive link for firms with a high ratio of female employees and for B2C-business
Aliani et *al*. (2011)	34 firms	Tunisia	The percentage of female directors; Feminine values	ROA	Positive relationship between the percentage of female directors.
Bohren and Strom (2010)	203 listed firms 1989-2002	Norway	Women's ratio	Q ; ROA, ROS	Negative link
Carter et *al*. (2010)	2300 firm-observations	US	Number of female directors; Number of female on boards committees.	ROA ; Q	No significant relationship between female directors and financial performance.
Haslam et *al*. (2010)	126 2001-2005	U-K	Dummy (women on the board: yes/no); women's ratio	ROE ; ROA ; Q	No association (ROA and ROE); negative link with at least one woman on board (Tobin's Q)
Adams and Ferreira (2009)	9553 observations 1996-2003	US	Proportion of female directors	ROA ; Q	The average effect of gender diversity on firm performance is negative.

Wang and Clift (2009)	500 firms 2003-2006	Australia	Women's ratio	ROE; ROA; SMV.	No relationship
Miller and del Carmen Triana (2009)	326 firms (2003	US	Blau index	ROI, ROS	No association
Campbell et Mínguez-Vera (2008)	68 companies and 408 observations	US	Proportion of female directors; Dummy variable (1 at least to 1 female director); Blau index; Shannon index	ROA	Gender diversity has a positive effect on firm value
Nguyen and Faff (2007)	500 firms 2000/2001	Australia	Dummy (women on the board: yes/no	Q	Positive relationship
Randoy et *al*. (2006)	154 Danish, 144 Norwegian, 161 Swedish firms (2005)	3 countries	Women's ratio	ROA ; SMV	No association
Bonn (2004)	160 manufacturing firms (Japan); 104 manufacturing firms (Australia) 1998/1999	Japan; Australia	Women's ratio	ROA; MTB	Positive relationship (Australia)
Carter et *al*. (2003)	638 firms 1997	US	Dummy (women on the board: yes/no),	ROA ; Q	Positive relationship (Tobin's Q)

	women's ratio				
Erhardt et *al.* (2003)	112 firms (2002)	US	Minorities' and women's ratio	ROA, ROI	Positive link (demographic diversity included)
Shrader et *al.* (1997)	200 firms (1992)	US	Women's ratio	ROS, ROA, ROI, ROE	Negative association
Siciliano (1996)	240 (1989)	US	Women's ratio	SP ; MS	No association with total revenue to total expenses, positive association with social performance, negative association with donations
Mandatory context					
Boubaker et *al.* (2014)	105 firms and 284 firm-year observations. 2009-2011	France	Dummy variable (at least one female director); Proportion of female directors	Q	Negative association between the percentage of female directors and financial performance.
Dale-Olsen et *al.* (2013)	128 firms 2003-2007	Norway	Number of female directors	ROA	Negligible effect
Ahern and Dittmar (2012)	248 public-limited firms	Norway	Women's ratio	Q	Negative association
Bohren and Strom (2010)	203 listed firms 1989-2002	Norway	Women's ratio	Q, ROA, ROS	Negative association
Rose (2007)	More than 100 listed companies	Denmark	Women's ratio	Q	No association

Smith et *al*. **(2006)**	2,500 firms (1993-2001)	Denmark	Women's ratio	GP, net sales, MS, operating ; ROA	Positive link depending on education of women and performance measure

Notes to Table 5 : This table presents the results of studies related to the relationship between gender diversity measures and performance in the comply or explain context, and the mandatory context. ROA is the return on assets; Q is Tobin's Q; GP is gross profit; MS is margin sales; SP is social performance; ROI is the return on investments; ROE is the return on equity; MTB is the market-to-book; SMV   is the stock market value ; PBV is the price to book value.

CHAPTER I : EARNINGS MANAGEMENT AND FIRM PROFILES OF

SMALL FRENCH FIRMS

1. <u>Introduction</u>

Small and medium entreprises (SMEs) and very small businesses (VSBs) are the engine of the world's economies. The 1990s saw an numerous studies from SMEs samples. However, this focus on SMEs, which is considered by Marchesnay (2003) as a fashion and a fad, has led to the marginalization of studies from VSBs. It has been shown that VSBs are, among others and not exclusively, composed of individual entrepreneurs (*see* Jaouen, 2010). With the growing literature on entrepreneurship, some researchers consider that VSBs have the managerial characteristics of entrepreneurs (*see* Marchesnay, 2003). This view favors the lack of interest in the research in finance and accounting from the VSBs, as a distinct group from the SMEs and entrepreneurs. This view also tends to generalize the results obtained from entrepreneurs to the VSBs group. Yet, the reality is much more complex. Jaouen (2010) notes that VSBs should be considered as a subject to full part. Marchesnay (2003) for his part noted that it is necessary to go beyond the SME-entrepreneur paradigm. From a legal standpoint, in France, a VSB is not an entrepreneur. Indeed, VSB is a firm with less than 10 employees and an annual sales or total balance sheet of less than 2 million euros, while a entrepreneur is a person who takes the risk of bringing together capital and people, and whose aim is to achieve a number of economic objectives[12].The managers of VSBs are faced with various needs and obligations. Indeed, VSBs have a chronic need of financing, on the one hand, and are bound to fiscal and social obligations, on the other hand. This forces VSBs to set up an accounting organization in order to produce financial information, which is recorded in the financial statements.

Very few studies have dealt with the accounting organization and the processing of financial information in small companies., and studies from VSBs are scarce. The statistics of the French National Institute of Statistics and Economic Studies (*Institut National de la Statistique et des*

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[12] https://www.jobintree.com/dictionnaire/definition-auto-entrepreneur-319.html

Etudes Economiques [*INSEE*]) reveal that VSBs are more vulnerable than SMEs, mid-sized companies, and large firms. Thus, since VSBs provide financial information, and that financial condition affects financial reporting quality, we explore the impact of financial distress on financial reporting quality within this firm category.

Financial reporting affects the decisions and behaviors of investors and other stakeholders, so the quality of financial information reported is crucial. Although financial statements are intended to provide fair, true views of firms' financial situations, they can be manipulated. Managers tend to alter earnings in financial accounts—that is, manage earnings—because they can maximize their own compensation by managing indicators of management performance (Schipper, 1989). Therefore, this study examines the relationship between firms' financial situations and earnings management. Financial distress is a key determinant of earnings management (Jaggi and Lee, 2002); it spurs accounting manipulations. However, regardless of a firm's ex post status (i.e., bankrupt or non-bankrupt), managers may take corrective accounting actions to avoid the costs of financial distress, such as reduced or lost funding, deterioration of relationships with key stakeholders, loss of customers and suppliers, or departure of talented employees.

Studies show that failed firms are more prone to earnings management prior to declaring bankruptcy (Xu, 2016; Ghazali *et al.*, 2015), despite the negative long-term consequences (Yang *et aL*, 2016). However, these studies predefine bankruptcy by assuming that the process occurs systematically for all firms, within the same time frame (Laitinen, 1991), whereas in reality it is a protracted process that occurs over time (Dimitras *et al.*, 1996) and shows varying patterns of decline (D'aveni, 1989). Therefore, the forms and magnitudes of earnings management also may vary according to patterns of failure. By acknowledging this possibility, it becomes possible to examine earnings management according to firm patterns—that is, their

financial situations three years prior to failure—to determine whether earnings management behavior might depend on failure patterns. In the three years that precede bankruptcy, signs of financial distress should be perceptible (du Jardin, 2015), and earnings management practices should correspond to them (Campa and Camacho-Miñano, 2015; Leach and Newson, 2007).

Firms' failure patterns can be summarized in two main profiles: in financial distress or not in financial distress. Because stressed/non-stressed firms[13] continue their business activities, it is possible to compare the earnings management strategies of firms that eventually fail or do not fail. A bankrupt group thus includes stressed/bankrupt (SB) firms and non-stressed/bankrupt (NSB) firms, whereas the non-bankrupt group includes stressed/non-bankrupt (SNB) firms and non-stressed/non-bankrupt (NSNB) firms (McKeown *et al.*, 1991). With a sample of 2700 firm-year bankrupt very small businesses (VSBs) and 2700 firm-year non-bankrupt VSBs, a propensity score matching (PSM) approach, spanning 2012 to 2014, provides a more comprehensive view of earnings management practices according to two notable earnings management tools: accruals and real activities. The results show that (1) bankrupt VSBs manage earnings more extensively that non-bankrupt VSBs, (2) the magnitude of earnings management varies among VSBs, (3) SB VSBs engage in less accrual and real earnings management than other types of VSBs, and (4) NSB VSBs reveal more accrul and real earnings management activities than other types of VSBs.

With these findings, this article makes four main contributions. First, it investigates earnings management according to firms' profiles, exploring how firms' financial conditions prior to failure affect the forms and magnitudes of their earnings manipulation. Second, in recognition of the lack of conclusive evidence about whether accrual-based earnings management or real transaction manipulation is more prominent with regard to firms' financial situations, it sheds

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[13] Rosner (2003) uses the terms "distressed" and "non-distressed" to designate stressed and non-stressed firms, respectively. For this article, "stressed" and "distressed" are used interchangeably.

light on the types of earning management that characterize firms' profiles; it explores whether the degree of firms' financial distress conditions their choice between accrual and real activities. Third, it analyzes VSBs' earnings management practices, whereby managers' actions influence decision making and strategizing (Jaouen, 2010). To the best of the authors' knowledge, no studies have investigated earnings management within VSBs, despite their economic importance in France,[14] where they are less subject to supervision than listed firms (Ball & Shivakumar, 2005), such that French VSBs may be more prone to earnings management under financial pressure. Fourth, France represents a rarely explored context. In its civil law system, earnings management is highly relevant because investor protections tend to be weaker than elsewhere (Enomoto *et al.*, 2015; Leuz *et al.*, 2003) and the use of accounting data in contracts is more widespread (Arnedo *et al.*, 2007). Creditors in civil law contexts, compared with those in common law contexts, pay more attention to earnings quality, because they are less protected than debtors.

The remainder of this paper is organized as follows: Section 2 presents a literature review and research hypothesis. Sections 3 describes the and 4 present the methodology, Section 4 presents and the empirical results respectively, and Section 5. Finally, we conclude in section 5.

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[14] The INSEE shows that these companies employ 46% of employees in professional services. Moreover, 82% of non-microenterprise firms are independent companies; 15% have a group structure; and 3% are controlled by foreign groups. In 2007, INSEE indicated that these enterprises numbered 162,400 and had average turnover of €4,800,000.

2. Literature review and hypothesis development

2.1. Literature review

2.1.1. Very Small Businesses as research subject

Small and VSBs are a marginal subject of scientific research. Two reasons are traditionally argued for the low interest of studies on small firms and VSBs. Firstly, the low interest of this category of firms is largely based on the *sacred cow theory* of economies of scale, which explicitly point out that only large firms are of interest because they are the most efficient (Julien, 1993). The reason is that these firms have a transitory existence and are directly subordinate to large firms in the international division of labor. A second obstacle to VSBs studies is their extreme heterogeneity (Julien, 1993). Indeed, large companies consist of a smaller number of executives than small firms. This difference makes work from large firms easier to conduct because the number of their mangers can be described in terms of their average or typical behavior (Julien, 1993). Julien (1990) echoed by Julien (1993) notes that despite the heterogeneity of firms, small firms have common characteristics, such as a strong concentration of management with intuitive strategies giving them a fast and efficient decision-making process. He also notes that these firms have a low specialization of production factors, and poorly formalized external and internal information systems). All of the above suggests that small companies, and VSBs, are different from large companies. Following Julien (1993), it is not entirely odd to that think the study of these firms would give a better understanding it their characteristics and behavior.

Studies from small companies has been focused, first of all, on SMEs, i.e. companies with between 50 and 250 employees. To date, the literature on this firm's category, is abundant, both

from the point of view of their functioning and their weight in the economies. However, there is a complete lack of clarity about what VSBs are and what they do (*see* Marchesnay, 2003). From our point of view, following Marchesnay (2003)., the study of VSBs is much more a scientific issue than a blissful desire to study an overlooked of firm. Thus, as noted by Marchesnay (2003) small businesses (and VSBs) have experienced an increase in their management knowledge (with the popularization of management tools), an increase in their constraints (customers, suppliers, bankers, etc...) due to the increase of competition prevailing on the markets. This tends to prove that it may be interesting to study VSBs as a group of organized firms.

2.1.2. *Very small businesses and financial distress/bankruptcy*

The literature has shown the firm size matters in financial distress. First, it has been shown that small firms have an increased risk of financial distress. For example, Honjo *et al.* (2000) found that small firms have a high likehood of bankruptcy compared to large firms because the former have a low market experience. Conversely, it has been shown that the likehood of financial distress increases as the firm rises (Thim et al., 2011; Parker et al., 2002). Kristanti *et al*. (2015) investigate whether size is a determinant of financial distress using a sample of family firms. The authors find that size does not influence financial distress. This result suggests that both large and small firms professionally managed. Thus, the likelihood of financial distress is significantly reduced when the company is professionally managed. The work of Kristanti *et al.* (2015) also suggests that the smaller a firm is, the greater its risk of failure because it is not well-managed.

The literature has shown that debt is an increasing function of financial distress. Thus, the costs of financial distress/bankruptcy would increase with firm size. Working capital is a critical element in the operations of small firms (Belt, 1986). Thus, the financial health of firms depends

on the way in which the manager manages the working capital balance. Indeed, a firm is in good health when its working capital requirement is negative, and vice versa. In small units, the tension of the working capital requirement, which is partly linked to the accumulation of short-term financial debts, engages their survival. To counter this chronic and recurrent difficulty, companies generally finance working capital requirements with part of their long-term debt (Belt, 1986). In such a context, a structurally positive working capital requirement has a positive mechanical effect on the level of long-term debt. Therefore, it is conceivable that market adversity coupled with the working capital strains inherent in VSBs could lead them into a negative spiral that could result in bankruptcy.

2.1.3. *Very small businesses and accounting manipulation*

Most empirical research uses large firms as the basis for drawing accounting manipulation inferences, possibly because VSBs lack the same incentives to manage earnings and focus on managing short-term activities that drive most of their business (DeThomas and Fredenberger 1985). However, small firms, and more specifically VSBs, also may take corrective financial actions to overcome financial difficulties; the few studies of VSB financial and accounting management does not mean the companies are not engaging in earnings management. As Walker and Petty (1978) note, there are disparities among VSBs, small businesses, and large firms; their financial management behaviors differ according to several aspects. Both VSBs and small firms are characterized by individualistic actions, risk taking, and propensity to adopt strategies that increase profit and growth. Their revenue-driven management results from the need for careful allocations of resources and time (d'Amboise and Muldowney, 1988) and a high risk of failure (Carter and Van Auken, 2006). According to Longenecker, McKinney, and Moore (1989), VSBs tend to adopt practices when the need arises. Accordingly, several studies explore how small firms manage their accounting (Adams, 2016; Peel and Wilson, 1996),

primarily by noting working capital (WC) management routines. Howorth and Westhead (2003) note that some small firms make overt efforts to manage poorly performing WC areas to improve their marginal returns; specifically, they identify four types of companies according to their patterns of WC management. Of these four types, three indicate of WC management through cash management and stock and debtor routines. Managers of small firms are more likely to modulate various aspects of their WC (Peel and Wilson, 1996), and managers/owners of VSBs may be motivated to oversee the performance of their activities and adapt strategies when the need arises too (Stefanitsis *et al.*, 2013), in relation to both basic determinants and optimal levels of WC (Lamberson, 1995). For example, VSBs can reduce their inventories, decrease the number of days their accounts are outstanding, or short their cash conversion cycles to improve their firms' profitability (Ebben and Johnson, 2011).

Accordingly, VSBs may manage their accounting numbers in discretionary ways. One of the main factors that give rise to earnings management is firm's financial condition. It is not entire odd to believe that when a firm encounters a stressful situation that may lead to bankruptcy, it will resort to all mechanisms to avoid, including earnings manipulation. Accordingly, we shed lights in this aspect by extending earnings management literature in a major way. We investigate how managers manage earnings in relation to the VSBs' financial status of being distressed or non-distressed, and their status as bankrupt or non-bankrupt. This is crucial to investigate because firms have the same resources to manage earnings, and the level of pressure is not the same for each class of firms. By classifying firms according to their profiles, it is possible to identify profiles that drive earnings management by bankrupt and healthy VSBs. No prior study has investigated earnings management as it relates to bankrupt and non-bankrupt VSB profiles.

2.2. Research hypotheses

Troubled firms rely on management incentives to make their financial choices (Etemadi *et al.*, 2012). Because financial distress is costly, managers may engage in aggressive earnings management practices to conceal or postpone signs of financial distress. In specific contexts, such as violations of debt covenants, managers may undertake income-increasing earnings management to avoid debt covenant violations (DeFond and Jiambalvo 1994; Sweeney, 1994). The choice of income-increasing or income-decreasing discretionary accruals depends on the severity of the financial distress (Jaggi and Lee, 2002). DeAngelo *et al.* (1994) report that firms that incur losses and violate debt covenants reduce their earnings in previous years; in this context, "earnings management reflect their difficulties, rather than attempts to inflate income" (DeAngelo *et al.*, 1994, p.113). Chen *et al.* (2010) find that distressed Chinese firms use income-increasing earnings management techniques to avoid delisting and special monitoring by the government. Taken together, these findings suggest firms in financial distress engage in earnings management practices (upward or downward) to a greater extent than non-distressed firms.

Nearly bankrupt firms also aggressively manipulate earnings prior to filing for bankruptcy (Etemadi *et al.*, 2012; Charitou *et al.*, 2007a, 2007b). Rosner (2003) investigates whether failing firms' pre-bankruptcy financial statements exhibit more material overstatements than those of non-failing firms; compared with non-failing firms, failing firms exhibit a greater magnitude of accrual and try to conceal their deteriorating financial conditions, in the hope that the troubles are transitory. Similarly, Etemadi *et al.* (2012) find that compared with non-bankrupt firms, near-bankrupt firms engage in more aggressive earnings management, and like financially distressed firms, they engage in downside earnings management to a greater extent. This trend might result from exhaustion from manipulating earnings after prior aggressive positive

earnings management (sometimes between two to four years before bankruptcy) (Etemadi *et al.*, 2012), recognition of the non-temporary nature of financial difficulties (Jaggi and Lee, 2002), or "big bath" practices adopted by new managers during financial distress periods.

Moreover, Kim *et al.* (2003) find that small firms are more likely than large firms to practice income-increasing earnings management to avoid reporting losses. According to Campa and Camacho-Miñano (2015), distressed pre-bankrupt small enterprises (SMEs) show more extensive signs of upward earnings management through real transaction manipulation. Accordingly, earnings management may be pervasive within both small and large firms (Etemadi *et al.*, 2012; Charitou *et al.*, 2007a, 2007b; Leach & Newson, 2007; Rosner, 2003), yet the first hypothesis specifies:

> Hypothesis 1: Bankrupt VSBs manage earnings (both accrual-based and real activities) more extensively than non-bankrupt VSBs.

McKeown *et al.* (1991) identify four profiles, according to firms' financial situations over time and whether they eventually fail or survive, which Li *et al.* (2011) and Rosner (2003) use to reveal potential differences in accrual-based earnings management according to firms' financial situations. The findings are inconsistent though: Rosner (2003) indicates that NSB firms before bankruptcy show material overstatements of earnings (i.e., more income-increasing accrual-based earnings management), but Li *et al.* (2011) argue that SB firms are more likely to practice less efficient, opportunistic earnings management.

García Lara, Osma, and Neophytou (2009) determine ex ante financial outcomes using Charitou *et al.*'s (2004) failure-prediction model to rank firms and determine that firms with a low ex ante probability of failure tend to practice income-increasing accrual-based earnings management, whereas those with a high ex ante probability of failure tend to practice real

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earnings management. In seeking to determine whether firms' financial difficulties before bankruptcy condition their choice of accruals or real activities, Campa and Camacho-Miñano (2015) suggest that distressed firms are more likely to manage earnings through real activities than accruals and that managers of distressed firms try to increase earnings by using real-transaction manipulations, which are less detectable and more effective.

To analyze the choice between earnings management tools, according to VSBs' patterns of failure over time, it is necessary for VSBs to exhibit a variety of profiles. Thornhill and Amit (2003) assert that distinct firm specificities (e.g., age, skills, resources) explain their differing paths to bankruptcy, and du Jardin and Séverin (2012) show that companies move through different risk classes over time, with different profiles appearing within the same risk class. Similarly, the choice of earnings manipulation tools and the extent to which earnings are managed may vary with VSBs' profiles :

> Hypothesis 2: The extent of accrual-based (real activities-based) earnings management varies according to VSBs' profiles.

According to Rosner's (2003) evidence that (ex post) bankrupt firms that (ex ante) appear to be non-stressed tend to practice income-increasing earnings management, stressed small firms may be constrained in increasing their earnings management prior to bankruptcy and less likely to practice accrual-based earnings management. First, companies that are close to bankruptcy reduce earnings management, but this negative trend gets replaced by an increase in earnings management in the year of bankruptcy (Etemadi *et al.*, 2012). Second, compared with non-distressed small firms, distressed small firms have less power to convince auditors and joint auditors to approve potential aggressive earnings management practices. Firms' abilities to use accrual components to manipulate earnings depend on their net-operating-asset positions (Cohen and Zarowin, 2010) and the costs of accrual manipulation as estimated by auditors.

Therefore, the abilities of stressed firms to overstate earnings may be limited, because their financial situations have deteriorated. Overall, the costs of managing earnings constrains the abilities of SB VSBs to manage earnings through real transactions and accrual. Accordingly,

> Hypothesis 3: The SB VSBs show less accrual and real earnings management than other VSB profiles.

Rosner (2003) also finds that (ex post) bankrupt firms that do not (ex ante) appear non-stressed are more likely to have successfully overstated earnings than control firms. To explain the propensity of non-distressed pre-bankrupt firms to manage earnings with greater magnitude than other firms, first, these companies have not exhausted their ability to manage earnings. Earnings management is conditioned by the state of a firm's economic performance (Roychowdhury, 2006). Prior to bankruptcy, non-distressed firms may continue to manage earnings through real activities and accruals, especially when managers know the firms will go bankrupt, despite financial statements that signal good health. The implementation of real earnings management requires circumstances (Yang *et al.*, 2010) and generates costs that only non-stressed firms seem able to bear; real earnings management has a detrimental effect on future cash flows (Chen, 2009) and profitability (Bhojraj *et al.*, 2009). Second, prior to bankruptcy, non-distressed firms are less likely to have auditors scrutinizing their financial statements, because they appear to be in relatively good financial situations (Rosner, 2003). Accordingly,

> Hypothesis 4: The NSB VSBs show higher accrual and real earnings management than other VSB profiles.

3. <u>Data and variable estimates</u>

3.1. Data and sample selection

We conducted our analysis on VSBs, for which the preparation of financial statements is a discretionary process performed by managers and accountants (Pleis, 2014) that can lead to distortion of accounting numbers and operational activity when companies are in financial difficulty. Specifically, we studied French VSBs; France is a civil law country that is known to be conducive to earnings management because of its weak investor protection (Enomoto *et al.*, 2015; Chih *et al.*, 2008). Compared with common law countries such as the United Kingdom and United States, France experiences more extensive earnings smoothing and earnings aggressiveness. Unlike firms operating in common law countries, firms operating in civil law countries make extensive use of accounting data to structure their contracts; in some contexts (e.g., proximity to debt covenant violation or financial distress), managers may be motivated to make accounting choices or take opportunistic operational decisions (Campa, 2019).

The data used in this study were collected from a French database (Diane) managed by the Van Dijk office. This database contains information on the balance sheets and profit-and-loss accounts of French companies that legally are required to file their annual reports with French commercial courts. The empirical study covers 2012–2014, when an increase in the number of insolvencies was recorded (after a relatively stable 2010–2011 period), corresponding to the aftermath of the global financial crisis. The increase in French VSB failure rates creates a rich context for studying the accounting behavior of bankrupt and non-bankrupt VSBs (for a similar argument in a U.S. setting, see Joseph and Lipka, 2006).

The selected firms had a total turnover of less than €10 million and fewer than 50 employees (Campa, 2019). The three-year study period aligns with empirical evidence that signs of

financial distress should be visible three years before bankruptcy (du Jardin, 2015), and earnings management practices take place during this window (Campa and Camacho-Miñano, 2015; García Lara *et al.*, 2009; Leach and Newson, 2007). The sample selection process spanned two stages. In the first, we identified 1000 firms (3000 firm-year observations) that had initiated bankruptcy proceedings and been liquidated or reorganized at least 12 months after the publication of their most recent financial statements. Then, using panel data, we performed propensity score matching (PSM) to identify similar firms from a control group of 2,000 firms (6000 firm-year observations). The non-bankrupt firms were matched in sectors (services, manufacturing, or trade), sizes, and time periods, thereby ensuring that our study was applicable to a broad range of firms. Firms in financial intermediation, insurance, real estate, or foreign activity industries are excluded, because their financial accounts have unique characteristics, making comparisons of earnings manipulation and financial information problematic. Logistic regressions predict firms' probabilities of failure. The PSM approach supports firm matching, on the basis of firm characteristics; it finds the *x* characteristics that make good match (Lennox *et al*., 2012), as follows:

$$p(x) = pr\ (D= 1 \mid x), \quad \textit{(1)}$$

where D is the bankruptcy variable (= 1 bankrupt, = 0 non-bankrupt). Three variables produce a balancing condition and avoid potential selection bias at the time of matching: leverage, return on assets, and net operating cash flow. After estimating the propensity scores, we performed one-to-one nearest-neighbor matching with replacement for each firm-year observation. We obtained 2700 bankrupt and 2700 non-bankrupt firm-year observations.

3.2. Identification of firms' profiles

McKeown *et al.* (1991) developed the MMH firm-year model to classify bankrupt and non-bankrupt firms according to their ex ante situations; they consider a firm stressed if it fulfills at least one of four criteria: negative working capital in the current year, a loss from operations in any of the three years prior to bankruptcy, a retained earnings deficit in year-3 (in which year-1 is the last financial statement date preceding bankruptcy), or a bottom-line loss in any of the last three pre-bankruptcy years. Using each criterion, they distinguish four groups: stressed/bankrupt, non-stressed/bankrupt, stressed/non-bankrupt, and non-stressed/non-bankrupt. Researchers often use indicators of distress such as negative earnings before interest and taxes (EBIT) and negative shareholders' funds, because they relate closely to firm performance and success (Chung *et al.*, 2016; Sun and Li, 2009). However, distress implies abnormalities in business operations over time, so is results from not only performance difficulties but also financial structures (Ghazali *et al.*, 2015; Andrade and Kaplan, 1998). High leverage usually is responsible for lack of cash in a company; firms need cash to cover expenses, but as a result, they risk debt default and financial distress.

We consider both perspectives to define distress across a broad spectrum. Firms with both high levels of leverage (above the industry median) and low EBIT (below the industry median) are stressed. Conversely, firms with both low levels of leverage (below the industry mean) and positive EBIT over the three years are non-stressed. Formally, we create a dummy variable for financially distressed firms (DISTRESS) that takes a value of 1 if the company is both above the leverage median and below the EBIT median for sample, and 0 otherwise. Table 1-1 details the procedure for classifying companies according to the dummy variables, and Table 1-2 shows the firm distribution across profiles.

Insert Tables 1-1 and 1-2 about here

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3.3. Earnings management measures

We assess earnings management using two methods that capture the extent to which firms manipulate their earnings: accrual-based and real earnings management. We estimate earnings management in absolute values, using unsigned value error terms to capture the magnitudes. Hribar and Craig Nichols (2007) note that many studies on the influence of audits on the extent of earnings management have used this approach. Leuz *et al.* (2003) adopt the same approach to compare the extent of results management across 31 countries. To account for extreme and outlier values that could be caused by noisy estimates (Zang, 2012), we winsorize the earnings management variables by replacing the values of the variable that are above the 95th percentile by this percentile and values below the 5th percentile with it.

3.3.1. Measurements of accrual earnings management

We measure the discretionary variable using the accrual model of Dechow, Sloan, and Sweeney (1995), an extension of the popular Jones (1991) accrual model by year an industry. Whereas Jones (1991) considers sales to be non-discretionary, Dechow *et al.* (1995) recognize that managers can modulate earnings by adjusting sales, which limits the capacity of the model to capture all earnings management through accruals. They correct this problem by deducting the change in trade receivables from the change in sales and considering only the part of sales that has a monetary counterpart to be a non-discretionary variable:

$$TAC_{it}/TA_{i,t-1}=\alpha/TA_{i,t-1}+\beta(\Delta Sales_{i,t}-\Delta Rec_{i,t})/TA_{i,t-1}+ \gamma PPE_{i,t}/TA_{i,t-1}+ \varepsilon_{i,t}, \ (2)$$

where total accruals (TAC_{it}) are the change in non-cash working capital before income taxes payable, minus the total depreciation expense in year t for firm i. The change in non-cash working capital before taxes is defined as the change in current assets other than cash and short-

term investments minus current liabilities other than current maturities of long-term liabilities and income taxes payable, where:

TA$_{i,t-1}$ = total assets in t – 1 for firm i;

ΔSales$_{i,t}$ = sales in year t less sales in year t – 1 for firm i;

ΔRec$_{i,t}$ = net receivables in year t less net receivables in year t for firm i;

PPE$_{i,t}$ = gross property, plant, and equipment in year t for firm i; and

$\varepsilon_{i,t}$ = discretionary accruals (DACC) in year t for firm i.

3.3.2. Measurements of real earnings management

Researchers commonly estimate real earnings management using Roychowdhury's (2006) model and its three variables: sales, overproduction (by cost of production of goods sold), and discretionary expenditures. In line with Campa and Camacho (2015), we focus on sales manipulation and overproduction, which are the most frequently managed. In the models developed by Roychowdhury (2006), the error terms correspond to the abnormal portion of the real earnings management. Roychowdhury's (2006) sales manipulation model is:

$$CFO_{it}/TA_{i,t-1} = \varpi_0/TA_{i,t-1} + \varpi_1 S_{i,t}/TA_{i,t-1} + \varpi_2 \Delta S_{,t-1}/TA_{i,t-1} + \varepsilon_{i,t}, \quad (3)$$

and the overproduction model is:

$$PROD_{it}/TA_{i,t-1} = \alpha 0/TA_{i,t-1} + \beta Sales_{i,t}/TA_{i,t-1} + \theta\Delta Sales_{i,t}/TA_{i,t-1} + \gamma\Delta Sales_{i,t-1}/TA_{i,t-1} + \varepsilon_{i,t}, \quad (4)$$

where,

TA$_{i,t-1}$ = total assets in year *t* – 1 for firm *i*;

ΔSales$_{i,t}$ = sales in year *t* less sales in year *t* for firm *i*;

$\Delta Sales_{i,t-1}$ = sales in year t less sales in year $t - 1$ for firm i;

$Sales_{i,t}$ = sales in year t for firm i;

$CFO_{i,t}$ = cash flow from operations in year t for firm i (earnings before interests and taxes + depreciation and amortization, $\pm$ changes in inventories, changes in trade and other receivables, changes in trade and other payables);

$PROD_{i,t}$ = cost of goods sold + change in inventory in year t for firm i; and

$\varepsilon_{i,t}$ = abnormal cash flow (ABNCFO)/abnormal production (ABNPROD) in year t for firm i.

Because types of real earnings management are not mutually exclusive (Liu, Hodgkinson, & Chuang, 2014), we aggregate the averages of overproduction and sales manipulation (REM) to capture the overall effect of real earnings management (Enomoto *et al.*, 2015; Jiang *et al.*, 2013; Cohen and Zarowin, 2010). Firms that manage earnings upward through real activities are likely to have unusually low cash flow from operations and/or high production costs. Finally, we turn real earnings management in absolute values (Jiang *et al.*, 2013) as proxied in Equation (5):

$$REM_{i,t} = \left| ABNPROD_{i,t} - ABNCFO_{i,t} \right|, \textit{(5)}$$

3.4. Model

We rely on the variables used by Agrawal and Chatterjee (2015) and Campa and Camacho-Miñano (2015) to develop our model, as follows:

$$EM_{i,t} = \beta_0 + \beta_1 DISTRESS_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}, \textit{(6)}$$

Where,

EM is one the two earnings management proxies (DACC or REM) and DISTRESS is the dependent variable from Section 3.2. Also in line with Agrawal and Chatterjee (2015) and Campa and Camacho-Miñano (2015), In addition, $X_{j,t}$ ($j = 1, 2, …, k$) is the set of control variables. We include control variables that may influence the relationship between financial distress and earnings management. Leverage (LEV) represents total liabilities divided by total equity. Highly leveraged firms manage earnings to avoid violating debt covenants (Charitou, Lambertides, & Trigeorgis, 2011; Habib *et al.*, 2013). Lazzem and Jilani (2018) find that leveraged French firms engage in earnings management. We also measure cash flow from operations (CFO), divided by total assets. Because managers may undertake earnings management to compensate for low CFO, there is a negative association between CFO and earnings management (Habib, *et al.*, 2013; Charitou *et al.*, 2011). Return on assets (ROA) is proxied as net income divided by total assets. According to Campa and Camacho-Miñano (2015), ROA controls extreme performance, which affects the level of earnings management (Kothari *et al.*,2005). We measure growth (GROWTH) as annual change in net sales. Robin and Wu (2015) note that firms with strong growth tend to increase earnings as a signal of future performance. The annual variation in debt (Δ_DEBT) and annual variation in equity (Δ_EQ) can provide managers with incentives or disincentives to manage earnings (Lazzem & Jilani, 2018). If these variations are positive (negative), we expect a positive (negative) effect on earnings management. Finally, we control for firm size (SIZE), measured as the natural logarithm of assets. Leuz *et al.* (2003) find that earnings management is more extensive for listed companies in civil law countries than in common law countries. Othman and Zeghal (2006) also deduce that French firms manage earnings to minimize political/contractual costs. The Appendix contains definitions of all the variables.

4. <u>Results</u>

4.1. Descriptive statistics

Table 1-3 presents descriptive statistics of two groups after PSM (bankrupt and non-bankrupt). The bankrupt VSBs exhibit more extensive DACC and REM than non-bankrupt VSBs, consistent with prior studies (Etemadi *et al.*, 2012; García Lara *et al.*, 2009; Charitou *et al.*, 2007a, 2007b; Leach and Newson, 2007). Table 3 also reveals non-significant differences in the means of LEV, CFO, and ROA. This finding is consistent, in that we use these variables to match the treatment and control groups. For the two subsamples, we find statistically significant mean differences for other variables. The bankrupt VSBs also are larger in size, which challenges the conventional wisdom about the relationship between firm size and the probability of bankruptcy (Situm, 2014). The probability of bankruptcy does not decrease with firm size in our results but instead support the idea of a U-shaped curve, indicating an optimal VSB size at which the probability of financial distress is lowest. Finally, we check the firm's size difference (untabulated results) between bankrupt and non-bankrupt VSBs. Altman (1968) suggests young firms lack time to build cumulative profits and therefore may have low ratios of retained earnings over total assets. Using this implicit measure, we find that bankrupt small firms have a low ratio compared with non-bankrupt VSBs.

