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Disclosing Directors

Law Working Paper N° 420/2018
October 2018

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Abstract

Is there a correlation between the composition of the board of directors and the quantity and quality of information disclosed to the market, and in particular with respect to the disclosure of privileged, price-sensitive information? Our work examines this question with respect to the Italian Stock Exchange, considering also the role of minority-appointed directors in light of the Italian rules on slate voting that facilitate the election of directors by institutional investors and other minority shareholders. Based on a unique data-set of hand-picked data, we answer the basic research question in the affirmative. Independent directors and minority-appointed directors appear to have a positive impact on the amount and, to some extent, quality of disclosure, in particular if their have specific professional and educational qualifications ("high-skilled directors"). We also tested if the market reacts to the information that is made public, in order to consider the possible objection that outside directors simply require more disclosure of unimportant information. The event studies we conducted, however, indicate abnormal return in correspondence of the announcements we considered. The study sheds light on the role of independent and minority-appointed directors suggesting that they foster corporate transparency.

Keywords: Corporate disclosure, independent directors, minority-appointed directors, priviledged information

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Disclosing Directors †

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Abstract Is there a correlation between the composition of the board of directors and the quantity and quality of information disclosed to the market, and in particular with respect to the disclosure of privileged, price-sensitive information? Our work examines this question with respect to the Italian Stock Exchange, considering also the role of minority-appointed directors in light of the Italian rules on slate voting that facilitate the election of directors by institutional investors and other minority shareholders. Based on a unique data-set of hand-picked data, we answer the basic research question in the affirmative. Independent directors and minority-appointed directors appear to have a positive impact on the amount and, to some extent, quality of disclosure, in particular if their have specific professional and educational qualifications ("high-skilled directors"). We also tested if the market reacts to the information that is made public, in order to consider the possible objection that outside directors simply require more disclosure of unimportant information. The event studies we conducted, however, indicate abnormal returns in correspondence of the announcements we considered. The study sheds light on the role of independent and minority-appointed directors suggesting that they foster corporate transparency.

Keywords Board of directors – Disclosure – Independent directors – Minority-appointed directors – Corporate governance –Inside information

"*Seldom, very seldom, does complete truth belong to any human disclosure;*
Seldom can it happen that something is not a little disguised, or a little mistaken."
— Jane Austen, Emma

1. Introduction

In a companion piece, entitled "*Dissenting Directors*", we examined empirically expressions of dissent within boards of directors of listed corporations discussing when, on what grounds, and with what consequences directors disagree with each other either voting "no" to specific resolutions, or resigning their position.[1] Among other results, we found a positive correlation between the fact that a director is appointed by minority shareholders and her inclination to sing from a songbook different from the one used by other board members.[2]

In this Article we address a related question: whether the presence of independent (or "outside") directors and of minority-appointed directors influences the quantity and quality of disclosure pursued by listed corporations. To anticipate our findings, we identify a positive link between the presence of independent and minority-appointed directors and corporate transparency, thus corroborating the validity of the commonly-held belief that independent directors have a positive role in terms of investors' protection and, even more importantly and significantly, that minority-appointed directors foster disclosure transparency.

While we believe that our results can be extended to different jurisdictions, we once again concentrate the analysis on the Italian legal system for reasons similar to the ones explained in *Dissenting Directors*. In terms of disclosure obligations, especially after the coming into force and implementation of the European Union (EU) Market Abuse Regulation (MAR)[3] and Market Abuse Directive (MAD)[4],

[1] Marchetti et al. (2017).
[2] Marchetti et al. (2017).
[3] Regulation (EU) No. 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation) and repealing Directive 2003/6/EC of the European Parliament and of the Council and Commission Directives 2003/124/EC, 2003/125/EC and 2004/72/EC [2014] OJ L 173/1–61.

harmonizing the field, Italian law presents a regulatory framework very similar to other EU countries. Similarly, Italian statutory and self-regulation provisions concerning the composition of the board conform with the best international standards. Roughly a decade ago, Italy introduced however also a list (or slate) voting system that facilitates the appointment of a limited number of directors nominated by minority shareholders or, more generally, by shareholders different from the controlling shareholder (often institutional investors or hedge funds), injecting an element of proportionality in the election of the board. Also other legal systems mandate or facilitate the possible representation on the board of diverse stakeholders;[5] the Italian system provides, however, a uniquely simple, straightforward and true and tried approach that makes our study particularly relevant. If, in fact, especially the economic literature has tackled the relationship between board composition and corporate disclosure, we believe that the current Italian situation offers a precious laboratory for this type of inquiry, both unique and applicable to other systems.

The task at hand is made easier by our previous research, both because we already have a hand-picked and consistent dataset that could partially be used also in this work, and because we can refer to our previous Article for the discussion of the applicable legal rules and other background information. In this work, therefore, after a brief contextualization of the issue, we will immediately concentrate on our major results.

More precisely, the Article is organized as follows. First, we offer a brief overview of the literature concerning the correlations between board composition and disclosure. Second, we explain the most relevant legal rules concerning board composition and disclosure applicable to listed corporations. Third, we illustrate our data and some methodological issues. Finally, we present our empirical results addressing the possible effect of independent directors on corporate disclosure generally, and of minority-appointed directors on disclosure of price-sensitive information. Our conclusions consider the corporate governance implications of the evidence gathered.

2. Overview of the Existing Literature

Prior literature–primarily focusing on Anglo-Saxon systems in which corporations present a rather widespread ownership structure–argues that independent directors have a special role in limiting agency problems by reducing the risk of collusion with the top management or controlling shareholders.[6] For

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[4] Directive 2014/57/EU of the European Parliament and of the Council of 16 April 2014 on criminal sanctions for market abuse (market abuse directive) [2014] OJ L 173/179–189.

[5] Aside from the well-known "co-determination" system (*Mitbestimmung*) in Germany, that mandates the representation of employees in the board of supervisors of larger corporations, several jurisdictions, both in Europe and abroad, promote board diversity by providing for the appointment of independent and minority directors. Just to mention a few examples: in the U.K., for premium listed companies, Listing Rule 9.2.2.ER requires that the election of any independent director must be approved by the 'independent shareholders' (*i.e.* shareholders different than the controlling shareholder). In Spain, Article 243 of the *Real Decreto Legislativo 1/2010* allows (minority) shareholders of *sociedades anónimas* to group together in order to appoint one or more directors. As for the U.S., independent directors have gained particular prominence in listed corporations, as stock listing standards, in conjunction with the Sarbanes-Oxley Act and the Dodd-Frank Act, require a majority of the board to be independent. Additionally, case law and regulatory evolution has facilitated proxy access, making it easier for small shareholders to indicate candidates to the board of directors. Other interesting examples are offered by Brazil and Israel: Article 141 of the Brazilian Corporate Law provides for cumulative voting to ensure board representation for minority shareholders (*voto múltiplo*) and also reserves to minority shareholders that hold a minimum threshold of voting rights the appointment of a minority director, while in Israel the appointment of outside directors requires the approval by the majority of the minority shareholders (*see* Article 239, Israeli Corporate Law). For further references, see Davies and Hopt (2013); Davies et al. (2013); Gordon (2007); Recalde Castells et al. (2013); Salam and Prado (2011); OECD (2012).

[6] *Ex multis*, Fama and Jensen (1983).

example, several studies find that independent directors reduce the occurrence of financial statement fraud[7] and are important in lowering agency costs in particular settings[8]. These studies rely on the argument that corporate disclosure is important to reduce agency frictions between managers and owners. The findings, however, are not always consistent mostly because of differences among national settings and in the operationalization of disclosure.[9]

Several studies consider Asian countries. For example, Chen and Jaggi[10] observe that the total number of independent directors on corporate boards is positively related to the comprehensiveness of mandatory financial disclosures in Hong Kong. They also show that this association is not significant in firms with highly concentrated ownership. Relatedly, Ho and Wong[11] do not find a significant relationship between the proportion of independent directors and voluntary disclosure of listed firms in Hong Kong. A similar conclusion is reached by Haniffa and Cooke[12] in a study on listed firms in Malaysia. In contrast, Eng and Mak[13] find that an increase in outside independent directors decreases corporate disclosure in Singapore.

One interesting study was conducted on U.S. firms. Armstrong, Core and Guay[14] examine a regulatory shock that substantially increases the number of independent directors on the board. Using a broad sample of 1,849 firms in the United States, the authors observe that proxies of information asymmetry (bid-ask spreads), and to some extent management disclosure (*i.e.*, management forecasts, accounting quality) and financial intermediation (*i.e.*, number of analysts following the firm), improved only at firms that were substantially affected by this shock. In general, their results support the notion that board composition affects corporate transparency, and specifically that independent directors require more transparency in their controlling role. Overall, these studies show, with some exceptions, that independent directors can and do influence corporate disclosure.

Some recent studies, however, indicate that the relation between independent directors and corporate transparency/disclosure is not univocal and more nuanced than it might seem at a more intuitive level. For example, Wang, Xie and Zhu[15] (2015) find that the industry expertise of independent directors has a positive effect on board monitoring and disclosing effectiveness. They observe that the presence of independent directors with industry experience on a firm's audit committee significantly curtails the earnings management practices of the firm.[16] Furthermore, they find that a greater presence of independent directors with industry expertise on a firm's compensation committee reduces chief executive officer (CEO) excess compensation, increases the CEO turnover performance sensitivity, and positively affects acquirer's returns from diversifying acquisitions. These data confirm a reasonable expectation: not all independent directors are equal, and additional professional qualifications might be crucial in determining the effectiveness of the monitoring role of non-executive directors.