<div align="center">Insert Table 1-3 about here</div>

Table 1-4 presents correlation coefficients for the dependent, independent, and control variables. With regard to correlation coefficients of DISTRESS, DACC, and REM distressed pre-bankrupt VSBs tend to decrease DACC and REM (Panel A), whereas (ex post) non-bankrupt firms that appear (ex ante) distressed tend to increase DACC and REM (Panel B). The

SNB VSBs also exhibit higher DACC and REM than SB VSBs. However, bankrupt VSBs tend to manage earnings more than non-bankrupt VSBs.

With regard to whether earnings management by the managers of NSB VSBs is drastic, to the point that it surpasses that of SNB and NSNB VSBs, Table 1-5 provides descriptive statistics of DACC and REM among small firms. The t-statistic values for mean differences appear on the right side. Compared with SB VSBs, NSB VSBs tend to manage earnings more aggressively according to the findings in Panel A (NSB: DACC = 0.060/REM = 0.024; SB: DACC = 0.042/REM = 0.015). In contrast, NSB VSBs and NSNB VSBs have similar levels of earnings management (NSB: DACC = 0.051/REM = 0.016; SB: DACC = 0.050/REM = 0.016), with differences in means that are not significant; SNB VSBs and NSNB VSBs do not differ significantly with regard to DACC and REM. This result suggests that earnings management activity varies among bankrupt VSBS, but it is similar among non-bankrupt VSBs.

Insert Tables 1-4 and 1-5 about here

To measure the significance of mean differences in the earnings management variables, we compare by bankrupt and non-bankrupt firms. Table 1-6 provides the mean differences. Those between SB/SNB VSBs (Model 1) and SB/NSNB VSBs (Model 2) are significant with regard to DACC but not for REM. SB VSBs are less likely than SNB VSBs to inflate earnings, perhaps because their severe financial distress leads SB VSBs to reflect their true financial difficulties (Agrawal and Chatterjee, 2015). Regarding DACC and REM, mean differences between NSBs and NSNBs (Model 3) and NSBs and SNB VSBs (Model 4) are significant. These results indicate different levels of earnings management across firm profiles, in line with Campa and Camacho-Miñano's (2015) finding that firms with lower pre-bankruptcy levels of financial distress manipulate earnings with greater magnitude via DACC compared with highly distressed pre-bankrupt firms. This evidence confirms that NSB VSBs are more likely than

other small firms to increase earnings through accruals and real transactions, because they are interested in overcoming their financial difficulties.

Insert Table 1-6 about here

4.2. Results of multivariate analysis

Table 1-7 displays the regression results of the estimation of Equation (5) that explores the relationships of DACC (Model 1) and REM (Model 2) with financial distress. We pool the treatment sample to examine distressed and non-distressed VSBs regarding DACC and REM. In terms of statistical significance, the distress proxy is negatively associated with DACC (coefficient = -0.010) and REM (coefficient = -0.003) at the 1% level, suggesting that SB VSBs (poor performance and high levels of debt) exhibit low earnings management. In turn, we can infer that NSB VSBs engage in higher earnings management because "managers of low distressed firms possibly try to manipulate earnings management upwards to reduce their threats" (Agrawal and Chatterjee, 2015, p. 485). Moreover, NSB VSBs may practice income-increasing earnings management to avoid initiating bankruptcy proceedings (Etemadi *et al.*, 2012).

Insert Table 1-7 about here

Technically, three explanations exist for these results. First, firms implement earnings management according to their capacities and the inherent costs. According to Yang *et al.* (2010), earnings management depends on the costs and circumstances that incentivize managers to manipulate earnings; (ex post) bankrupt VSBs that appear (ex ante) to be non-stressed are more likely to engage in earnings management than other types of firms, because they have more pressure to reduce the threats associated with financial distress and bankruptcy. Stressed VSBs are less likely to manage earnings because "firms which are classified as stressed, have

a generally high probability of bankruptcy and may have already exhausted their opportunities for earnings management; thus earnings management may reverse or the poor performance does not allow enough scope for further earnings management" (Dutzi and Rausch, 2016, p. 13).

Second, we construct our firm profiles according to leverage, so the effect of leverage on earnings management might influence our results; leverage levels can have distinct impacts on earnings management (Lazzem and Jilani, 2018; Zamri *et al.*, 2013; Jelinek, 2007). Stressed VSBs are less likely than non-stressed VSBs to manage earnings using real activities. Prior research also notes a negative and significant association between leverage and real earnings management, such that "debt can be used to reduce the cost of managing the firm's cash flow at their own discretion" (Zamri *et al.*, 2013, p. 7). Leverage may have a disciplinary effect on real earnings management practices, so stressed VSBs (highest leverage levels) may reduce their extent of earnings management drastically.

Third, the high indirect costs of bankruptcy could have an effect. Financial distress leads to a "loss of sales and profits resulting when potential buyers of a product or service perceive that default is likely" (Altman, 1984, p. 1071). Stressed firms can grant significant commercial discounts to retain their customers. Campa and Camacho-Miñano (2015) find a negative association between stressed firms before bankruptcy and sales manipulation, suggesting that among firms with similar sales, those with higher pre-bankruptcy levels of financial distress have less cash. Thus, stressed firms manipulate sales by granting unusual discounts, the effect of which is "to increase the level of sales and accelerate the availability of (abnormally lower) cash" (Campa and Camacho-Miñano, 2015, p. 228).

Because investor protections and culture determine accounting choices at the country level (Nabar and Boonlert-U-Thai, 2007), we also compare our results with those of Campa and Camacho-Miñano (2015), who conducted their study in a civil law context similar to France

(i.e., Spain). They indicate that less financially distressed firms need fewer "pervasive/forceful" earnings management tools, whereas we confirm that non-stressed VSBs use real transaction manipulation more than stressed firms. We consider two potential drivers of these inconsistencies: (1) differences between firm-specific characteristics of SMEs and VSBs and (2) different Spanish and French insolvency procedures. First, the mean firm size in Campa and Camacho-Miñano's (2015) study (14.776) is larger the that in our study (mean = 5.214); SMEs and VSBs may have different firm-specific characteristics (e.g., size, capital structure, corporate governance) that incentivize them to manipulate earnings differently. Campa and Camacho-Miñano (2015) even note that firm size and financial distress influence the degree of pressure exerted on managers. Second, different institutional settings and bankruptcy procedures that incentivize firms to manipulate earnings differently (Dainow, 1966). In their comparison of Spanish and French insolvency frameworks, García-Posada and Mora-Sanguinetti (2014) demonstrate that the Spanish procedure is costly (15% of the firm's value) and lengthy (28–42 months) for distressed firms and creditors. In contrast, the French bankruptcy procedure, which consists of judicial reorganization and judicial liquidation, is less costly (9% of the firm's value) and shorter (14.2 months). Moreover, Spain's insolvency procedure is complex and uncertain; it involves several creditors and encourages a high level of information asymmetry between companies and lenders. According to García-Posada and Mora-Sanguinetti (2014), the use of bankruptcy procedures also varies with the size of distressed firms; Spanish micro-firms prefer mortgage foreclosures, whereas French micro-firms exhibit a propensity for bankruptcy procedures[15]. These differences may explain why distressed, bankrupt VSBs and distressed, bankrupt SMEs use earnings management tools differently.

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[15] For instance, in 2006 the bankruptcy rates of individual firms and micro firms were 0.01% and 0.15% in Spain, respectively, whereas those of France were 11% and 23% respectively.

4.3. Robustness tests

4.3.1. Alternative measure of financial distress

To increase the reliability of our results, we test for robustness with an alternative classification of small firms that creates firm profiles using modified Altman (2000) Z-scores, applicable to unlisted companies. The Z-score is a linear discriminant analysis based on financial ratios. According to Altman (2000), the model is relevant for industries that feature both gaps between types of corporate financing and important adjustments. Firms with higher Z-score values have lower probabilities of financial distress, whereas firms with lower Z-score values have higher probabilities of financial distress. Although Z-scores require certain optimal conditions[16], they have been used by Agrawal and Chatterjee (2015) and Campa and Camacho-Miñano (2015). In general, the Z-score consists of five financial dimensions: profitability, leverage, liquidity, solvency, and activity. It is estimated as follows:

$$\text{Z-score} = 0.717*X1 + 0.847*X2 + 3.107*X3 + 0.420*X4 + 0.998*X5, \quad (7)$$

where X1 is current assets less current liabilities divided by the total assets; X2 is retained earnings divided by total assets; X3 is earnings before interest and taxes divided by total assets; X4 is book value of equity divided by total liabilities; and X5 is sales divided by total assets.

We use a two-step process to create profiles by Z-score. First, we estimate the Z-score values for each of the three years of the study, both for ex post bankrupt firms and ex post healthy firms. Second, we choose the median (cutoff) to delimit a border between firms according to their degree of financial difficulty. The dummy variable for the Z-score equals 1 if it is greater

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[16] The many criticisms of linear discriminant analysis include the need for a strong data structure, financial ratios distributed by a normal law, and ratios of bankrupt firms have the same variances/covariances as healthy firms. All these points make the application of Z-scores difficult.

than the median Z-score for the sample and 0 otherwise. Higher Z-score values signify a lower probability of financial distress. Thus, firms with Z-score values above the cutoff are non-stressed. Table 1-8 displays the regression results. Overall, the findings hold; the Z-score is significantly positively associated with DACC (Model 1 coefficient = 0.002, $p = 1\%$) and REM (Model 2 coefficient = 0.006, $p = 1\%$). Compared with more distressed VSBs, less distressed VSBs tend to blur earnings with income-increasing management efforts.

Insert Table 1-8 about here

4.3.2 Alternative measure of accrual and real earnings management

Noting the shortcomings of models derived from Jones (1991), we conduct further tests with alternative measures of accrual and real earnings management. First, we use the measure of abnormal working capital accrual (AWCA) developed by DeFond and Park (2001). According to Kim, Chung, and Firth (2003), discretionary accruals measures based on Jones's (1991) model bias the parameter estimation and include potential measurement errors, which could increase inaccurate inferences about potential earnings management. Second, we use the measure of REM developed by Enomoto *et al.* (2015) (Corr_REM), who note that sales manipulation and overproduction lead to abnormally high production costs relative to sales, resulting in an imbalance in production and sales and a lower correlation between change in production costs and change in sales. The models are as follows:

$$AWCA_{i,t} = WC_{j,t} - \left(WC_{I,t-1}/S_{I,t-1} \right) \times S_{i,t} , \quad (8), \text{ and,}$$

$$Corr\_REM = \rho \left(\Delta Prod_{i,t}, \Delta S_{i,t} \right), \quad (9)$$

where $AWCA_{i,t}$ is the difference between the current year's realized working capital accruals and the expected level of working capital accruals. We divide the previously calculated AWCAs by beginning total assets to adjust for firm size, with $WC_{i,t}$ as working capital in year t, $WC_{i,t-1}$

as working capital in year t − 1, $S_{i,t-1}$ as sales in year t − 1, $S_{i,t}$ as sales in year t, $\Delta Prod_{i,t}$ as change in production costs as cost of goods sold plus change in inventory for firm I in year t, and $\Delta S_{i,t}$ is the change in sales for firm i in year t. Table 1-9 presents the results. We use both the DISTRESS and Z-score dummy variables. Overall, our findings are robust for the alternative measurements.

Insert Table 1-9 about here

4.3.3 Test of endogeneity concerns

Our results may be limited by simultaneity, reverse causality, and omitted variables (McNichols, 2000). To address these concerns, we use a two-system generalized method of moment (GMM) estimator (Blundell and Bond, 2000). The results are reported in Table 1-10. The Model 1 results are significant, when DACC is the dependent variable and DISTRESS is the independent variable, and in Model 4, with REM as the dependent variable and the Z-score as the independent variable. Notwithstanding some lack of significance in Models 2 and 3, our findings hold.

Insert Table 1-10 about here

4.3.4 Alternative model to capture the extent of earnings management among firm profiles

To control the reliability of our findings, we follow Li *et al.*'s (2011) approach to estimate the effect of earnings management on one-year-ahead cash flow from operations ($CFO_{i,t+1}$) and non-discretionary net income ($NDNI_{i,t+1}$) among firms' profiles. If the coefficients are negative between earnings management and future cash flow from operations and non-discretionary net income in a group of firms, we can infer that earnings management is opportunistic in this group of firms. Table 1-11 displays the results. Remarkably, DACC and REM have more detrimental

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effects on future cash flows from and non-discretionary net income within NSB VSBs (see Models 2 and 6 in panels A and B) compared with other VSBs. That is, NSB VSBs engage in aggressive earnings management.

Insert Table 1-11 about here

These robustness checks confirm H1, because we find that bankrupt VSBs tend to increase earnings by using extensive earnings management; H2, because the chosen earnings management tool and the extent of manipulation varies with VSBs' profiles (Li *et al.*, 2011; Rosner, 2003); H3, because the size of DACC is lowest for SB VSBs, perhaps due to the reversal of accruals after "previous aggressive" DACC (Allen *et al.*, 2013; ; Etemadi *et al.*, 2012; Charitou *et al.*, 2007a); and H4, because SB VSBs firms exhibit the lowest levels of real earnings management, perhaps as the result of being financially and contractually constrained (Roychowdhury, 2006) or trying to reflect their financial difficulties (Agrawal and Chatterjee, 2015). The NSB VSBs are more likely than stressed firms to make income-increasing earnings management. Yang *et al.* (2010) note that firms implement earnings management according to costs and circumstances. Firms in good financial health have the conditions they need to manipulate accrual and real transactions, because they have greater ability to support the costs inherent in such behavior (especially on subsequent performance).

5. <u>Conclusion</u>

This empirical exploration of the extent of earnings management by firms according to their financial situations (stressed or non-stressed) and their status (bankrupt or non-bankrupt) centers on the often-overlooked category of small French firms. By applying PSM, we obtain a sample of 2700 firm-year bankrupt and 2700 firm-year non-bankrupt small-sized firms, from which we create firm profiles using two proxies associated with financial distress: leverage and economic performance. With two approaches, we classify firms into four profiles: stressed/bankrupt (SB), non-stressed/bankrupt (NSB), stressed/non-bankrupt (SNB), and non-stressed/non-bankrupt (NSNB). We estimate and compare earnings management among these four profiles. We also conduct multivariate analysis from a pooled sample to examine the link between financial distress and earnings management. The results reveal that bankrupt VSBs indicate manipulat earnings with greater magnitude than non-bankrupt VSBs. The magnitude of earnings management varies among VSBs, and SB VSBs show lower levels of accrual and real earnings management than other small firms. Finally, NSB VSBs show higher levels of accrual and real earnings management compared with others. This study also sheds light on earnings management in a civil law country, whereas previous studies have focused on firms in common law countries (Charitou *et al.*, 2007a, 2007b; Etemadi *et al.*, 2012; García Lara *et al.*, 2009; Leach and Newson, 2007), in which corporate, political, and cultural mechanisms limit earnings management practices (Leuz *et al.*, 2003). Our study has some limitations; we do not evaluate earnings exclusively by earnings management but instead include other variables, such as earnings timeliness and conditional conservatism (Francis, Olsson, & Schipper, 2008), earnings persistence (Dechow *et al.*, 2010), value relevance (Hayn, 1995), and earnings smoothing (Barth *et al.*,, 2008). An alternative approach could compare loss recognition timeliness (Ball and Shivakumar, 2005). Researchers also could consider the differences between common law and civil law countries in their treatment of bankruptcy (Claessens and

Klapper, 2005) by comparing earnings management by firms in these differing institutional contexts. Because France currently requires joint audits, it would be interesting to consider the influence of external control mechanisms and the effect of joint auditor/partner pairs on earnings management strategies.

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Appendix : Figures and Tables

Figure 2: Firm profiles

Ex-ante   **Ex-post**

Stressed   ---------→ **Bankrupt status**   **SB**

Non-stressed   ---------→   **NSB**

Ex-ante   **Ex-post**

Stressed   ---------→ **Non-bankrupt status**   **SNB**

Non-stressed   ---------→   **NSNB**
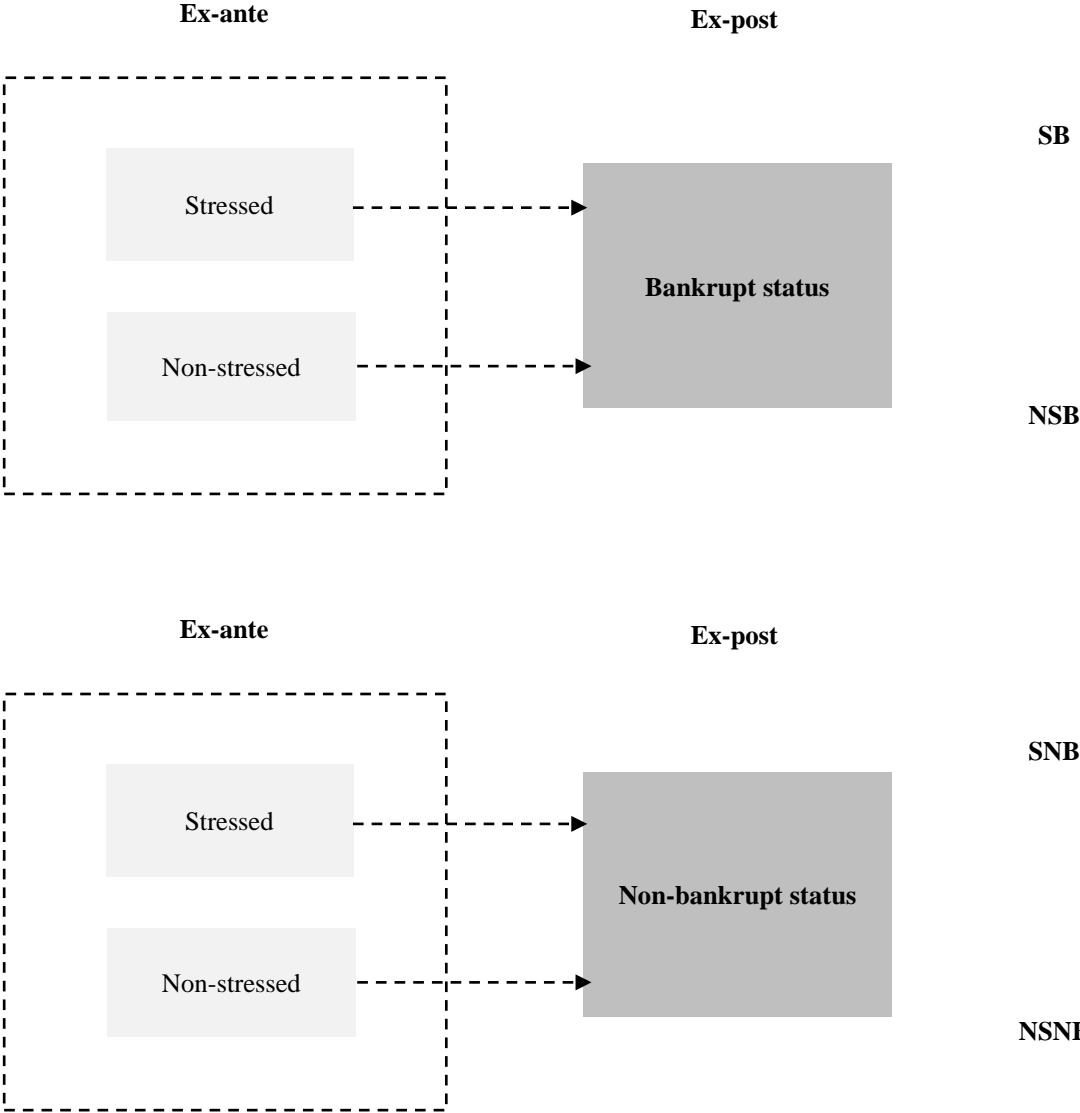
Notes to Table 2 :

This figure presents the four firm profiles of this study, SB and NSB, on the one hand, and SNB and NSNB on the other hand.

Table 1- 1 : Identification of firms' profiles

Code of dummy variables		Identification of firms' profiles
Distressed/non-distressed dummy variables	Bankrupt/non-bankrupt dummy variables	
0	0	NSNB
1	0	SNB
0	1	NSB
1	1	SB

Notes to Table 1-1: NSNB: (ex ante) non-stressed/(ex post) non-bankrupt firms ; SNB: (ex ante) stressed/(ex post) non-bankrupt firms ; NSB: (ex ante) non-stressed/(ex post) bankrupt firm ; SB: (ex ante) stressed/(ex post) bankrupt firms.

Table 1- 2 : Sample selection process and firm distribution among profiles

	Bankrupt firms	Healthy firms	
Sample before PSM (firm-year observations)	3,000	6,000	9000
Sample after PSM (firm-year observations)	2,700	2,700	5,400
Distribution of firms among profiles			
Number of distressed firms	863	761	-
Number of non-distressed firms	1,837	1,939	-

Table 1- 3 : Descriptive statistics of variable

	Bankrupt firms				Non-bankrupt firms				t-statistic	z-statistic
	Obs	Mean	St.Dev	Median	Obs	Mean	St.Dev	Median		
CDACC$_{i,t}$	2700	0.055	0.076	0.027	2700	0.051	0.073	0.025	-1.9166*	-2.376**
REM$_{i,t}$	2700	0.021	0.069	0.007	2700	0.016	0.049	0.005	-3.0766***	-8.567***
DISTRESS$_{i,t}$	2700	0.320	0.466	1.000	2700	0.282	0.45	1.000	-3.0288***	-3.027***
LEV$_{i,t}$	2700	3.008	14.289	1.790	2700	3.511	12.435	1.114	1.3782	-3.101***
CFO$_{i,t}$	2700	0.006	0.209	0.018	2700	0.004	0.211	0.017	-0.3928	-0.258
ROA$_{i,t}$	2700	-0.010	0.204	0.008	2700	-0.011	0.223	0.004	-0.2359	-0.904
GROWTH$_{i,t}$	2700	0.053	0.539	-0.041	2700	0.005	0.539	-0.026	-3.2117***	-1.131
Δ_DEBT$_{i,t}$	2700	0.121	0.606	0.120	2700	0.077	0.668	0.077	-2.4922**	-7.126***
Δ_EQ$_{i,t}$	2700	-0.203	1.803	0.002	2700	-0.086	1.387	-0.009	2.6688***	-0.188
SIZE$_{i,t}$	2700	5.633	0.966	5.812	2700	4.795	1.228	4.849	-27.8376***	-26.396***

Notes to Table 1-3 :

CDACC is discretionary accruals approximated by Dechow *et al.*, 1995; REM is the real earnings management, approximated as sum of abnormal cash flow from operations and abnormal production costs measured by Roychowdhury's (2006) models; DISTRESS is the financial distress proxy, a dummy variable 1 if the firm is both above the leverage median and below the EBIT median firms, 0 otherwise; LEV is the firm leverage, measured as the total liabilities divided by total equity; CFO is the cash flow from operations, measured as cash flow from operations divided by total assets; ROA is the return on assets, measured as then net income divided by total assets; GROWTH is the firm growth, proxied as Annual change in net sales; Δ_DEBT is the variation in debts, measured as the annual variation in debt; Δ_EQ the variation in equity, measured as annual variation in equity; variation in debt; SIZE is the firm size, measured as the natural logarithm of total assets. The continuous variables have been wonsoritized to avoid the biases inherent in extreme values. The continuous variables have been wonsoritized to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively.

Table 1- 4 : Pearson correlation matrix

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A : Bankrupt firms											
(1)	DACC$_{i,t}$	1									
(2)	REM$_{i,t}$	-0.023**	1								
(3)	DISTRESS$_{i,t}$	-0.117**	-0.028	1							
(4)	LEV$_{i,t}$	-0.069**	0.068**	-0.045*	1						
(5)	CFO$_{i,t}$	-0.044**	0.009	0.361**	0.028	1					
(6)	ROA$_{i,t}$	-0.119	0.055*	-0.092**	0.264***	0.083**	1				
(7)	GROWTH$_{i,t}$	-0.122**	0.075	-0.147***	0.353	0.091	0.811***	1			
(8)	Δ_DEBT$_{i,t}$	0.025	0.071**	-0.121	0.127**	0.045	0.237***	0.260*	1		
(9	Δ_EQ$_{i,t}$	0.086	0.031	-0.057*	-0.038	0.011	-0.013	0.053*	0.371	1	
(10)	SIZE$_{i,t}$	-0.035*	0.038**	0.012	0.085	0.065	0.161*	0.211**	0.089	0.003	1
Panel B : Non-bankrupt firms											
(1)	DACC$_{i,t}$	1									
(2)	REM$_{i,t}$	-0.048**	1								
(3)	DISTRESS$_{i,t}$	0.007	-0.005	1							
(4)	LEV$_{i,t}$	-0.038*	0.046	-0.046	1						
(5)	CFO$_{i,t}$	-0.012	-0.008	0.354**	-0.053	1					
(6)	ROA$_{i,t}$	-0.087**	0.115***	-0.166	0.267**	0.031	1				
(7)	GROWTH$_{i,t}$	-0.103	0.100**	-0.207**	0.306***	0.012	0.890	1			
(8)	Δ_DEBT$_{i,t}$	0.024	-0.001	-0.045	0.127**	0.040	0.179**	0.181***	1		
(9	Δ_EQ$_{i,t}$	0.086**	-0.033	0.033	-0.047	0.044	-0.079	-0.042	0.202***	1	
(10)	SIZE$_{i,t}$	0.050	-0.001	-0.090**	0.044	0.018	0.240***	0.219***	0.104**	-0.028	1

Notes to table 1-4.

This tblee presents Pearson correlation matrix from variables used in this study. DACC$_{i,t}$ is discretionary accruals approximated by Dechow *et al.*, 1995; REM is the real earnings management, approximated as sum of abnormal cash flow from operations and abnormal production costs measured by Roychowdhury's (2006) models; DISTRESS$_{i,t}$ is the financial distress proxy, a dummy variable 1 if the firm is both above the leverage median and below the EBIT median firms, 0 otherwise; Z-score$_{i,t}$ is the second proxy of financial distress, a dummy variable that takes 1 if the firm has a Z-score above the median Z-score for the sample, 0 otherwise; LEV$_{i,t}$ is the firm leverage, measured as the total liabilities divided by total equity; CFO$_{i,t}$ is the cash flow from operations, measured as cash flow from operations divided by total assets; ROA$_{i,t}$ is the return on assets, measured as then net

income divided by total assets; GROWTH$_{i,t}$ is the firm growth, proxied as Annual change in net sales; Δ_DEBT$_{i,t}$ is the variation in debts, measured as the annual variation in debt; Δ_EQ the variation in equity, measured as annual variation in equity; variation in debt; SIZE$_{i,t}$ is the firm size, measured as the natural logarithm of total assets; The continuous variables have been winsorised to avoid the biases inherent in extreme values; Significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively.

Table 1- 5 : Descriptive statistics of earnings management variables among firm' profiles

	SB				NSB				t-statistic
	Obs	Mean	St.dev	Median	Obs	Mean	St.dev	Median	
Panel A: Bankrupt small-sized firms' profiles									
Panel A.1: DACC$_{i,t}$	863	0.042	0.058	0.040	1,837	0.060	0.082	0.073	5.8510***
Panel A.2: REM$_{i,t}$	863	0.015	0.030	0.006	1,837	0.024	0.080	0.007	3.1515***
	SNB				NSNB				
Panel B : Non-bankrupt small-sized firms' profiles									
Panel B.1: DACC$_{i,t}$	761	0.051	0.070	0.041	1,939	0 .050	0.073	-0.009	-0.3445
Panel B.2: REM$_{i,t}$	761	0.016	0.049	0.006	1,939	0.016	0.048	0.004	-0.0726

Notes to table 1-5.

This table presents the descriptive statistics of earnings management variables among firm profiles. t-statistic is Student's t-test of mean difference; SB: (ex ante) stressed/(ex post) bankrupt firms; SNB: (ex ante) stressed/(ex post) non-bankrupt firms; NSB: (ex ante) non-stressed/(ex post) bankrupt firms; SB: (ex ante) stressed/(ex post) bankrupt firms; NSNB: (ex ante) non-stressed/(ex post) non-bankrupt firms ; The continuous variables have been winsorised to avoid the biases inherent in extreme values ; Significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively.

Table 1- 6 : Differences in means of earnings management variables among firms' profiles

	(1)	(2)	(3)	(4)
	SB /SNB	SB/NSNB	NSB/NSNB	NSB/SNB
	t-statistic	*t*-statistic	*t*-statistic	t-statistic
Panel A: **DACC$_{i,t}$**				
	2.9240***	2.9066***	-3.9380***	-2.6225***
Panel B : **REM$_{i,t}$**				
	0.5987	0.5848	-3.6642***	-2.4647**

Note to Table 1-6.

This table presents the differences in means of earnings management variables among firms' profiles. t-statistic is Student's t-test of difference in means; SB: (ex ante) stressed/(ex post) bankrupt firms; SNB: (ex ante) stressed/(ex post) non-bankrupt firms; NSB: (ex ante) non-stressed/(ex post) bankrupt firms; SB: (ex ante) stressed/(ex post) bankrupt firms; NSNB: (ex ante) non-stressed/(ex post) non-bankrupt firms; The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively.

Table 1- 7: Regression results of the association between earnings management and financial distress

	(1)	(2)
	DACC	REM
DISTRESS$_{i,t}$	**-0.010*****	**-0.003*****
	(0.000)	**(0.000)**
LEV$_{i,t}$	0.000***	0.000***
	(0.000)	(0.000)
CFO$_{i,t}$	-0.030***	-0.019***
	(0.000)	(0.000)
ROA$_{i,t}$	-0.017***	0.009***
	(0.000)	(0.000)
GROWTH$_{i,t}$	0.012***	0.009***
	(0.000)	(0.000)
Δ_DEBT$_{i,t}$	0.001***	0.000***
	(0.000)	(0.000)
Δ_EQ$_{i,t}$	-0.007***	-0.005***
	(0.000)	(0.000)
SIZE$_{i,t}$	0.003***	-0.003***
	(0.000)	(0.000)
Constant	0.088***	0.040***
	(0.000)	(0.000)
Observations	5400	5400

Notes to table 1-7 :

The model is as follows :

$$EM_{i,t} = \beta_0 + \beta_1 DISTRESS_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

This table presents the results by using the Generalized Least Square regressions made from a fit population averaged panel data model. The independent variable is DISTRESS$_{i,t}$ is the financial distress proxy, a dummy variable 1 if the firm is both above the leverage median and below the EBIT median firms, 0 otherwise. The dependent variable in the model (1) is DACC$_{i,t}$, discretionary accruals approximated by Dechow *et al.* (1995), and REM$_{i,t}$, real earnings management proxy, approximated as sum of abnormal cash flow from operations and abnormal production costs measured by Roychowdhury's (2006) in the model (2). X$_{i,t}$ are the set of the firm *i*'s the control variables in year *t*: LEV$_{i,t}$, the firm leverage, measured as the total liabilities divided by total equity; CFO$_{i,t}$, the cash flow from operations, measured as cash flow from operations divided by total assets; ROA$_{i,t}$, the return on assets, measured as then net income divided by total assets; GROWTH$_{i,t}$ is the firm growth, proxied as Annual change in net sales; Δ_DEBT$_{i,t}$, the variation in debts, measured as the annual variation in debt; Δ_EQ$_{i,t}$, the variation in equity, measured as annual variation in equity; variation in debt; SIZEi,t, the firm size, measured as the natural logarithm of total assets. For clarity, we also include year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values; significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively. We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues.

Table 1- 8 : Regression results of the association between earnings management and financial distress (Z-score)

	(1)	(2)
	$DACC_{i,t}$	$REM_{i,t}$
Z-score$_{i,t}$	**0.002***	**0.006***
	(0.000)	**(0.000)**
LEV$_{i,t}$	-0.000***	-0.000***
	(0.000)	(0.000)
CFO$_{i,t}$	-0.032***	-0.018***
	(0.000)	(0.000)
ROA$_{i,t}$	-0.009***	0.005***
	(0.000)	(0.000)
GROWTH$_{i,t}$	0.012***	0.010***
	(0.000)	(0.000)
Δ_DEBT$_{i,t}$	0.001***	0.000***
	(0.000)	(0.000)
Δ_EQ$_{i,t}$	-0.008***	-0.005***
	(0.000)	(0.000)
SIZE$_{i,t}$	0.004***	-0.003***
	(0.000)	(0.000)
Constant	0.088***	0.036***
	(0.000)	(0.000)
Observations	5400	5400

Notes to table 1-8.

The model is as follows :

$$EM_{i,t}=\beta_0+\beta_1 DISTRESS_{i,t}+ \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

This table presents the results by using Generalized Least Square regressions made from a fit population averaged panel data model. The dependent variable in the model (1) is $DACC_{i,t}$, discretionary accruals approximated by Dechow *et al.* (1995), and $REM_{i,t}$, real earnings management proxy, approximated as sum of abnormal cash flow from operations and abnormal production costs measured by Roychowdhury's (2006) in the model (2). The independent variable (EM) is $DISTRESS_{i,t}$; the financial distress proxy, a dummy variable 1 if the firm is both above the leverage median and below the EBIT median firms, 0 otherwise. $X_{i,t}$ are the set of the firm *i*'s control variable in year *t* : $LEV_{i,t}$, the firm leverage, measured as the total liabilities divided by total equity; $CFO_{i,t}$, the cash flow from operations, measured as cash flow from operations divided by total assets; $ROA_{i,t}$, the return on assets, measured as then net income divided by total assets; $GROWTH_{i,t}$ is the firm growth, proxied as Annual change in net sales; $\Delta\_DEBT_{i,t}$ represents the variation in debts, measured as the annual variation in debt; $\Delta\_EQ_{i,t}$ is the variation in equity, measured as annual variation in equity; variation in debt; $SIZE_{i,t}$, the firm size, measured as the natural logarithm of total assets. For clarity, we also include year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values; significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively. To control the heteroskedasticity and serial autocorrelations issues, we performed by Breusch-Pagan / Cook-Weisberg test and Wooldridge test before making each regression.

Table 1- 9 : Regression results of the association between alternative measure of earnings management and financial distress

	(1)	(2)	(3)	(4)
	AWCA$_{i,t}$	Corr_REM$_{i,t}$	AWCA$_{i,t}$	Corr_REM$_{i,t}$
DISTRESS$_{i,t}$	-0.388***	-0.007***		
	(0.001)	(0.000)		
Z-score$_{i,t}$			0.046***	0.002***
			(0.007)	(0.000)
LEV$_{i,t}$	0.007***	0.000***	-0.001***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
CFO$_{i,t}$	1.198***	0.033***	1.072***	0.030***
	(0.001)	(0.000)	(0.028)	(0.001)
ROA$_{i,t}$	0.857***	0.006***	1.396***	0.033***
	(0.001)	(0.000)	(0.028)	(0.001)
GROWTH$_{i,t}$	-0.220***	0.007***	-0.196***	0.008***
	(0.001)	(0.000)	(0.001)	(0.000)
Δ_DEBT$_{i,t}$	0.007***	0.000	0.001	-0.000***
	(0.000)	(0.000)	(0.003)	(0.000)
Δ_EQ$_{i,t}$	-0.023***	-0.028***	-0.099***	-0.031***
	(0.000)	(0.000)	(0.003)	(0.000)
SIZE$_{i,t}$	-0.085***	0.004***	-0.007	0.004***
	(0.000)	(0.000)	(0.006)	(0.000)
Constant$_{i,t}$	1.715***	1.058***	1.943***	1.052***
	(0.001)	(0.001)	(0.014)	(0.001)
Observations	5400	5400	5400	5400

Notes to table 1-9.

The model is as follows :

$$EM_{i,t} = \beta_0 + \beta_1 DISTRESS_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

This table presents the results by using Generalized Least Square regressions made from a fit population averaged panel data model. The independent variable is DISTRESS$_{i,t}$ is the financial distress proxy, a dummy variable 1 if the firm is both above the leverage median and below the EBIT median firms, 0 otherwise. The dependent variable (EM) is abnormal working capital accruals measured by Defond and Park (2001) in the models (1) and (3), and Corr_REM$_{i,t}$, the correlation between change in production costs and change in sales in the models (2) and (4). The independent variable is DISTRESS$_{i,t}$, a dummy variable that takes 1 if the firm is both above the leverage median and below the EBIT median firms, 0 otherwise. X$_{i,t}$ are the set of the firm i's control variable in year t : LEV$_{i,t}$, the firm leverage, measured as the total liabilities divided by total equity; CFO$_{i,t}$, the cash flow from operations, measured as cash flow from operations divided by total assets; ROA$_{i,t}$, the return on assets, measured as then net income divided by total assets; GROWTH$_{i,t}$ is the firm growth, proxied as Annual change in net sales; Δ_DEBT$_{i,t}$, the variation in debts, measured as the annual variation in debt; Δ_EQ$_{i,t}$, the variation in equity, measured as annual variation in equity; variation in debt; SIZE$_{i,t}$, the firm size, measured as the natural logarithm of total asset. We also include year and industry dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively.

The Wooldridge tests give no values when we introduce as an independent variable the correlation between change in production costs and change in sales (Corr_REM$_{i,t}$). Despite this, we estimated these regressions for a possible correlation of errors. We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues.

Table 1- 10 : Regression results of the association between earnings management and financial distress using two-step system GMM

	(1)	(2)	(3)	(4)
	$DACC_{i,t}$	$REM_{i,t}$	$DACC_{i,t}$	$REM_{i,t}$
L.DACC$_{i,t}$	0.085		0.085	
	(0.061)		(0.062)	
L.REM$_{i,t}$		-0.109***		-0.120***
		(0.033)		(0.035)
DISTRESS$_{i,t}$	**-0.012***	**-0.003**		
	(0.003)	**(0.002)**		
Z-score$_{i,t}$			**-0.003**	**0.009***
			(0.003)	**(0.002)**
LEV$_{i,t}$	-0.038	-0.034***	-0.000	-0.000
	(0.043)	(0.011)	(0.000)	(0.000)
CFO$_{i,t}$	-0.020	0.023**	-0.041	-0.032***
	(0.042)	(0.011)	(0.043)	(0.011)
ROA$_{i,t}$	0.004	-0.005	-0.011	0.015
	(0.006)	(0.005)	(0.042)	(0.012)
GROWTH$_{i,t}$	0.001	-0.000	0.014***	0.010***
	(0.001)	(0.001)	(0.005)	(0.003)
Δ_DEBT$_{i,t}$	-0.006***	-0.005***	0.001	-0.000
	(0.002)	(0.001)	(0.001)	(0.001)
Δ_EQ$_{i,t}$	0.085***	0.047***	-0.007***	-0.005***
	(0.011)	(0.008)	(0.002)	(0.001)
SIZE$_{i,t}$	0.014***	0.009***	0.005	-0.006
	(0.005)	(0.003)	(0.006)	(0.005)
Constant	0.085	-0.109***	0.086***	0.042***
	(0.061)	(0.033)	(0.011)	(0.008)
Observations	2545	2545	2545	2545

Notes to table 1-10.

The model is as follows :

$$EM_{i,t} = \beta_0 + \beta_1 L..EM_{i,t} + \beta_2 DISTRESS_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

This table presents the results by using Generalized Method of Moments made from a fit population averaged panel data model. The dependent variable is abnormal working capital accruals ($AWCA_{i,t}$) measured by Defond and Park (2001) in the models (1) and (3), and is real earnings management ($REM_{i,t}$), approximated as sum of abnormal cash flow from operations and abnormal production costs measured by Roychowdhury's (2006) in models (2) and (4). The independent variable is $DISTRESS_{i,t}$, a dummy variable that takes 1 if the firm is both above the leverage median and below the $EBIT_{i,t}$ median firms, 0 otherwise. $X_{i,t}$ are the control variables $LEV_{i,t}$, the firm leverage, measured as the total liabilities divided by total equity; $CFO_{i,t}$, the cash flow from operations, measured as cash flow from operations divided by total assets; $ROA_{i,t}$, the return on assets, measured as then net income divided by total assets; $GROWTH_{i,t}$ is the firm growth, proxied as Annual change in net sales; $\Delta\_DEBT_{i,t}$, the variation in debts, measured as the annual variation in debt; $\Delta\_EQ_{i,t}$, the variation in equity, measured as annual variation in equity; variation in debt; $SIZE_{i,t}$, the firm size, measured as the natural logarithm of total assets. For clarity, we also include year-specific and industry-

specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively. The Wooldridge tests give no values when we introduce as an independent variable the correlation between change in production costs and change in sales (Corr_REM$_{i,t}$). Despite this, we estimated these regressions for a possible correlation of errors. We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues.

Table 1- 11 : Regression on future profitability with earnings management among firms' profiles

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	SB	NSB	SNB	NSNB	SB	NSB	SNB	NSNB
Variables	$CFO_{i, t+1}$	$CFO_{i, t+1}$	$CFO_{i, t+1}$	$CFO_{i, t+1}$	$NDNI_{i,t+1}$	$NDNI_{i,t+1}$	$NDNI_{i,t+1}$	$NDNI_{i,t+1}$

Panel A: DACC as independent variable

$DACC_{i,t}$	-0.166***	-0.208***	-0.257***	0.110***	-0.008***	-0.012***	0.014***	0.053***
	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
$NACC_{i,t}$	-1.973***	-1.053***	-0.191***	1.333***	0.468***	0.362***	0.547***	0.270***
	(0.001)	(0.001)	(0.001)	(0.000)	(0.001)	(0.000)	(0.007)	(0.000)
$CFO_{i,t}$	-0.012***	0.004***	-0.014***	0.014***	0.002***	-0.000***	0.003***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.056***	-0.020***	0.015***	0.024***	-0.005***	-0.006***	-0.008***	-0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	575	1225	507	1293	575	1225	507	1293

Panel B: REM as independent variable

$REM_{i,t}$	-0.101***	-0.172***	-0.042***	0.131***	-0.056***	-0.015***	-0.009***	0.112***
	(0.003)	(0.000)	(0.003)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)
$NACC_{i,t}$	-1.944***	-0.988***	0.002	1.253***	0.528***	0.371***	0.531***	0.233***
	(0.003)	(0.001)	(0.002)	(0.001)	(0.001)	(0.001)	(0.004)	(0.000)
$CFO_{i,t}$	-0.012***	0.005***	-0.015***	0.014***	0.001***	-0.000	0.003***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Constant	-0.054***	-0.019***	0.012***	0.024***	-0.004***	-0.006***	-0.009***	-0.012***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	575	1225	507	1293	575	1225	507	1293

Notes to Table 1-11.

This table presents the results by using Generalized Least Square regressions made from a fit population averaged panel data model. $CFO_{i,t+1}$ = cash flow from operation one year ahead; $NDNI_{i,t+1}$ = non-discretionary net income one year ahead ; $DACC_{i,t}$ = discretionary accruals in year t estimated by Dechow et al. (1995); $REM_{i,t}$ = aggregate real earnings management in year t; $NACC_{i,t}$ = normal accruals in year t; $CFO_{i,t}$ = cash flow from operation in year t. We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. NSNB: (ex ante) non-stressed/(ex post) non-bankrupt firms ; SNB: (ex ante) stressed/(ex post) non-bankrupt firms ; NSB: (ex ante) non-stressed/(ex post) bankrupt firm ; SB: (ex ante) stressed/(ex post) bankrupt firms. Significance at the 10%, 5%, and 1% levels are indicated by*, **, and ***, respectively.

CHAPTER II : BOARD GENDER DIVERSITY AND EARNINGS QUALITY : EVIDENCE FROM A GENDER QUOTA IN FRANCE

1. <u>Introduction</u>

The business case for board gender diversity has been widely investigated; findings show that women are underrepresented on boards around the world (Reguera-Alvarado *et al.*, 2017; Peni and Vähämaa, 2010; Terjesen and Singh, 2008). To address this "glass ceiling" phenomenon in women's access to leadership positions, some European countries such as Belgium, Italy, Norway, and Spain have legislated quotas that require boards to have minimum numbers of women. However, the real effects of compulsory gender legislation have been criticized (Bender *et al.*, 2016). Anti-quota adherents argue that gender quotas crowd out other minorities, encourage the promotion of inexperienced women directors (Pande and Ford, 2011), and interfere with the direct appointment process by reducing shareholders' rights to freely appoint directors (Bender *et al.*, 2015). In contrast, pro-quota legal practitioners welcome such legislation, maintaining that women directors contribute pools of skills that complement the pools contributed by men (Bender *et al.*, 2015) and that firms that deprive their boards of women may be at a disadvantage compared with firms that include women.

Initially, studies of the effects of gender quotas focused on the effects of such legislation on firms' financial and stock market performance. Results of these studies are mixed (Post and Byron, 2015). Whereas some studies reveal a positive association between women directors and financial and stock market performance (Smith *et al.*, 2006), others show negative (Ahern and Dittmar, 2012; Bøhren and Strøm, 2010), negligible (Dale-Olsen *et al.*, 2013), or no (Rose, 2007) links between gender diversity proxies and corporate performance following the introduction of gender quotas. Overall, the effect of gender quotas on corporate outcomes thus remains unclear.

We contribute to this debate by analyzing the effects of the introduction of gender quotas on the monitoring role of boards of directors. We focus on France, which in January 2011 passed a gender quota law that required boards of public limited companies and limited stock partnerships to have

20% of their directors be women by 2014, rising to 40% by 2017. Allemand *et al.* (2016) indicate that the number of such firms with at least one women director increased from 37% to 94% during the period of 2011 to 2014; they also find that the rate of women directors had more than doubled, from 16.7% in 2011 to 27.7% in 2014. However, by 2019, Rebérioux and Roudaut noted that since the board gender quota passed, women directors attained only limited access to key positions within boards. Accordingly, we investigate whether earnings quality (EQ) has improved by board gender diversity since France introduced the gender quota. Furthermore, in recognition of a gender quota distance effect (Scapin, 2015), we consider whether unaffected firms[17] have better EQ than affected firms. Finally, in recognition of the contingency effect (Conyon and He, 2017; Carter *et al.*, 2010) and evidence that women directors may be challenged in low-debt and low-performing firms (Carter *et al.*, 2010; Conyon and He, 2017), we investigate whether the effect of board gender diversity on EQ has remained constant across leverage and performance distributions since the gender quota was introduced.

We use a sample of 1,001 firm-year observations from Euronext Paris from 2011 to 2017, which shows a positive association between the ratio of women directors and EQ since the gender quota was introduced. Specifically, women directors curb earnings management (EM) and improve earnings persistence (EP). However, with regard to gender quota distance, unaffected firms have higher EQ, and affected firms have lower EQ. Finally, having women directors improves the earnings of low-debt and low-performing firms. These results suggest that women directors are effective for two types of firms: (1) those with weak corporate governance[18] and (2) troubled firms.

Our research makes four main contributions to literature. First, it focuses on France, which has passed a law imposing gradual gender quotas on boards. To our knowledge, only Triki Damak

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[17] Unaffected firms are those that already have achieved the gender quotas; affected firms are those that have not yet complied.

[18] We posit that low-performing firms are more likely to have weak corporate governance, because their boards are dominated by insiders (see Section 2.3.2)

(2018) has studied the relationship between board gender diversity and EM in France over the post–gender quota period, in a study limited to the first gender quota deployment period. We extend its insights by considering the transition period between the first and second gender quotas, which represents a second exogenous shock. Second, in line with Scapin (2015), we propose that the influence of gender quotas on EQ depends on the distance from the quotas. Third, unlike Triki Damak (2018) and Scapin (2015) who approximate EQ only through accrual EM, we use two key EQ proxies. Fourth, to our knowledge, no studies have addressed the contingency effect in the relationship between board gender diversity and EQ in a gender quota context; we advocate that women directors are effective in situations of weak governance that prevail in low-debt firms.

The remainder of paper is as follows:. Section 2 presents a the literature review and our research hypotheses. Section 3 presents our the data and methodology, and. Section 4 shows the results of the test hypotheseis tests. Section 5 In the last section, we concludes.

2. Literature review and hypothesis development

2.1. French institutional background

The concept of EQ has been widely studied in a French context. Alford *et al.* (1993) shows that in France, earnings are highly informative; it has a capital market with financial reporting requirements, disclosure practices, government regulation, and corporate governance. However, EQ in France is weak, and EM is pervasive because of weak investor protection (Enomoto *et al.*, 2015; Chih *et al.*, 2008; Leuz *et al.*, 2003). Earnings smoothing and earnings aggressiveness are higher in France than in the United Kingdom and the United States; in France, insiders tend to privately control the benefits and incentives that modulate firms' performance (Chih *et al.*, 2008). Moreover, earnings disclosures are less timely in civil countries (such as France) than in common law countries; civil law countries are under less pressure than common law countries to issue timely disclosures to mitigate information asymmetry.

Second, French firms are characterized by corporate features that tend to explain weak EQ. Faccio and Lang (2002) find that French firms are characterized by concentrated ownership and a separation of ownership and control, with 70.92% of non-financial firms managed and controlled by family shareholders. Family shareholders' exercise of control through their directors and managers (who have close relationships with family owners) can increase the problem of minority shareholder expropriation. Therefore, managers (and controlling family owners) tend to act on financial reporting to extract private benefits or conceal financial information from minority shareholders (see Gull *et al.*, 2018). Fan and Wong (2002) find that value relevance is negatively associated with concentrated ownership; they suggest the entrenchment effect of concentrated ownership (1) significantly reduces the credibility of reported earnings and information content

and (2) hinders information flows to the public, causing low earnings informativeness (see Cahan *et al.*, 2009).

Third, contractual arrangements amplify the magnitude of EM (Lakhal *et al.*, 2014; Othman and Zeghal, 2006). Lakhal *et al.* (2014) find that bonuses and Chief Executive Officer (CEO) stock-option compensation of French firms positively affect EM, suggesting CEO compensation acts as a tunneling mechanism, but not as a corporate governance mechanism, to mitigate EM. Fourth, Othman and Zeghal (2006) note that contractual debt costs and effective tax rates incentivize French firms to use aggressive EM practices, and Campa (2019) finds that French listed firms use EM more extensively than non-listed firms, because the former are highly dependent on debt, but the law does not protect lenders.

2.2. Board gender diversity and earnings quality

Numerous studies have investigated the relationship between board gender diversity and EQ in various institutional settings (García Lara *et al.*, 2017; Kim *et al.*, 2017; Liu *et al.*, 2016; Arun *et al.*, 2015; Srinidhi *et al.*, 2011; Gavious *et al.*, 2012; Krishnan and Parsons, 2008) most find that board gender diversity enhances EQ (Gavious *et al.*, 2012; ; Srinidhi *et al.*, 2011; Krishnan and Parsons, 2008). Taken together, these studies suggest women behave differently and better perform in terms of board monitoring in several ways. First, women are less likely to engage in unethical behavior, and second, they are more risk-averse than men; the combination of these two unique gender characteristics explains women's influence on quality of financial information. Third, women directors exhibit greater board diligence and demand greater accountability for managers' performance. Fourth, women directors bring different viewpoints to boards, ease the decision-making process, and increase transparency by reducing information asymmetry (a major EQ issue). Fifth, women are more likely than men to report questionable or illegal acts.

However, Ye *et al.* (2010) fail to find a positive influence of women directors on EQ; they explain their results by citing a 2007 McKinsey & Company study that shows women face several barriers, such as busyness (equilibrium between work and domestic responsibilities), legitimacy issues (efforts required to gain recognition), and various sociological perceptions that bar their success. However, different social role expectations also may explain this result, and tokenism may be a cause of negative relationships between women directors and EQ (García Lara *et al.*, 2017; Srinidhi *et al.*, 2011), if women directors are chosen by companies solely to satisfy social pressures rather than meet the actual needs of the firms.

2.3. Hypothesis development

2.3.1. Effect of board gender quotas on earnings quality

Our study is in line with Scapin (2015), who finds that affected firms are more likely than unaffected firms to increase EM. This author suggests that affected firms are time constrained and have difficulty finding board candidates with the proper characteristics. Accordingly, they recruit incoming board members who are less experienced than exiting directors. Lesser experience hinders the monitoring capability of the boards of the most affected firms and leads to increased EM.

Studies of the explicit relationship between board gender diversity and EQ in French contexts produce inconsistent results (Triki Damak, 2018; Gull *et al.*, 2017; Lakhal *et al.*, 2015; Hili and Affes, 2012), potentially because they use different measures of EQ. Hili and Affes (2012) find board gender diversity has no influence on EP, and both Gull *et al.* (2018) and Lakhal *et al.* (2015) indicate a negative association between the presence of women directors and EM. To our knowledge, only Triki Damak (2018) investigates the relationship between board gender diversity and EM during the post–gender quota introduction period, finding that women directors improve

board monitoring, especially by curbing EM during 2010–2014 (i.e., transitional period of the first gender quota). Saona *et al.* (2019) study the relationship between board gender diversity and EM across European countries (Denmark, Finland, France, Germany, Italy, Norway, Portugal, Spain, Sweden, and the United Kingdom) from 2006 to 2016 and report that gender quotas have increased financial reporting transparency. For the current study, in recognition of gender quota specificities and varying compliance timing by various countries, we focus on a single institutional setting. Regarding the gender quota passed in France, we posit:

> Hypothesis 1: There has been a positive relationship between board gender diversity and EQ in France since the gender quota was introduced.

According to Scapin (2015), French firms that were greatly affected by the gender quota around the year of its announcement are more likely than unaffected firms to exhibit "opportunistic" EM. We suggest two plausible reasons for this finding.

Firstly, the inclusion of women directors on a wide scale may change the roles (Bilimoria and Piderit, 1994; Burke, 1994), modes of access to private information (Abad *et al.*, 2017; Gul *et al.*, 2011), working methods, and decision-making processes (van der Walt and Ingley, 2003) of boards. The expertise hypothesis suggests that time is a sign of commitment and experience that can improve a board's performance related to its advisory and monitoring missions (Vafeas, 2003). Theoretical research also demonstrates that the organizational learning process can be long and multi-phased. According to Cangelosi and Dill (1965), this process includes four phases: initial, searching, comprehending, and consolidating. The longer learning processes of affected firms may decrease their levels of board monitoring, ultimately reducing EQ.

Further, time drives the relationship between board gender diversity and earnings quality in the gender quota context (Scapin, 2015). It is a condition for the effective use of knowledge,

information, and motivation in work groups; Payne *et al.* (2009) show a correlation between opportunity,[19] time, and board effectiveness. Newly appointed women directors may perform better over time because board members who spend more time on board-related activities are more effective.

Secondly, the negative association between board gender diversity and EM may be driven by the problem of board over-monitoring, which is inherent to a drastic increase of women on boards (Adams and Ferreira, 2009).[20] Over-monitoring occurs when the number of independent external directors exceeds the actual need for monitoring at the board level, or when firms fail to trade off the extra monitoring capacity of additional members with free riding (Raheja, 2005). Linck *et al.* (2008, p. 311) note that "while adding directors adds incremental information, it also increases the costs related to free-rider problems and coordination costs as well as direct costs such as compensation." In turn, board over-monitoring may increase free riding structurally and ultimately decrease EQ. A problem arises because women directors are more likely to behave as independent directors. In this situation, broad inclusion of women on boards can lead to board over-monitoring. In the short term, internal directors may be encouraged to hinder the disclosure of private information (Raheja, 2005), obstructing external women directors from conducting their monitoring duties and exacerbating the discretionary behavior of managers. Accordingly, it may be disadvantageous (non-optimal) for firms with high levels of information asymmetry to strengthen board monitoring by independent directors (Maug, 1997).

The literature has shown that women directors are more tough monitors, and are more likely to be assigned to monitoring committees (Adams and Ferreira, 2009). In this wake, there is a risk of overmonitoring in companies with strong governance (Adams and Ferreira, 2009). However, high

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[19] Payne *et al.* (2009, p. 711) note that opportunity is the ability to make decisions and perform effectively.
[20] However, Adams and Ferreira (2009) assert that board over-monitoring is a structural problem with the board gender diversity process; they do not specify whether it can be corrected over time.

diversity does not lead to problems of overmonitoring in countries with weak corporate governance, such as China (Lee-Hwei Khaw and Liao, 2018). Given that the French context is characterized by listed firms with strong corporate governance (Charreaux and Wirtz, 2007), we support that there is a risk of over-control in boards, and thus a degradation of the quality of financial reporting. Hence we stress that:

> Hypothesis 2: Firms affected by the gender quota are more likely to suffer costs inherent to the forced inclusion of women on boards; the drastic change caused by the quota reduces monitoring ability, ultimately reducing EQ.

2.3.2. Effect of contingency related to leverage distribution

The effect of board gender diversity on EQ may not be constant across leverage distribution (Arun *et al.*, 2015). Two arguments justify this hypothesis. First, recent studies show that high-debt firms rely more on debt financing and have larger boards and more independent directors (Coles *et al.*, 2008; Faleye, 2007). In contrast, low-debt firms rely on the specific knowledge of insiders and have smaller boards with many insiders. Arun *et al.* (2015) find that women directors have a disciplinary effect on EM in low-debt firms, whereas the presence of women directors has no effect on EM in high-debt firms. They thus suggest that low-debt firms help women directors perform well, because they have smaller boards than high-debt firms. In turn, the women directors play more effective roles on small boards than on large boards (Arun *et al.*, 2015). Second, EM is extensive in France, because firms are financed mainly by banks and have a greater incentive to avoid negative earnings to maintain creditor confidence (Halaoua *et al.*, 2017).

Gender diversity can be a managerial disciplinary mechanism in low-debt firms, which have particularly small boards that are dominated by insider directors (Arun *et al*, 2015). Boards dominated by insiders are more likely to have low levels of monitoring because of their proximity

to their management teams. Moreover, in these firms, boards may have entrenched CEOs who pursue less-leveraged capital structures; according to Berger *et al.* (1997, p. 1436), "leverage is lower when the CEO has a long tenure in office, has weak stock and compensation incentives, and does not face strong monitoring from the board of directors or major stockholders." Accordingly, we posit:

> Hypothesis 3: In low-debt firms, there has been a positive relationship between board gender diversity and EQ since the gender quota was introduced.

2.3.3. Effect of contingency related to performance distribution

We also explore the influence of board gender diversity on EQ within low-performing firms. Conyon and He (2017) find that board gender diversity has a greater quantitative effect on overperforming firms and a lesser quantitative effect on low-performing firms. The authors suggest two reasons for this heterogeneous effect. First, the contributions of women directors may be more constrained in low-performing firms than in high-performing firms, because "women directors' unique perspectives and experiences are less likely to be utilized in low performing firms as a result of group dynamic changes in response to threats posed by declining performance" (Conyon and He, 2017, p. 199). Second, differences in the relationship between board gender diversity and firm performance reflect the heterogeneity of women directors and capabilities to leverage their distinct talents. Conyon and He (2017) note that low-performing firms are less likely to attract highly qualified women on boards. In contrast, in their study of the influence of board gender diversity on the financial fragility and performance of European banks, Farag and Maillin (2017) find that a critical mass of women directors (18%–21%) reduces banks' vulnerability during financial crisis. They suggest women directors perform well in financial distress scenarios. Accordingly, we propose that women directors' diverse perspectives effectively enhance EQ,

despite a "strong pressure toward uniformity of ideas and opposition to expressions of candid opinion" (Conyon and He, 2017, p. 200) inherent in low-performing firms:

Hypothesis 4: In low-performing firms, there has been a positive relationship between board gender diversity and earnings quality since the gender quota was introduced.

3.<u>Data and Methodology</u>

Our initial sample consisted of 506 firms listed on Euronext Paris index during the 5-year period from 2011 to 2017. We excluded financial and insurance firms because of their asset-specific nature and their industrial-specific regulations. We also excluded companies that were not subject to the quota law for reasons related to the size (the law applies only to firms with 500 employees or more and turnover of at least €50 million) and location of the company's head office (companies with head offices outside France are not subject to the law; e.g., LafargeHolcim, ArcelorMittal, Airbus). Our final sample consisted of 143 companies, corresponding to 1,001 firm-year observations. We collected the financial data of the companies from the Factset database completed by Diane database (Bureau van Dijk). We manually collected data on the gender of directors from firms' reference documents and annual reports, available on their websites.

3.1. Methodology

3.1.1. Strategy of firm identification

Unlike other countries that have legislated gender quotas for boards, France's law enforces gradually increasing gender quotas for women on boards. The implementation of the gender quota in France took place in two transition periods and an intermediate step. The first period ran from 2011 to 2014, with a requirement to have a 20% proportion of women on boards by 2014. A second period ran from 2015 to 2017, with a requirement to have 40% women on boards by 2017. Scapin (2015) notes the effect of gender quotas was not homogeneous for all firms; the author assumes that firms that were distant from gender quotas were time constrained and may have suffered higher costs for their women's inclusion efforts.

We adopted a similar procedure to Scapin's (2015), dividing our sample into firms that had met the gender quota (unaffected firms) and firms that were distant from the gender quota (affected firms). More precisely, in the first transition period, we identified firms unaffected by the first gender quota ($\geq$ 20% of women directors on boards) and those affected ($\leq$ 20% of women on boards), as of 2011. We adopted the same procedure for the second transition period. Using 2015 as the opening year of the transition period for the second quota, we identified firms unaffected by the second gender quota ($\geq$ 40% of women directors on boards) and firms affected by the gender quota ($\leq$ 40% of women on boards).

Technically, a firm distant from the quotas can be represented as:

$$\frac{\kappa}{N} \leq q, \ (1)$$

where, κ = number of women directors; N = total number of directors; and q = gender quotas, either 20% or 40%. To meet the quotas, it would be necessary to add χ women, such that the board reaches a ratio $\geq$ 20% to achieve the first quota and $\geq$ 40% to achieve the second quota. To determine the requirements to reach a ratio $\geq$ 20% ($\geq$ 40%), we use the following formula:

$$\frac{\kappa+\chi}{N} \geq q, \ \chi = 1, 2, n, \ (2)$$

Insert Figure 3 about here

3.1.2. *Measures of earnings quality*

The concept of EQ has been widely investigated. Although early studies focused on the usefulness of earnings for capital market valuation (Schipper and Vincent, 2003), EQ also describes all earnings properties that ensure the ethical nature of the accounting reporting process, as well as allowing a assurance of the decision-usefulness of the accounting data being reported. Krishnan and Parsons (2008) suggest EQ is a firm's ability to report accounting earnings that reflect the firm's economic reality accurately. Similarly, Schipper and Vincent (2003, p. 98) assert that

overstated earnings may lead to manager overcompensation and disguise insolvency, "leading lenders mistakenly to continue lending or to defer foreclosure." In our study, low EQ may have a detrimental effect throughout the study period. Several scenarios reveal the crucial aspects of such effects for investors, such as defective resource allocation signals and reduction of economic growth as the result of capital misallocation.

Dechow *et al.* (2010) and Dechow and Schrand (2004) note that high-quality earnings are a relevant indicator of both current and future operating performance and a valuable summary proxy for measuring firm value. We use two EQ proxies: accrual EM and EP. First, because managers can intervene in the earnings reporting process to influence reported income for their private gains, earnings no longer represent fundamental earnings performance when managers modulate them. We use Dechow *et al.*'s (1995) model of expected current accruals by industry and year to assess EM.[21] We choose current accruals, because managers intervene more on short-term accruals than on long-term accruals (Becker *et al.*, 1998). Moreover, it is interesting to study current accruals, because they are denser than long accruals and can cancel out or complement each other in terms of cash flow from one period to next. Dechow *et al.*'s (1995) accrual model is:

$$CA_{i,t}/TA_{i,t-1} = \gamma_0/TA_{i,t-1} + \gamma_1(\Delta S_{i,t} - \Delta R_{i,t})/TA_{i,t-1} + \varepsilon_{i,t}, \; (3)$$

where $CA_{j,t}$ = firm i's current accruals, measured as net income before extraordinary items minus operating cash flow in year t. We define the change in non-cash working capital before taxes as the change in current assets other than cash and short-term investments, less current liabilities other than current maturities of long-term liabilities and income taxes payable, where $T_{i,t-1}$ = firm j's total assets in year t – 1; $\Delta S_{i,t}$ = firm i's change in sales in year t less sales in year t - 1; $\Delta R_{i,t}$ =

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[21] The manipulation of real activities is another form of EM, but we do not use it as an EQ measure, because (1) the cash flows on which its model is based do not make it possible to predict future cash flows and (2) unlike accrual-based measure that obscure true economic performance by changing accounting methods or estimates within the generally accepted accounting principles, real earnings management alters the execution of real business transactions.

firm j's change in net receivables in year t less net receivable in year t – 1; and $\varepsilon_{i,t}$ = firm i's current discretionary accruals (CDACC) in year t.

Second, we measure EQ through EP, as an indicator of earnings permanence or sustainability, such that persistence captures the extent to which the current period innovation becomes a permanent part of the earnings series (Schipper and Vincent, 2003). According to Dechow and Schrand (2004), Collins and Kothari (1989), and Kormendi and Lipe (1987), the more persistent the earnings, the greater the decision-usefulness in an equity valuation context, especially in terms of the usefulness of current earnings to predict future cash flows and earnings. Similarly, Dechow *et al.* (2010) note that research that characterizes the persistence of earnings is motivated by the assumption that more persistent earnings will yield better inputs to equity valuation models. Technically, EP encapsulates the extent to which earnings persist from one year to the next (Hili and Affes, 2012). The EP model is as follows:

$$EARN_{i,t} = \tau_0 + \tau_1 EARN_{i,t-1} + \varepsilon_{i,t} \text{, } (4)$$

where $EARN_{i,t}$ = firm i's earnings before extraordinary items in year t divided by total assets in year t; and $EARN_{i,t-1}$ = firm i's earnings before extraordinary items in year t – 1 divided by total assets in year t – 1. According to Francis *et al.* (2004), EP is designated by the slope coefficient τ_1. A value close or superior to the unity indicates greater EP, which reflects a high EQ.

3.1.3. Models

To estimate the effect of board gender diversity and distance from gender quota on extent of EM, we develop the following equation:

$$EM_{i,t} = \varpi_0 + \varpi_1 IV + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}, (5)$$

where $EM_{i,t}$ = firm i's current discretionary accruals (CDACC), and IV = firm i's proportion of women directors (%_WDs) in year t, which describes the measure of board gender diversity and is proxied as the number of women board members scaled by the total number of directors (Zalata *et al.*, 2018; Gull *et al.*, 2017; Chen and Gavious, 2016). According to Abad *et al.* (2017), the ratio of women directors allows quantification of the presence of women on a board. In addition, $X_{i,t}$ (i = 1, 2, …, k) is the set of control variables.

Following prior studies (Zalata *et al.*, 2018; Gull *et al.*, 2017; Luo *et al.*, 2017; Chen and Gavious, 2016), the set of control variables includes free cash flow (FCF), calculated as free cash flow divided by total number of shares. Jensen and Meckling (1986) point out that firms with surplus funds run the risk of managers engaging in suboptimal investment policies. When projects underperform, managers may adopt aggressive EM practices to hide the underperformance. Accordingly, in line with Nekhili *et al.* (2016), who find opportunistic behavior of managers in the presence of FCF in a French context, we expect a positive coefficient for FCF. We divide return over assets (ROA), calculated as net income in year *t*, by total assets in year *t* − 1, then include it to control for extreme performance, which affects level of EM (Kothari *et al.*, 2005). As Dechow and Dichev (2002) show, EQ is lower for firms with higher ROA. Because high levels of EM characterize low quality results, we predict a positive coefficient on ROA. We calculate quick ratio (QR) (a liquidity ratio) as total current assets excluding total inventories divided by total current liabilities. Earnings manipulators have high liquidity ratios (Beneish, 1999). Gombola *et al.* (2016, p. 36) note "an aggressive working capital policy could be indicated a low level of liquidity." Because firms with low liquidity tend toward income-increasing EM "to convey a positive signal (to creditors) that their financial situation is strong" (Gombola *et al.*, 2016, p. 55), we expect a negative coefficient on QR. We calculate leverage (LEV) as total liabilities divided by total assets. Although some research predicts that leverage influences EM, the reported evidence regarding this relationship is inconsistent (Kim *et al.*, 2017; Liu *et al.*, 2016; Zalata *et*

al., 2018). Some studies find that leveraged companies manage earnings to avoid the violation of debt covenants and conserve creditor confidence (Jelinek, 2007), whereas others find leverage has a disciplinary effect on EM practices (Zamri *et al.*, 2013). We predict a positive association between leverage and EM, because French firms are financed mainly by banks (Halaoua *et al.*, 2017), so they may be incentivized to avoid negative earnings to maintain creditor confidence. We estimate market-to-book (MTB) as the proportion of market value to book value of equity; because MTB signals a company's growth opportunities (Jiraporn and DaDalt, 2009), managers may be encouraged to manage earnings upward to obfuscate earnings (Menon and Williams, 1994). Similarly, in situations of high MTB, managers may increase earnings to report persistent growth opportunities over time. Accordingly, we predict a positive MTB coefficient. We measure financial loss (LOSS) as a dummy variable equal to 1 if the firm reports a loss and 0 otherwise. Because managers who are experiencing persistent losses may practice EM to avoid the consequences of financial distress (Campa and Camacho-Miñano, 2015; Li *et al.*, 2011), we predict a negative relationship between financial loss and EM.