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[7] Beasley (1996).
[8] Brickley and James (1987); Weisbach (1988); Kosnik (1990); Lee et al. (1992); Bushee and Noe (2000); Erhardt et al. (2003).
[9] See, on the topic, Courtis (1979); Chow and Wong-Boren (1987); Wallace et al. (1994); Hossain, Perera and Rahman (1995); Meek et al. (1995); Raffournier, (1995); Depoers (2000).
[10] Chen and Jaggi (2000).
[11] Ho and Wong (2001).
[12] Haniffa and Cooke (2002).
[13] Eng and Mak (2003).
[14] Armstrong et al. (2014).
[15] Wang et al. (2015).
[16] Schipper (1989) defines earnings management as '*a purposeful* intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to, say, merely facilitating the neutral operation of the process)....' (emphasis added).

Relatedly, there are studies that provide evidence that professional skills, other than industry-specific skills, do also matter in the market assessment of information issues. In a recent and somehow peculiar work by Quan and Li[17], it is argued that in China, when firms violate information disclosure rules, investors tend to "punish" more severely firms with academic independent directors than firms with non-academic independent directors, something that the Authors explain with a possible greater reputational damage that directors with high academic credentials generate to the company in case of a possible violation of the law. While the explanations of these findings are questionable, the Authors suggest an excess drop in cumulative abnormal returns in the three days around the date of the discovery of the violation of 2.8%, on average, compared to the corresponding drop exhibited by firms with non-academic independent directors on the board.

In another paper, Cao, Dhaliwal, Li and Yang[18] report that social networks between independent directors and other executive board members are associated with directors' trading profitability in the United States. Specifically, independent directors that are socially connected to their firms' executives earn higher returns than those earned by unconnected independent directors when selling their shares. In addition, they observe that the trading returns of independent directors previously unconnected with the executives of the corporation increase after the arrival of a connected executive and decrease after the connected executive leaves the firm.

Overall, these studies might be interpreted in the sense that while all meeting the formal definition of independence, not all independent directors appear to have access to an identical quantity and quality of corporate information, and have the same effectiveness in fostering corporate transparency.

Our caveat is in any case necessary, considering how the literature we have briefly mentioned deals with both mandatory and voluntary disclosure. As we will discuss in Sect. 3.2 below, there are not always clear-cut rules to distinguish between voluntary and mandatory disclosure. For instance, a firm can voluntarily disclose information about new products in a mandatory financial document such as an earnings announcement press release.[19] The release can therefore not only inform investors about a company's profitability during a specific time period, but may also convey additional qualitative information about the future economic prospect of the company on a voluntarily basis.[20] An even more subtle question arises when directors disclose to the market an information classifying it as price-sensitive. Disclosing as soon as possible all price-sensitive information, pursuant to the "parity-of information" approach adopted in the EU, is generally mandatory; however, the board has a certain degree of discretion in assessing whether a piece of information fits into the relevant definition. Reasonable minds, for example, can disagree on when an event might be price-sensitive. Consequently, the public announcement might actually concern price-sensitive information, but directors might also err on the side of caution and treat as mandatory the disclosure of a non-price-sensitive events. For these reasons, we rely on a more comprehensive measure of disclosure (Sect. 4.1), which is not limited to financial reporting information, but encompasses all relevant information disclosed by the firm in press-releases and similar communications.

In addition, with respect to existing work that focuses on independent directors, we have the opportunity of testing the impact of another important feature of Italian corporate governance: the list voting system that allows the appointment of a limited number of directors selected by minority

[17] Quan and Li (2017).
[18] Cao et al. (2014).
[19] See Hoskin et al. (1986), Francis et al. (2002).
[20] *Inter alia*, see Francis et al. (2002).

shareholders or, more generally, by shareholders different from the controlling shareholder. In the last part of the study (Sect. 4.5), as anticipated, we will in fact explore the role of minority-appointed independent directors on the disclosure of inside information pursuant to the EU market abuse regime.

3. Board Composition and Disclosure: The Legal Framework

3.1. Board Composition in a Nutshell

Italian law and self-regulation, coherently with some of the best international practices, require a "diverse" composition of the board of directors of listed corporations. More specifically, pursuant to Art. 147-*ter* of the so-called "Testo Unico della Finanza" (Consolidated Law on Finance, hereinafter "TUF"), a minimum of one–two if the board has more than seven members–director must qualify as independent. The applicable definition, akin to similar definitions in other jurisdictions, is set forth in Art. 148. The independence requirement (applicable also to all the members of the board of statutory auditors) defines as non-independent directors related to other members of the board of the corporation (or of other corporations of the same group), and individuals who entertain with the corporation or its group employment, professional or economic relationships that compromise their independence.[21]

This broad and flexible (if not vague) definition is somehow clarified and made more rigorous by the Corporate Governance Code voluntarily applicable by listed corporations based on a "comply-or-explain" approach. Art. 3 of the Code requires that '[a]n adequate number of non-executive directors shall be independent' and spells out additional detailed criteria to qualify a director as independent.[22] We do not need to examine these rules in detail, suffice it to say that the exemplifications contained in the Code are very analytical and that the vast majority of the issuers comply with the Code on this specific issue[23]. As a consequence, Italian boards present a significant and growing number of independent members, as illustrated in Figure 1 below.

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[21] Regoli (2006), pp. 407-414; Belcredi and Caprio (2015), pp. 20-24.

[22] The Code requires the board of directors to evaluate the independence of its non-executive members 'having regard more to the substance than to the form' and provides an illustrative and non-exhaustive list of independence criteria. In particular, a director is normally not considered independent if (*i*) she controls, directly or indirectly, the issuer or is able to exercise a dominant influence over the issuer, or participates in a shareholders' agreement through which one or more persons can exercise a control or dominant influence over the issuer; (*ii*) she is, or has been in the previous three fiscal years, a significant representative of the issuer, of a subsidiary having strategic relevance or of a company under common control with the issuer, or of a company controlling the issuer or able to exercise over the issuer a considerable influence, also jointly with others through a shareholders' agreement; (*iii*) if she has, or had in the previous fiscal year, directly or indirectly, a significant commercial, financial or professional relationship with the issuer, one of its subsidiaries, or any of its significant representative, or with a subject who controls the issuer, or if she is, or has been in the previous three fiscal years, an employee of the above-mentioned subjects; (*iv*) if she receives, or has received in the previous three fiscal years, from the issuer or a subsidiary or holding company of the issuer, a significant additional remuneration compared to its fixed remuneration, also in the form of participation in incentive plans linked to the company's performance, including stock option plans; (*v*) if she was a director of the issuer for more than nine years in the last twelve years; (*vi*) if she is an executive director of another company in which an executive director of the issuer holds the office of director; (*vii*) if she is shareholder or quotaholder or director of a legal entity belonging to the same network as the company appointed for the auditing of the issuer; (*viii*) if she is a close relative of a person who is in any of the positions mentioned above. See generally Regoli (2008).

[23] Assonime, Emittenti Titoli S.p.A. (2018), pp. 34-35, 185, Table 51. The criteria that is more frequently not applied is the 9-year limit to the tenure of a director as a condition to be qualified as independent (considering that, under Italian law, the board is generally appointed every three years).

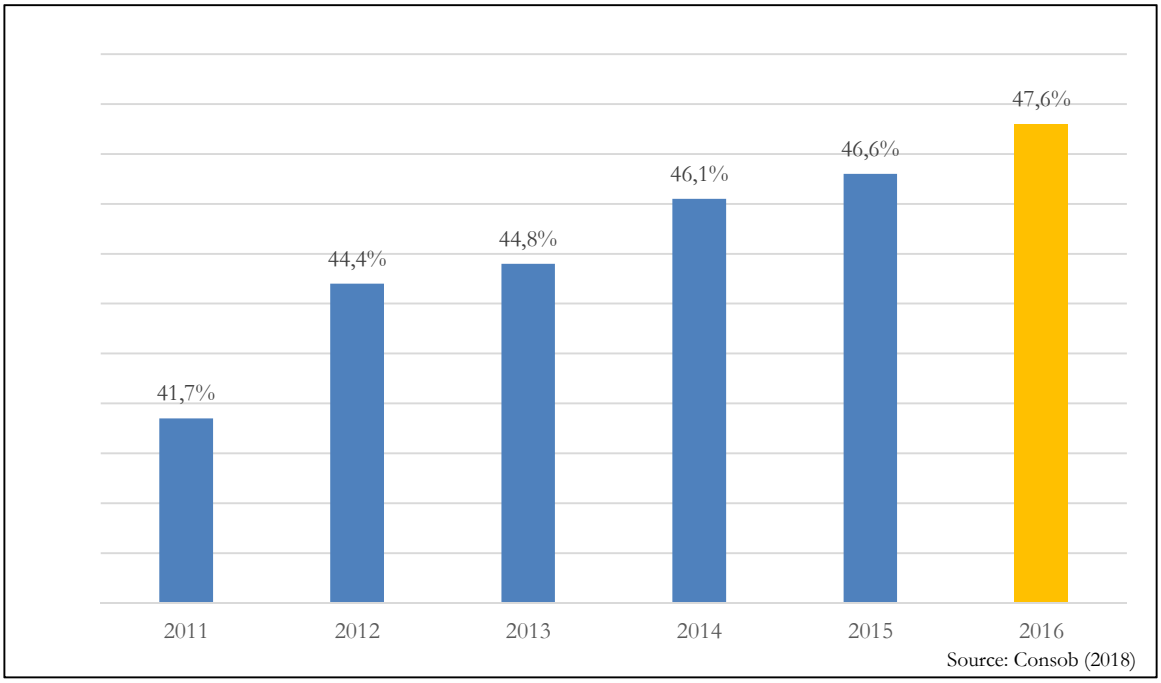


Fig. 1 Trend in the percentage of independent directors on boards of Italian listed corporations

As already mentioned, a peculiar feature of the Italian system, and one that contributes to make it especially interesting for our empirical analysis, is the fact that the law mandates the adoption of a proportional voting system called "list-voting" (and regulated also in Art. 147-*ter* TUF, in addition to secondary rules enacted by Consob, the Italian financial markets supervisor)[24].

In brief and as already discussed in our companion piece, listed corporations are required to allow all shareholders owning a minimum percentage of voting shares (variable proportionally to the capitalization, but generally in between 1 and 2%) to present a slate of candidates.

Shareholders vote the different lists and the bylaws must ensure that at least one director will be selected from the list that receives the second highest number of votes and is not "related" to the most-voted list. For example, consider the case that some de-facto controlling shareholder owning 41% of the voting shares presents a list of nine directors for the nine available seats; and a group of institutional investors collectively possessing 5% of the voting securities presents a "short slate" with three nominees. If, at the following shareholders' meeting, the first list receives 52% of the votes cast (the ones of the shareholder who presented it, plus additional votes of non-affiliated shareholders), and the second list reaches 9% of the votes, one director must necessarily be picked from the latter. In short, this is a capped proportional voting system with a significant "majority premium" if the second list receives more than a certain percentage of votes, and a "minority premium" if the second list receives less than a certain percentage of votes.

As a matter of fact, several bylaws, especially of larger corporations, possibly also under the pressure of market forces and institutional investors, have opted for going above the minimum legal requirement and have made room for two or three minority-appointed directors. Empirical data show that the average number of directors appointed by the minority is approximately two, as Figure 2 indicates.

[24] See Stella Richter Jr. (2016); Alvaro et al. (2012); Belcredi et al. (2013).

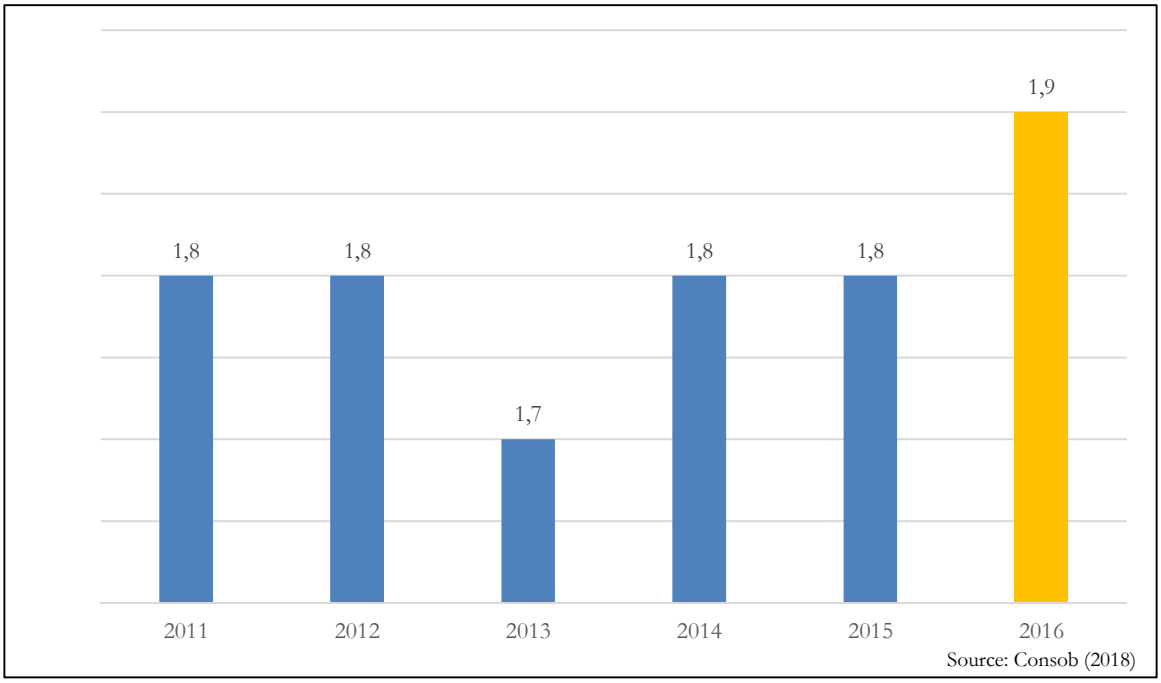


Fig. 2 Average number of minority-appointed directors on boards of Italian listed corporations (end of the year)

Another diversity indicator concerns gender. Law No. 120 of 2010 (so-called "Golfo-Mosca", from the names of the members of parliament who proposed it) requires one third of the board to be composed of directors belonging to the "least-represented" gender – practically, this clearly means females. It shall be noted that this requirement will be mandated only through 2023, and its application has been phased in gradually[25]. The impact has been significant, contributing to the breaking of the "glass ceiling" and pushing Italy among the most virtuous European countries along this metric (*see* Figure 3)[26].

[25] See Calvosa and Rossi (2013), pp 13 et seq.
[26] See also Cerved (2018).

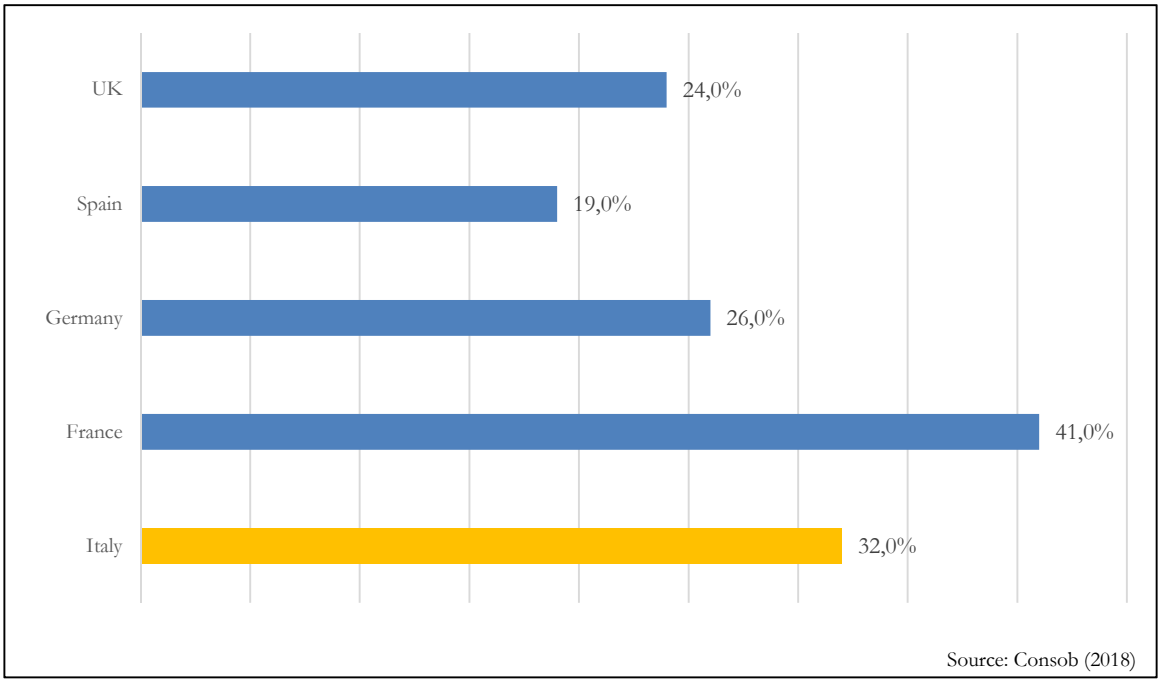


Fig. 3 Percentage of women on boards in Italy *vs.* some EU countries (2016)

While not mandated by law, as a matter of fact boards also present a diverse composition in terms of academic backgrounds, professional profiles and expertise, age and–to some degree–nationality[27].

In sum, Italy presents quite diverse boards of directors, in line with–if not, along certain measures, more progressive than–the most advanced European systems[28]. These features of the Italian stock market allow an interesting analysis of the impact of board composition on disclosure, an analysis whose results, also for the reasons explained in the following sections, can easily be compared with, and partially extended to, other jurisdictions.

3.2 Voluntary and Mandatory Disclosure

A complete discussion of disclosure to the public of corporate events and relevant information would be both impossible in the space we have and, more importantly, beyond the scope and the methodological approach of this Article[29]. Our goal in this section is simply to depict, in broad strokes, the background against which our empirical findings should be placed.