With regard to the board, we measure board independence (B_IND) as the percentage of independent directors among the total number of directors on the board. Several studies suggest EM is constrained by the proportion of independent directors (Zalata *et al.*, 2018; Gull *et al.*, 2017; Khalil and Ozkan, 2016; Marra *et al.*, 2011; Xie *et al.*, 2003;). These studies imply that the role of independent directors is to monitor managers' actions to ensure better quality financial information and take adequate measures to curb EM. Thus, we predict a negative relationship between board independence and EM. We measure board size (B_SIZE) as the total number of directors on boards. Prior literature also highlights competing effects of board size on EM: Xie *et al.* (2003) find a negative relationship between board size and EM, whereas Rahman and Ali (2006) report a positive relationship. According to Raheja (2005), board size affects the incentives of board members and plays a crucial role in board effectiveness. Therefore, we predict a negative effect of

board size on EM, because large boards are more likely to include outside directors with diversified experience that challenge managers' opportunistic practices, thereby improving EQ (Kao and Chen, 2004; Zalata *et al.*, 2018). We measure duality (DUAL) with a dummy variable, 1 for firms with CEO–chair duality and 0 otherwise. Similar to Gull *et al.* (2017), we control for DUAL to measure CEO entrenchment, and we expect a positive relationship between DUAL and CDACC.

Noting ownership considerations, we calculate family ownership (FAM) as the percentage of family ownership in total shareholders' equity. Family-controlled firms are effective monitors, especially of EM practices; family firms tend to promote information transparency and quality of accounting reporting to avoid the negative image associated with family firms expropriating the interests of outside shareholders (Yang, 2010). Therefore, we expect a negative relationship between FAM and CDACC. We measure institutional ownership (INS) as the percentage of institutional ownership in total shareholder equity. According to the efficient monitoring hypothesis (see Lin *et al.*, 2014), institutional investors have greater expertise and can monitor management at a lower cost than individual shareholders, which could stem EM behavior. We also control audit quality through the variable BIG, which is a dummy variable equal to 1 if a firm is audited by one of the Big 4 auditors and 0 otherwise. Firms audited by big auditors exhibit less accrual-based manipulation (Zalata *et al.*, 2018), and we accordingly predict a negative relationship, because audits are more accurate when practiced by a big auditor. Finally, we measure firm size (F_SIZE) as the natural logarithm of a firm's total assets; larger firms are more likely to manage earnings than small firms to meet earnings thresholds (meet or beat earnings) and analysts' expectations (Habib *et al.*, 2013; Roychowdhury, 2006). Table 1 presents the definitions of the variables and the expected signs of the relationships among the independent and control variables and CDACC.

To estimate the effect of board gender diversity on EP, our regression is as follows:

$$EARN_{i,t}=\lambda_0+\lambda_1 EARN_{i,t-1}+\lambda_2\%\_WDs_{i,t}+\lambda_3 EARN_{i,t-1}\times\%\_WDs_{i,t}+\varepsilon_{i,t}, \quad (6)$$

In line with Krishnan and Parsons (2008), we estimate Equation (6) to test whether the coefficient λ_3 is greater for the high board-gender-diversity group relative to the low board-gender-diversity group—that is, whether a higher coefficient λ_3 implies better EQ of firms with the most women on their boards. Because our pre-estimates indicate recurring autocorrelation and heteroskedasticity problems across panel data, we use panel-data linear models by means of generalized least squares (GLS) for industry and year effects (Sen and Mukherjee, 2019; Triki Damak, 2018; Zhao *et al.*, 2006)

4. <u>Results</u>

4.1. Descriptive statistics

Table 2-1 presents the descriptive statistics of the variables included in our study. It comprises three panels: Panel A summarizes descriptive statistics of the entire sample period; Panel B offers descriptive statistics for the variables for the first and second gender-quota transition periods; and Panel C displays the numbers, proportions of women directors, and board sizes by year. Panel A reveals that the mean of unsigned CDACC is 0.076. The average percentage of women directors of total directors per board is 27.2%. In Panel B, the means of CDACC are 0.086 in Sub-Panel B.1 and 0.057 in Sub-Panel B.2. The means of CDACC in these two sub-groups also differ significantly; the higher value of CDACC in the first transition period indicates that the previous potential high-accrual EM results in depletion in later periods, because accruals reverse over time. On average, the proportion of women on boards is 27.2% over the entire period of our study, 23.7% (below the 20% threshold required by law as of 2014) over the transition period of the first board gender quota, and 33.2% (below the threshold required by law in 2017) over the transition period of the second board gender quota. Graph 1 presents a histogram of representation of women and men by year, since the formal announcement of the gender quota. Table 2, Panel C, shows that in 2014, the year in which the first board gender quota came into force, the proportion of women directors was 27.67% (untabulated: minimum = 0%, maximum = 83.33%). The evolution of the proportion is relatively gradual, with the largest change occurring between 2011 and 2014 (Δ =4.01%). Over the first transition period, board sizes stagnated, suggesting firms replaced men with women as directors rather than increasing the number of seats. In 2017, the year in which the second board gender quota came into force, the proportion of women directors was 40.37% (untabulated: minimum =12.5%, maximum =75%). In this period, the largest change occurred between 2016 and 2017 (Δ = 9.15%), suggesting many firms were tardy in complying with the

second board gender quota, which may have had drastic consequences on the board's equilibrium. Over the second transition period, board size increased gradually, such that firms increased their numbers of seats.

Insert Table 2-1 about here

Table 2-2 presents the results of a Pearson correlation analysis to test the self-relationships among the independent variables. The last column on the right presents the variance inflation factors, for which the critical value is 10 (O'Brien, 2007). These results rule out multicollinearity concerns that might have biased our results.

Insert Table 2-2 about here

4.2. Regression analysis

4.2.1. Results of relationship between board and gender quota diversity

Table 2-3 presents the results pertaining to the relationship between board gender diversity and CDACC (see Equation [5]). Models 1– 3 present results of the first, second, and full gender-quota implementation periods, with CDACC as the dependent variable; they reveal that the coefficients between the ratio of women directors and CDACC are negative and significant at 1%, offering overwhelming evidence of the negative effect of board gender diversity on EM practices since the formal gender quota was implemented. The results are consistent with those of Triki Damak Zalata *et al.* (2018), Gull *et al.* (2017) and Luo *et al.* (2017), They suggest that substantial inclusion of women directors has positively stimulated board monitoring functions (Abad *et al.*, 2017; Adams and Ferreira, 2009; Carter *et al.*, 2003; Terjesen *et al.*, 2016).

In a closer examination of the value of the coefficients, we observe that ϖ_1 in Model 2 is less negative than ϖ_1 in Model 1. That is, the levels of board monitoring decreased between the two

transition periods. At least two reasons may explain this finding. First, the transition period to the second gender quota was shorter than the transition period to the first gender quota, suggesting the cost of including women on boards is a function of transition time, and drastic change on boards and its negative effects on board monitoring may be greater in early years and lessen over time (Scapin, 2015). Second, the increased gender quota (to 40%) was an exogenous shock to boards that changed their composition by changing board roles and integrating women who had lower levels of experience than exiting directors (Storvik, 2011).

Insert Table 2-3 about here

With regard to board gender diversity and earnings persistence, in line with the models of Ye *et al.* (2010) and Krishnan and Parsons (2008), we estimate the effect of board gender diversity on EP by the coefficient λ_3 (see Equation [6]). Models 1–3 present the results over the first, second and full periods, respectively. We find low EP, in that λ_1 is significantly positive and far from unity; overall, earnings are not highly persistent. One possible explanation is that France, which offers less protection than some other countries for minority shareholders (Nabar and Boonlert-U-Thai, 2007), is characterized by aggressive EM (Leuz *et al.*, 2003) that affects EP negatively (Dechow and Dichev, 2002; Richardson *et al.*, 2005). If λ_3 is significantly positive, we can conclude that earnings are more persistent and therefore of better quality. Overall, the results in Table 2-4 show the coefficient λ_3 is positive, significant, and near unity in all models, especially Model 2; they suggest gender quotas have enhanced EP because of their negative influence on upstream EM through the process of monitoring the structuring of earnings. Our results are consistent with Krishnan and Parsons's (2008) findings that EP (and therefore EQ) is greater for the high-gender-diversity group.

Insert Table 2-4 about here

These results confirm H1; that is, there has been a positive relationship between the proportion of women directors and EQ since the gender quota was introduced.

4.2.2. *Results of effect of distance from gender quota on relationship between gender diversity and EQ*

Table 2-5 presents results of tests of the impact of distance from the first and second gender quotas on the extent of EM. In Models 1 and 2, we study the relationship between firms affected by the first and second gender quotas and CDACC and find that affected firms associate positively and significantly with CDACC. These results are consistent with those of Scapin (2015), who finds that affected firms have less experienced boards and are less likely to constrain EM practices implemented by insiders. Scapin (2015) suggests affected firms have greater difficulty than unaffected firms in finding and incorporating women on their boards without altering the functioning of their boards. Because affected firms are more likely to recruit younger, less-experienced directors, they seem to experience significant declines in their levels of board oversight, thereby increasing their EM levels. The relationship between CDACC and the variable of firms affected by the second quota (see the significance of ϖ_1 in Table 6, Model 2) is less significant though. Perhaps the first quota had a positive effect on companies' abilities to find experienced women directors. It may have been easier for firms that already had women on their boards to incorporate more female board members without altering the structures and functioning of their boards. Possibly, compared with firms affected by the first gender quota, firms affected by the second gender quota were less likely to experience reductions in the levels of their board monitoring.

Insert Table 2-5 about here

With regard to board gender diversity and earnings persistence, in Table 2-6, Models 1 and 2 present the results of tests of the relationship between board gender diversity on EP within affected firms, for the first and second gender quota periods, respectively. If the value and/or significance of the coefficient λ_3 decreases compared with λ_1, we can infer that affected firms have lower EP. We find EP decreases for firms affected by both the first and second gender quotas, suggesting exogenous increases of women directors reduce EP and increase the risk that investors will be surprised by future earnings. These results challenge some studies that show that board gender diversity is associated with reduced corporate risk (Bernile *et al.*, 2018; Duong and Evans, 2016; Lenard *et al.*, 2014).

Insert Table 2-6 about here

Overall, our results confirm H2, that is, that firms have less gender-diverse boards at the beginning of the transition period. The deterioration of EQ within affected firms is consistent with the arguments previously developed, which suggest that exogenously increased inclusion of women directors may cause a surge in problems and costs, such as board restructuring (Linck *et al.*, 2008), over-monitoring (Adams and Ferreira, 2009), and learning processes (Cangelosi and Dill, 1965). Accordingly, affected firms may lose the monitoring capacities of their boards during the transition period, thereby increasing their levels of EM. Moreover, during the transition period, firms are likely to rely on insiders (and CEOs) to co-opt women directors and restructure their boards, giving insiders latitude to modulate accounting numbers in discretionary ways. Finally, firms that recruit women directors later are more likely to include female directors who have held multiple directorships for short periods (Seierstad and Opsahl, 2011); therefore, post-quota women directors may be busier (Terjesen and Sealy, 2016) and more effective in their monitoring activities.

4.2.3. Results of association between board gender diversity and earnings quality in low-debt and low-performing firms

We also study whether board gender diversity constrains EM within low-debt and low-performing firms, which are contexts in which board gender diversity can be particularly challenging. In line with Arun *et al.* (2015), we use the median of leverage and performance as the cut-off, such that we consider firms that have leverage and performance below the median level for the sample to be low-debt and low-performing firms, respectively. Table 8 reports the results, revealing that board gender diversity limits the extent of CDACC in low-debt firms. Several arguments may explain the negative effect of board gender diversity on the extent of EM within low-debt firms. Board size is one such explanation (Arun *et al.*, 2015); firms with smaller boards are more effective than those with larger boards (Jensen, 1993),[22] possibly because larger boards tend to have poorer communication, higher coordination costs, and greater decision-making difficulty (Guest, 2009) than smaller boards. As we find, high-debt firms have larger boards (untabulated) than low-debt firms, and low-debt firms are more likely to have boards that practice good monitoring.

Table 2-7 presents the descriptive statistics. This table reveals more independent boards in high-debt than in low-debt firms. Board independence is a key mechanism for monitoring accounting manipulation. Although smaller boards perform well in terms of organization, board independence is a major factor for reducing discretionary accounting practices. Because board gender diversity is significantly and negatively associated with CDACC in low-debt firms, board gender diversity seems to be a monitoring mechanism that complements board independence in low-debt firms characterized by weak levels of board independence.

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[22] Jensen (1986, p. 85) notes "keeping board small can improve their performance. When boards get beyond seven or eight people there are less likely to function effectively and easier for CEO control."

Insert Table 2-7 about here

We also investigate whether board gender diversity is associated positively with EQ in low-performing firms. Recall that Conyon and He (2017) find, in a U.S. context (see Section 2.3.3), that women directors are more likely to be unused within these firms. In the gender quota context of our study, we instead find a negative association of board gender diversity with CDACC within low-performing firms. Our results thus contradict Conyon and He's (2017) results, suggesting the quota law likely improves the level of monitoring of low-performing firms. In countries that have do not have gender quotas, discrimination against women, tokenism, and stereotyping appear more likely than in countries with gender quotas (García Lara *et al.*, 2017; Mateos de Cabo *et al.*, 2011). Firms operating within gender quotas contexts may be forced to use the talents and skills of women directors. In post-quota periods, board members must change their attitudes and ways of operating because of newcomers. According to Pande and Ford (2012), gender quotas are likely to affect attitudes toward female leadership through their impact on discrimination. Low-performing firms use their women directors' monitoring talents in gender quota contexts, which produces a positive association between board gender diversity and the quality of financial information.

The descriptive statistics for low-performing firms (untabulated) also show that board independence is more pronounced in low-performing than in high-performing firms. These results are consistent with literature that shows more independent boards have higher levels of monitoring (García Osma, 2008; Sun *et al.*, 2014). Women directors in low-performing firms appear to benefit from environments that are conducive to the expression of their monitoring abilities.

Finally, Table 2-8 shows that the value and significance of ϖ_1 is higher in Model 2 than in Model 1. The high level of board independence in low-performing firms, compared with low-debt firms, drives their higher quantitative effect on CDACC. This finding is consistent with that of García Lara *et al.* (2017), who find that the presence of independent directors is key to improving the

financial reporting process, regardless of gender. In such environments, greater board gender diversity complements the effect of board independence by further improving EQ.

Insert Table 2-8 about here

With regard to earnings persistence and board gender diversity, we also test whether the effect of board gender diversity reduces EP in low-debt and low-performing firms. Table 2-9 presents two models: Model 1 reflects the results of the low-debt firms, showing that, with the value of λ_1, earnings are weakly persistent, suggesting high uncertainty for future earnings. Model 2 features the results for low-performing firms, with a higher coefficient λ_1 than in Model 1, indicating moderately persistent earnings (λ_1 close to 1 suggests high EP) (Krishnan and Parsons, 2008. Hili and Affes, 2012; Dechow and Schrand, 2004). When we include the ratio of women directors as a moderator, the relationship between $EARN_{i,t-1}$ and $EARN_{i,t}$ intensifies in both models. Thus, we infer that board gender diversity boosted EP in low-debt and -performing firms over the post-gender quota period.

Insert Table 2-9 about here

These results confirm H3 and H4. There is a positive association between board gender diversity and EQ in both low-debt and low-performing firms.

4.3. Robustness tests

4.3.1. Additional control for the quality of corporate governance

We test the relationship between gender diversity and CDACC according to the quality of the corporate governance. Adams and Ferreira (2009) note that strict boards can create over-monitoring problems if they include more women (who behave as independent directors) in the firms with strong corporate governance. These firms already may have reached the optimal level

of monitoring, with less need for independent directors; including more women therefore may be detrimental. In line with Shen *et al.* (2015), who determine governance quality according to board independence and board duality, we find that board gender diversity associates positively with EM in companies with strong corporate governance (untabulated). In contrast, it reveals a negative association with CDACC in firms with weak corporate governance (Table 2-10). These results suggest firms with weak governance directly benefit from gender quotas, which enhance their board monitoring.

Insert Table 2-10 about here

4.3.2. Control for potential endogeneity using the one-step system GMM

According to Luo *et al.* (2017), our findings may be subject to self-selection bias, because firms that manage earnings may be more likely to appoint competent women to serve on boards. To address this issue, we use a technique based on Generalized Method of Moments (one-step) in panel data (GMM) (Arellano and Bond, 1991). Further, as stated by Roodman (2009), one-step system GMM is efficient and robust to heteroscedasticity and autocorrelation. We conducted additional regressions on CDACC.[23] Table 2-11 shows that the proportion of women directors associates significantly negatively with CDACC.[24] Overall, the results are robust, relative to those in Table 2-11, so endogeneity does not appear to be a concern, in further support for our hypotheses.

Insert Table 2-11 about here

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[23] In the additional tests, we used the GMM with the EP model, and the results are robust (untabulated).
[24] We also conducted additional tests with the variables of distance from gender quota negatively significantly associated with CDACC (untabulated). We conducted the additional analysis using the low-debt and low-performing-firm groups from the one-step system GMM; the results remained robust.

4.3.3. Difference-in-differences regressions

In line with Nekhili *et al.* (2020) and Scapin (2015), we use difference-in-difference regressions to test how gender quotas may have affected the relationship between board gender diversity and EQ within affected firms. To do so, we use propensity score matching (PSM) to match firms with less than 20% women and those with more than 20% of women directors, according to their similar financial characteristics. Like Francis *et al.* (2013) and Luo *et al.* (2017), we perform a logistic regression of firms with firms with less than 20% (40%) women directors in 2011 (2015) on firm size, leverage, and industry and year indicators. After estimating the propensity scores, we perform one-to-one nearest-neighbor matching with replacement for each firm-year observation. We obtain 217 treatment and 217 control firm-year observations for the first quota period, then 127 treatment and 127 control firm-year observations for the second quota period.

For the regressions using a difference-in-differences technique to measure the impact of the entry into force of the gender quota law on CDACC, the model is as follows:

$$CDACC_{j,t} = \varphi_0 + \varphi_1 \%\_WDs_{i,t} + \varphi_2 IMPL_t + \varphi_3 (\%\_WDs_{i,t} * IMPL_t) + \sum \varphi_i X_{i,t} + \varepsilon_{i,t}, \quad (7)$$

where IMPL is a year t's control variable, which takes a value of 1 for 2014 (2017), reflecting the implementation of the first (second) gender quota and 0 otherwise; and $X_{i,t}$ ($i = 1, 2, \ldots, k$) is the set of control variables. As Table 2-12 shows, φ_3 is positive and significant. Firms affected by gender quotas experience income-increasing EM by the year of application of the law. These results confirm our previous tests, indicating that gender quotas seem to reduce board monitoring in affected firms.

Insert Table 2-12 about here

4.3.4. *Alternative measurements of accrual earnings management*

Kim *et al.* (2003) critiques discretionary accruals measures based on Jones's (1991) model, citing biases in parameter estimation and potential measurement errors, which could increase inaccurate inferences about potential EM. With these limits, several authors, such as DeFond and Park (2001), have developed independent models to capture abnormal working capital accruals, formulated as:

$$AWCA_{i,t}= WC_{i,t}-\left(WC_{i,t-1}/S_{i,t-1}\right)\times S_{i,t}\text{-}, \quad (8)$$

where $AWCA_{j,t}$ = firm j's abnormal working capital accrual, measured as the difference between the current year's realized working capital accruals and the expected level of working capital accruals in year t; AWCAs are divided by beginning total assets to adjust for firm size; $WC_{i,t}$ = firm j's working capital in year t; $WC_{i,t-1}$ = firm j's working capital in year t – 1; $S_{i,t-1}$ = firm j's sales in year t – 1; and $S_{j,t}$ = firm *i*'s sales in year *t*. The results presented in Table 2-13 and Table 2-14 remain robust for the two hypotheses, respectively, suggesting minimal chances that the measurement of the dependent variable is biased in producing the previously obtained results.

Insert Tables 2-13 and 2-14 about here

4.3.5. *Results from real earnings management*

As additional resr we use real earnings management (REM). We use two operating REM activities: sales manipulation and overproduction.[25]

. The sales manipulation model is as follows:

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[25] However, for discretionary expenditures, we were able to collect R&D expenditures for only a few years. Therefore, we have excluded this variable, because it does not cover the entire period of our study. Similarly, for other real activities, we excluded these variables from study because of the unavailability of data on the FactSet database.

$$CFO_{i,t}/TA_{i,t-1}= \varphi_0 1/TA_{i,t-1}+\varphi_0 S_{i,t}/TA_{i,t-1}+ \varphi_0 \Delta S_{i,t-1}/TA_{i,t-1}+ \varepsilon_{i,t}, \textit{(9)}$$

where $CFO_{i,t}$ = firms i's cash flows from operations in year t; $TA_{i,t-1}$ = firms i's total assets in year $t-1$; $S_{i,t}$ = firms i's net sales in year $t-1$; $\Delta S_{i,t-1}$ = firms i's changes in net sales in year $t-1$; and $\varepsilon_{i,t}$ = firms i's abnormal cash flow in year $t-1$ (ABNCFO). Then the overproduction model is:

$$COGS_{i,t}/TA_{i,t-1}= \tau_0 1/TA_{i,t-1}+\tau_1 S_{i,t}/TA_{i,t-1}+\tau_2 \Delta S_{i,t}/TA_{i,t-1}+\tau_3 \Delta S_{i,t-1}/TA_{i,t-1}+ \varepsilon_{i,t}, \textit{(10)}$$

where $COGS_{i,t}$ = firms i's cost of goods sold in year t; $TA_{i,t-1}$ = firms i's total assets in year $t-1$; $SALES_{i,t}$ = firms i's net sales in year t; $\Delta SALES_{i,t-1}$ = firms i's changes in net sales in year $t-1$; and $\varepsilon_{i,t}$ = firms i's abnormal production in year t (ABNPROD).

Following Luo *et al.* (2017) and Kouaib and Jarboui (2017), we aggregated the two measures of real activities, obtained by multiplying the residuals of Eq. (22) by –1. According to Kaouib and Jarboui (2017, p. 345), "higher values indicate greater amounts of operating cash flows reduced by the firms to manage earnings upwards." The model of aggregate REM thus is:

$$REM = ABNCFO *(-1) + ABNPROD, \textit{(11)}$$

The results presented in Table 2-15 show that board gender diversity is negatively and significantly associated with REM. In accordance with the hypothesis, as presented in Table 2-16, we find that the distance to the quotas is positively and significantly associated with REM. These results confirm the results previously found and validate the research hypotheses.

Insert Tables 2-15 and 2-16 about here

4.3.6. Alternative measure of board gender diversity

In Tables 2-14 and 2-15 we use the Shannon index to measure board gender diversity (Campbell and Minguez-Vera, 2008; Martín-Ugedo and Minguez Vera, 2014). This index is an indicator of gender balance and may be relevant in contexts of coercive representation, because it measures the balances and imbalances between men and women on boards (Abad *et al.*, 2017). It is formulated as follows:

$$\text{Shannon Index}= \left|\sum_{j=1}^{n} p_i \ln p_i\right| -, \quad (9)$$

where *p* refers to firm *i*'s proportion of women directors. The Shannon Index takes values ranging from 0, when there is no gender diversity on the board, to 0.693, when there is an equal proportion of each category. As noted by Abad *et al.* (2017), it includes a logarithmic component that makes it more sensitive to small changes in gender diversity. Overall, the results reveal that the Shannon Index reduces earnings management and increases earnings persistence.

Tables 2-17 and 2-18 present the results of the relationship between gender diversity measured from the Shannon Index and current discretionary accrual and earnings persistence, respectively. Overall, these tables show that our results remain robust.

Insert Tables 2-17 and 2-18 about here

4.3.7. Earnings management proxies and alternative measure of board gender diversity

Finally, we conducted tests between the Shannon Index, the alternative measure of gender diversity, and the two alternative measures of outcome management, AWCA (Table 2-19) and REM (Table 2-20). Overall the results converge with those previously found.

Insert Tables 2-19 and 2-20 about here

5. Conclusion

This paper investigates the effect of board gender quotas on EQ in France. With a sample of French listed companies over 2011–2017, applying generalized least squares (GLS) regressions, three results emerge: Board gender diversity is significantly positively associated with EQ since the gender quota implementation; the effect of board gender diversity on EQ depends on the firms' gender quota distance around the transition period; and board gender diversity has reduced the extent of EM for low-debt and -performing firms, which are contexts in which board gender diversity can be particularly challenging. Our study thus extends work on the effects of gender quotas on corporate boards. First, to the best of our knowledge, no study has examined board gender diversity and EQ in a context in which the representation of women is driven by board gender quotas. Second, our study stresses the importance of considering distance from the gender quota to determine the influence of board gender diversity on EQ. Our evidence points to the idea that firms that have anticipated or rapidly complied with the quota legislation have better board monitoring. Moreover, it suggests that board gender diversity has a low quantitative effect on EM during the transition period to a second board gender quota; possibly, firms affected by the second quota included women with less experience, reducing the quality of board monitoring. Third, legal practitioners and managers have raised concerns about the legitimacy of newly hired women directors, so we sought to determine whether women directors perform well in the situations of low-debt, weak governance, and stressed settings, in which women are underutilized. Our results show that board gender diversity improves EQ in these situations. Across several robustness checks and sensitivity analyses, our results hold.

Our study has some clear limitations. It could benefit from including measures of the costs of including women directors. For example, an expanded model could integrate accurate counts of board restructuring operations (e.g., number of committees and directors, distribution of workload

per director, changes in working methods and board deliberations) and test how they correlate with corporate outcomes since the gender quota was introduced. If there is a negative and significant relationship, we might conclude that the inclusion of women is structurally costly. With regard to learning costs, we also could have measured how board activities that increase knowledge of company activities and efficient decision making have evolved. In the context of gender quota laws, board restructuring - though costly in the short term - seeks to identify and appoint qualified women members to execute ongoing agendas (Wolfe, 2006).

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Appendix : Figures and Tables

Figure 3: The phased gender quota in France

Quotas of women directors

40%

20%

Application of the second
gender quota

Year of the quota
promulgation

Application of the first
gender quota

Time

[Pre-quota period]   **[2011]**   **[2014]**   **[2017]**
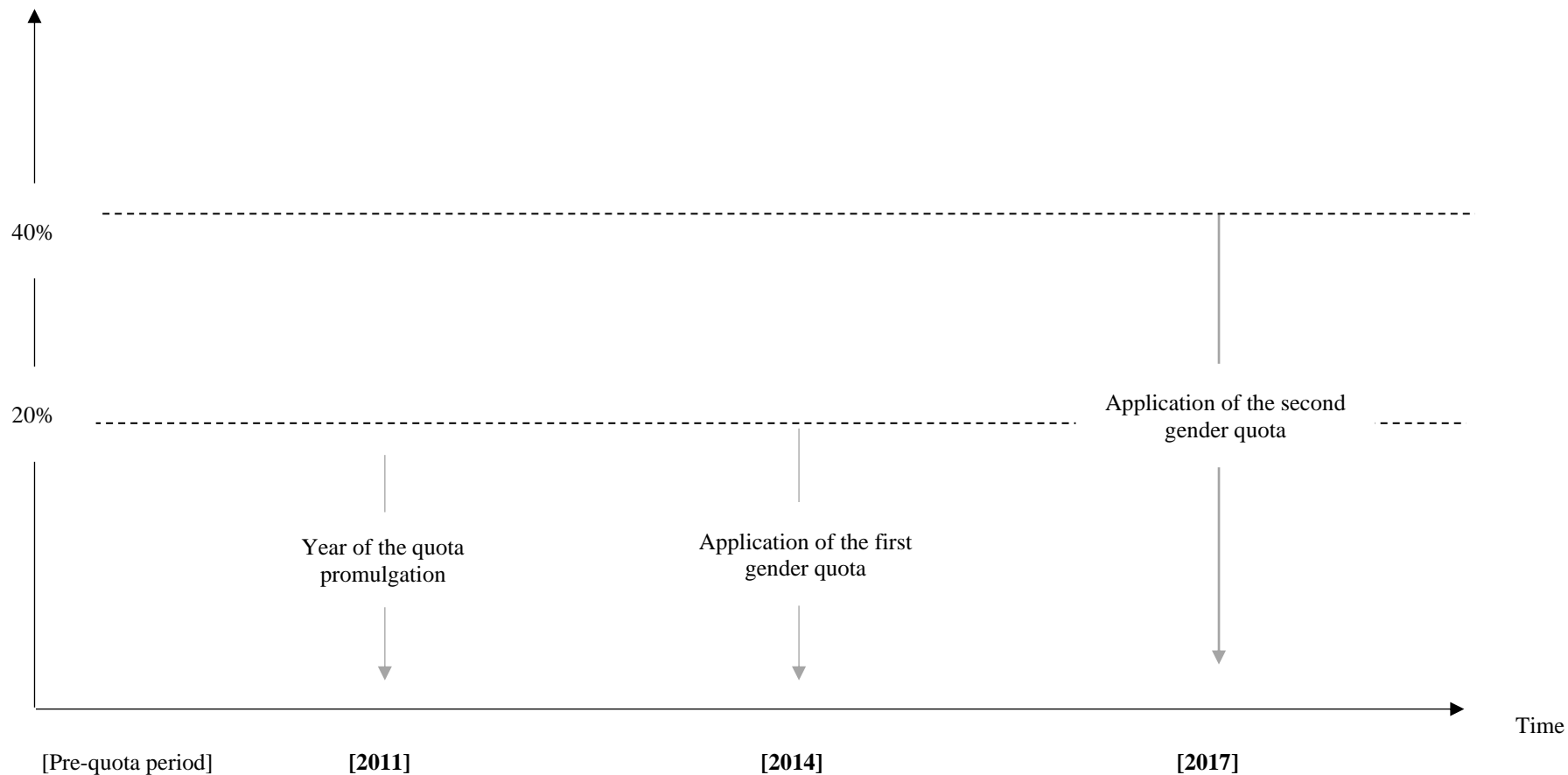
Notes to Figure 3 : This figure shows the deployment over time of gender quotas in France, from enactment to the second quota.

Figure 4: Histogram of representation of women and men by year since the formal gender quota announcement.
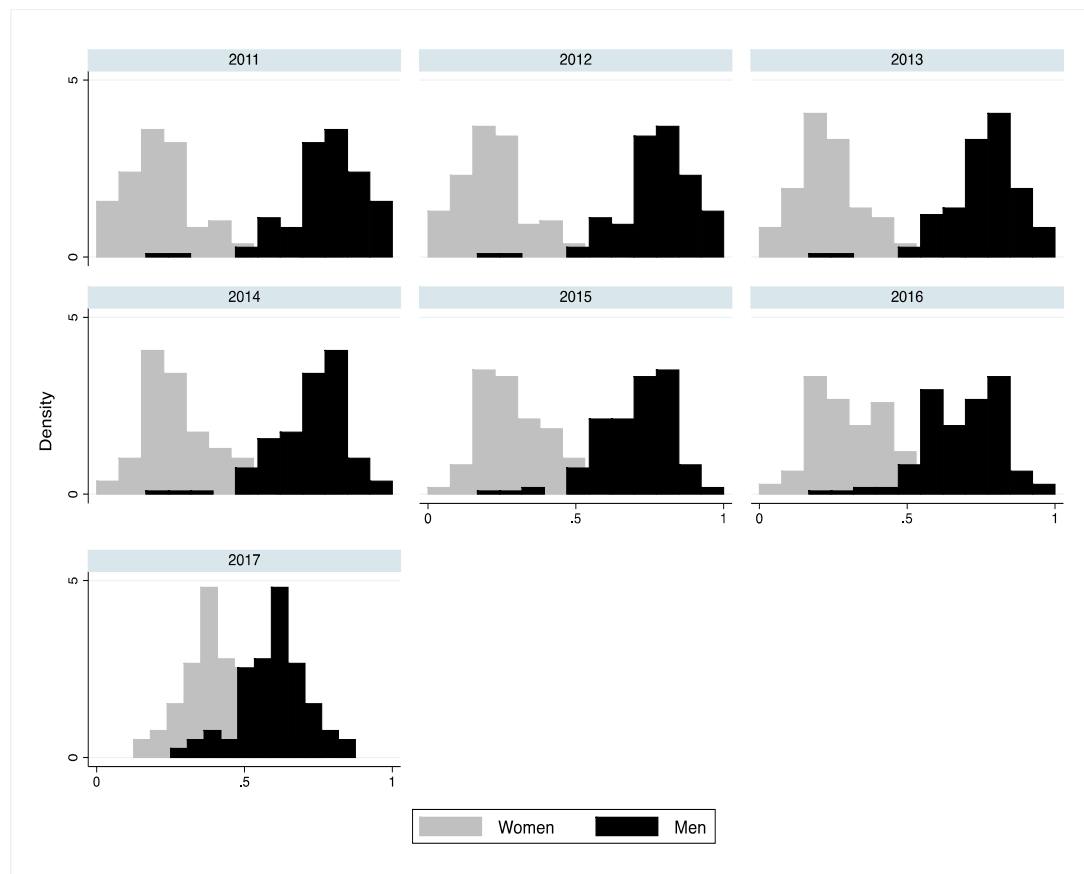
Notes to Figure 4: This graph shows the evolution of the proportions of female and male directors. The observation is that as one approach the year 2017, both trends are moving closer to the value 0.

Table 2- 1 : Descriptive statistics of variables for full sample and subsamples

	Mean	Std.Dev.	Min	Max
Panel A: Full period				
CDACC$_{i,t}$	0.076	0.094	0	0.373
REM$_{i,t}$	0.144	0.161	0.000	0.587
%_WDs$_{i,t}$	0.272	0.143	0	1
FCF$_{i,t}$	1.401	4.253	-26.884	42.425
ROA$_{i,t}$	0.000	14.49	-0.401	0.1967
QR$_{i,t}$	0.0150	1.718	0.001	0.182
LEV$_{i,t}$	0.2311	19.129	0	0.6672
MTB$_{i,t}$	0.0126	4.593	-0.233	0.3559
LOSS$_{i,t}$	0.277	0.448	0	1
B_IND$_{i,t}$	4.014	2.918	0	11
B_SIZE$_{i,t}$	8.744	3.854	3	21
DUAL$_{i,t}$	60.00	0.490	0	1
FAM$_{i,t}$	37.86	0.2878	0	1
INST$_{i,t}$	22.94	0.2865	0	1
BIG$_{i,t}$	0.9825	0.1311	0	1
F_SIZE$_{i,t}$	12.576	2.435	10.876	18.41

Panel B: Statistics by transition periods

	Panel B.1: First Gender Quota Period		Panel B.2: Second Gender Quota Period		*t*-test
	Mean	Std.Dev.	Mean	Std.Dev.	
CDACC$_{i,t}$	0.070	0.071	0.055	0.071	-3.121***
%_WDs$_{i,t}$	0.237	0.134	0.336	0.136	11.456***
FCF$_{i,t}$	1.167	4.285	1.588	4.379	1.502
ROA$_{i,t}$	-0.002	0.140	0.004	0.133	0.741
QR$_{i,t}$	1.433	1.620	1.645	1.856	1.863*
LEV$_{i,t}$	0.264	0.209	0.248	0.194	-1.168
MTB$_{i,t}$	0.732	2.690	0.509	0.867	-1.369
LOSS$_{i,t}$	0.290	0.454	0.279	0.449	-0.363
B_IND$_{i,t}$	3.985	2.921	4.072	2.917	0.404
B_SIZE$_{i,t}$	8.676	3.870	8.877	3.824	0.720
DUAL_CEO$_{i,t}$	60.25	0.489	59.49	0.491	-0.209
FAM$_{i,t}$	37.72	0.012	38.23	0.017	0.245
INST$_{i,t}$	20.32	0.012	20.14	0.017	-0.086
BIG$_{i,t}$	0.982	0.131	0.983	0.126	0.227
F_SIZE$_{i,t}$	12.429	2.522	12.812	2.265	2.462**

Notes to Table 2-1.