To begin with, it should be noted that while individual directors have a general obligation of confidentiality, the board of directors as a collective body or single delegated directors or committees are in principle free to disclose to the market any information they deem relevant. Obvious limitations concern the truthfulness and completeness of statements and documents issued, and additional restrictions derive from directors' fiduciary duties: confidentiality obligations might apply, for example, to legitimate trade secrets or other information that, if made public, might prejudice the issuer[30].

More precisely, the decision to disclose particular information might either be lodged within the board of directors or delegated directors. Single directors are bound to a general duty of confidentiality on

[27] See Linciano et al. (2017).
[28] See Linciano et al. (2017).
[29] See, e.g., Macrì (2010); Enriques and Gilotta (2015).
[30] Montalenti (2013); Gilotta (2012).

the information they obtain by virtue of their position: they cannot and should not unilaterally make public disclosures outside of the official and formally determined communication channels of the corporation. The basic point, however, is that while there might be limits to selective disclosure, especially of inside information, to third parties, there are no rigid and *ex ante* defined limits to what a corporation can decide to make public through the proper, designated corporate bodies and procedures.

On the other hand, listed issuers have specific positive duties to disclose certain information. Simplifying to the extreme, on the one hand we find specific information, data, events, opinions, and so on, that the law explicitly mandates to disseminate, often periodically. The list would be extraordinarily long, ranging from financial statements, semester reports, to specific corporate transactions and events[31]. To offer a recently introduced example, corporations must publish a "Non-Financial Declaration" pursuant to Directive 2014/95/UE (implemented in Italy by Legislative Decree No. 254 of 2016) informing the public on their social and environmental policies and impact[32]. Another example might be the necessity to indicate the value of the shares in case a shareholders' meeting has been called to decide on a matter that might trigger shareholders' appraisal (or withdrawal) rights (art. 2437 ff. of the Italian Civil Code)[33]. As in most evolved legal systems there is, in other words, a very detailed set of information that must be made available to the market independently from any evaluation of its relevance by the board or the issuer, based on an assessment made by the legislator.

Finally, and very importantly for our discussion, the EU MAR applicable in all Member States, including in Italy, since July 2016 requires–as a default rule–disclosure of any "inside information", meaning–for our purposes–information 'of a precise nature, which has not been made public, relating, directly or indirectly, to one or more issuers or to one of more financial instruments, and which, if it were made public, would be likely to have a significant effect on the prices of those financial instruments or on the price of related derivative financial instruments' (Art. 7 MAR).

Insider trading rules prohibit anyone who has access to this type of information from trading on their basis and from disclosing it to third parties or suggesting trading on the basis of the inside information, a rule that in the past was used to be expressed with the formula "*disclose or abstain*." In light of the current European approach, however, it would now be preferable to adopt the formula "*promptly disclose and abstain until disclosure*." The reason is that there is an almost perfect overlapping between the notion of inside information that needs to be disclosed to the market "as soon as possible," and the one that triggers the prohibition to trade. Consequently, if the law is respected, inside information should have a very short "shelf life" in terms of confidentiality, because it is mandatory to make it public as early as possible (considering the time necessary to prepare, file with the authorities and publish a complete and correct statement)[34]. Once the information has been disclosed, it is obviously no longer "inside", and trading is allowed.[35]

The MAR sets forth, however, at least one possible and important exception to this duty to disclose. In fact, an issuer can activate under its responsibility a special procedure called "delay," and postpone the dissemination of inside, price-sensitive, confidential information. Three conditions must be met to enjoy this exception: (a) immediate disclosure would hinder the legitimate interests of the issuer (for

[31] See Marchetti (2007), pp 143 et seq.
[32] Guglielmetti (2018); Consiglio Nazionale dei Dottori Commercialisti e degli Esperti Contabili (2017).
[33] See, e.g., Ventoruzzo (2012).
[34] Ventoruzzo (2017), p 14.
[35] To be more precise, additional limitations might apply to primary insiders and might derive from contractual obligations, but the general framework is the one briefly described in the text.

example, by derailing an important negotiation); (b) non-disclosure is not misleading for investors; and (c) the issuer can ensure that the information will be kept confidential[36]. Under these circumstances, therefore, the issuer might possess inside information that is not immediately made public and, of course, in this scenario whoever is aware of the information is barred from trading and to disclose the information to third party if not in the exercise of a profession, employment or duty and under a duty of confidentiality (*e.g.*, communicating with a lawyer to discuss the legal implications of a transaction). These rules attribute to the board of directors–or other relevant decision-makers–a certain degree of discretion in timing the publication of sensitive information.

Equally crucial for our study is another consideration. As briefly mentioned above, the definition of inside information subject to the general duty to disclose, while broad and often interpreted extensively by case law and supervisors[37], is not a hard-and-fast one[38]. Intuitively, it includes ambiguous elements–especially with respect to the requirement that it might be able to affect market prices and investment decisions–that necessitate a judgment call[39]. At least in some cases, different interpretations are possible on what constitutes inside information. This feature of the applicable legal regime leaves room to different approaches toward transparency within the board, with the fundamental consequence that board composition might have an impact on the propensity to disclose.

It must also be observed that case law and regulators have adopted a rather expansive notion of inside information, and some recent decisions create a certain degree of uncertainty, notwithstanding the widespread adoption of non-binding "Guidelines" by European and national Securities Supervisors[40], including by Consob, the Italian regulator[41].

Just to offer a few examples, in three recent important decisions, based on the previous regulatory framework but largely still applicable, the European Court of Justice has–simplifying–determined that: (a) there is a rebuttable presumption that whoever trades while in possession of inside information is using such information, with the consequence that supervisors and prosecutors do not need to prove *actual* use of the undisclosed information, a principle now stated by the MAR[42]; (b) intermediate steps of a prolonged process (*e.g.*, a merger or the resignation of a director) might be relevant in themselves as inside information, and also this one is a rule that the MAR has reinforced[43]; and (c) information can be precise even if it is impossible to anticipate the "direction" of its impact on prices once disclosed (whether prices will go up or down): the mere fact that it might affect volatility would suffice.[44] In addition, the Italian Supreme Court has recently tightened the interpretation of market abuse rules, holding in two important and controversial decisions that: (a) the mere intention to put in place a transaction, *e.g.*, a tender offer aimed at delisting the target, even if not shared with third parties, might constitute inside information and impose a limitation on trading before the specific transaction has not

[36] Article 17(4) MAR. See Moloney (2014), pp 730 et seq.
[37] The definition of inside information has been the focus of several cases decided by the European Court of Justice. *See infra* in the text for a discussion of the relevant decisions. For a discussion of the notion of inside information, also in a comparative perspective, see Ventoruzzo (2014).
[38] See Moloney (2014), pp 718 et seq.; Ventoruzzo and Picciau (2017), pp 186 et seq; Hansen (2016), pp 3 et seq. See also Di Noia and Gargantini 2012), pp 485 et seq.
[39] See generally Moloney (2014), pp 722-723.
[40] See in particular ESMA (2017); ESMA (2016).
[41] Consob (2017).
[42] ECJ Case C-45/08 *Spector Photo Group NV v. CBFA* [2009] ECLI:EU:C:2009:806. For a discussion of this case, see, e.g., Klöhn (2010); Hansen (2010).
[43] ECJ Case C-19/11 *Gelt v. Daimler* [2012] ECLI:EU:2012:397. See Krause and Brellochs (2013); Hellgardt (2013)
[44] The rationale might be that the mere knowledge of an event affecting volatility might allow to speculate in derivative instruments: see ECJ Case C-628/13 *Lafonta v. Autorité des marchés financiers* [2015] ECLI:EU:C:2015:162. On this decision see Klöhn (2015).

been announced;[45] and, (b) that certain information, *e.g.*, the data contained in a draft budget, might be relevant, and therefore subject to the duty to disclose (and corresponding prohibition to trade) before they have been formally approved by the competent corporate body (*e.g.*, the board of directors). Delaying disclosure on this information even for the few days necessary to call a meeting of the competent body to approve the document or the transaction might breach the obligation to disclose as early as possible.[46]

These decisions have raised a lively debate, and especially the Italian ones mentioned above are questionable. Our point here, however, is not to engage in a discussion on the merits of these judgments, but rather to convey the idea that case law on this issue tends to embrace a rather extensive interpretation of what information should be given to the market and when, causing uncertainties concerning the precise boundaries of the notion of inside information.

Based on the framework summarized above, it should be clear that not only with respect to purely voluntary disclosure, but also with respect to "mandatory" disclosure, there are no mechanical rules that can be easily applied with a binary approach. On the contrary, even excluding intentional violations of the law, ambiguities, different bona fide interpretations, more or less conservative approaches, and heterogeneous inclinations of board members might lead to different levels of disclosure in terms of quantity and, to some extent, quality. This wiggle room allows us to examine the correlation between board composition and corporate disclosure.

One methodological note is important before dwelling into the empirical analysis. One of the periods we considered in this work, to investigate the role of independent directors in fostering disclosure, is–as explained below–2005-2015. It precedes the entry into force of the new rules mentioned above (2016). However, for our purposes, the previous legal framework was sufficiently similar, especially with respect to the definition of inside information and the generalized duty to disclose it. In fact, some of the cases we just mentioned were based on the rules applicable before the MAR. The brief explanation of disclosure obligations and case law above, therefore, while referring to the MAR, offers a correct background for our findings. In any case, when we will specifically consider the disclosure of price-sensitive information in Sect. 4.5 below, we will focus on the year 2017, in which MAR was already applicable.

4. Empirical Evidence

4.1. Our Dataset and Research Design

Our empirical analysis is based on a sample of Italian listed firms with all available data to execute the analyses described below. Table 1 below provides the sample selection.

Table 1 Sample description

	Firms	Firms/years
Firms with board data	275	
Firms with no disclosure data available	(52)	
Total number of firms (firm/years) with disclosure data available	223	2,003

[45] Cass. 16.10.2017, n. 24310.
[46] Cass. 14/02/2018, n. 3577.

For our firm disclosure analysis, we start with a sample of 275 Italian firms in Compustat Global. We remove 52 firms that have no disclosure data available in Key Development-Capital IQ.[47] After removing these firms, we have 223 firms (about 75% of the Italian listed firms) and 2,003 observations during the 2005–2015 period. We use this sample to examine the association between board composition and corporate disclosure. Based on prior literature[48], we adopt the following OLS model in Eq. (1) for our first set of tests:

$$disclosure_{i,t} = \beta_0 + \beta_1 ind_dir_{i,t} + \beta_2 for_sales_{i,t} + \beta_3 us_listed_{i,t} + \beta_4 concentration_{i,t} + \beta_5 size_{i,t} + \beta_6 roa_{i,t} + \beta_7 ret_vol_{i,t} + \beta_8 gdp_{i,t} + \sum \beta_\delta Year_FE_\delta + \sum \beta_k Industry_FE_k + \varepsilon_{i,t} \quad (1)$$

Our dependent variable in Eq. (1), *disclosure*, is an aggregate measure of all news disclosed by firm *i* during a fiscal year. Specifically, this variable is computed as the sum of all (heterogeneous) disclosures made by firm *i* in year *t*, as reported in Key Development-Capital IQ.

Our independent variable is *ind_dir*, computed as the percentage of independent directors over the total number of directors serving on the board of firm *i* in year *t*. We include a battery of control variables to account for the possible impact of factors other than independent directors on firm's disclosures.[49] We use the ratio of companies' foreign sales to total sales (*for_sales*) to proxy for the degree of internationalization because firms that are more internationally exposed may have incentives to release more disclosures. We also include an indicator variable for cross-listed firms on US stock exchanges (*us_listed*) because firms cross-listed in this market are subject to additional disclosure standards imposed by the United States Stock Exchange Commission (SEC).[50] We also control for the level of ownership concentration (*concentration*)[51] because less diversified owners are more likely to resolve information asymmetries via private channels.[52] Firm size (*size*) is also used as a control variable because large firms are generally exposed to a greater array of investors and are thus expected to disclose more information than smaller firms[53], and we take into account firm performance (*roa*) because managers may delay disclosure of bad performance news relative to good performance news.[54] Finally, we use firm risk (*ret_vol*) as approximated by the standard deviation of daily stock returns of firm *i* in year *t*. In Eq. (1), we also include industry- and year- fixed effects to account for invariant unobserved heterogeneity within industries and year, which subsume common factors such as the financial crisis or differences in industry disclosure requirements. We draw our statistical inference on standard errors clustered by firm and by year to control for cross-sectional dependence across firms and time[55].

Table 2 presents the descriptive statistics for the raw variables used in Eq. (1). On average, sample firms make about 20 disclosures during the year and the percentage of independent directors in the board is 41%, in line with the evidence in Figure 1. In addition, they realize 29% of total sales abroad and 14% of them have stocks listed also on US stock exchanges. The level of ownership concentration for the average firm is 29% and the average total assets amount to about 12 billion euros. The mean

[47] Key Developments provides structured summaries of material news and events that may affect the market value of securities. It monitors over 100 types of disclosures including executive changes, M&A rumors, changes in corporate guidance, delayed filing. This database is also used by Cao et al. (2017) as a source of firm's disclosure.
[48] Glaum et al. (2013).
[49] *Inter* alia, see Cooke (1989); Wallace, Naser and Mora (1994); Welker (1995); Leuz and Verrecchia (2000); Heflin et al. (2005); Lapointe-Antunes et al. (2006).
[50] Lang et al. (2006); Leuz (2006).
[51] Leuz et al. (2003); Leuz (2006).
[52] See Haw et al. (2004).
[53] Lang and Lundholm (1996).
[54] Kothari et al. (2008).
[55] Petersen (2009).

return on assets (*roa*) is 1% and the mean standard deviation of daily stock returns during the year is 0.02. Because the dependent variable shows a skewed distribution, instead of using raw data in the analysis, we log-transform our dependent and independent variables, *disclosure* and *ind_dir*, so as to make the economic interpretation of the mean coefficient of interest, β_1, more straightforward: this coefficient is the estimated percent change in *disclosure* for a percent change in *ind_dir*. For a detailed definition and sources of the variables in Eq. (1), please see the Appendix.

Table 2 Descriptive statistics for the raw values of the variables defined in the Appendix

Variables	N	Mean	SD	1Q	Median	3Q	Min	Max
disclosure	2,003	19.90	20.15	8.00	15.50	25.00	1.00	211.00
ind_dir	2,003	0.41	0.18	0.29	0.38	0.53	0.00	1.00
for_sales	2,003	0.29	0.33	0.00	0.12	0.58	0.00	1.08
us_listed	2,003	0.14	0.34	0.00	0.00	0.00	0.00	1.00
concentration	2,003	0.29	0.18	0.15	0.29	0.40	0.00	0.99
size	2,003	11,997.93	56,812.71	149.31	453.11	2,985.68	0.05	676,500.00
roa	2,003	0.01	0.22	–0.01	0.00	0.02	–0.84	8.74
ret_vol	2,003	0.02	0.01	0.02	0.02	0.03	0.00	0.15

This table presents the descriptive statistics for the raw values of the variables included in Eq. (1).

Table 3 provides the Pearson/Spearman correlation matrix reporting univariate relations among the variables in Eq. (1). Our dependent variable, *disclosure*, is significantly correlated to all dependent variables, except for *roa*. More importantly, we find preliminary evidence of a positive relation between corporate disclosure (*disclosure*) and the percentage of independent directors in the board (*ind_dir*) (both the Pearson and Spearman coefficients are about 0.25 and statistically significant at 1% level). We also find a positive relation between *disclosure* and the percentage of foreign sales, cross-listing status in the US, and size. In contrast, we observe a significant negative relation with *concentration* and *ret_vol*, suggesting that less diversified and more risky corporations are associated with fewer disclosures.[56] These findings reveal the importance of controlling for these factors in our multivariate analysis in Eq. (1).

Table 3 Pearson (below the diagonal) and Spearman (above the diagonal) correlation matrix (N = 2,003)

Variables	disclosure	ind_dir	for_sales	us_listed	concentration	size	roa	ret_vol
disclosure		0.247***	0.18***	0.417***	–0.248***	0.591***	0.011	–0.167***
ind_dir	0.254***		–0.085***	0.221***	–0.131***	0.266***	0.030	–0.097***
for_sales	0.172***	–0.039*		0.184***	0.117***	0.034	0.039*	0.054**
us_listed	0.403***	0.227***	0.164***		–0.174***	0.387***	0.009	–0.081***
concentration	–0.261***	–0.143***	0.129***	–0.178***		–0.148***	0.002	–0.064***
size	0.595***	0.271***	–0.015	0.419***	–0.218***		–0.034	–0.252***
roa	0.001	–0.004	0.007	0.002	–0.001	–0.011		–0.059***
ret_vol	–0.152***	–0.084***	0.003	–0.096***	–0.037*	–0.221***	0.031	

This table presents the (Pearson and Spearman) correlation coefficients for the variables included in Eq. (1). All variables are defined in the Appendix. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.2 Main Findings

In Table 4, we provide the estimates of Eq. (1). In Column (1), we first estimate a reduced form of Eq. (1), where we only include *ind_dir*, while in Column (2) we include also industry- and year- fixed effects. In line with the evidence in the correlation table (*see* Table 3), Column (2) shows a positive and significant relation between independent directors and firm disclosure. Specifically, we find that, after

[56] See Fan and Wong (2002); Healy and Palepu (2001).

controlling for industry and year heterogeneity, a 10% increase in the percentage of independent directors in the board is associated to a 15% increase in the number of disclosures announced to the market during the year. When we add the control variables, industry- and year- fixed effects in Column (3), the results are similar. The coefficient on *ind_dir* equals 0.649 (*p*-value = 0.003). This result implies that, on average, an increase of 10% in the percentage of independent directors serving on the board is associated to a 6.5% increase in the number of disclosures announced to the market. Note that this result is quite significant. Expressed in different terms, it means that if a corporation goes from two to four independent directors, there would be a 100% increase in the percentage of independent directors and, therefore, a 65% increase in disclosures.

Moreover, we observe that corporations disclosing more (more "transparent", one might say) are on average more international (the coefficient on *for_sales* is 0.324), cross-listed in the US (the coefficient on *us_listed* is 0.152), and larger in size (the coefficient on *size* is 0.276); while firms with a more concentrated ownership structure disclose less (the coefficient on *concentration* is –0.882). Overall, the evidence in Table 4 supports the notion that more independent directors are associated to a richer disclosing environment.