This table presents descriptive statistics of variables for full sample and subsamples. CDACC$_{i,t}$ is current discretionnary accruals, measured from Dechow et al. (1995) model; %_WD$_{i,t}$ is the percentage of women directors, measured as ratio of women directors to total directors; FCF is free cash flow, measured as free cash flow divided by total number of shares; ROA$_{i,t}$ is return on assets, measured as net income in year t divided by total assets; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; LEV$_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets; MTB$_{i,t}$ is market-to-book, measured as market value to book value of equity; LOSS$_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise; B_IND$_{i,t}$ is board independence, proxied as the proportion of independent

directors to total number of directors; $B\_SIZE_{i,t}$ is board size, measured by the number of directors; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_t$ is institutional ownership measured as the percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets

Panel C : Evolution of number and proportion of women directors

Year	Number of women directors	Proportion of women directors (%_WD)	Board size
2011	1.86	21.50%	8.57
2012	1.93	22.22%	8.57
2013	2.03	23.66%	8.52
2014	2.46	27.67%	8.67
2015	2.64	29.64%	8.72
2016	2.85	31.22%	8.86
2017	3.611	40.37%	8.99

Table 2- 2 : Pairwise correlation matrix and variance inflation factor (VIF)

	CDACC	%_WD	FCF	ROA	QR	LEV	MTB	LOSS	B_IND	DUAL	FAM	INS	VIF
CDACC$_{i,t}$	1												-
%_WDs$_{i,t}$	-0.064	1											1.34
FCF$_{i,t}$	0.022	0.075	1										1.19
ROA$_{i,t}$	-0.186***	0.015	0.207***	1									1.67
QR$_{i,t}$	0.026	0.026	-0.101**	-0.380***	1								1.22
LEV$_{i,t}$	-0.002	-0.002	0.021	0.063	-0.061	1							1.13
MTB$_{i,t}$	0.043	0.027	0.276***	-0.007	-0.017	0.008	1						1.01
LOSS$_{i,t}$	0.173***	-0.064	-0.227***	-0.571***	0.278***	-0.033	0.013	1					1.66
B_IND$_{i,t}$	-0.042	-0.479***	0.007	0.028	-0.068	0.023	0.008	-0.019	1				1.36
DUAL$_{i,t}$	0.0295	0.027	-0.0466	0.029	0.0675	0.006	0.061	-0.059	-0.019	1			1.05
FAM$_{i,t}$	-0.000	0.035	0.006	0.070	-0.087*	-0.006	0.084*	-0.156***	-0.020	0.0101	1		2.68
INST$_{i,t}$	-0.000	-0.029	-0.001	-0.066	0.088*	0.004	-0.086*	0.150***	0.035	-0.008	-0.988***	1	2.53
BIG4$_{i,t}$	0.022	-0.076*	0.010	0.111**	-0.000	0.084*	0.022	-0.017	0.064	0.128***	-0.192***	0.195***	1.09
F_SIZE$_{i,t}$	-0.221***	0.031	0.206***	0.330***	-0.237***	0.041	0.122**	-0.364***	0.122**	0.078*	-0.068	0.058	1.31

Notes to Table 2-2.

This table presents the pairwise correlation matrix and variance inflation factor of variables of our study. CDACC$_{i,t}$ is current discretionnary accruals, measured from Dechow et al. (1995) model; %_WD$_{i,t}$ is the percentage of women directors, measured as ratio of women directors to total directors; FCF is free cash flow, measured as free cash flow divided by total number of shares; ROA$_{i,t}$ is return on assets, measured as net income in year t divided by total assets; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; LEV$_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets; MTB$_{i,t}$ is market-to-book, measured as market value to book value of equity; LOSS$_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise; B_IND$_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors; B_SIZE$_{i,t}$ is board size, measured by the number of directors; DUAL_CEO$_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; FAM$_{i,t}$ is the family ownership measured as the percentage of capital held by family; INST$_t$ is institutional

ownership measured as the percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets.

Table 2- 3 : Association between board gender diversity and current discretionary accruals (CDACC) by quota period

Variables	CDACC$_t$	CDACC$_t$	CDACC$_t$
	(1)	(2)	(3)
%_WDs$_{i,t}$	**-0.068***	**-0.006***	**-0.064***
	(0.018)	**(0.001)**	**(0.018)**
FCF$_{i,t}$	0.001	0.001***	0.001*
	(0.000)	(0.000)	(0.000)
ROA$_{i,t}$	-0.001***	-0.000***	-0.001***
	(0.000)	(0.000)	(0.000)
QR$_{i,t}$	-0.004***	0.002***	-0.003***
	(0.001)	(0.000)	(0.001)
LEV$_{i,t}$	0.000**	-0.000***	0.000***
	(0.000)	(0.000)	(0.000)
MTB$_{i,t}$	0.001	0.014***	0.001
	(0.001)	(0.001)	(0.002)
LOSS$_{i,t}$	0.019***	0.008***	0.007*
	(0.006)	(0.001)	(0.004)
B_IND$_{i,t}$	-0.003**	-0.001***	-0.002**
	(0.001)	(0.000)	(0.001)
B_SIZE$_{i,t}$	-0.002***	-0.001***	-0.001
	(0.001)	(0.000)	(0.001)
DUAL$_{i,t}$	0.013***	-0.005	0.008
	(0.003)	(0.000)	(0.003)
FAM$_{i,t}$	-0.051	-0.025	0.029
	(0.076)	(0.033)	(0.024)
INST$_{i,t}$	-0.033	-0.033	0.035
	(0.076)	(0.033)	(0.024)
BIG$_{i,t}$	0.020	0.001	0.014**
	(0.005)	(0.019)	(0.005)
F_SIZE$_{i,t}$	0.001	0.001***	-0.002**
	(0.001)	(0.000)	(0.001)
Constant	0.034*	0.000	0.049***
	(0.018)	(0.004)	(0.016)
Observations	641	360	1001

Notes to Table 2-3.

The model is as follows :

$$EM_{i,t} = \varpi_0 + \varpi_1 \%\_WD_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues.. The dependent variable is CDACC, the current discretionnary accruals, measured from Dechow et al. (1995) model. The independent variable is %_WDs$_{i,t}$, the percentage of women directors, measured as the ratio of women directors to total directors. X$_{i,t}$ are the set of the firm i's control variables in year t: X$_{j,t}$ are the set of the firm's control variables in year t: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; ROA$_{i,t}$ is return on assets, measured as net income divided by total assets; QR$_{i,t}$ is the quick ratio, measured as total current

assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; INS is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specif and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 4 : Cross-sectional regressions of board gender diversity on earnings persistence in first, second, and full gender quota implementation periods

	(1)	**(2)**	**(3)**
	$EARN_i$		
$EARN_{it-1}$	0.484***	0.448***	0.562***
	(0.051)	(0.031)	(0.042)
%_WDs$_{i,t}$	-1.995**	-0.830**	-1.786***
	(0.826)	(0.329)	(0.548)
$EARN_{it-1} \times$ %_WDs$_{i,t}$	**0.625***	**0.989***	**0.623***
	(0.194)	**(0.081)**	**(0.129)**
Constant	-2.049*	-3.227**	-2.749**
	(1.215)	(1.602)	(1.138)
Observations	641	360	1001

Notes to Table 2-3.

The model is as follows:

$$EARN_{i,t}=\lambda_0+\lambda_1 EARN_{i,t-1}+\lambda_2\%\_WD_{i,t}+\lambda_3 EARN_{i,t-1} * \%\_WD_{i,t}+\varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. $EARN_t$ is earnings in year t, measured as net income divided by total assets in year t: $EARN_{t-1}$ is earnings in year t-1, measured as net income divided by total assets in year t-1. %_WDs$_{i,t}$ is the percentage of women directors, measured as ratio of women directors to total directors. The interest variable is $EARN_{i,t-1} * \%\_WDs_{i,t}$; Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, 2011–2017, respectively. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. Significance at the 10%, 5% and 1% levels indicated by*, **, and ***, respectively.

Table 2- 5 : Effect of distance on relationship between board gender diversity and CDACC

	CDACC	CDACC
	(1)	(2)
First_GQ	**0.016***	
	(0.006)	
Second_GQ		**0.018***
		(0.010)
FCF$_{i,t}$	0.001	0.002*
	(0.000)	(0.001)
ROA$_{i,t}$	-0.001***	-0.002***
	(0.000)	(0.000)
QR$_{i,t}$	-0.004***	-0.010***
	(0.001)	(0.003)
LEV$_{i,t}$	0.000**	0.001**
	(0.000)	(0.000)
MTB$_{i,t}$	0.001	0.003
	(0.001)	(0.002)
LOSS$_{i,t}$	0.019***	0.025**
	(0.006)	(0.011)
B_IND$_{i,t}$	-0.001	-0.003*
	(0.001)	(0.002)
B_SIZE$_{i,t}$	-0.001**	-0.002**
	(0.001)	(0.001)
DUAL$_{i,t}$	0.011***	0.004***
	(0.002)	(0.000)
FAM$_{i,t}$	-0.015***	-0.018***
	(0.054)	(0.037)
INST$_{i,t}$	-0.001	-0.026***
	(0.053)	(0.037)
BIG$_{i,t}$	0.029	.001
	(.004)	(0.018)
F_SIZE$_{i,t}$	-0.001	-0.001
	(0.001)	(0.002)
Constant	0.010	0.012
	(0.018)	(0.034)
Observations	641	360

Notes to Table 2-5.

The model is as follows

$$EM_{i,t} = \varpi_0 + \varpi_1 GQ + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. EM is the dependent variable: CDACC$_t$ is current discretionnary accruals, measured from Dechow et al. (1995) model: GQ is the independent variable: First_GQ (Second_GQ) takes value of 1 if there were less than 20% (40%) women on board of directors in 2011 (2015). X$_{i,t}$ are the set of the firm i's control variables in year t: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; ROA$_{i,t}$ is return on assets, measured as net income divided by total assets; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; LEV$_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; MTB$_{i,t}$ is market-to-book, measured as market value to book value of equity: LOSS$_{i,t}$ is firm loss, a dummy variable,

which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

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Table 2- 6 : Cross-sectional regressions of effect of distance from quotas on earnings persistence

	(1)	(2)
	EARN$_{i,t}$	
EARN$_{i,t-1}$	0.619***	0.783***
	(0.027)	(0.019)
First_GQ	0.063	
	(0.168)	
Second_GQ		0.555***
		(0.107)
EARN$_{it-1}$× First_GQ	**0.025***	
	(0.014)	
EARN$_{it-1}$× Second_GQ		**-0.055****
		(0.023)
Constant	-2.414**	-3.602*
	(1.186)	(2.014)
Observations	641	360

Notes to Table 2-6 :

The model is as follows :

$$EARN_{j,t}=\lambda_0+\lambda_1 EARN_{i,t-1}+\lambda_2 GQ+\lambda_3 EARN_{i,t-1} \times GQ+\varepsilon_{i,t}.$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues EARN$_t$ is earnings in year t, measured as net income divided by total assets. EARN$_{t-1}$ is earnings in year t-1, measured as net income divided by total assets in year t-1. GQ is the gender quota variable: First_GQ (Second_GQ) that takes value of 1 if there were less than 20% (40%) women on the board of directors in 2011 (2015), 0 otherwise. For clarity, we also include year-specific and industry-specific dummies variables in all regressions. Significance at the 10%, 5% and 1% levels indicated by*, **, and ***, respectively.

Table 2- 7: Univariate analysis of High *vs*. Low-debt firms, and High *vs*. Low-performing firms

Variables	High-debt firms		Low-debt firms		Significanace of *t*-test
Panel A: High- and low-debt firms					
	Mean	Sd.	Mean	Sd.	
CDACC	0.060	0.065	0.070	0.068	**
%_WDs	0.213	0.083	0.274	0.050	***
B_SIZE	9.705	4.175	7.692	3.154	***
	High-performing firms		Low-performing firms		
Panel B: High and low-performing firms					
	Mean	Sd.	Mean	Sd.	
CDACC	0.066	0.084	0.085	0.102	***
%_WDs	0.256	0.054	0.265	0.056	**
B_SIZE	8.993	3.707	8.490	3.985	*

Notes to Table 2-7 :

This table presents the descriptive statistics of current discretionary accruals from Dechow et al. (2005) CDACC, the percentage of women directors, %_WDs, and board size, B_SIZE among high- and low-debt firms (Panel A), on the one hand, and high and low-performing firms (Panel B), on other other hand. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 8: Association between CDACC and gender diversity considering low-debt and low-performing firms:

	$CDACC_{i,t}$	$CDACC_{i,t}$
	(1)	(2)
%_WDs$_{i,t}$	**-0.063****	**-0.076*****
	(0.029)	**(0.024)**
FCF$_{i,t}$	0.001**	0.002**
	(0.001)	(0.001)
ROA$_{i,t}$	-0.001***	-0.002***
	(0.000)	(0.001)
QR$_{i,t}$	-0.003**	0.003
	(0.001)	(0.004)
LEV$_{i,t}$	0.000	0.001***
	(0.000)	(0.000)
MTB$_{i,t}$	0.007	0.025***
	(0.006)	(0.003)
LOSS$_{i,t}$	0.014*	0.025***
	(0.008)	(0.004)
B_IND$_{i,t}$	-0.003**	0.003
	(0.001)	(0.002)
B_SIZE$_{i,t}$	-0.014	-0.002
	(0.034)	(0.001)
DUAL$_{i,t}$	0.001	0.024*
	(0.003)	(0.009)
FAM$_{i,t}$	0.028	0.011
	(0.029)	(0.082)
INST$_{i,t}$	0.036	0.023
	(0.030)	(0.078)
BIG$_{i,t}$	0.018	-0.000
	(0.006)	(0.017)
F_SIZE$_{i,t}$	-0.063**	-0.004**
	(0.029)	(0.002)
Constant	0.001**	0.000
	(0.001)	(0.001)
Observations	321	319

Notes to Table 2-8.

The model is as follows :

$$EM_{i,t} = \varpi_0 + \varpi_1 \%\_WD_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Models 1 and 2 present the from low-debt and - performing firms respectively (firms with performance below the median leverage for the sample. The dependent variable is $CDACC_{i,t}$ is current discretionnary accruals, measured from Dechow et al. (1995) model: %_WDs$_{i,t}$ is the independent variable, the percentage of women on boards. $X_{i,t}$ are the set of the firm i's control variables in year t: $FCF_{i,t}$ is free cash flow, measured as free cash flow divided

by total number of shares ; $ROA_{i,t}$ is return on assets, measured as net income divided by total assets; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 9: Earnings persistence and board gender diversity considering low-debt and low-performing firms.

	(1)	(2)
	EARN$_{it}$	
EARN$_{it-1}$	0.311***	0.516***
	(0.053)	(0.078)
%_WDs$_{i,t}$	-1.542*	-2.152***
	(0.825)	(0.827)
EARN$_{it-1}$ × %_WDs$_{i,t}$	**0.805***	**0.647**
	(0.172)	**(0.263)**
Constant	-4.496***	-1.335
	(1.331)	(2.339)
Observations	429	464

Notes to Table 2-9.

The is as follows :

$$EARN_{i,t}=\lambda_0+\lambda_1 EARN_{i,t-1}+\lambda_2\%\_WD_{i,t}+\lambda_3 EARN_{i,t-1} * \%\_WD_{i,t}+\varepsilon_{i,t}.$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. EARN$_t$ is earnings in year t, measured as net income divided by total assets in year t: EARN$_{t-1}$ is earnings in year t-1, measured as net income divided by total assets in year t-1. %_WDs$_{i,t}$ is the percentage of women directors, measured as ratio of women directors to total directors. The interest variable is EARN$_{i,t-1}$ * %_WDs$_{i,t}$; Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, 2011–2017, respectively. Significance at the 10%, 5% and 1% levels indicated by*, **, and ***, respectively.

Table 2- 10 : Board gender diversity and EM in firms with weak corporate governance.

	Dependent variable: CDACCt		
	(1)	(2)	(3)
%_WDs$_{i,t}$	-0.158***	-0.015***	-0.088***
	(0.026)	(0.000)	(0.019)
FCF$_{i,t}$	0.001*	-0.001***	0.000
	(0.001)	(0.000)	(0.000)
ROA$_{i,t}$	-0.001***	0.000***	-0.001***
	(0.000)	(0.000)	(0.000)
QR$_{i,t}$	-0.011***	0.005***	-0.006***
	(0.001)	(0.000)	(0.000)
LEV$_{i,t}$	-0.001	-0.000	-0.000
	(0.001)	(0.000)	(0.000)
MTB$_{i,t}$	0.000	0.014***	-0.000
	(0.001)	(0.000)	(0.002)
LOSS$_{i,t}$	0.031***	0.004***	0.011**
	(0.006)	(0.001)	(0.004)
B_IND$_{i,t}$	-0.001	0.000	-0.002***
	(0.001)	(0.000)	(0.001)
B_SIZE$_{i,t}$	-0.007***	-0.002***	-0.004***
	(0.000)	(0.000)	(0.000)
DUAL$_{i,t}$	0.000***	0.000***	0.000***
	(000)	(000)	(000)
FAM$_{i,t}$	-0.042	-0.012***	-0.078
	(0.042)	(0.004)	(0.097)
INST$_{i,t}$	0.003	0.001	-0.052
	(0.041)	(0.005)	(0.096)
BIG$_{i,t}$	0.112	0.072	0.078
	(0.047)	(0.003)	(0.009)
F_SIZE$_{i,t}$	-0.001	0.000***	-0.003***
	(0.001)	(0.000)	(0.001)
Constant	0.227***	0.055***	0.190
	(0.020)	0.001	(0.013)
Observations	281	158	447

Notes to Table 2-10.

The model is as follows:

$$EM_{i,t} = \varpi_0 + \varpi_1 \%\_WD_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively; EM is the dependent variable, CDACC, current discretionnary accruals, measured from Dechow et al. (1995) model. %_WDs$_{i,t}$ is the independent variable, the percentage of women directors, measured as ratio of women directors to total directors. $X_{i,t}$ are the set of the firm i's control variables in year t: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; ROA$_{i,t}$ is return on assets, measured as net income divided by total assets ; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; LEV$_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; MTB$_{i,t}$ is market-to-

book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 11 : Effect of board gender diversity on CDACC using the one-step system GMM

	(1)	(2)	(3)
L.CDACC$_{i,t}$	0.108	0.072	0.182**
	(0.107)	(0.092)	(0.071)
%_WDs$_{i,t}$	**-0.797****	**-0.636**	**-0.483****
	(0.345)	**(0.461)**	**(0.201)**
FCF$_{i,t}$	0.005**	0.002	0.002***
	(0.002)	(0.002)	(0.001)
ROA$_{i,t}$	-0.001	-0.001	-0.001**
	(0.001)	(0.001)	(0.000)
QR$_{i,t}$	-0.003	0.002	-0.002
	(0.003)	(0.004)	(0.003)
LEV$_{i,t}$	0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
MTB$_{i,t}$	0.001	0.019***	0.002
	(0.002)	(0.006)	(0.001)
LOSS$_{i,t}$	0.022	0.011	0.018
	(0.019)	(0.022)	(0.013)
B_IND$_{i,t}$	-0.026*	-0.025	-0.017**
	(0.013)	(0.018)	(0.008)
B_SIZE$_{i,t}$	-0.006	-0.006	-0.004
	(0.004)	(0.012)	(0.012)
DUAL$_{i,t}$	0.042*	0.000***	0.019
	(0.022)	(0.000)	(0.004)
FAM$_{i,t}$	-0.052	0.044	0.036**
	(0.069)	(0.066)	(0.845)
INST$_{i,t}$	0.000***	-0.256	0.287
	(0.000)	(0.443)	(0.024)
BIG$_{i,t}$	0.067	0.052	0.017
	(0.033)	(0.031)	(0.004)
F_SIZE$_{i,t}$	0.003	0.011	0.005
	(0.005)	(0.009)	(0.004)
Constant	0.379**	0.195	0.177*
	(0.181)	(0.157)	(0.093)
Observations	334	255	589
Wald chi2	8.00	4.39	15.61
Groups/Instruments	124/35	131/ 33	135/41
AR(2)	1.32	1.06	1.41
	0.186	0.289	0.158
Hansen statistic	6.56	2.92	22.96
	0.256	0.268	0.028
Sargan test	14.28	21.63	12.75
	0.014	0.027	0.387

Notes to Table 2-11.

The model is as follows:

$$EM_{i,t}=\varpi_0+\varpi_1 L. CDACC_{i,t}+\varpi_1 \%\_WD_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

Generalized Method of Moment regressions made from a fit population averaged panel data model. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively. $CDACC_{i,t}$ is lagged values of current discretionnary accruals, measured from Dechow et al. (1995). $L.CDACC_{i,t}$ is lagged values of current discretionnary accruals, measured from Dechow et al. (1995) model. The independent variable is $\%\_WDs_{i,t}$, the percentage of women directors, measured as ratio of women directors to total directors. $X_{i,t}$ are the set of the firm i's control variables in year t: $FCF_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; $ROA_{i,t}$ is return on assets, measured as net income in year t divided by total assets ; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 12 : Relationship between gender diversity and CDACC using difference-in-differences regressions.

	CDACC$_t$	CDACC$_t$
	(1)	(2)
%_WDs$_{i,t}$	**-0.101***	**-0.048***
	(0.017)	**(0.001)**
IMPL$_{i,t}$	-0.018***	-0.034***
	(0.003)	(0.005)
%_WD$_{i,t}$ * IMPL$_{i,t}$	0.085***	0.064***
	(0.012)	(0.002)
FCF$_{i,t}$	0.001***	0.000***
	(0.000)	(0.000)
ROA$_{i,t}$	-0.001***	-0.000***
	(0.000)	(0.000)
QR$_{i,t}$	-0.009***	0.001***
	(0.001)	(0.000)
LEV$_{i,t}$	0.000	-0.003***
	(0.000)	(0.000)
MTB$_{i,t}$	-.000	0.014***
	(0.001)	(0.001)
LOSS$_{i,t}$	0.014***	0.015***
	(0.003)	(0.001)
B_IND$_{i,t}$	-0.003**	-0.001***
	(0.001)	(0.000)
B_SIZE$_{i,t}$	-0.002***	-0.001***
	(0.000)	(0.000)
DUAL$_{i,t}$	0.000***	0.004***
	(0.001)	(0.005)
FAM$_{i,t}$	-0.052	-0.047
	(0.022)	(0.085)
INST$_{i,t}$	-0.013	-0.047
	(0.022)	(0.084)
BIG$_{i,t}$	0.171***	0.060***
	(0.026)	(0.005)
F_SIZE$_{i,t}$	-0.001	0.001***
	(0.001)	(0.000)
Constant	0.113	0.004***
	(0.015)	(0.000)
Observations	434	254

Notes to Table 2-12.

The model is as follows:

$$CDACC_{i,t}=\varphi_0+\varphi_1\%\_WD_{i,t}+\varphi_2 IMP_t+\varphi_3\%\_WD_{i,t}*IMPL_t+\sum \varphi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively. The dependent variable is CDACC, current discretionnary accruals, measured from Dechow et al. (1995). The

independent variable is %_WDs$_{i,t}$, the percentage of women directors, measured as ratio of women directors to total directors. IMPL is a year t's variable, which takes a value of 1 for 2014 (2017), reflecting the implementation of the first (second) gender quota and 0 otherwise. The interest variable is %_WD$_{i,t}$* IMPL$_t$. X$_{i,t}$ are the set of the firm i's control variables in year t: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; ROA$_{i,t}$ is return on assets, measured as net income in year t divided by total assets ; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; LEV$_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; MTB$_{i,t}$ is market-to-book, measured as market value to book value of equity: LOSS$_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; B_IND$_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; B_SIZE$_{i,t}$ is board size, measured number of directors ; DUAL_CEO$_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; FAM$_{i,t}$ is the family ownership measured as the percentage of capital held by family; INST$_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; BIG is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; F_SIZE$_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 13 . Association between abnormal working capital accrual (AWCA) and board gender diversity.

	Dependent variable : $AWCA_{i,t}$		
	(1)	(2)	(3)
%_WDs$_{i,t}$	**-0.106****	**-0.053***	**-0.089***
	(0.102)	**(0.171)**	**(0.097)**
FCF$_{i,t}$	-0.000	-0.001	-0.001
	(0.000)	(0.001)	(0.000)
ROA$_{i,t}$	-0.022	0.106***	0.012
	(0.032)	(0.037)	(0.020)
QR$_{i,t}$	-0.002	0.003	0.004***
	(0.003)	(0.002)	(0.001)
LEV$_{i,t}$	0.000*	0.000*	0.000**
	(0.000)	(0.000)	(0.000)
MTB$_{i,t}$	0.002	0.004*	0.004***
	(0.002)	(0.002)	(0.001)
LOSS$_{i,t}$	-0.004	0.008	0.003
	(0.005)	(0.008)	(0.004)
B_IND$_{i,t}$	0.001	-0.001	0.000
	(0.001)	(0.002)	(0.001)
DUAL_CEO$_{i,t}$	0.005**	0.001*	0 .003*
	(0.051)	(0.078)	(0.015)
FAM$_{i,t}$	-0.008**	-0.006*	-0 .007**
	(0.067)	(0.001)	(0.009)
INST$_{i,t}$	-0.015*	-0.010*	-0.007*
	(0.088)	(0.000)	(0.000)
F_SIZE$_{i,t}$	-0.001	-0.002	-0.001
	(0.001)	(0.002)	(0.001)
B_SIZE$_{i,t}$	-0.106	-0.005***	-0.005***
	(0.102)	(0.002)	(0.001)
Constant	0.135***	0.094	0.103**
	(0.039)	(0.074)	(0.044)
Observations	641	360	1001

Notes to Table 2-13.

The model is as follows:

$$EM_{i,t} = \varpi_0 + \varpi_1 \%\_WD_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively; EM is the dependent variable, $AWCA_{i,t}$, abnormal working capital accrual, measured from Defond and Park (2001) %_WDs$_{i,t}$ is the independent variable, the percentage of women directors, measured as ratio of women directors to total directors. $X_{i,t}$ are the set of the firm i's control variables in year t: $FCF_{i,t}$ is free cash flow, measured as free

cash flow divided by total number of shares ; $ROA_{i,t}$ is return on assets, measured as net income divided by total assets ; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 14 : The association btween abnormal working capital accrual (AWCA) and gender quota distance.

	Dependent variable : AWCA $_{i,t}$	
	(1)	(2)
First-GQ	**0.020*****	
	(0.004)	
Second_GQ		**0.011*****
		(0.001)
FCF $_{i,t}$	0.000	0.002***
	(0.000)	(0.000)
ROA $_{i,t}$	-0.167***	-0.016***
	(0.013)	(0.002)
QR $_{i,t}$	0.003	0.003***
	(0.002)	(0.000)
LEV $_{i,t}$	0.000***	0.001***
	(0.000)	(0.000)
MTB $_{i,t}$	0.003**	-0.001***
	(0.002)	(0.000)
CEO_DUAL$_{i,t}$	0.008**	0.003*
	(0.000)	(0.055)
FAM$_{i,t}$	-0.008**	-0.006*
	(0.067)	(0.001)
INST$_{i,t}$	-0.015*	-0.010*
	(0.088)	(0.000)
LOSS $_{i,t}$	-0.009***	-0.022***
	(0.003)	(0.000)
B_IND $_{i,t}$	0.000	0.005***
	(0.001)	(0.000)
F_SIZE $_{i,t}$	-0.000	0.002***
	(0.001)	(0.000)
B_SIZE $_{i,t}$	-0.012***	-0.016***
	(0.001)	(0.000)
Constant	0.197***	0.239***
	(0.011)	(0.001)
Observations	641	360

Notes to Table 2-14.

The model is as follows

$$EM_{i,t} = \varpi_0 + \varpi_1 GQ + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. EM is the dependent variable: AWCA$_{i,t}$ is the abnormal working caoital accrual from Defond and Park (2001) model: GQ is the independent variable: First_GQ (Second_GQ) takes value of 1 if there were less than 20% (40%) women on board of directors in 2011 (2015). $X_{i,t}$ are the set of the firm i's control variables in year t: FCF$_{i,t}$ is free cash flow,

measured as free cash flow divided by total number of shares ; $ROA_{i,t}$ is return on assets, measured as net income divided by total assets; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 15 : Association between real earnings management and board gender diversity

	Dependent variable : REM		
	(1)	(2)	(3)
%_WDs$_{i,t}$	**-0.087***	**-0.091***	**-0.080***
	(0.028)	**(0.018)**	**(0.020)**
FCF$_{i,t}$	0.001*	0.003***	0.001*
	(0.001)	(0.000)	(0.001)
ROA$_{i,t}$	-0.008***	-0.017***	-0.005***
	(0.003)	(0.003)	(0.003)
QR$_{i,t}$	-0.171***	-0.214***	-0.100***
	(0.036)	(0.030)	(0.056)
LEV$_{i,t}$	-0.008	-0.013	-0.009
	(0.019)	(0.016)	(0.010)
MTB$_{i,t}$	0.002	0.001	0.001*
	(0.005)	(0.003)	(0.00 »)
LOSS$_{i,t}$	0.011	0.014**	0.011
	(0.008)	(0.007)	(0.005)
DUAL_CEO$_{i,t}$	0.007**	0 .008*	0.005*
	(0.081)	(0.012)	(0.058)
FAM$_{i,t}$	-0.010**	-0 .008**	-0.009*
	(0.000)	(0.000)	(0.000)
INST$_{i,t}$	-0.010*	-0.008*	-0.010*
	(0.000)	(0.000)	(0.000)
B_IND$_{i,t}$	-0.005***	-0.005***	-0.004***
	(0.002)	(0.002)	(0.001)
F_SIZE$_{i,t}$	-0.004*	-0.005***	-0.003*
	(0.002)	(0.002)	(0.002)
B_SIZE$_{i,t}$	-0.002	-0.002**	-0.002
	(0.001)	(0.001)	(0.001)
Constant	0.093***	0.126***	0.080***
	(0.034)	(0.037)	(0.076)
Observations	641	360	1001

Notes to Table 2-15.

The model is as follows:

$$EM_{i,t}=\varpi_0+\varpi_1\%\_WD_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues.. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively; EM is the dependent variable: REM$_{i,t}$ is the aggregated real earnings management of sales manipulation and overproduction, from Roychowdhury (2006) model. %_WDs$_{i,t}$ is the independent variable, the percentage of women directors, measured as ratio of women directors to total directors. X$_{i,t}$ are the set of the firm i's control variables in year t: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; ROA$_{i,t}$ is return on assets, measured as net income divided by total assets ; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding

total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 16 : The effect of distance from gender quota on real earnings management (REM)

	Dependent variable : REM$_{i,t}$	
	(1)	(2)
First_GQ	0.026***	
	(0.010)	
Second_GQ		0.025***
		(0.004)
FCF $_{i,t}$	0.002**	0.001*
	(0.001)	(0.001)
ROA $_{i,t}$	-0.010**	0.003
	(0.004)	(0.002)
QR $_{i,t}$	-0.018	0.054***
	(0.017)	(0.017)
LEV $_{i,t}$	0.001	0.023***
	(0.002)	(0.008)
MTB $_{i,t}$	0.018	-0.004
	(0.012)	(0.007)
LOSS $_{i,t}$	-0.005***	-0.006**
	(0.002)	(0.003)
CEO_DUAL$_{i,t}$	0.009**	0.003*
	(0.004)	(0.000)
FAM$_{i,t}$	-0.007**	-0.003*
	(0.000)	(0.000)
INST$_{i,t}$	-0.009*	-0.004*
	(0.005)	(0.000)
B_IND $_{i,t}$	-0.009***	-0.007***
	(0.002)	(0.002)
F_SIZE $_{i,t}$	-0.004***	-0.001
	(0.001)	(0.001)
B_SIZE $_{i,t}$	0.267***	0.173***
	(0.024)	(0.025)
Constant	0.002**	0.001*
	(0.001)	(0.001)
Observations	641	360

Notes to Table 2-16.

The model is as follows

$$EM_{i,t}=\varpi_0+\varpi_1 GQ + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues.. EM is the dependent variable: REM$_{i,t}$ is the aggregated real earnings management of sales manipulation and overproduction, from Roychowdhury (2006) model: GQ is the independent variable: First_GQ (Second_GQ) takes value of 1 if there were less than 20% (40%) women on board of directors in 2011 (2015). X$_{i,t}$ are the set of the firm i's control variables in year t: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; ROA$_{i,t}$

is return on assets, measured as net income divided by total assets; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 17 : Association between the alternative measure of board gender diversity and current discretionary accruals (CDACC) by quota period

	Dependent variable : $CDACC_{i,t}$		
	(1)	(2)	(3)
Shannon Index $_{i,t}$	-0.475***	-0.335***	-0.498***
	(0.127)	(0.012)	(0.110)
FCF $_{i,t}$	0.001*	0.001***	0.001**
	(0.001)	(0.000)	(0.000)
ROA $_{i,t}$	-0.006***	0.001***	-0.004***
	(0.002)	(0.000)	(0.001)
QR $_{i,t}$	-0.144***	-0.040***	-0.078***
	(0.028)	(0.002)	(0.018)
LEV $_{i,t}$	-0.024**	0.022***	-0.011
	(0.012)	(0.001)	(0.009)
MTB $_{i,t}$	0.001	0.012***	-0.000
	(0.001)	(0.001)	(0.002)
LOSS $_{i,t}$	0.009	-0.003***	0.006
	(0.007)	(0.001)	(0.004)
DUAL_CEO$_{i,t}$	0.007**	0.009**	0 .008*
	(0.081)	(0.000)	(0.012)
FAM$_{i,t}$	-0.010**	-0.019**	-0 .017**
	(0.000)	(0.000)	(0.000)
INST$_{i,t}$	-0.010*	-0.015*	-0.008*
	(0.000)	(0.000)	(0.000)
B_IND $_{i,t}$	-0.003***	-0.020***	-0.003***
	(0.001)	(0.000)	(0.001)
F_SIZE $_{i,t}$	-0.004***	-0.004***	-0.004***
	(0.001)	(0.000)	(0.001)
B_SIZE $_{i,t}$	-0.008***	-0.005***	-0.008***
	(0.002)	(0.000)	(0.001)
Constant	0.314***	0.233***	0.325***
	(0.052)	(0.005)	(0.045)
Observations	641	360	1001

Notes to Table 2-17.