We are of course aware that the mere number of disclosure events is not necessarily an indicator of better quality of disclosure. The intuitive objection would be that a corporation might disclose more numerous but less significant information, or split into more communications information that other issuers might aggregate. However, at this level of statistical significance, the data surely tell us something about the attention of the board to an open "dialogue" with the market, and it is hard to deny that independent directors correlate with enhanced disclosure.

Table 4 Independent directors and firm's disclosure

$$disclosure_{i,t} = \beta_0 + \beta_1 ind_dir_{i,t} + \beta_2 for_sales_{i,t} + \beta_3 us_listed_{i,t} + \beta_4 concentration_{i,t} + \beta_5 size_{i,t} + \beta_6 roa_{i,t} + \beta_7 ret_vol_{i,t} + \sum \beta_\delta Year_FE_\delta + \sum \beta_k Industry_FE_k + \varepsilon_{i,t}$$

Variables	(1) Coeff. [*p*-value]	(2) Coeff. [*p*-value]	(3) Coeff. [*p*-value]
ind_dir	1.844*** [0.000]	1.492*** [0.000]	0.649*** [0.003]
Control variables			
for_sales			0.324*** [0.007]
us_listed			0.152** [0.030]
concentration			–0.882*** [0.000]
size			0.276*** [0.000]
roa			–0.018 [0.750]
ret_vol			–0.098 [0.958]
Industry fixed effects	Included	Included	Included
Year fixed effects	Included	Included	Included
N	2,003	2,003	2,003
Adj. *R*-squared	6.4%	27.4%	54.6%

This table presents the results of Eq. (1). Two-tailed *t*-statistics are reported between brackets. Standard errors are clustered

by firm and year (Petersen, 2009). All variables are winsorized at the 1st and 99th percentiles on annual basis. For the definition of the variables, please refer to the Appendix. Industry- and year-fixed effects are not reported for brevity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.3 Identification test: Independent Director Expertise

Prior research suggests that directors' expertise is positively associated to better disclosure. Jiang, Zhu and Huang, for example, observe that CEOs with financial expertise provide more precise earnings information.[57] As another example, Matsunaga and Yeung[58] (2008) find that firms whose CEOs have financial expertise provide more precise earnings guidance and improve the quality of financial disclosure, arguing moreover that the quality of a firm's financial disclosures is conditional on the CEO's financial experience. Relatedly, and more focused on independent directors, Jiang, Wan and Zhao[59] observe that directors graduating from more prestigious colleges are significantly more likely to dissent in the board, suggesting that directors with higher education/reputation values are more independent from management and more attentive to reputational consequences of their decisions, being more attentive to shareholders' preferences.

Along the same reasoning and to provide a sharper identification for the test in Eq. (1), we examine whether the positive relation between disclosure and board composition varies positively with the level of professional expertise and education of independent directors. Specifically, we investigate whether boards with more educated and professionally accomplished independent directors provide more disclosures to the market. For 1,978 of 2,003 firm-years of the original sample, we are able to manually identify information about the professional qualifications of each independent director using biographical information in the minutes of the general meeting of shareholders appointing them. For each director, we create an indicator that is equal to 1 if the director's profession is one of the following: accountant, academic, economist, lawyer, banker, insurance broker, notary public and, at the same time, the director holds a bachelor degree, a master degree or a Ph.D. degree. Next, for each firm-year, we compute the average for this indicator across all independent directors. Finally, we create a dummy variable that is equal to 1 if the mean level of professional qualifications and education of independent directors *at the board level* is above the median of the empirical distribution ("high skilled directors"), 0 otherwise ("low skilled directors").[60] The sample median is 0.78, meaning that for the average board-year, 78% of independent directors are–as we briefly defined them–"high skilled." In Table 5, we report the results of Eq. (1) for the two subsamples of HIGH *vs.* LOW SKILLED independent directors, so that we can evaluate the effect of independent directors on corporate disclosure conditional on their expertise.

Results reported in Column (3) and (4) of Table 5, where all control variables and fixed effects are included, indicate that a positive relation between independent directors and quantity of corporate disclosure exists only in board-years with high levels of independent directors' expertise. An *F*-test shows that the coefficient on *ind_dir* in the HIGH SKILLED subsample is greater than that in the

[57] Jiang et al. (2013).
[58] Matsunaga and Yeung (2008).
[59] Jiang, Wan and Zhao (2015).
[60] The reader should be aware that in no way we believe that a more formally educated and/or professionally qualified individual is a "better" director. We have no doubts, to speak about our own profession, that a very successful and accomplished academic can be an utterly awful director, and a person who started working early cutting her teeth "on the street," without a long formal education and lacking any specific professional qualification, can be an excellent board members. More simply, our aim is to test whether those personal characteristics might have an impact on disclosure. We hope that the labels we picked for short, "high-skilled" and "low-skilled", do not mislead the reader from the substance of our hypothesis or are not interpreted as expressing a value judgment.

LOW SKILLED subsample at 5% level (0.970 *vs.* 0.079). While the effect is not statistically significant in low-skilled boards-year, in high-skilled board-years a 10% increase in the percentage of independent directors implies a 9.7% increase in the number of disclosures released to the market. Overall, this finding suggests that a significant portion of the additional disclosure associated with the presence of independent directors occurs when independent directors are "highly skilled" (based on the somehow imperfect label defined above). To put it more simply, a more nuanced conclusion might be that professionally qualified independent directors, as opposed to independent directors tout court, drive enhanced disclosure.

One possible explanation for this finding might be that directors who have invested significantly in their education and in obtaining specific professional qualifications and titles tend to be more conservative in a rigorous and extensive interpretation of the law and applicable rules, or generally more attentive to market reputation, therefore requiring the corporation to disclose more.

Table 5 High *vs.* low skilled independent directors

$$disclosure_{i,t} = \beta_0 + \beta_1 ind_{dir_{i,t}} + \beta_2 for_sales_{i,t} + \beta_3 us_listed_{i,t} + \beta_4 concentration_{i,t} + \beta_5 size_{i,t} + \beta_6 roa_{i,t} + \beta_7 ret_vol_{i,t} + \sum \beta_\delta Year_FE_\delta + \sum \beta_k Industry_FE_k + \varepsilon_{i,t}$$

Variables	(1) Coeff. [*p*-value]	(2) Coeff. [*p*-value]	(3) Coeff. [*p*-value]	(4) Coeff. [*p*-value]
	LOW SKILLED	HIGH SKILLED	LOW SKILLED	HIGH SKILLED
ind_dir	0.761* [0.091]	2.267*** [0.000]	0.079 [0.771]	0.970*** [0.000]
Control variables	Not included	Not included	Included	Included
Industry fixed effects	Included	Included	Included	Included
Year fixed effects	Included	Included	Included	Included
Chi^2			5.54	
$Prob > Chi^2$			0.019	
N	987	991	987	991
Adjusted R-squared	29.2%	29.3%	54.2%	59.4%

This table presents the results of Eq. (1) distinguishing between boards with low *vs.* high-skilled independent directors. Two-tailed *t*-statistics are reported between brackets. Standard errors are clustered by firm and year (Petersen, 2009). All variables are winsorized at the 1st and 99th percentiles on annual basis. For the definition of the variables, please refer to the Appendix. Control variables, industry- and year-fixed effects are not reported for brevity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.4 Market Perception of Disclosures

As mentioned in Sect. 4.3, Table 4 and Table 5 show that independent directors lead to increased corporate disclosure and that this effect is pronounced when directors possess a high level of education or specific professional qualifications. One already suggested objection is that independent directors might simply require the issuer to disclose more, but the additional information is not particularly important and not considered by investors ("useless disclosure hypothesis").

To further corroborate the relevance of our findings, in this section we examine the market implications of disclosure. Specifically, we investigate the average market response to disclosure events conditional on boards being characterized by high *vs.* low skilled independent directors. In other words, while in the previous tests we have provided evidence of the *link* between independent directors and

disclosure, we now aim at providing possible evidence on the average *effect* of these disclosures. We do so by exploiting cross-sectional variation in independent directors' skills across board-years as shown in Table 5. Specifically, we test whether, on average, boards with high skilled independent directors contribute to disclose information deemed as more relevant by investors.

Our measure of market response is the absolute value of cumulative abnormal returns (CAR) in the [-1; +1] day window. Firm-specific returns and market returns to compute abnormal returns are obtained from Datastream (*RI* and *TOTMKIT*, respectively). CAR is market-adjusted, *i.e.*, for each disclosure event we subtract the daily market return from the daily firm-specific return. Starting from an original sample of 56,170 disclosures conveyed in 39,349 events, we remove disclosure events with announcement dates that are less than 4 days apart to avoid that market reactions are contaminated by more than one types of information in the event window. We obtain a final sample of 14,747 disclosure events with market information available to compute CAR. For each event, we determine the average skill level of independent directors sitting on the board (as defined in Sect. 4.3) to distinguish between disclosures conveyed by low vs. high skilled independent directors. In total, we have 9,106 disclosure events for boards with low skilled independent directors and 5,641 disclosure events for boards with high skilled independent directors.