The model is as follows:

$$EM_{i,t} = \varpi_0 + \varpi_1 \%\_Shannon\ Index_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively; EM is the dependent variable: $REM_{i,t}$ is the aggregated real earnings management of sales manipulation and overproduction, from Roychowdhury (2006) model. The independent variable is the alternative measure of the board gender diversity, the Shannon Index, measured as follows: Shannon Index= $\left| \sum_{i=1}^{n} p_i \ln p_i \right|$. $X_{i,t}$ are the set of the firm i's

control variables in year t: $FCF_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; $ROA_{i,t}$ is return on assets, measured as net income divided by total assets ; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of directors ; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $BIG_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 18 : Cross-sectional regressions of the alternative measure of board gender diversity on earnings persistence (EP) in the first, second and full GQ implementation period

	Dependent variable :EARN$_{i,t}$		
	(1)	(2)	(3)
EARN$_{i,t-1}$	0.493***	0.623***	0.470***
	(0.052)	(0.024)	(0.044)
Shannon Index$_{i,t}$	0.133***	-0.134***	0.074*
	(0.048)	(0.028)	(0.042)
EARN$_{i,t-1}$ * Shannon Index$_{i,t}$	**0.706***	**0.672***	**0.681**
	(0.087)	**(0.052)**	**(0.078)**
Constant	-0.040	-0.007	-0.053
	(0.037)	(0.011)	(0.039)
Observations	641	360	1001

Note to Table 2-18.

The is as follows :

$$EARN_{i,t}=\lambda_0+\lambda_1 EARN_{i,t-1}+\lambda_2 \text{Shannon Index}_{i,t}+\lambda_3 EARN_{i,t-1} * \text{Shannon Index}_{i,t}+\varepsilon_{i,t}.$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. EARN$_t$ is earnings in year t, measured as net income divided by total assets in year t: EARN$_{t-1}$ is earnings in year t-1, measured as net income divided by total assets in year t-1. The independent variable is the alternative measure of the board gender diversity, the Shannon Index$_{i,t}$, measured as follows: Shannon Index=$\left|\sum_{i=1}^{n} p_i \ln p_i\right|$. The interest variable is EARN$_{i,t-1}$ * Shannon Index$_{i,t}$; Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, 2011–2017, respectively. Significance at the 10%, 5% and 1% levels indicated by*, **, and ***, respectively.

Table 2- 19 ; The association between the alternative measure of board gender diversity and abnormal working capital accrual in the first, second and full GQ implementation period.

	Dependent variable : AWCA $_{i,t}$		
	(1)	(2)	(3)
Shannon Index $_{i,t}$	**-0.106***	**-0.053***	**-0.089****
	(0.102)	**(0.171)**	**(0.097)**
FCF $_{i,t}$	-0.000	-0.001	-0.001
	(0.000)	(0.001)	(0.000)
ROA $_{i,t}$	-0.022	0.106***	0.012
	(0.032)	(0.037)	(0.020)
QR $_{i,t}$	-0.002	0.003	0.004***
	(0.003)	(0.002)	(0.001)
LEV $_{i,t}$	0.000*	0.000*	0.000**
	(0.000)	(0.000)	(0.000)
MTB $_{i,t}$	0.002	0.004*	0.004***
	(0.002)	(0.002)	(0.001)
LOSS $_{i,t}$	-0.004	0.008	0.003
	(0.005)	(0.008)	(0.004)
B_IND $_{i,t}$	0.001	-0.001	0.000
	(0.001)	(0.002)	(0.001)
F_SIZE $_{i,t}$	-0.001	-0.002	-0.001
	(0.001)	(0.002)	(0.001)
B_SIZE $_{i,t}$	-0.106	-0.005***	-0.005***
	(0.102)	(0.002)	(0.001)
Constant	0.135***	0.094	0.103**
	(0.039)	(0.074)	(0.044)
Observations	641	360	1001

Notes to Table 2-19.

The model is as follows:

$$EM_{i,t}=\varpi_0+\varpi_1\%\_Shannon\ Index_{i,t}+\sum \varpi_i X_{i,t}+\varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively; EM is the dependent variable: EM is abnormal working capital accrual (AWCA) measured from Defond and Park (2001). The independent variable is the alternative measure of the board gender diversity, the Shannon Index, measured as follows: Shannon Index= $\left|\sum_{i=1}^{n} p_i \ln p_i\right|$. $X_{i,t}$ are the set of the firm i's control variables in year t: $FCF_{i,t}$ is free cash flow, measured as free cash flow divided by total number of shares ; $ROA_{i,t}$ is return on assets, measured as net income divided by total assets ; $QR_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; $LEV_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; $MTB_{i,t}$ is market-to-book, measured as market value to book value of equity: $LOSS_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; $B\_IND_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; $B\_SIZE_{i,t}$ is board size, measured number of

directors ; DUAL_CEO$_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; FAM$_{i,t}$ is the family ownership measured as the percentage of capital held by family; INST$_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; BIG$_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; F_SIZE$_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 2- 20 : Association between board gender diversity and real earnings management (REM) by quota period

Variables	Dependent variable : REM $_{i,t}$		
	(1)	(2)	(3)
Shannon Index $_{i,t}$	-0.998***	-0.804***	-1.382***
	(0.224)	(0.017)	(0.179)
FCF $_{i,t}$	0.002**	0.001***	0.001*
	(0.001)	(0.000)	(0.001)
ROA $_{i,t}$	-0.002***	-0.000***	-0.001***
	(0.000)	(0.000)	(0.000)
QR $_{i,t}$	-0.010***	0.001*	-0.005***
	(0.003)	(0.000)	(0.001)
LEV $_{i,t}$	-0.000	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)
MTB $_{i,t}$	0.001	0.026***	0.003
	(0.003)	(0.001)	(0.004)
LOSS	0.018*	0.002	0.010*
	(0.011)	(0.002)	(0.006)
DUAL_CEO$_{i,t}$	0.017**	0.010**	0.012**
	(0.081)	(0.081)	(0.081)
FAM$_{i,t}$	-0.008**	-0.010*	-0.010***
	(0.000)	(0.000)	(0.000)
INST$_{i,t}$	-0.014*	-0.013**	-0.019*
	(0.000)	(0.000)	(0.000)
B_IND $_{i,t}$	-0.010***	-0.029***	-0.020***
	(0.002)	(0.000)	(0.001)
F_SIZE $_{i,t}$	-0.016***	-0.011***	-0.020***
	(0.003)	(0.000)	(0.002)
B_SIZE $_{i,t}$	-0.007***	-0.007***	-0.010***
	(0.002)	(0.000)	(0.002)
Constant	0.566***	-0.804***	0.753***
	(0.093)	(0.017)	(0.072)
Observations	641	360	1001

Notes to Table 2-20.

The model is as follows:

$$EM_{i,t} = \varpi_0 + \varpi_1 \%\_Shannon\ Index_{i,t} + \sum \varpi_i X_{i,t} + \varepsilon_{i,t}$$

This table presents the results by using Generalized Least Square regressions made from a fit population averaged panel data model. Models 1, 2, and 3 present results obtained from 2011–2014, 2015–2017, and full sample period (2011–2017) respectively; EM is the dependent variable, the aggregation of sales manipulation and overproduction measures from Roychowdhury (2006) model. The independent variable is the alternative measure of the board gender diversity, the Shannon Index, measured as follows: Shannon Index= $\left|\sum_{i=1}^{n} p_i \ln p_i\right|$. $X_{i,t}$ are the set of the firm i's control variables in year *t*: FCF$_{i,t}$ is free cash flow, measured as free cash flow divided by total number of

shares ; ROA$_{i,t}$ is return on assets, measured as net income divided by total assets ; QR$_{i,t}$ is the quick ratio, measured as total current assets excluding total inventories divided by total current liabilities; LEV$_{i,t}$ is leverage, proxied as company's long-term debt divided by total assets ; MTB$_{i,t}$ is market-to-book, measured as market value to book value of equity: LOSS$_{i,t}$ is firm loss, a dummy variable, which takes 1 if firm reports loss, 0 otherwise ; B_IND$_{i,t}$ is board independence, proxied as the proportion of independent directors to total number of directors ; B_SIZE$_{i,t}$ is board size, measured number of directors ; DUAL_CEO$_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; FAM$_{i,t}$ is the family ownership measured as the percentage of capital held by family; INST$_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; BIG$_{i,t}$ is the big auditor, a dummy variable that takes 1 if firm is audited by at least one big auditor; F_SIZE$_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables in all regressions. The continuous variables have been winsorised to avoid the biases inherent in extreme values Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

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CHAPTER III : DO THE WOMEN DIRECTORS' BOARD ATTRIBUTES MODERATE THE CAUSAL LINK REAL EARNINGS MANAGEMENT AND FUTURE PERFORMANCE ? EVIDENCE FROM FRENCH CONTEXT

1. Introduction

Recent reforms of corporate governance, particularly those related to the mandatory board gender law in France, have instigated many reactions from both company managers and legal professionals. The gender quota law is a legal instrument resulting from a government action intended to promote gender parity at the board level. Whereas some people regard the quota as a mechanism for promoting gender parity and accessing previously unused resources, others regard it as way to deprive shareholders of their right to recruit board members freely (Lucas, 2009). Opponents of the quota maintain that not only does such legislation have a drastic effect on board balance but also that it prioritizes political and social interests at the expense of value creation by qualified members. Thus, a central question is whether women directors have improved firm performance since the gender quota was introduced. To understand the economic impact of the gender quota, we must assess its consequences on firm performance, and growing literature investigates its effects on various corporate outcomes. Such studies, conducted in various contexts with distinct gender quota thresholds, have yielded equivocal results about the real impact of gender quotas on board and firm performance: Some indicate that compulsory legislation has increased economic performance (Ferrari *et al.*, 2018; Gordini and Rancati, 2017; Reguera-Alvarado *et al.*, 2017), whereas others find a negative or negligible effect (Comi *et al.*, 2017; Isidro and Sobral, 2015; Dale-Olsen *et al.*, 2013).

With this study, we explore the moderating effect of women directors' attributes on the causal link between real earnings management (REM) and future performance (FP); REM unlike accrual manipulation (AEM), occurs through the manipulation of operating accounts.[26] The link between REM and FP has been studied widely, but results are inconsistent (Lo *et al.*, 2017; Leggett *et al.*, 2016; Cohen and Zarowin, 2010; Gunny, 2010). Notwithstanding this

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[26] In a survey, Graham *et al.* (2005) report that managers tend to increase earnings by adjusting real activities.

inconsistency outside specific contexts (e.g., incentives to meet or beat earnings benchmarks, specific firm operations), studies tend to show REM influences FP significantly (Chi *et al.*, 2011; Roychowdhury, 2006). Cohen and Zarowin (2010) note its detrimental effect on future cash flows. Collectively, these studies support the idea that REM consumes real resources and inevitably leads to poor FP (Ahearne *et al.*, 2016; Achleitner *et al.*, 2014).

But does REM really reduce FP, and might women directors' board attributes stem REM? Furthermore, do women directors' statutory and demographic attributes moderate the relationship between REM and FP? To answer these questions, we measure FP as return on assets (ROA) and Tobin's Q (Q) one year ahead. We proxy REM by aggregating abnormal cash flows and the abnormal costs of production. To estimate women directors' attributes, we use both statutory dimension (i.e., independence) and demographic (i.e., financial education, board interlocks, and financial expertise) dimensions. The sample of 155 French companies over the 2011-2016 period, with a total of 950 unbalanced firm-year observations, produces four findings. First, REM negatively affects FP. Second, according to the statutory dimension, independent women directors relate negatively to REM and positively to FP. Third, according to demographic dimensions, financially literate women directors correlate positively with REM and have no significant effect on FP; women directors' multiple directorships associate negatively with REM, positively affect ROA one year ahead, and negatively affect Q one year ahead; and women directors' audit committee (AC) expertise stems REM but has no effect on either measure of FP. Fourth, women directors' independence, women members' multiple directorships, and women directors' AC expertise moderate the causal link between REM and FP.

We thus make a threefold contribution. First, we study the moderating effect of women directors' board attributes on the causal relationship between REM and FP. To our knowledge,

no study to date has addressed this relationship. Studying direct relationships between gender diversity and corporate outcomes may not be enough to assess the quantitative effect of women directors. In this study, we show that moderation tests provide a better measure of the effect of gender diversity (Dawson, 2014; Fairchild & MacKinnon, 2009; Edwards & Lambert, 2007). Second, we conduct this study in a civil law country, a context that can induce high levels of REM because of weak investor protections (Enomoto *et al.*, 2015; Leuz *et al.*, 2003). Third, we provide evidence of the real consequences of the quota law for the effect of gender composition of directors on listed-firm performance. The results noting the causal link between REM and FP highlight the consequences of gender quota legislation and, above all, provide evidence of how newcomers influence firm performance.

The remainder of our article is structured as follows: Section 2 contains the background and the development of research hypotheses. In Section 3, we present the data and research design, followed by Section 4, which contains the initial results and robustness tests. Finally, Section 5 offers conclusions and research directions.

2. <u>Background and hypothesis development</u>

2.1. REM and FP

Extant studies explore the effects of REM on FP. Cohen *et al.* (2008) find that firms managing real transactions overinvest in current years and underinvest in years surrounding earnings management (EM) implementation, indicating REM is associated with significant economic consequences. Bereskin *et al.* (2018) find that REM-related declines in innovative output can have severe impacts on firms' future development and competitiveness. Moreover, empirical evidence suggests a strong link between innovation and performance (Rousseau *et al.*, 2016), such that a reduction in innovation outputs as the result of REM leads to lower subsequent performance. Table 3-1 classifies extant studies into two large groups, according to whether they investigate the effect of REM on accounting- or market-based performance.

Some studies show REM has a detrimental effect on future operating performance (Al-shattarat *et al.*, 2018; Jiang *et al.*, 2018; Medeiros Cupertino, 2016; Tabassum *et al.*, 2015; Zhang, 2015; Henry *et al.*, 2013; Zhao *et al.*, 2012; Cazavan-Jeny *et al.*, 2011; Chen *et al.*, 2010; Cohen & Zarowin, 2010; Roychowdhury, 2006 ; Baber *et al.*, 1991), because actions taken in the current period to increase earnings can have a negative effect on cash flows in future periods. In contrast, when companies meet or beat earnings, studies reveal a positive effect of REM on subsequent operating performance (Al-shattarat *et al.*, 2018; Zhao *et al.*, 2012; Gunny, 2010; Taylor and Xu, 2010), suggesting that firms engage in REM because it is a way to signal their future value (Al-shattarat *et al.*, 2018). Yet other studies also indicate a detrimental effect of REM on future market performance (Ahmadi and Dorseh, 2016; Francis *et al.*, 2016; Chan *et al.*, 2015; Filip *et al.*, 2015; Tabassum *et al.*, 2015, Cazavan-Jeny, 2011; Li *et al.*, 2010; Osma and Young, 2009;), because market participants negatively perceive current earnings increases

through REM. However, Chen *et al.* (2010) find a positive relationship between REM and future stock returns, suggesting the market perceives a greater net benefit for firms that use REM to meet/beat expectations.

Insert Table 3-1 about here

We suggest REM may be less penalized as the result of (1) the future benefits of meeting thresholds by using a form of EM with future persistent consequences, and (2) the signaling effect of future earnings proper to REM. Conversely, the market is likely to penalize AEM, because the benefits of beating earnings thresholds by this form of EM are subsequently reversed and likely to be penalized by financial authorities or auditors (Gunny, 2010). In this study, we argue French firms are likely to show extensive REM. At least two forms of evidence support this hypothesis: First, Enomoto *et al.* (2015), in their study of 38 countries, find REM is more prevalent in countries that have strong investor protection, and that France has a level of REM that is close to the average of the countries, suggesting the magnitude of REM in France is not negligible. Second, Jiang *et al.* (2018) find that current-period REM associates positively with FP, and positive performance is driven by firms operating in countries with strong institutional environments. According to these findings, we hypothesize:

> Hypothesis 1: REM activities have a detrimental effect on future firm performance (ROA and Q).

2.2. Women directors boards' attributes and REM/FP

We study women directors according to their statutory and demographic attributes. Statutory (monitoring) attributes refer to internal and external mechanisms that are essential for effective monitoring of management to protect shareholders' interest (Fama and Jensen, 1983). Statutory or fiduciary diversity generally refers to recommendations that result from strong accepted

governance practices (Gull *et al.*, 2017), such that having independent directors should contribute to transparency, improve decision-making processes, and indirectly improve firm performance (Liu *et al.*, 2015; Lefort and Urzúa, 2008). Demographic diversity consists of individual actors' criteria related to skills and competencies (Ben-Amar *et al.*, 2013). In Subsections 2.2.1 and 2.2.2, we present hypotheses related to the effect of women directors' statutory and demographic attributes on REM and FP, respectively.

2.2.1. Women directors' statutory (independence) attribute

Corporate boards are composed partly of independent directors who "have neither a role on the management team nor any business or ownership relationship with the company but who possess a great deal of institutional expertise" (Marra *et al.*, 2011, p. 208). From the statutory perspective of corporate governance, independent directors should both monitor management and protect the interests of minority shareholders (particularly against possible expropriations) (Khalil & Ozkan, 2016). Accordingly, empirical studies indicate that the presence of independent directors negatively affects EM (Chen *et al.*, 2015; Talbi *et al.*, 2015; Marra *et al.*, 2011).

Some research suggests women directors behave as independent directors and are more likely than their male peers to sit on monitoring-related committees (Adams and Ferreira, 2009). We suggest women's personal characteristics of risk aversion and ethical behavior shape their abilities to behave independently, and the monitoring effect of women directors coupled with their greater independence may improve board monitoring. In turn, we anticipate that the board gender quota has increased the number of independent women directors. In line with Talbi *et al.* (2015), who find independent directors curb REM, we also expect a significantly negative relationship between the proportion of independent women directors and REM in the post-quota period. Accordingly, we hypothesize:

Hypothesis 2: Since the gender quota was formally promulgated in France, there has been a negative relationship between women directors' independence and REM.

Board independence may increase corporate performance in at least two ways: (1) by curbing agency problems (Pearce and Patel, 2018; Duru *et al.*, 2016; Kim *et al.*, 2014;), and (2) by improving board activities and decision-making processes (Kim *et al.*, 2014; Lu and Wang, 2018). Because competent independent directors have better information about the quality of projects undertaken by CEOs, they constrain project implementation and ultimately improve corporate performance (Wagner, 2011). Moreover, because CEOs tend to take on projects that have less volatile cash flows (to reduce the risk of compromising their wealth or losing their jobs), independent directors can motivate CEOs to invest in risky innovative projects that improve shareholder wealth (Lu and Wang, 2018).

Recent studies suggest board independence improves economic performance (Datta *et al.*, 2020; Liu *et al.*, 2015) and reduces performance variability (Pearce & Patel, 2018). However, board independence does not always ensure enhanced performance (Fuzi *et al.*, 2016); independent directors are effective only in certain conditions, as might be defined by directors' tenure or external directorships (Reguera-Alvarado and Bravo, 2017). They do not perform effectively when they fail to meet informational challenges routinely encountered when they join boards (Covaco *et al.*, 2017).

Bennouri *et al.* (2018) find that women directors' independence associates positively with firm performance measured by Q and negatively with ROA. They posit that market investors view women directors' independence positively, because it is more likely to result in effective monitoring. Conversely, the negative relationship with ROA may be driven by the presence of small firms that require less monitoring than large firms. Terjesen *et al.* (2016) also find that firms with more women directors associate positively with Q, suggesting the presence of

women directors sends a positive signal to outsiders with regard to firms' ethical behavior. The French institutional context is characterized by the gender quota law, which, according to studies conducted during the pre-quota period (e.g., Bennouri *et al.*, 2018) affects the relationship between women directors' independence and firms' performance (Bennouri *et al.*, 2018). If women directors truly behave independently, the gender quota law might be an implicit reform that increases board independence. Following Fauver *et al.* (2017), who find a positive relationship between board independence and firm value under the board reform, we expect a positive relationship of women directors' independence and FP:

> Hypothesis 3: Since the gender quota was formally promulgated in France, there has been a positive relationship between women directors' independence and future performance.

2.2.2. Women directors' demographic attributes and REM/FP

French firms rely more on the demographic attributes of women directors when they are appointed to senior board positions (Nekhili & Gatfaoui, 2013). We thus measure women directors' financial literacy/expertise and board experience.

2.2.2.1. Financially literate and financially expert women directors.

To be effective, board directors must be well-educated. Sun *et al.* (2020) note education leads to improved corporate governance, especially in terms of monitoring managers' opportunistic behaviors. More precisely, financial education allows directors to analyze and monitor financial operations undertaken by managers. Financial expertise also is a key demographic determinant of managerial actions. At the board level, financial expertise allows for monitoring financial reporting processes and constraining EM (Batolato *et al.*, 2014). Bennouri *et al.* (2018) note that women directors' demographic attributes differ from those of their male peers; women

directors are better-educated (Nekhili & Gatfaoui, 2013; Singh *et al.* 2008) and more likely to have business degrees (Nekhili & Gataoui, 2013).

Moreover, EM is a financial issue (Krishnan & Parsons, 2008) linked to AC financial expertise (Zalata *et al.*, 2018; Chen and Gavious, 2016; Hossain *et al.*, 2011). Bédard and Gendron (2010) find that directors with financial or accounting education/expertise have a positive influence on earnings quality, because they possess cognitive abilities that facilitate the analysis of financial information and can better detect EM practices. Shepardson (2019) also notes that individual AC task-specific experience is associated with goodwill write-off decisions, suggesting that task-specific experience increases status decision-making related to board monitoring.

With regard to women directors' financial expertise specifically, research shows they are more likely to sit on monitoring-related committees. Gull *et al.* (2017) note that findings about the relationship between EM and the share of women on ACs are inconsistent: Some studies show a positive relationship (Gavious *et al.*, 2012), whereas others show a non-significant (Sun *et al.*, 2020) or negative (Thiruvadi & Huang, 2011) relationship. We posit that the gender quota has influenced the negative relationship between women directors' financial expertise and EM observed in the pre-quota period (Gull *et al.*, 2017), because the increase in the share of women on boards should have increased the number of women directors who have financial expertise. Rebérioux and Roudault (2019) find that the number of newly hired women directors who come from prestigious schools (*Grandes Écoles*) and who have financial expertise are slightly below the number of newly hired men. Despite their knowledge of finance and accounting, women directors may not have the information needed to influence decisions. However, there is some evidence that ACs reduce information asymmetry problems by promoting intellectual capital disclosure (Li *et al.*, 2012) and exerting pressure to reduce information asymmetry (Cormier *et al.*, 2010). Therefore, women directors who sit on ACs are more likely to hold information,

interact with their peers, and reduce the performance of EM with regard to AC status (Batolato *et al.*, 2014). Accordingly,

> Hypothesis 4: Financial expertise of women directors reduces REM, but financial literacy does not reduce REM.

We also explore the effect of women directors' financial education and financial expertise on FP. The effect of financial education on performance is unclear. Darmadi (2013) finds that the education of board members matters with regard to both ROA and Q, in that education brings human capital that encompasses knowledge, information, ideas, and skills, which in combination are perceived positively by market participants. In contrast, Rose (2007) does not find a significant correlation between board members' educational backgrounds and Q, reasoning that board members who do not originate from the traditional "old boy's" club may decide to assimilate into the traditional circles by suppressing any special features that stem from board members' unrevealed backgrounds.

We also consider the effect of accounting and financial expertise on FP. Previous studies reveal that firm value is divided into two elements (Myers, 1977): assets-in-place, which do not depend on firms' future growth opportunities, and growth options, which are valued on according to firms' future investment decisions (JeanJean and Stolowy, 2009). Because growth options depend on the discretionary expenditure choices of CEOs and present some uncertainty, they can influence FP negatively. As a result, their reduction could reduce the risk of decline in FP. JeanJean and Stolowy (2009) note that financial expertise plays a role in monitoring growth options, but Minton *et al.* (2014) find that it is weakly associated with better performance before crises. These results suggest independent directors with financial expertise support increased risk taking, by aligning with actions that maximize company value ex ante.

According to Bennouri *et al.* (2018), education level and committee membership of women directors correlates positively with ROA and negatively with Q. With regard to Q, the authors suggest market investors perceive education and committee membership of women directors negatively because of the distinctive features of the French business environment. Therefore, these "categories" of women directors are not credible signals of better monitoring in an environment characterized by ownership concentration and weak investor protection (Bennouri *et al.*, 2018). Accordingly, we hypothesize:

> Hypothesis 5: Financially literacy and AC membership of women directors associates positively (negatively) with accounting performance (market performance).

2.2.2.2. Women directors' board experience.

We also explore the effect of women members' holding of multiple directorships on FP. At least two possible positive effects of increasing multiple directorships appear in prior literature. First, board experience develops the individual abilities of directors, improves their decision-making strategies (Kroll *et al.*, 2008; McDonald *et al.*, 2008), enriches their understanding of the business environment and organizational issues, and improves the overall monitoring and advising performance of directors (Vafeas, 1999 ; Fama and Jensen, 1983). Second, external connections of boards through directors with multiple directorships increases financial expertise, thereby improving the level of board monitoring. Alternatively, due to "overboarding" directors (also known as the "busyness hypothesis"), members with multiple directorships might weaken corporate governance and performance (Cashman *et al.*, 2012; Fich & Shivdsani, 2006). If directors with multiple directorships do not have enough time to analyze financial information in detail (Ahn *et al.*, 2010), multiple directorships may have a detrimental effect on corporate board monitoring.

We expect that women board members who hold multiple directorships will be more likely to perform on boards, because they need legitimacy in a context in which gender quotas are criticized (Bender *et al.*, 2015). Some arguments support this idea: According to agency theorists (Hillman and Dalziel, 2003), the effectiveness of supervision is a function of the board's incentives. Similarly, Yemark (2004) shows that the opportunity to obtain other directorships is a motivation for directors. Thus, reputation is a key incentive for directors to carry out their missions effectively. The authors also find that outside directors who oversee firms successfully or take actions in the interests of shareholders are more likely to acquire new directorships in extraordinary situations or events such as financial distress, changes of CEO, or business transfers. It is possible the gender quota has increased the number of women board members who hold multiple directorships. Accordingly, we hypothesize:

Hypothesis 6: Since the gender quota was formally promulgated in France, there has been a positive relationship between women directors' board experience and REM.

Hypothesis 7: Since the gender quota was formally promulgated in France, there has been a positive relationship between women director's experience and FP.

2.3. Moderating effect of women directors' board attributes

As noted in Subsection 2.1, some extant literature asserts that (1) REM directly (indirectly) affects current (long-term) cash flow components (Kouaib & Jarboui, 2016), (2) board composition positively affects REM, and (3) REM positively affects FP when REM is used to achieve earnings benchmarks (Al-shattarat *et al.*, 2018). However, Zhao *et al.* (2012) observe a value-destroying effect of abnormal REM in the absence of earnings targets.

Uribe-Bohorquez *et al.* (2018) find that firms in countries with strong laws and enforcement related to minority-shareholder protection and debtors' rights positively moderate the

relationship between board independence and firm performance. This result suggests that strong institutional settings amplify the monitoring effect of independent directors by reducing the number of managerial discretionary projects that have low returns on investment or are overly risky and discretionary. Moreover, strong institutional settings positively moderate the causal link between REM and FP (Jiang *et al.*, 2018). Therefore, the French context—characterized by weak protection of minority-shareholders' and debtors' rights—may exhibit high levels of REM, ultimately reducing FP.

To our knowledge, no study has explored the moderating effect of corporate governance, specifically directors' board attributes, on the causal link between REM and FP. However, in line with our study, Machdar *et al.* (2017) find that information asymmetry strengthens the relationship between REM and firm performance, suggesting the causal link between REM and firm performance may be stronger in the absence of monitoring mechanisms that are likely to reduce REM. If women directors' board attributes improve board monitoring (Gull *et al.*, 2017), they also may moderate the negative causal link between REM and FP. Accordingly, we hypothesize:

> Hypothesis 8: Women directors' boards attributes moderate the causal link between REM and firm future performance.

3. <u>Research design</u>

3.1. Sample construction and data collection

We conducted our tests on firms in the Euronext Paris index during a 6-year period from 2011 to 2016. From an initial sample of 506 firms (3,036 firm-year observations), we eliminated 95 financial companies (570 firm-year observations). From the sample reduced to 411 firms (2,466 firm-year observations), we excluded 180 firms (1,080 firm-year observations), because their financial data were unavailable. This step reduced our sample to 231 firms (1,386 firm-year observations). We also eliminated 56 firms (336 firm-year observations) for which gender board attribute data were unavailable. Because our study applies only to firms affected by the gender quota, we eliminated 20 firms (120 firm-year observations) that were unaffected because they had less than 500 employees, turnover of less than €50,000,000, or head offices outside France in 2011. Our final sample consisted of 155 firms (930 firm-year observations) for 18 industries. We hand-collected data on women directors' board attributes according to annual reference documents available on firm websites. Table 3-2 presents the details of sample selection.

Insert Table 3-2 about here

3.2. Models and variables measurement

We developed four models to test our research hypotheses. The model used vary with each research hypothesis.

Test of Hypothesis 1

In Eq. (1), we tested the relationship between REM and FP (Hypothesis 1). The model is as follows :

$$FP_{i,t+1} = \theta_0 + \theta_1 REM_{i,t} + \sum \theta_{i,t} X_{i,t} + \varepsilon_{i,t}, \ (1)$$

where $FP_{i,t+1}$ = firm i's future firm performance measure in year $t + 1$. In line with common practice in empirical studies that focus on the relationship between board gender diversity and firm performance in contexts in which women's representation is the result of gender legislation (Dale-Olsen *et al.*, 2013; Ahern & Dittmar, 2010; Bøhren & Strøm, 2010;), we estimated FP through accounting-based (ROA) and market-based (Q) measures one year ahead, in which $ROA_{i,t+1}$ = firms i's net income divided by total assets in year $t + 1$; Q_{t+1} = firms i's market-based measure (Q) one year ahead, calculated as the sum of the market value of stock and the book value of debt divided by the book value of total assets $t + 1$; and $REM_{i,t}$ = firms i's real earnings management in year t.

We considered two operating REM activities: sales manipulation and overproduction.[27] As Campa (2019, p. 461) demonstrates empirically, sales manipulation is the most manipulated item, "the most common accounting line restated," "the object of main disputes between auditors and clients," and the item involved in recent accounting scandals. Sales manipulation results from lowered sales due to concessions of abnormal discounts to customers, premature sale recognition, and more lenient credit terms converted into cash (Campa & Camacho-Miñano, 2015). However, despite punctual increases in operating margins, the amount of cash generated is abnormally lower than would be expected in normal scenarios. Overproduction of

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[27] However, for discretionary expenditures, we were able to collect R&D expenditures for only a few years. Therefore, we have excluded this variable, because it does not cover the entire period of our study. Similarly, for other real activities, we excluded these variables from study because of the unavailability of data on the FactSet database.

inventory instead consists of increasing production more than necessary to spread fixed overhead costs over larger numbers of units (Jiang *et al.*, 2018). Overproduction with lower fixed costs per unit results in decreasing cost of goods sold, which boosts earnings (Roychowdhury, 2006).

The normal level of cash flow operations is a linear function of sales and change in sales. The sales manipulation model is as follows:

$$CFO_{i,t}/TA_{i,t-1} = \varphi_0 1/TA_{i,t-1} + \varphi_0 S_{i,t}/TA_{i,t-1} + \varphi_0 \Delta S_{i,t-1}/TA_{i,t-1} + \varepsilon_{i,t}, \text{ (2)}$$

where $CFO_{i,t}$ = firms *i*'s cash flows from operations in year *t*; $TA_{i,t-1}$ = firms *i*'s total assets in year *t* – 1; $S_{i,t}$ = firms *i*'s net sales in year *t* – 1; $\Delta S_{i,t-1}$ = firms *i*'s changes in net sales in year *t* – 1; and $\varepsilon_{i,t}$ = firms *i*'s abnormal cash flow in year *t* – 1 (ABNCFO). Then the overproduction model is:

$$COGS_{i,t}/TA_{i,t-1} = \tau_0 1/TA_{i,t-1} + \tau_1 S_{i,t}/TA_{i,t-1} + \tau_2 \Delta S_{i,t}/TA_{i,t-1} + \tau_3 \Delta S_{i,t-1}/TA_{i,t-1} + \varepsilon_{i,t}, \text{ (3)}$$

where $COGS_{i,t}$ = firms *i*'s cost of goods sold in year *t*; $TA_{i,t-1}$ = firms *i*'s total assets in year *t* – 1; $SALES_{i,t}$ = firms *i*'s net sales in year *t*; $\Delta SALES_{i,t-1}$ = firms *i*'s changes in net sales in year *t* – 1; and $\varepsilon_{i,t}$ = firms *i*'s abnormal production in year *t* (ABNPROD).

Following Luo *et al.* (2017) and Kouaib and Jarboui (2017), we aggregated the two measures of real activities, obtained by multiplying the residuals of Eq. (22) by –1. According to Kaouib and Jarboui (2017, p. 345), "higher values indicate greater amounts of operating cash flows reduced by the firms to manage earnings upwards." The model of aggregate REM thus is:

$$REM = ABNCFO *(-1) + ABNPROD, \text{ (4)}$$

Finally, to test the hypothesis 1, by following Luo *et al.* (2018), Qi *et al.* (2014), and Sun *et al.* (2011), we include control variables, $X_{j,t}$, that are widely known to influence REM. We include LEV, the firm leverage. To date, there is no consensus on the effect of leverage on EM (accrual and real earnings management). By following the *debt covenant hypothesis*, studies show that leverage supports EM practices (Lazzem and Jilani, 2017; Jelinek, 2007). The rationale is firms manipulate earnings to avoid the violation of debt covenants and maintain the confidence of lenders. Conversely, research shows that leverage limits EM because lenders have expertise in finance and accounting, favoring their ability to scrutiny and stem practices that could bias financial information. Jelinek (2007) point out that that leverage limits AEM. However, the conclusions of this study cannot be generalized. Indeed, Zagers-Mamedova (2008) notes that firms can switch from AEM to REM. The author finds a positive relationship between AEM and REM. Lazzem and Jilani (2017) found a positive relationship between leverage and AEM in the French context. Accordingly, we expect a negative relationship between *LEV* and REM.

We include ROA, the return on assets. The well-known study by Kothari *et al.* (2005) show that performance influences EM. The authors find that ROA is positively associated with EM. This supports that firms with low performance tend to manage earnings upwards. We expect a positive relationship between ROA and REM. We include accounting loss (LOSS). Studies indicate that firms experiencing persistence losses (financially distressed firms) tend towards income-increasing REM (Campa and Camacho-Miñano, 2015; Lara *et al.*, 2009). The reason that is generally given is that troubled companies tend to manipulate real transactions because they have exhausted their ability to manipulate *accruals*, and because *accruals* are difficult to manipulate because of auditor oversight. Hence, we expect a positive relationship between LOSS and REM.

We include family ownership (FAM). Research on the effect of family ownership on REM is inconsistent. Indeed, consistent with the *alignment hypothesis*, studies show that family ownership is negatively associated with REM. Conversely, in line with the *transgenerational sustainability hypothesis*, studies have shown that family ownership limits actual earnings management practices. Studies have been conducted in contexts with weak investor protection, conducive to EM. Razzaque *et al.* (2016) find that family ownership is positively associated with REM. On this basis, we expect a positive relationship between FAM and REM.

We include institutional ownership (INS). The literature shows that institutional ownership negatively influences REM. Based on efficient monitoring hypothesis. Sakaki *et al.* (2016, p. 3) note that "institutional owners mitigate earnings management because they have greater expertise and can monitor management at a lower cost than individuals". Hence, we expect a negative relationship between INS and REM.

Finally, we include firm size (F_SIZE). According to positive accounting theory, large firms tend to reduce their taxable earnings. It has been shown that large-and medium-sized firms exhibit more aggressive earnings management to avoid reporting earnings decreases than small-sized firms. (Kim *et al.*, 2003). Thus, we expect to observe a positive relationship between the size of REM and F_SIZE.

Tests of Hypotheses 2, 4, and 6

According to Luo *et al.*'s (2017) and Kang and Kim's (2011) models, we tested the hypotheses 2, 4 , and 6 related to the relationship between REM and women directors' board in Eq. (5) as follows:

$$REM_{i,t} = \gamma_0 + \gamma_1 W\_ATT_{i,t} + \sum \gamma_i X_{i,t} + \varepsilon_{i,t}, \text{ (5)}$$

Where, $REM_{i,t}$ is the firm i's aggregated real earnings management, as estimated in the model (4). $W\_ATT_{i,t}$ = firms i's women directors' board attribute in year t. Following Gull *et al.* (2017), we selected women directors with financial education ($\%\_W\_EDU_{i,t}$), measured as firm i's number of women directors with financial education divided to total women directors in year t; women directors' board independence ($\%\_W\_IND_{i,t}$) as a statutory attribute, measured as firm i's number of external independent women directors divided by total external independent board members in year t; women directors' board experience ($\%\_W\_EXP_{i,t}$), measured as firm i's number of women directors who are members of another firm's board divided by women directors in year t; and women directors with financial expertise ($\%\_W\_FINEXP_{i,t}$), measured as is firm i's the number of women directors on audit committees divided by total women directors in year t.

We drew on the control variables of the model (6) developed in Chapter 2. The development of control variables in Chapter 2 shows the quantitative effect of these variables on AEM. Since AEM and REM are not mutually exclusive, we include these firm's control variables in year t, $X_{i,t}$, which consist to free cash flow ($FCF_{i,t}$); return on assets ($ROA_{i,t}$); quick ratio ($QR_{i,t}$); leverage in ($LEV_{i,t}$); market-to-book ($MTB_{i,t}$); accounting loss ($LOSS_{i,t}$); board independence ($B\_IND_{i,t}$). In addition, to test the effect of women's financial expertise on REM, we include, audit committee size ($AC\_SIZE_{i,t}$) on REM.

Tests of Hypotheses 3, 5, and 7

To test our hypotheses on the effects of women directors' attributes on FP (Hypotheses 3, 5, and7), we developed the model (6), on the one hand, and to test the moderating effect of women directors' board attributes on the causal link between REM and FP (Hypothesis 8), we

constructed the model (7), on the other hand. We selected control variables that could influence the relationship between FP. The Appendix presents all their definitions. The models as follows:

$$FP_{i,t+1} = \beta_0 + \beta_1 W\_ATT_{i,t} + \sum \beta_i X_t + \varepsilon_{i,t}, \; (6)$$

$$FP_{i,t+1} = \delta_0 + \delta_1 W\_ATT_{i,t} \times REM_{i,t} + \sum \delta_i X_{i,t} + \varepsilon_{i,t}, \; (7)$$

where $FP_{i,t+1}$ = firm i's future firm performance (ROA and Q) measure in year $t + 1$ (the ROA and Q measured are presented in the section 3.2). We include firm i's control variables *in year t* by following the literature which has evidenced a significant correlation with firm performance. Previous research has established a positive relationship between earnings persistence and firm performance (Aguguom et al., 2019). These results suggest that firm seek to sustain their firm performance. Accordingly, we support that all control variables are significantly correlated with FP. Firstly, we include the current leverage ($LEV_{i,t}$) in the models (6) and (7). From bank-based economies, Mishra and Dasgupta (2019) found a negative debt-performance relationship, suggesting that firms operating in these economies experience the increase of agency problems, thereby negatively influencing firm performance. Hence, since our study was conducted from French context, we expect a negative relationship between leverage and future firm performance.

We include dividends payout ratio ($DIV_{i,t}$), proxied as dividend paid divided by net income '' Bird-in-hand'' theory developed by Gordon (1962) postulates that shareholders prefer a higher dividend policy because it underpins the firm's short-term viability. Moreover, dividend policy significantly influences the prediction of firm value and shareholder wealth. Therefore, we predict a positive relationship between dividend payout and firm performance.

Return on assets ($ROA_{i,t}$) and Tobin's ($Q_{i,t}$) are include because, as aforementioned, it is stressed the sustainability firm performance among listed firms. Hence, we predict a positive

relationship between these proxies and FP. We include family ownership ($FAM_{i,t}$) measured as the percentage of capital held by family. It is claimed that family firm avoid managerial expropriation of minorities (Demsetz, 1985). Furthermore, families are negatively associated with poorly performing firms (Corstjen*s et al*., 2004). These authors highlight that family firms also anticipate poor performance). All these results suggest that family ownership is structurally involved in corporate performance. Following (Corstjens *et al*., 2004), we predict a positive link between the share of capital held by family and FP.

Simultaneously, we include the institutional ownership ($INST_{i,t}$), measured as the percentage of capital held by institutional owners. It is echoed that institutional ownership negatively influenced corporate performance, due to the (short) time horizon of the return expectation of institutional shareholders (*see* Charfeddine and Elmarzougui, 2010). Following these authors, we also predict that institutional ownership is negatively linked to FP.

We include duality of CEO ($DUAL\_CEO_{i,t}$), measured from a dummy variabl equals Agency theory posits that the board of directors is an essential element of effective governance to monitor the potentially discretionary action of (Jensen and Meckling, 1976). Hence, board should be independent of top management to limit managerial entrenchment and opportunism (Jensen and Meckling, 1976). Hence, we expect a negative link between CEO duality status and FP.

We include board independence ($B\_IND_{i,t}$), measured as the number of independent directors. The literature argues that outside directors, constituting the board independence, carry out their duties diligently and provide unbiaised business judgment and decisions (Fuzi *et al*., 2016). Accordingly, we predict a positive relationship between board independence and FP.

We incorporate audit committee size ($AC\_SIZE_{i,t}$), measured as the total members of audit committee. Yang and Krishnan (2005) stress a minimum number of audit committee members

is require to effective board monitoring. In this vein, we assume that greater monitoring reduces the risk of suboptimal investments that may reduce the value of the firms Thus, the greater the size of the board, the greater the monitoring of the board, thereby favoring a better FP.

Finally, the firm size ($F\_SIZE_{i,t}$) is included, and measured as the natural logarithm of the total firm's assets. The literature shows that the larger the firm size, the more competitive it is. These firms therefore have larger market shares and benefit more from this situation. Moreover, the larger the firms, the more heavily they invest in growth opportunities that will increase their (future) value (Doğan, 2013). Hence, we expect a positive relationship between firm size and FP.

3.3. Overview of moderation effects

We conducted our main tests of moderation effects. Baron and Kenny (1986, p. 1174) define a moderator as a "variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable." Similarly, Cortina (1993, p. 916) considers moderation to be an interaction, noting it occurs when "the effect of a variable, x, on another variable, y, depends on the level of some third." Edwards and Lambert (2007, p.1) note that "moderation occurs when the effect of an independent variable varies according to the level of third variable, termed a moderator variable, which interacts with independent variable.

4. Empirical results

4.1. Descriptive statistics

Table 3-3 presents the descriptive statistics. For clarity, we compare the values obtained with those of previous studies conducted in France. For the entire sample, the percentages of financially literate women directors ($\%W\_EDU_{i,t}$), independent women directors ($\%W\_IND$), and women directors' with board experience ($\%W\_EXP_{i,t}$) represent 42.1%, 30%, and 74.82%, respectively. These statistics differ from those observed by Gull *et al.* (2017) during 2001–2010, which were 46.82%, 8.90%, and 61.60%, respectively. We find almost 75% of women are assigned to ACs ($\%W\_FINEXP_{i,t}$), greater than the 2.37% reported by Gull *et al.* (2017). By contrasting these descriptive statistics, we note that the gender quota appears to have drastically changed the representation of women directors' board attributes. Our measures of FP are $ROA_{t+1} = 0.022$ and $Q_{t+1} = 0.806$, whereas Gull *et al.* (2017) find the $ROA = 2.73$ and $Q = 1.04$. We find the average REM is 0.144, with a maximum of 0.587, and the average ratio leverage (LEV) is 23.45%. These values are close to those reported in previous studies (e.g., 22.60% Lakhal *et al.*, 2015; 23.98% Nekhili & Gatfaoui, 2013). We also observe that 22.80% of firms report a financial loss (LOSS). The average percentage of family ownership (FAM) is 27.4%, and the average percentage of institutional ownership (INST) is 22.8%. These results match those of Gull *et al.* (2017), who observe average FAM of 36.84% and average INS ranging from 17.93% to 20.52% (Nekhili & Gatfaoui, 2013). On average, almost 60% of CEOs also are board chairs. Our statistics show that on average, boards have four independent members. Previous studies have estimated board independence according to the ratio of non-executive independent directors to total directors. Thus, to compare our results with those of previous studies conducted in the French context, we estimate (untabulated result) board independence through its classic ratio. We find 43.33% of board members are independent.

This result is in line with Lakhal *et al.* (2015) but higher than the percentage reported by Nekhili and Gatfoui (2013). The variability in these results may be explained by types of stock exchange listings on which the authors conducted their studies.

Insert Table 3-3 about here

Table 3-4 presents variables related to the Pearson correlation matrix. Women directors' board attributes associate positively with ROA one year ahead and negatively with Q one year ahead, indicating the market seems to perceive women directors negatively, whatever their board attributes, possibly as a result of the gender quota (Ahern & Dittmar, 2012). Table 3-4 also shows family ownership correlates significantly negatively with independent women directors (statutory attribute) but significantly positively with women directors' board experience (demographic attribute). This result is consistent with that of Nekhili and Gatfaoui (2013), who find that the appointment of women directors is linked to their professional services, valuable skills, and network links. These authors note that when French firms appoint women, they stress their demographic attributes. The remainder of the correlations generally are consistent those reported in literature.

Insert Table 3-4 about here

4.2. Effect of REM on FP

In Subsection 4.2, we conduct tests related to the effect of REM on FP. Table 3-5 presents the results. Columns 1 and 2 provide results from ROA and Q one year ahead as dependent variables. We find a significantly negative correlation between REM and ROA_{t+1} and a non-significant negative correlation between REM and Q_{t+1}. Overall, these results support H1; French firms' REM practices have a detrimental effect on FP. In particular, REM results in

adverse consequences for firms' growth, competitive advantages (Cohen *et al.*, 2008; Roychowdhury, 2006), and future margins (Campa & Camacho-Miñano, 2015).

Insert Table 3-5 about here

4.3. Effect of women directors' board attributes on REM and FP

Table 3-6 presents the results of the tests of H2, H4, and H6, related to the effects of women directors' statutory and demographic attributes on REM. First, the financial literacy of women directors correlates positively with REM (Column 1), whereas all other women directors' board attributes (independence, board experience, financial expertise) associate significantly negatively with REM (Columns 2, 3, and 4). The negative relationship between financially literate women directors and REM suggests financial education is not sufficient to curb real transactions manipulations. In contrast, Chen and Gavious (2016) report that the presence of one financially literate female director on a board has a significant effect on restraining EM. We argue that financially literate women members, like other board members not assigned to specific committees, do not have the information necessary to carry out comprehensive monitoring, and the negative effect of women directors' board experience corroborates the reputation hypothesis; women directors appear more concerned than men about their reputations. In contrast, Gull *et al.* (2017) find a positive relationship between experience and the magnitude of current discretionary accruals, in support of busyness effects.

Insert Table 3-6 about here

Table 3-7 presents results of the relationship between women directors' board attributes and FP. Columns 1 and 2 reflect the regression results for the relationship between financially literate women directors and ROA and Q one year ahead. We find a non-significant negative correlation between financially literate women directors and both measures of FP. The negative

relationship between financially literate women directors and FP may be driven by companies that allocate women directors to non-strategic roles (Rebérioux & Roudaut, 2019). With regard to the relationship with Q_{t+1}, our results are consistent with those of Bennouri *et al.* (2018), who find investors negatively perceive the distinctive structure of the French education system. They argue that because women directors are likely to come from the same major schools (Grandes Écoles) as men (Rebérioux & Roudaut, 2019), they may be less independent. Investors therefore may perceive their incorporation into boards as a bad signal (Bennouri *et al.*, 2018). Columns 3 and 4 present the results of the relationship between independent women directors and FP; the proportion of independent women directors has a significant positive effect on ROA_{t+1}. This result supports the implicit (beneficial) effect of the board composition reform (i.e., the gender quota law) on board independence and firm value (see Fauver *et al.*, 2017).

In contrast, we find a negative relationship between independent women directors and Q_{t+1}. It seems the market negatively perceives independent women directors, perhaps because the gender quota has imposed significant constraints on shareholders. The validity of this rationale is supported by Bennouri *et al.* (2018), who report a positive correlation between independent women directors and Q_{t+1} over the pre-quota period. Recently, in the French context, Loukil *et al.* (2019) show that women directors have a negative effect on stock performance, because they reduce company involvement in sustainable development projects.

Women members' holding of multiple directorships also is significantly and positively associated with ROA_{t+1} (Column 5), possibly due to reputation and dedication incentives. As Iturriaga and Morrós Rodríguez (2014) find, serving on several boards provides more skills and motivation to achieve directorial duties and positively affects firm value. However, women directors' holding of multiple directorships also correlates significantly negatively with Q_{t+1} (Column 6), suggesting market reluctance about the quality of members and, in our case, the

legitimacy of women directors to promptly carry out board duties. It also is possible that outsiders perceive interlocked directors as overboarded (Harris & Shimizu, 2004) and therefore less effective monitors (Ferris *et al.*, 2003).

We find a non-significant negative correlation between women directors' financial expertise and both accounting- and market-based performance (Columns 7 and 8). Possibly, women directors' financial expertise is not sufficient to improve the AC diligence (see Modum *et al.*, 2013[28]) that is necessary to increase firm performance. In the French context, Maraghni and Nekhili (2014) find gender does not affect AC diligence; *ceteris paribus*, greater representation of women on boards (and ACs) as a result of the gender quota may have reduced AC diligence, causing firms to underperform over the long run.

 Remarkably, the results from Q_{t+1} suggest that in the post-quota period, investors have perceived women directors' board attributes as negative signals. Moreover, firm performance one year ahead shows the gender quota has affected investor perception persistently. According to Solal and Smellman (2019), gender-diverse boards are interpreted as signals of preferences for diversity and weaker commitments to shareholder value. The gender quotas may amplify this negative sentiment. Moreover, this persistent negative perception may be explained by investor conservatism: With regard to the gender quota, it is possible that investors' negative perceptions persist because of their psychologically conservative biases, so they only slowly update their beliefs and underrate the importance of new information[29] (Hou *et al.*, 2012).

Insert Table 3-7 about here

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[28] Not only are ACs highly demanding workload bodies, but their degrees of diligence have a direct impact on corporate performance. In turn, audit quality rather than the mere existence of ACs affects firm performance (Modum *et al.*, 2013), suggesting the performance of ACs reflects the quality of AC members.

[29] This underrating can persist despite the performance of women directors.

4.4. Moderating effect of women directors' attributes on relationship between REM and FP

As we predicted in H8, women directors' board attributes moderate the causal link between REM and FP only for board attributes that mitigate REM. Table 3-8 presents these results; the proportion of financially literate women directors does not moderate the link between REM and FP. Furthermore, the independence of women directors, women members' holding of multiple directorships, and AC expertise of women members moderate the relationship between REM and FP.

Insert Table 3-8 about here

4.5. Robustness of empirical results

4.5.1. Alternative measurements of FP

We conducted additional tests to test the reliability of our findings. In particular, we reestimated Eq. (4) by including ROE as a dependent variable. Table 3-9 presents the results, which do not differ notably from our previous findings, with the exception of a positive relationship between the independent variable (in which the interaction term of the REM is women directors' independence) and ROE one year ahead. This result is consistent with previous studies that indicate that independent directors have a propensity to protect shareholder wealth (Lee *et al.*, 1992; Matolcsy *et al.*, 2004).

Insert Table 3-9 about here

4.5.2. Mediation effect of REM

In line with Hayes and Preacher (2014), we question whether REM might mediate the relationship between women directors' board attributes and FP. Table 3-10 indicates significant

coefficients of independent women directors and women board members' multiple directorships on ROA one year ahead when REM is included as a moderator variable. This result suggests the presence of independent women directors and women with multiple directorships improves future operating performance not only by reducing REM but also directly. In contrast, introducing REM as a mediating variable in the relationship between independent women directors/women with multiple directorships and Q one year ahead attenuates the effect of independent women directors and women with multiple directorships on FP (i.e., significance of the coefficient on Q one year ahead drops from 1% to 5%). This result suggests market participants are reluctant to credit the ability of women directors to ensure board monitoring duties, especially those related to real-transaction manipulation.

Insert Table 3-10 about here

4.5.3. Controlling for potential endogeneity and omitted variable concerns

Firms with poor performance may tend toward aggressive REM, so reverse causality and endogeneity are potential concerns. The results also may be influenced by simultaneity, temporal correlation of errors, and omitted values concerns (Judson and Owen, 1999). We use one-step generalized method of moments to address the potential endogeneity issue and contemporaneous omitted variables concerns. Table 3-11 reports the results and affirms that our findings remain unchanged

Insert Table 3-11

5. <u>Conclusion</u>

This study investigates the effect of women directors' board attributes on the causal relationship between REM and FP. Following prior literature, we consider two main board attributes, categorized as statutory (independence) and demographic (financial education, financial expertise, and multiple directorships). From 155 French firms (930 firm-year observations) during 2011–2016, we find that when women directors hold multiple directorships, it moderates the causal link between REM and FP (ROA and Q one year ahead), suggesting the strong reputation effect of this feature (Brammer *et al.*, 2009). Women directors' financial (AC) expertise also moderates the relationship between REM and FP (ROA and Q one year ahead). Finally, we find that the independence of women directors associates positively with ROA_{t+1} but negatively and non-significantly with Q_{t+1}.

The supply and legitimacy of women directors' appointments have been major concerns since the formal announcement of the gender quota in France. Legitimacy allows companies to cope with complexity and uncertainty. Organizations need leadership by those who can provide wide resources, such as financial knowledge and industrial diversity (Terjesen *et al.*, 2009). Overall, we argue that women directors have not destroyed firms' economic value, and they appear to be legitimate with regard to main board-monitoring attributes. However, French market participants have been reticent about women directors' appointments, because gender quotas require massive reorganizations of corporate boards and present substantial costs to shareholders if the new female directors lack the experience of exiting male directors (Ahern & Dittmar, 2012).

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Appendix : Figures and Tables

Figure 5 : Holistic presentation of research hypotheses
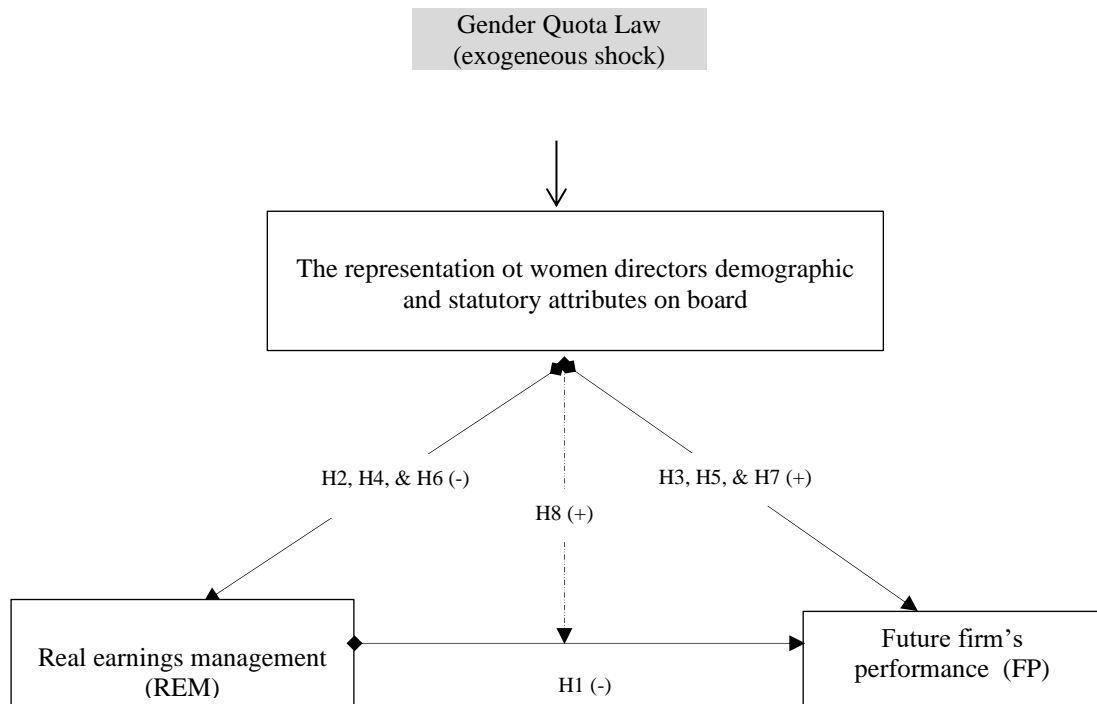
Notes to Figure 5 : This figure shows the relationships tested in this study.

Table 3- 1 : Classification of studies related to effect of REM on FP

Classification criteria	Specific context	Authors	Country	REM (FP) proxies	Research key results
Real earnings management and future accounting-based measures					
	-	Baber *et al.* (1991)	U.S.A.	R&D cuts (FOP)	R&D spending cuts reduce FOP.
	-	Gunny (2005)	U.S.A.	Abnormal CFO; production costs, and abnormal discretionary expenses (FOP)	REM tools reduce FOP.
	Earnings thresholds	Roychowdhury (2006)	U.S.A.	Abnormal CFO; production costs, and abnormal discretionary expenses (FOP)	REM tools reduce FOP.
	SEO	Cohen and Zarowin (2010)	U.S.A.	Abnormal CFO; abnormal production costs, and abnormal discretionary expenses; Abnormal gain of assets sales (FOP)	REM tools reduce FOP.
	Meeting or beating analysts' forecasts	Chen *et al.* (2010)[a]	U.S.A.	Abnormal CFO; production costs, and abnormal discretionary expenses (FOP)	REM reduces FOP.
	Beat earnings benchmarks	Gunny (2010)	U.S.A.	Abnormal discretionary expenses (FOP)	REM to meet earnings benchmarks has a significantly positive consequence for firms' subsequent operating performance and signals firms' good future performance.
	French accounting setting	Cazavan-Jeny *et al.* (2011)	France	Cuts of R&D capitalization (FOP)	R&D capitalization associates significantly negatively with FOP.
	Takeover protection	Zhao *et al.* (2012)	U.S.A.	Abnormal CFO; abnormal production costs, and abnormal discretionary expenses (FOP)	1)Value-destroying effect of abnormal real activities in the absence of just meeting earnings targets; 2) Abnormal real activities intended to just meet earnings targets (i.e., REM) convey a signal of superior future performance to the market;

				3) Takeover protection reduces managers' pressure to resort to REM as a costly means of signaling better future performance.
SEO	Henry *et al.* (2013)	Australia	Abnormal production costs; abnormal discretionary expenses (FOP)	REM tools reduce FOP.
Investigation over accounting rule (SFAS 142)	Filip *et al.* (2015)	U.S.A.	Manipulation of cash flows to support their choice to avoid reporting an impairment loss (FOP)	Firms suspected of postponing goodwill impairment losses exhibit significantly positive discretionary cash flows, decreasing FOP.
-	Tabassum *et al.* (2015)[a]	Pakistant	Abnormal CFO (FOP)	REM reduces FOP.
M&A	Zhang (2015)	China	Abnormal CFO; production costs, and abnormal discretionary expenses (FOP)	REM is associated with under-FOP of post-M&A (brings about underperformance of post-M&A).
-	Medeiros Cupertino *et al.* (2016)	Brazil	Abnormal CFO; abnormal production costs, and abnormal discretionary expenses (FOP)	REM is negatively associated with FOP.
Meet earnings benchmarks	Al -shattarat *et al.* (2018)	U.K.	Abnormal CFO; abnormal production costs, and abnormal discretionary expenses (FOP)	1) REM to meet earnings benchmarks has a significantly positive consequence for firms' subsequent operating performance and signals firms' good future performance; 2) Firms that manipulate their operating activities in the absence of meeting earnings benchmarks experience a decline in their subsequent operating performance.
Institutional environment	Jiang *et al.* (2018)	29 countries	Abnormal production costs, and abnormal discretionary expenses (FOP)	Current-period REM is positively associated with future performance (the positive performance effect is driven by firms operating in countries with strong institutional environments).

Real earnings and future market-based measures					
	Earnings targets	-Osma and Young (2009)	U.K.	Cuts of R&D capitalization (SR)	Investors place less weight on earnings increases accompanied by unexpected cuts in R&D spending to beat earnings benchmark.
	Meeting or beating analysts' forecasts	Chen *et al.* (2010)[a]	U.S.A.	Abnormal CFO; production costs, and abnormal discretionary expenses (SR)	1) Investors react most favorably when firms meet/beat analysts' forecasts without using any form of earnings management;
					2) Stock returns for firms that use REM to meet expectations are significantly higher than those for firms that use AEM.
	-	Li (2010)	U.S.A.	Abnormal CFO (SR)	Stocks of firms with abnormally low (high) levels of operating cash flows underperform (outperform) in the subsequent year, whereas stocks of firms with abnormally low (high) levels of production costs outperform (underperform) in the subsequent three years.
	French accounting setting	Cazavan-Jeny *et al.* (2011)	France	Cuts of R&D capitalization (SP)	R&D capitalization associates significantly negatively with stock price.
	Voluntary Adoption of Compensation Clawback[30] Provisions	Chan *et al.* (2015)	U.S.A.	Abnormal discretionary expenses (SR)	REM decreases stock performance three years after clawback adoption.
	-	Tabassum *et al.* (2015)[a]	Pakistan	Abnormal CFO (EPS)	REM reduces EPS.

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[30] Many companies have recently adopted compensation recovery policies—commonly known as "clawbacks"—that authorize their boards to recoup compensation paid to executives based on misstated financial reports.

Investigation over accounting rule (SFAS 142)	Filip *et al.* (2015)	U.S.A.	Manipulation of cash flows to support their choice to avoid reporting an impairment loss (SR)	Firms suspected of postponing goodwill impairment losses exhibit significantly positive discretionary cash flows, decreasing SR.
-	Ahmadi and Dorseh (2016)	Iran	Abnormal discretionary expenses; abnormal operating cash flows (SR)	Abnormal discretionary expenses and abnormal operating cash flows have significant positive effect on future stock price crashes.
Post-*Sarbanes–Oxley Act*	Francis *et al.* (2016)	U.S.A.	Abnormal CFO; production costs, and abnormal discretionary expenses (SR)	REM-firms experience a significant increase in crash risk in the following year.

Notes to Table 3-1.

REM: real earnings management; FOP: future operating performance; R&D: research and development; FOP: future operating performance; CFO: cash flow from operations;

AEM: accrual manipulation; M&A: merger and acquisition; SR : stock return; SP: stock price; EPS: earnings per share.

Table 3- 2: Sample selection details

Details		
Initial sample	506	3036
Less: Financial firms	(180)	(1080)
Less: Firms with insufficient data in FactSet	(56)	(336)
Less: Firms unaffected by quota	(20)	(120)
Firm-year observation in final data	155	930

Table 3- 3 : Descriptive statistics

	Mean	Std.Dev.	Min	Max
%W_EDU$_{i,t}$	0.425	0.421	0	1
%W_IND$_{i,t}$	0.306	0.29	0	1
%W_EXP$_{i,t}$	0.748	0.414	0	1
%W_FINEXP$_{i,t}$	0.667	0.601	0	1
ROA$_{t+1}$	-0.022	0.692	-19.97	.3007
Q$_{t+1}$	0.806	0.791	0.173	3.651
REM$_{i,t}$	0.144	0.161	0	.587
LEV$_{i,t}$	23.452	19.342	0	66.726
DIV$_{i,t}$	43.568	42.566	0	168.75
ROA$_{i,t}$	1.159	10.002	-29.926	12.603
Q$_t$	0.700	0.791	0.208	3.002
MTB$_{i,t}$	0.467	0.458	-0.233	2.435
QR$_{i,t}$	1.492	1.715	0.001	21.875
LOSS$_{i,t}$	0.228	0.42	0	1
FAM$_{i,t}$	27.4%	0.292	0	100%
INV$_{i,t}$	22.8%	0.291	0	100%
DUAL_CEO$_{i,t}$	0.599	0.49	0	1
B_IND$_{i,t}$	3.897	2.874	0	18
AC_SIZE$_{i,t}$	2.556	2.023	0	16
F_SIZE$_{i,t}$	12.576	2.435	10.876	18.41

Notes to Table 3-3.

This table presents the descriptive statistics. %_W_EDU$_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; %_W_IND $_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; %_W_EXP $_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; %_W_FINEXP$_{i,t}$ is the number of women directors on audit committees divided by total women directors. ROA$_{t+1}$ is the return on assets, the ratio of net operating income divided by total assets; Q$_t$, the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset. REM$_t$ is the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006); LEV$_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; DIV $_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; ROA$_{i,t}$ is the return on assets, the Ratio of net operating income divided by total assets in year t. MTB $_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; LOSS $_{i,t}$ is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; FAM $_{i,t}$ is the family ownership measured as the percentage of capital held by family; INST $_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; DUAL_CEO $_{i,t}$

is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $B\_IND_{i,t}$ is board independence estimated as the number of independent directors; $F\_SIZE_{i,t}$ is the firm size in year t, the natural logarithm of firm's total assets. The continuous variables have been winsorised to avoid the biases inherent in extreme values.

Table 3- 4: Pairwise correlation matrix

		1	2	3	4	5	6	7	8	9
1	%_W_EDU$_{i,t}$	1								
2	%_W_EDU$_{i,t}$	0.162*	1							
3	%W_EXP$_{i,t}$	-0.0764	0.292***	1						
4	%W_FINEXP$_{i,t}$	0.107	0.087	0.046	1					
5	ROA$_{t+1}$	0.001	0.043	0.007	0.084	1				
6	Tobin's q_{t+1}	-0.116	-0.114	-0.056	0.007	-0.012	1			
7	REM$_{i,t}$	0.109	-0.042	-0.132	-0.074	-0.129	0.042	1		
8	LEV$_{i,t}$	0.0814	-0.056	-0.004	-0.015	-0.069	0.053	0.019	1	
9	DIV$_{i,t}$	-0.119	-0.050	0.072	0.069	-0.041	0.020	0.055	0.195**	1
10	ROA$_{i,t}$	0.149*	0.092	-0.124	0.010	0.331***	0.174*	-0.155*	-0.205**	-0.265***
11	MTB$_{i,t}$	-0.0593	-0.190*	0.031	-0.039	-0.335***	-0.104	0.0663	-0.047	-0.0752
12	QR$_{i,t}$	-0.008	0.152*	0.040	-0.108	-0.047	0.016	-0.064	0.141	-0.0336
13	LOSS$_{i,t}$	-0.061	-0.080	-0.030	-0.000	0.147	0.030	-0.069	0.000	0.0325
14	FAM$_{i,t}$	-0.083	-0.159*	0.289***	0.000	0.111	0.065	0.055	0.007	0.004
15	INV$_{i,t}$	0.065	0.128	0.274***	-0.061	-0.121	-0.058	-0.040	0.002	0.00538
16	DUAL_CEO$_{i,t}$	-0.006	0.039	0.247***	-0.214**	-0.175*	-0.136	0.006	0.239**	-0.00789
17	B_IND$_{i,t}$	-0.029	-0.027	0.153*	0.123	0.010	0.336***	-0.045	0.0828	0.326***
18	AC_SIZE$_{i,t}$	0.0776	0.129	-0.136	0.0183	0.025	-0.154*	-0.009	-0.024	-0.0367
19	F_SIZE$_{i,t}$	-0.005	0.064	0.132	0.0359	0.014	-0.417***	-0.078	0.200**	0.286***

		10	11	12	13	14	15	16	17	18	19
10	$ROA_{i,t}$	1					-				
11	$MTB_{i,t}$	-0.178*	1								
12	$QR_{i,t}$	0.315***	-0.142	1							
13	$LOSS_t$	-0.0520	-0.107	0.0264	1						
14	$FAM_{i,t}$	0.268***	0.0857	0.156*	0.0264	1					
15	$INV_{i,t}$	-0.271***	0.0955	0.169*	-0.0215	-0.994***	1				
16	$DUAL\_CEO_{i,t}$	-0.0985	-0.0168	0.139	0.0277	-0.151*	0.151*	1			
17	$B\_IND_{i,t}$	-0.100	-0.0730	-0.128	0.0171	-0.106	0.106	0.0232	1		
18	$AC\_SIZE_{i,t}$	0.005	0.078	0.092	0.066	0.152*	-0.152*	0.0220	-0.0777	1	
19	$F\_SIZE_{i,t}$	-0.190*	-0.0841	-0.221**	-0.0940	-0.208**	0.208**	0.117	0.338***	0.0656	1

Notes to Table 3-4.