Figure 4 depicts the 20-day CAR trend centered around disclosure event *j* at time $t = 0$. The solid (dashed) line depicts the CAR trend for disclosures released by boards with high (low) skilled independent directors. The graph clearly shows that, even though the market reacts to disclosure in the [-1; +1] event window, the reaction is more pronounced for information released by boards with a relatively higher percentage of skilled directors. For example, at day $t = 0$, the average absolute abnormal return around a disclosure released by boards with high skilled independent directors is equal to 1.8%; this compares to a 1.6% absolute abnormal return around a disclosure released by boards with low skilled independent directors.

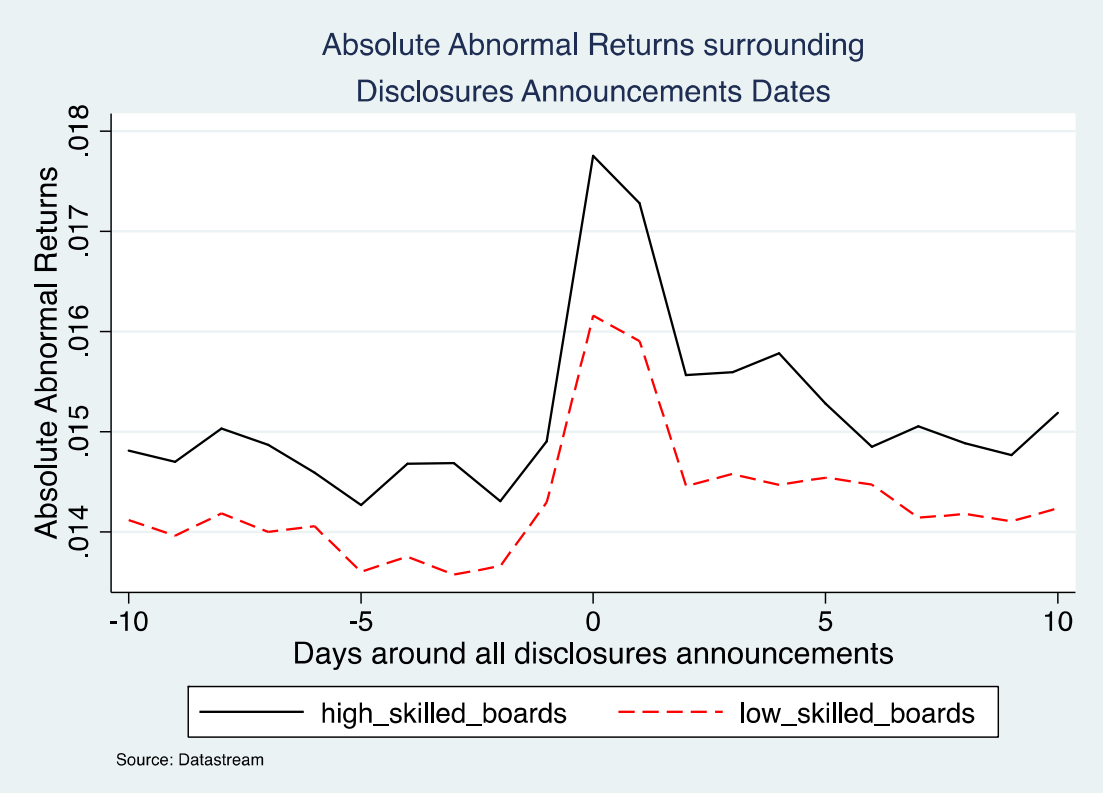


Fig. 4 Market reactions to disclosures announcement based on average board level independent directors' expertise (HIGH SKILLED *vs.* LOW SKILLED)

We perform a standard *t*-test of the means to establish whether our CAR measure is statistically different across the two subsamples of high *vs.* low skilled independent directors. The results are reported in Table 6: disclosures released by boards with high skilled independent directors obtain a 0.2% higher absolute abnormal return in the [-1; +1] day window (*t*-stat = 2.844). The economic and statistical magnitudes increase if we extend the window to [-2; +2] days around the j^{th} disclosure event (0.4% and *t*-stat = 4.459).

Table 6 T-test of differences in $CAR_{[-1;+1]}$ ($CAR_{[-2;+2]}$)

	HIGH SKILLED	LOW SKILLED	Difference	*t*-stat
	(a)	(b)	(a)–(b)	
$Mean_{CAR[-1;+1]}$	0.032	0.030	0.002	2.844
	N=5,641	*N*=9,106		
$Mean_{CAR[-2;+2]}$	0.078	0.074	0.004	4.459
	N=5,641	*N*=9,106		

This table presents the results of a *t*-test of the means. Two-tailed *t*-statistics are reported in the last columns. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Overall, the results of this analysis suggest that high skilled independent directors are associated, on average, with more value relevant disclosures, thus reinforcing their positive role on corporate disclosing activity. With a punchline, one might comment that the market relies more on better-educated and professionally qualified directors. The explanation might be that investors (or, at least, some of them) factor in their reliance on information the skills of directors, but also–and this is a stretch–that individuals who invested more significantly in their education and professional qualifications are considered as more invested in their reputation and/or more independent in light of the additional professional opportunities they might have besides sitting on the board of directors of the specific corporation whose disclosure is considered.

4.5 Disclosure of Inside Information and Minority-Appointed Directors

As argued in Sect. 3.2, the definition of inside information includes ambiguous elements, such as the requirement that information shall affect market prices or investment decisions. For these reason, directors have a certain degree of latitude in determining what constitutes price-sensitive information. As such, different attitudes and sensitivities toward transparency might arise within the board.

In this section, we investigate whether the presence of minority-appointed independent directors plays a role on the disclosure of what corporations qualify as price-sensitive information. This analysis is motivated by the fact that minority-appointed independent directors might be particularly invested in ensuring that price-sensitive information is fully and promptly disclosed to the market, also for the benefit of their "constituency" of institutional investors and minority shareholders.

For this analysis, we restrict the sample period to 2017 because only starting from this year we are able to obtain data about inside information disclosed pursuant to the MAR. It is important to note that it is the issuer itself that classifies a piece of information as inside in nature. Data on this type of disclosure

are collected from two SDIRs. A SDIR is a regulated system for the electronic disclosure of information that storages disclosure events, authorized by Consob, which links up its users to the media and the public generally.[61]

We start from 848 disclosure events and 149 companies disseminating privileged information during 2017 through the SDIRs. After removing observations for which we are unable to find precise information concerning minority-appointed directors, we have 812 disclosures for 140 companies. We include 107 additional companies with data on minority directors that did not disclose any inside information during the year. To investigate whether the presence of minority directors affects the propensity to disclose privileged information, we create an indicator, *priv_info*, that is equal to 1 if a firm reports at least one information that the corporation qualifies as "inside information" during the year, 0 otherwise. Based on Eq. (1), we run the following logistic model:

$$priv_info_i = \beta_0 + \beta_1 min_dir_i + \beta_2 for_sales_i + \beta_3 us_listed_i + \beta_4 concentration_i + \beta_5 size_i + \beta_6 roa_i + \beta_7 ret_vol_i + \sum \beta_k Industry_FE_k + \varepsilon_i \quad (2)$$

Our independent variable is *min_dir*, the logarithm of one plus the percentage of minority directors over the total number of independent directors. All other control variables are computed as in Eq. (1).

Table 7 Probability of disclosing privileged information

$$priv_info_i = \beta_0 + \beta_1 min_dir_i + \beta_2 for_sales_i + \beta_3 us_listed_i + \beta_4 concentration_i + \beta_5 size_i + \beta_6 roa_i + \beta_7 ret_vol_i + \sum \beta_k Industry_FE_k + \varepsilon_i$$

Variables	(1) Coeff. [z-value]	(2) Coeff. [z-value]	(3) Marginal Effect
min_dir	6.111*** [0.001]	6.139*** [0.001]	1.440***
Control variables			
for_sales		–0.349 [0.661]	–0.082
us_listed		0.101 [0.852]	0.024
concentration		–0.676 [0.572]	–0.158
size		–0.119 [0.302]	–0.028
roa		0.701 [0.763]	0.164
ret_vol		–0.264 [0.589]	–0.062
Industry Fixed Effects	Included	Included	Included
N	247	247	247
Pseudo R-squared	15.9%	16.6%	

This table presents the results of Eq. (2). Two-tailed z-statistics are reported between brackets. Standard errors are clustered by firm and year (Petersen, 2009). The last column reports the marginal effect coefficients. All variables are winsorized at the 1st and 99th percentiles on annual basis. For the definition of the variables, please refer to the Appendix. Control variables, industry- and year-fixed effects are not reported for brevity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

[61] The two SDIRs we use to collect privileged disclosures are emarketstorage and 1info.

The results in Table 7 indicate that the likelihood of disclosing privileged information increases with the percentage of minority-appointed independent directors in the board. To gauge an economic interpretation of the effect, focusing on the marginal effect in Column (3) of Table 7, we observe that a 10% increase in the percentage of minority-appointed independent directors is associated with a 14.40% higher probability of issuing privileged information. All other control variables are not statistically significant, possibly because the choice to disclose privileged information is the result of directors' judgments and decisions, rather than the consequence of other economic factors.