All variables are the firm i's in year t. $\%\_W\_EDU_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; $\%\_W\_IND_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; $\%\_W\_EXP_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; $\%\_W\_FINEXP_{i,t}$ is the number of women directors on audit committees divided by total women directors. $ROA_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets in year t+1; $Q_{i,t}$, the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset in year t+1. REM is the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006); $LEV_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; $DIV_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; $ROA_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets; $MTB_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; $LOSS_{i,t}$ is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $B\_IND_{i,t}$ is board independence estimated as the number of independent directors; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 5: Relationship between REM and FP

	(1)	(2)
	ROA_{t+1}	Q_{t+1}
$REM_{i,t}$	**-0.787*****	**-0.038**
	(0.156)	**(0.044)**
$LEV_{i,t}$	0.003*	0.005***
	(0.002)	(0.000)
$ROA_{i,t}$	0.785***	
	(0.013)	
Q_t		0.004***
		(0.001)
$LOSS_{i,t}$	-0.178	-0.031
	(0.199)	(0.021)
$FAM_{i,t}$	0.586***	-0.206***
	(0.108)	(0.026)
$INV_{i,t}$	0.006	-0.004***
	(0.006)	(0.001)
$F\_SIZE_{i,t}$	0.172***	-0.122***
	(0.019)	(0.003)
Constant	-1.382***	1.397***
	(0.132)	(0.029)
Observations	930	930

Note to Table 3-5.

The model is as follows :

$$FP_{i,t+1} = \theta_0 + \theta_1 REM_{i,t} + \sum \theta_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Dependent variables: ROA_{t+1} is the return on assets, the ratio of net operating income divided by total assets in year t+1 (Column 1); Q_{t+1} is the Tobin's Q in year t+1, the sum of the market value of stock and the book value of debt divided by the book value of total asset (Column 2). Independent variable is $REM_{i,t,}$ the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006). $X_{i,t}$ are the set of the firm i's control variables in year t: $LEV_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; $ROA_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets; Q is the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset; ; $LOSS_{i,t}$ is the accounting loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INS_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables. The

continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 6: Relationship between women directors' attributes and REM

	REM_t	REM_t	REM_t	REM_t
	(1)	(2)	(3)	(4)
%_W_EDU$_{i,t}$	0.014*			
	(0.007)			
%_W_IND$_{i,t}$		-0.035***		
		(0.009)		
%_W_EXP$_{i,t}$			-0.086***	
			(0.011)	
%_W_FINEXP$_{i,t}$				-0.023***
				(0.006)
FCF$_{i,t}$	0.002***	0.002***	0.002***	0.003***
	(0.000)	(0.000)	(0.000)	(0.000)
ROA$_{i,t}$	-0.000	-0.000***	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
QR$_{i,t}$	-0.006***	-0.005***	-0.008***	-0.009***
	(0.001)	(0.001)	(0.001)	(0.001)
LEV$_{i,t}$	-0.002**	-0.001*	-0.002	-0.003*
	(0.000)	(0.000)	(0.000)	(0.000)
MTB$_{i,t}$	0.010***	0.010***	0.007**	0.008**
	(0.003)	(0.003)	(0.003)	(0.003)
LOSS$_{i,t}$	0.012	0.022***	0.037***	0.035***
	(0.007)	(0.006)	(0.004)	(0.007)
B_IND$_{i,t}$	-0.001	-0.004*	-0.002**	-0.002
	(0.002)	(0.002)	(0.001)	(0.002)
AC_SIZE$_{i,t}$				-0.007***
				(0.001)
F_SIZE$_{i,t}$	-0.008***	-0.008***	-0.008***	-0.006***
	(0.002)	(0.002)	(0.001)	(0.002)
Constant	0.240***	0.268***	0.223***	0.184***
	(0.018)	(0.017)	(0.012)	(0.014)
Observations	930	930	930	930

Notes to Table 3-6.

The models is as follows

$$REM_{i,t}= \gamma_0 + \gamma_1 W\_ATT_{i,t} + \sum \gamma_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Dependent variables is REM, the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006. W_ATT$_{i,t}$ is one of the following firm i's independent variable in yeat t :%_W_EDU$_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; %_W_IND$_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; %_W_EXP$_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; %_W_FINEXP$_{i,t}$ is the number of women directors on audit committees divided by total women directors. X$_{i,t}$ are the set of firm i's control variables in year t: ROA$_{i,t}$

is the return on assets, the ratio of net operating income divided by total assets ; $Q_{i,t}$ is, the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset. $LEV_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; $DIV_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; ROA is the return on assets, the Ratio of net operating income divided by total assets; $MTB_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; LOSS is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $B\_IND_{i,t}$ is board independence estimated as the number of independent directors; $AC\_SIZE_{i,t}$ is audit committee size measured as the total members of audit committee; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. We also add year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 7: Relationship between women directors' board attributes and FP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA_{t+1}	Q_{t+1}	ROA_{t+1}	Q_{t+1}	ROA_{t+1}	Q_{t+1}	ROA_{t+1}	Q_{t+1}
$\%\_W\_EDU_{i,t}$	-0.075	-0.007						
	(0.091)	(0.010)						
$\%\_W\_IND_{i,t}$			1.520***	-0.164**				
			(0.173)	(0.032)				
$\%\_W\_EXP_{i,t}$					1.482***	-0.139**		
					(0.244)	(0.039)		
$\%\_W\_FINEXP_{i,t}$							-0.020	-0.017
							(0.099)	(0.013)
$LEV_{i,t}$	0.015***	0.005***	0.018***	0.004***	0.007**	0.005***	0.023***	0.003***
	(0.002)	(0.001)	(0.002)	(0.000)	(0.003)	(0.001)	(0.003)	(0.000)
$DIV_{i,t}$	-0.000	0.000	0.000	0.000***	-0.000	0.000	-0.002***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
$ROA_{i,t}$	0.570***	-0.000	0.699***	0.017***	0.483***	0.001	0.599***	0.016***
	(0.015)	(0.001)	(0.016)	(0.002)	(0.016)	(0.002)	(0.016)	(0.002)
$FAM_{i,t}$	0.400***	0.145***	0.406***	0.200***	0.687***	0.308***	0.698***	0.571***
	(0.100)	(0.001)	(0.103)	(0.030)	(0.004)	(0.047)	(0.004)	(0.037)
$INST_{i,t}$	-1.133***	0.255***	-1.136***	0.140***	-1.579***	0.354***	-1.189***	0.035
	(0.161)	(0.038)	(0.197)	(0.040)	(0.238)	(0.039)	(0.222)	(0.031)
$DUAL\_CEO_{i,t}$	-0.433***	-0.017	-0.685***	-0.055**	-0.519***	-0.177***	-0.794***	-0.029*
	(0.070)	(0.020)	(0.076)	(0.024)	(0.117)	(0.023)	(0.123)	(0.017)
$B\_IND_{i,t}$	-0.083***	0.031***	-0.031	0.033***	-0.034	0.041***	-0.006	0.039***
	(0.018)	(0.004)	(0.020)	(0.005)	(0.026)	(0.006)	(0.022)	(0.005)
$AC\text{-}SIZE_{i,t}$							-0.123***	-0.031***
							(0.038)	(0.004)
$F\_SIZE_{i,t}$	-0.037	-0.147***	-0.019	-0.116***	-0.054*	-0.146***	0.021	-0.113***
	(0.024)	(0.004)	(0.027)	(0.006)	(0.028)	(0.007)	(0.030)	(0.006)
Constant	2.326***	1.270***	1.175***	1.198***	3.645***	1.477***	1.651***	1.165***
	(0.115)	(0.042)	(0.256)	(0.049)	(0.332)	(0.057)	(0.378)	(0.043)
Observations	930	930	930	930	930	930	930	930

Notes to table 3-7.

The model is as follows :

$$FP_{i,t+1} = \beta_0 + \beta_1 W\_ATT_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Dependent variables are the future performance proxies, ROA_{t+1} for columns 1,3, and 7, and Q_{t+1} for columns 2,6, and 8. $W\_ATT_{i,t}$ are one of the following firm i's independent variables in year t :$\%\_W\_EDU_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; $\%\_W\_IND_{i,t}$ measured as umber

of external independent women directors divided by total external independent board members; %_W_EXP$_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; %_W_FINEXP$_{i,t}$ is the number of women directors on audit committees divided by total women directors. X$_{i,t}$ are the set of control variables: ROA is the return on assets, the ratio of net operating income divided by total assets; Q$_{i,t}$ is the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset. LEV$_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; DIV$_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; ROA$_{i,t}$ is the return on assets, the Ratio of net operating income divided by total assets; MTB$_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; LOSS$_{i,t}$ is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; FAM$_{i,t}$ is the family ownership measured as the percentage of capital held by family; INST$_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; DUAL_CEO is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; B_IND$_{i,t}$ is board independence estimated as the number of independent directors; AC_SIZE$_{i,t}$ is audit committee size measured as the total members of audit committee; F_SIZE$_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 8 : Moderating effect of women directors' attributes on causal link between REM and FP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	$ROA_{i,t+1}$	Q_{t+1}	$ROA_{i,t+1}$	Q_{t+1}	$ROA_{i,t+1}$	Q_{t+1}	$ROA_{i,t+1}$	Q_{t+1}
$\%\_W\_EDU_{i,t} * REM_{i,t}$	-1.718***	-0.043		:				
	(0.123)	(0.039)						
$\%\_W\_IND_{i,t} * REM_{i,t}$			3.813***	-0.018				
			(0.123)	(0.063)				
$\%\_W\_EXP_{i,t} * REM_{i,t}$					2.143***	0.565***		
					(0.440)	(0.077)		
$\%\_W\_FINEXP_{i,t} * REM$							1.111	0.134**
							(0.782)	(0.052)
$LEV_{i,t}$	0.021***	0.010***	0.025***	0.005***	0.006	0.010***	0.011***	0.004***
	(0.002)	(0.001)	(0.001)	(0.001)	(0.003)	(0.000)	(0.002)	(0.001)
$DIV_{i,t}$	-0.001***	-0.000***	-0.001***	0.000*	-0.001	-0.000***	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.000)
$ROA_{i,t}$	0.390***	-0.002	0.586***	0.048***	0.297***	-0.007***	0.510***	-0.002
	(0.020)	(0.002)	(0.004)	(0.003)	(0.015)	(0.001)	(0.014)	(0.002)
$FAM_{i,t}$	0.122***	0.150***	0.300***	0.090***	0.200***	0.129***	0.501***	0.050***
	(0.100)	(0.001)	(0.103)	(0.030)	(0.004)	(0.047)	(0.004)	(0.037)
$INV_{i,t}$	0.454***	0.267***	0.559***	0.333***	0.201	0.345***	-1.796***	0.284***
	(0.110)	(0.026)	(0.087)	(0.035)	(0.167)	(0.024)	(0.231)	(0.039)
$DUAL\_CEO_{i,t}$	-0.616***	-0.058***	-0.737***	-0.077***	-0.667***	-0.111***	-0.332***	-0.093***
	(0.038)	(0.011)	(0.035)	(0.022)	(0.057)	(0.016)	(0.099)	(0.025)
$B\_IND_{i,t}$	-0.096***	0.070***	-0.047***	0.073***	-0.042*	0.069***	-0.024	0.048***
	(0.020)	(0.004)	(0.014)	(0.006)	(0.025)	(0.003)	(0.022)	(0.006)
$AC\_SIZE_{i,t}$							0.000	-0.141***
							(0.026)	(0.007)
$F\_SIZE_{i,t}$	-0.055***	-0.186***	-0.061***	-0.149***	-0.053***	-0.175***	-0.245***	-0.047***
	(0.015)	(0.005)	(0.010)	(0.006)	(0.017)	(0.002)	(0.033)	(0.006)

Constant	2.359***	1.326***	1.763***	0.893***	3.429***	1.365***	3.074***	1.318***
	(0.126)	(0.035)	(0.087)	(0.029)	(0.109)	(0.025)	(0.336)	(0.050)
Observations	930	930	930	930	930	930	930	930

Notes to table 3-8.

The model is as follows: ù

$$FP_{i,t+1} = \beta_0 + \beta_1 W\_ATT_{i,t} * REM_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t},$$

Generalized Least Square regressions made from a fit population averaged panel data model. The dependent variable is future performance proxies, from ROA_{t+1} for columns 1,3, and 7, and from Q_{t+1} for columns 2,6, and 8. The interest variable is the interaction variable between REM_t the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006) one of the following variables: $\%\_W\_EDU_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; $\%\_W\_IND_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; $\%\_W\_EXP_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; $\%\_W\_FINEXP_{i,t}$ is the number of women directors on audit committees divided by total women directors. $X_{i,t}$ are the set of the firm's control variables :in year t: $ROA_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets; $Q_{i,t}$ is the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset. $LEV_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; $DIV_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; $MTB_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; $LOSS_{i,t}$ is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; INS is institutional ownership measured as percentage of capital held by institutional investors; $DUAL\_CEO_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $B\_IND_{i,t}$ is board independence estimated as the number of independent directors; $AC\_SIZE_{i,t}$ is audit committee size measured as the total members of audit committee; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. We also add year and industry dummies variables. For clarity, we also add year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 9 : Relationship betweeen women directors' attributes and ROE one year ahead

	ROE_{t+1}	ROE_{t+1}	ROE_{t+1}	ROE_{t+1}
	(1)	(2)	(3)	(4)
$\%\_W\_EDU_{i,t} * REM_{i,t}$	-0.116***			
	(0.015)			
$\%\_W\_IND_{i,t} * REM_{i,t}$		0.793***		
		(0.197)		
$\%\_W\_EXP_{i,t} * REM_{i,t}$			5.964***	
			(2.015)	
$\%\_W\_FINEXP_{i,t} * REM_{i,t}$				0.026
				(0.068)
$LEV_{i,t}$	0.004***	-0.003***	0.610***	-0.003***
	(0.000)	(0.001)	(0.165)	(0.001)
$DIV_{i,t}$	0.000	-0.000	0.025**	-0.000
	(0.000)	(0.000)	(0.010)	(0.000)
$ROA_{i,t}$	0.003***	0.009***	0.031	0.008***
	(0.000)	(0.001)	(0.209)	(0.001)
$FAM_{i,t}$	0.010***	0.001**	0.500**	0.003***
	(0.005)	(0.001)	(0.105)	(0.000)
$INST_{i,t}$	-0.002***	0.001**	-1.116	0.001***
	(0.000)	(0.001)	(0.881)	(0.000)
$DUAL\_CEO_{i,t}$	-0.056***	0.056*	-43.195***	0.091***
	(0.007)	(0.032)	(13.087)	(0.025)
$B\_IND_{i,t}$	0.001	0.007	-20.729***	0.010**
	(0.002)	(0.006)	(2.445)	(0.004)
$F\_SIZE_{i,t}$	-0.001	0.023***	21.975***	0.022***
	(0.003)	(0.006)	(2.205)	(0.005)
Constant	-0.024*	-0.191***	94.007***	-0.154***
	(0.014)	(0.050)	(17.655)	(0.036)
Observations	930	930	930	930

Notes to Table 3-9.

The model is as follows:

$$ROE_{i,t+1} = \beta_0 + \beta_1 W\_ATT_{i,t} * REM_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. The dependent variable is $ROE_{i,t}$, return on equity, measured as the ratio of net operating income divided by total equity The interest variable is the interaction variable between $REM_{i,t}$ the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006), and one of the following variable: $\%\_W\_EDU_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; $\%\_W\_IND_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; $\%\_W\_EXP$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; $\%\_W\_FINEXP_{i,t}$ is the number

of women directors on audit committees divided by total women directors. $X_{i,t}$ are the set of the firm i's control variables in year t. $LEV_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; $DIV_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; $ROA_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets. MTB is the market-to-book, measured as the ratio of market value to book value of equity; LOSS is the accounting loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INS_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors; $DUAL\_CEO_{i,t}$ is the duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; $B\_IND_{i,t}$ is board independence estimated as the number of independent directors; $AC\_SIZE_{i,t}$ is audit committee size measured as the total members of audit committee; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also add year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 10 : Mediating effect of REM on relationship between the attributes of women directors and FP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA_{t+1}	Q_{t+1}	ROA_{t+1}	Q_{t+1}	ROA_{t+1}	Q_{t+1}	ROA_{t+1}	Q_{t+1}
%W_EDU$_{i,t}$	0.062	-0.170***						
	(0.098)	(0.024)						
%W_IND$_{i,t}$			1.283***	-0.132***				
			(0.107)	(0.030)				
%W_EXP$_{i,t}$					1.442***	0.024		
					(0.381)	(0.039)		
%W_FINEXP$_{i,t}$							-0.029	-0.026
							(0.079)	(0.018)
REM$_{i,t}$	-2.549***	0.129***	-2.696***	0.128***	-0.184	0.064**	-3.094***	0.117***
	(0.019)	(0.034)	(0.136)	(0.026)	(0.142)	(0.028)	(0.162)	(0.024)
LEV$_{i,t}$	0.020***	0.007***	0.024***	0.006***	0.003	0.008***	0.019***	0.006***
	(0.003)	(0.001)	(0.002)	(0.000)	(0.004)	(0.001)	(0.003)	(0.001)
DIV$_{i,t}$	-0.001	-0.000***	-0.001**	0.000***	-0.001**	-0.000***	-0.001*	0.000**
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
ROA$_{i,t}$	0.355***		0.554***		0.456***		0.497***	
	(0.023)		(0.011)		(0.020)		(0.016)	
Q$_{i,t}$		0.002*		0.049***		0.001*		0.035***
		(0.003)		(0.003)		(0.002)		(0.002)
FAM$_{i,t}$	0.600***	0.105***	0.406***	0.200***	0.674***	0.308***	0.650***	0.567***
	(0.100)	(0.001)	(0.103)	(0.030)	(0.004)	(0.047)	(0.004)	(0.037)
INST$_{i,t}$	0.517***	0.336***	0.501***	0.333***	-1.310***	0.271***	0.750***	0.171***

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.145)	(0.037)	(0.114)	(0.031)	(0.278)	(0.047)	(0.112)	(0.034)
DUAL_CEO$_{i,t}$	-0.710***	-0.037	-0.846***	-0.092***	-0.695***	-0.092***	-1.130***	-0.085***
	(0.063)	(0.024)	(0.046)	(0.015)	(0.134)	(0.024)	(0.063)	(0.020)
B_IND$_{i,t}$	-0.085***	0.061***	-0.033*	0.065***	-0.017	0.068***	-0.048**	0.075***
	(0.019)	(0.006)	(0.019)	(0.005)	(0.032)	(0.006)	(0.019)	(0.005)
F_SIZE$_{i,t}$	-0.123***	-0.162***	-0.084***	-0.148***	-0.125***	-0.153***	-0.090***	-0.028***
	(0.018)	(0.007)	(0.018)	(0.006)	(0.039)	(0.007)	(0.028)	(0.004)
Constant	-0.123***	1.160***	1.939***	0.921***	3.750***	1.261***	-0.137***	-0.156***
	(0.018)	(0.051)	(0.106)	(0.034)	(0.377)	(0.058)	(0.017)	(0.006)
Observations	930	930	930	930	930	930	930	930

Notes to Table 3-10.

The model is as follows :

$$FP_{i,t+1}=\beta_0+\beta_1 W\_ATT_{i,t}+\beta_2 REM_{i,t}+\sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

We performed the GLS regression estimator -, and the Wooldridge test and Breusch-Pagan /Cook-Weisberg test are before each regression to control the heteroskedasticity and serial autocorrelations issues. Dependent variable is: future performance proxies, ROA_{t+1} for columns 1,3, and 7, and Q_{t+1} for columns 2,6, and 8. The independent variables :%_W_EDU$_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; %_W_IND$_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; %_W_EXP$_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; %_W_FINEXP$_{i,t}$ is the number of women directors on audit committees divided by total women directors. Mediator variable is REM$_{i,t}$, the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006). $\underline{X_{i,t}}$ are set of the firm i's control variables in year t : LEV$_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; ROA$_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets in year t; Q$_{i,t}$ is the Tobin's Q, measured as the sum of the market value of stock and the book value of debt divided by the book value of total asset; DIV$_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; ROA$_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets. MTB$_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; LOSS$_{i,t}$ is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; FAM$_{i,t}$ is the family ownership measured as the percentage of capital held by family; INS$_{i,t}$ is institutional ownership measured as Percentage of capital held by institutional investors; DUAL_CEO$_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; B_IND is board independence

estimated as the number of independent directors; $AC\_SIZE_{i,t}$ is audit committee size measured as the total members of audit committee; $F\_SIZE_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also include year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

Table 3- 11 : Additional test of relationship between women directors' attributes and FP using one-step GMM system

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	ROA$_{t+1}$	Q$_{t+1}$	ROA$_{t+1}$	Q$_{t+1}$	ROA$_{t+1}$	Q$_{t+1}$	ROA$_{t+1}$	Q$_{t+1}$
L. ROA$_{t+1}$	0.325***		0.324***		0.325***		0.325***	
	(0.024)		(0.024)		(0.025)		(0.024)	
L.Q$_{t+1}$		0.895***		0.884***		0.898***		0.888***
		(0.144)		(0.145)		(0.154)		(0.136)
%W_EDU$_{i,t}$* REM$_{i,t}$	**-0.002***	**0.065**						
	(0.001)	**(0.093)**						
%W_IND$_{i,t}$* REM$_{i,t}$			**0.008***	**0.422**				
			(0.005)	**(0.362)**				
%W_EXP$_{i,t}$* REM$_{i,t}$					**0.017****	**0.179**		
					(0.007)	**(0.584)**		
%W_FINEXP$_{i,t}$* REM$_{i,t}$							**-0.002***	**-0.019**
							(0.001)	**(0.099)**
LEV$_{i,t}$	-0.000**	-0.001	-0.000**	-0.001	-0.000**	-0.001	-0.000**	-0.001
	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)	(0.000)	(0.001)
DIV$_{i,t}$	0.001	0.003	0.002	0.001	0.004	0.001	0.002	-0.003
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FAM$_{i,t}$	0.002**	0.010***	0.100*	0.020*	0.003*	0.006	0.005*	0.015**
	(0.00")	(0.057)	(0.005)	(0.060)	(0.004)	(0.040)	(0.004)	(0.040)
INST$_{i,t}$	0.001	0.007	0.001	0.011	0.001	0.006	0.001	0.015
	(0.001)	(0.057)	(0.001)	(0.057)	(0.001)	(0.058)	(0.001)	(0.055)
DUAL_CEO$_{i,t}$	0.000	-0.036	0.000	-0.039	0.000	-0.036	0.000	-0.048
	(0.001)	(0.028)	(0.001)	(0.028)	(0.001)	(0.029)	(0.001)	(0.032)
B_IND$_{i,t}$	-0.000	0.006	-0.000	0.007	-0.000	0.006	-0.000	0.007
	(0.000)	(0.012)	(0.000)	(0.012)	(0.000)	(0.012)	(0.000)	(0.012)
AC_SIZE$_{i,t}$							0.000	-0.010

							(0.000)	(0.010)
$F\_SIZE_{i,t}$	0.000**	-0.000	0.000**	-0.002	0.000**	0.001	0.000**	0.002
	(0.000)	(0.025)	(0.000)	(0.025)	(0.000)	(0.026)	(0.000)	(0.021)
Constant	-0.001**	0.056	-0.001	0.052	-0.000	0.049	-0.001**	0.078
	(0.000)	(0.183)	(0.000)	(0.181)	(0.000)	(0.180)	(0.000)	(0.190)
Observations	453	455	453	455	453	432	453	455
F statistic	131.30	93.94	123.61	87.42	128.45	91.74	108.58	82.24
Groups/Instruments	113/23	113/25	113/23	113/23	113/23	113/25	108/24	108/26
AR(2)	-0.93	-1.19	-0.93	-1.19	-0.93	-1.18	-0.93	-1.15
	0.351	0.233	0.351	0.233	0.351	0.240	0.351	0.252
Hansen statistic	52.07	45.40	49.40	43.27	56.13	44.32	48.82	42.93
	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Notes to Table 3-11.

The model is as follows

$$FP_{i,t+1} = \beta_0 + L.FP_{t+1} + \beta_1 W\_ATT_{i,t} * \ REM_{i,t} + \sum \beta_i X_{i,t} + \varepsilon_{i,t}$$

Generalized Method of Moment regressions made from a fit population averaged panel data model. Dependent variable is performance one year ahead, ROA_{t+1} for columns 1,3, and 7, and Q_{t+1} for columns 2,6, and 8. $L.FP_{t+1}$ is the lagged values of performance one year ahead. The interest variable is the interaction variable between $REM_{i,t}$ the aggregated real activities' earnings management, measured as the addition of sales manipulation and overproduction (Roychowdhury, 2006), and one of the following variable: $\%\_W\_EDU_{i,t}$ measured as the number of women directors with financial education divided by total number of women directors; $\%\_W\_IND_{i,t}$ measured as umber of external independent women directors divided by total external independent board members; $\%\_W\_EXP_{i,t}$ is proxied as the number of women directors who are members of another firm's board divided by number of women directors; $\%\_W\_FINEXP_{i,t}$ is the number of women directors on audit committees divided by total women directors. $\underline{X_{i,t}}$ are set of the firm i's control variables in year t, $ROA_{i,t}$ is the return on assets, the ratio of net operating income divided by total assets; $Q_{i,t,}$, the Tobin's Q, the sum of the market value of stock and the book value of debt divided by the book value of total asset. $LEV_{i,t}$ is firm leverage measured as company's long-term debt divided by total assets; $DIV_{i,t}$ is the dividend payout ratio, measured as dividends paid divided by net income; $ROA_{i,t}$ is the return on assets, the Ratio of net operating income divided by total assets; $MTB_{i,t}$ is the market-to-book, measured as the ratio of market value to book value of equity; $LOSS_{i,t}$ is the firm loss, a dummy variable equals 1 if firm reports loss, 0 otherwise; $FAM_{i,t}$ is the family ownership measured as the percentage of capital held by family; $INST_{i,t}$ is institutional ownership measured as percentage of capital held by institutional investors;

DUAL_CEO$_{i,t}$ is duality of CEO, a dummy variable equals 1 if the CEO is also the chair of the board, 0 otherwise; B_IND$_{i,t}$ is board independence estimated as the number of independent directors; AC_SIZE$_{i,t}$ is audit committee size measured as the total members of audit committee; F_SIZE$_{i,t}$ is the firm size, the natural logarithm of firm's total assets. For clarity, we also include year-specific and industry-specific dummies variables. The continuous variables have been winsorised to avoid the biases inherent in extreme values. Significance at the 10%, 5%, and 1% levels is indicated by*, **, and ***, respectively.

GENERAL CONCLUSION

In this doctoral dissertation, we explore two fields of EM: its incentives and its constraining mechanism through financial distress, and board gender quotas, respectively. Although various studies explored these fields, we support that further investigations are worthwhile to broaden knowledge on the effect of financial distress / bankruptcy and gender quotas on the quality of accounting information. We conduct our work from French VSBs, and firms listed on Euronext Paris. Empirical work showed that EM is relatively more important in France (a civil law country) compared to other common law developed countries. This finding is verified even considering institutional factors that may limit EM, such as the presence of a big auditor.

From EM incentives standpoint, in the first chapter we study the extent of EM towards VSBs profiles. Following the literature), we construct four (4) firm profiles (SB, NSB, SNB, NSNB). The results exhibit that (1) bankrupt VSBs manage earnings more extensively that non-bankrupt VSBs, (2) the magnitude of EM varies among VSBs, (3) SB VSBs engage in less AEM and REM than other types of VSBs, and (4) NSB VSBs reveal more AEM and REM activities than other types of VSBs. Precisely, this study extends the scholars on the incentives and costs of EM to an overlooked incentive of EM in the literature: financial distress and bankruptcy. Regarding the results, this study contributes to the literature on several points. First, it investigates EM among firms' profiles, exploring how firms' financial conditions prior to failure affect the forms and extent of EM. Second, considering the lack of conclusive evidence about whether AEM or REM is more prominent with regard to firms' financial situations, it sheds light on the types of EM that characterize firms' profiles; it explores whether the degree of firms' financial distress conditions their choice between accrual and real activities. Third, it analyzes VSBs' earnings management practices, whereby managers' actions influence decision making and strategizing. Fourth, France represents a rarely explored context. In its civil law

system, earnings management is highly relevant because investor protections tend to be weaker than elsewhere and the use of accounting data in contracts is more widespread. Creditors in civil law contexts, compared with those in common law contexts, pay more attention to earnings quality, because they are less protected than debtors. However, this study has some limitations; we evaluate earnings exclusively by EM but instead include other variables, such as earnings timeliness and conditional conservatism, earnings persistence, value relevance, and earnings smoothing. An alternative approach could compare loss recognition timeliness. Researchers also could consider the differences between common law and civil law countries in their treatment of bankruptcy by comparing EM by firms in these differing institutional contexts. Because France currently requires joint audits, it would be interesting to consider the influence of external control mechanisms and the effect of joint auditor/partner pairs on EM strategies.

From the EM constraining mechanisms standpoint, the second chapter explores the effect of gender quotas on the earnings quality in France which has legislated the implementation of graduated quotas for large firms — (in accordance with the indications of the European Parliament). In general, we find that since the introduction of the gender quota, there has been a positive relationship between the proportion of women directors and EQ. However, firms affected by the gender quota show extensive signs of low EQ, whereas unaffected firms show a positive association with EQ. Women directors perform well in low-debt and low-performing firms —contexts in which board gender diversity tends to be particularly challenging—.

This study contributes to the literature on several levels. First, it focuses on France, which has passed a law imposing gradual gender quotas on boards. To our knowledge, very few studies have dealt with this subject in the French context., limited to the first gender quota deployment period. We extend its insights by considering the transition period between the first and second gender quotas, which represents a second exogenous shock. Second, we propose that the

influence of gender quotas on EQ depends on the distance from the quotas. Third, we use two key EQ proxies. Fourth, to our knowledge, no studies have addressed the contingency effect in the relationship between board gender diversity and EQ in a gender quota context; we advocate that women directors are effective in situations of weak governance that prevail in low-debt firms. However, this study has some clear limitations. It could benefit from including measures of the costs of including women directors. For example, an expanded model could integrate accurate counts of board restructuring operations (e.g., number of committees and directors, distribution of workload per director, changes in working methods and board deliberations) and test how they correlate with corporate outcomes since the gender quota was introduced. If there is a negative and significant relationship, we might conclude that the inclusion of women is structurally costly. Regarding learning costs, we also could have measured how board activities that increase knowledge of company activities and efficient decision making have evolved. In the context of gender quota laws, board restructuring - though costly in the short term - seeks to identify and appoint qualified women members to execute ongoing agendas.

Further, in the third chapter, we study the legitimacy of women directors (since the introduction of gender quotas in France) through the moderator effect of board attributes in the relationship between real earnings management and future performance. The results show that interlocked women directors moderate the causal link between managers' real activities-based earnings management and future performance. Our robustness tests highlight that: (1) the independent directors act as a moderator on REM when the outcome is the ROE one year ahead, and (2) real earnings management strengthens the relationship between interlocked women directors and Q one year ahead. We contribute to literature in three-fold. First, we study the moderating effect of women directors' board attributes on the causal relationship between real and future performance. To our knowledge, to date, no study has addressed this problematic so far. The study of direct relationships between gender diversity and corporate outcomes may not be

enough to assess the quantitative effect of women directors. To do this, one suggestion of this study is to show that moderation tests can better measure the effect of gender diversity. Secondly, we conduct the study in a civil law country, a context that can induce high levels of real earnings management because a weak investor protection. Third, we contribute to the literature by providing evidence on the real consequences of the quota law on the gender composition of directors on the listed firm performance. Despite the scope of our study on the causal link between real earnings management and future performance, the results obtained nevertheless highlight the consequences of such legislation and, above all, evidence how newcomers influence firm's performance. This study has some limitations. First, it does not consider all board attributes, even though growing literature shows that other attributes contribute significantly to business results, such as women CEOs, women CFOs, nationality of women, women directors' ownership, and women as employee-elected board members. More widely, research is needed to investigate the effect of these board attributes on the causal link between REM and FP. Our results suggest women are legitimate because their attributes perform in the direction of curbing REM intensity, which moderates, *ceteris paribus*, the causal link between REM and FP. However, our results need to be taken with caution. Even if they show that, apart from specific contexts, some women directors' attributes stem REM, there is no indication that this finding applies to major corporate events (e.g., mergers and acquisitions, initial public offerings), during which information asymmetry problems are intense. These limitations suggest worthwhile avenues for further researc

Résumé: Cette thèse propose d'étendre les travaux sur la gestion des résultats dans le contexte français à partir d'un double objectif. Premièrement, elle explore l'effet de la santé financière sur la gestion des résultats à partir de très petites entreprises françaises (TPE). Les résultats mettent en évidence que les TPE en faillite font davantage appel à la gestion des résultats que les TPE non-faillite. L'ampleur de la gestion des résultats varie en fonction des profils des TPE. Deuxièmement, nous étudions l'effet des quotas de genre sur l'ampleur de la gestion des résultats et la performance des entreprises. Plus précisément, nous étudions l'effet des quotas de genre sur la qualité des résultats, d'une part, et l'effet modérateur des attributs des femmes administrateurs dans la relation causale entre la gestion réelle des résultats et la performance future. Sous ce prisme, dans la deuxième recherche, trois résultats émergent : La diversité des genres au sein des conseils d'administration est significativement associée de manière positive avec la qualité des résultats depuis la mise en œuvre des quotas de genre ; l'effet de la diversité des genres au sein des conseils d'administration sur la qualité des résultats, dépend de la distance avec des quotas de genre des entreprises pendant la période de transition ; et la diversité des genres au sein des conseils d'administration améliore la qualité des résultats pour les entreprises peu endettées et performantes. Dans la troisième étude, nous trouvons que les femmes administrateurs exerçant plusieurs mandats, expertes en comptabilité ou en finance, et indépendantes modèrent le lien de causalité entre gestion réelle des résultats et la performance future.

Mots clés : Qualité de l'information financière, gestion stratégique des résultats comptables, difficulté financière, gouvernance d'entreprise; diverité de genre au conseil d'administration; quota de genre.

Abstract : This thesis proposes to extend the work on incentives and mitigation mechanisms of outcome management in the French context. This research has two main objectives. In the first objective, concerning incentives for earnings management, we study the effect of financial health on earnings management using very small French firms. Our results reveal that bankrupt VSBs use earnings management more to increase earnings than non-bankrupt VSBs. The extent of earnings management varies among VSBs profiles. In the second objective, we study the effect of gender quotas on the extent of earnings management and firm performance. In two separate studies, we investigate the effect of gender quotas on earnings quality and the moderating effect of female managers' attributes on the causal relationship between real earnings management and future performance. Under this prism, in the first research highlights three findings emerge: gender diversity on boards of directors is significantly positively associated with earnings quality since the implementation of gender quotas; the effect of gender diversity on boards of directors on earnings quality, depends on the distance with gender quotas of firms during the transition period; and gender diversity on boards of directors improves outcome quality for low debt and high performance firms. In the third study, we find that women directors who are multi-tenured, accounting or finance experts, and independent moderate the causal link between real earnings management and future performance

Keywords: Financial reporting quality, Earnings management, Financial distress, Corporate governance;Board gender diversity; gender quota.