It is important to qualify these findings. Of course, one objection might be that since it is mandatory to disclose all inside information, the data do not show anything: they simply illustrate how in some corporations there are more inside information and in others less. This conclusion would however assume that all boards are equally rigorous and correct in assessing whether information falls under the definition contained in Art. 7 of the MAR, an unrealistic hypothesis. Considering the wiggle room embedded in the definition of inside information, this cannot possibly be the case. To be even more forward: we interpret this evidence in the sense that a lower presence of minority-appointed directors leads to a less rigorous approach to the issue of what constitutes inside information and what needs to be disclosed to the market.

We further investigate whether the presence of minority-appointed independent directors is associated to the *quantity* of privileged information disclosed. To measure the quantity of information, we use as a rough proxy of the length of the disclosure documents, *pages,* computed as the logarithm of one plus the number of pages of the press release containing privileged information. Since Internal Dealing documents present a somewhat standardized (predefined) format across firms, we conduct this analysis with and without these documents to verify the robustness of our results. In addition to industry fixed effects, we include disclosure-type fixed effects, to account for heterogeneity in document types, which is likely to affect the length of the document. This measure can be considered a rather rough and simplistic measure of the quantity of disclosure; after all, a more verbose document does not necessarily convey more information than a shorter, but more substantive one. It is, however, a metric commonly used in the literature,[62] and one that we believe offers a statistical basis to test the implications of board composition on disclosure. The OLS model is as follows and Table 8 reports the results.

$$pages_i = \beta_0 + \beta_1 min_dir_i + \beta_2 for_sales_i + \beta_3 us_listed_i + \beta_4 concentration_i + \beta_5 size_i + \beta_6 roa_i + \beta_7 ret_vol_i + \\ + \sum \beta_k Industry_FE_k + \sum \beta_k DisclosureType_FE_k + \varepsilon_i \quad (3)$$

[62] See Francis et al. (2002).

Table 8 Minority-appointed independent directors and quantity of privileged information

Variables	(1) Coeff. [*p*-value]	(2) Coeff. [*p*-value]	(3) Coeff. [*p*-value]
	ALL PRIVILEGED DISCLOSURES	ALL PRIVILEGED DISCLOSURES	NO INTERNAL DEALINGS
min_dir	0.291***	0.313***	0.358***
	[0.004]	[0.005]	[0.002]
for_sales		0.024	0.062
		[0.730]	[0.424]
us_listed		–0.080*	–0.083*
		[0.063]	[0.084]
concentration		–0.011	–0.018
		[0.934]	[0.893]
size		0.018**	0.019**
		[0.033]	[0.031]
roa		–0.182	–0.131
		[0.284]	[0.528]
ret_vol		0.057	0.057
		[0.128]	[0.140]
Industry Fixed Effects	Included	Included	Included
Disclosure Type Fixed Effects	Included	Included	Included
N	847	847	705
Adjusted R-squared	44.1%	44.5%	39.7%

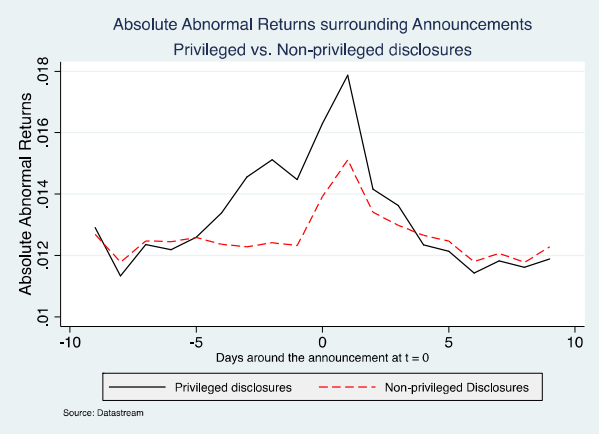
This table presents the results of Eq. (3) where we assess the effect of minority-appointed directors on the length of privileged information. Column (3) reports the results of Eq. (3) when we exclude internal dealing documents. Two-tailed *t*-statistics are reported between brackets. Standard errors are clustered by firm and year (Petersen, 2009). All variables are winsorized at the 1st and 99th percentiles on annual basis. For the definition of the variables, please refer to the Appendix. Control variables, industry- and year-fixed effects are not reported for brevity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Commenting on Column (2) of Table 8, where all control variables and fixed effects are included, we find that a 10% increase in the percentage of minority-appointed independent directors is associated, on average, with a 3.13% increase in the number of pages containing privileged information. This effect continues to hold, both economically and statistically, when we exclude (*see* Column (3)), Internal Dealing press releases (+3.58%).

Our readers could now raise an objection similar to the one we addressed before with respect to independent directors. One might in fact wonder whether the results described are simply due to the fact that minority-appointed directors, for whatever reason, are over-zealous, *i.e.*, they "force" the corporation to publish a lot of information as "inside information" even if this would not be necessary. Erring on the side of caution–the criticism might run–they impose a regulatory burden higher than the one that the legislature requires.

To counter this objection, we then investigate whether privileged information are *de facto* associated with higher market reactions relative to disclosures that companies consider as non-privileged information. In other words, we question whether decisions as to what to consider as privileged information and whether to disclose it lead, in fact, to the announcement of information that investors consider as relevant. Similarly to the analysis in Sect. 4.4 above, we compute $CAR_{[-1;+1]}$ around the announcement date at $t = 0$ of privileged and non-privileged information events for our 140 sample firms. Non-privileged information disclosures are obtained from Key Development-Capital IQ. Again, we remove events with announcement dates that are less than 4 days apart to avoid that market

reactions are contaminated by more than one type of information in the event window. Applying these filters, we compute our measure of market reaction (CAR) for 422 privileged information events and 1,022 non-privileged information events pertaining to the same 140 sample firms. A graphical representation is depicted in Figure 2 where we also report the result of a *t*-test to examine whether, on average, market reactions to information (self-)qualified by the corporation as inside information or not are statistically different. Both Figure 5 and the *t*-test shows that market reactions are, in fact, different: the average absolute abnormal return in the three-day window centered around the announcement date $t = 0$ is 4.7% for privileged information and 4.1% for other (non-privileged) information. The difference (0.6%) is statistically significant (*t*-stat = 2.886).

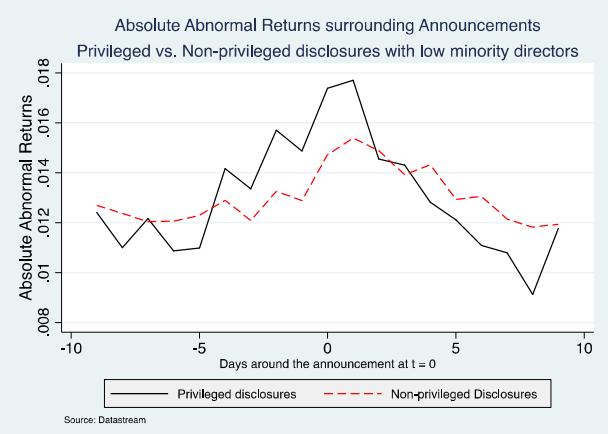


T-test of difference

$CAR_{[-1, +1]}$	Privileged Disclosures	Non-Privileged Disclosures	Diff.	*t*-stat
Mean	0.047	0.041	0.006	2.886
	$N = 422$	$N = 1{,}022$		

Fig. 5 Market responses to privileged and non-privileged disclosures and *t*-test of the means.

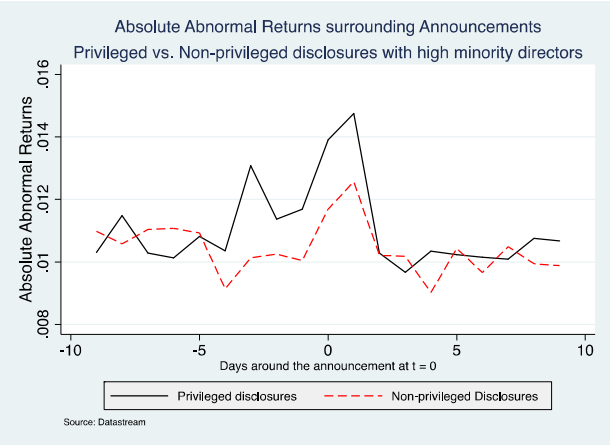
To further test for the concern that the results may in fact be driven by over-zealous minority directors who may "force" the corporation to disclose "inside information" although this would not be necessary, we repeat the analysis by splitting the sample into two subgroups of firms above and below the median of the variable *min_dir*, as defined in the Appendix.
Figure 6 and 7 depict the resulting patterns of CAR for the two subgroups of firms and the corresponding *t*-tests.



T-test of difference

$CAR_{[-1, +1]}$	Privileged Disclosures	Non-Privileged Disclosures	Diff.	*t*-stat
Mean	0.048	0.042	0.006	1.660
	$N = 215$	$N = 524$		

Fig. 6 Market responses to privileged and non-privileged information and *t*-test of the means for firms with below the median of minority independent directors.



T-test of difference

$CAR_{[-1, +1]}$	Privileged Disclosures	Non-Privileged Disclosures	Diff.	*t*-stat
Mean	0.041	0.034	0.007	2.112
	$N = 207$	$N = 498$		

Fig. 7 Market responses to privileged and non-privileged information and *t*-test of the means for firms with above the median of minority independent directors.

The evidence in Figure 6 and 7 suggest a similar distinct pattern in market reactions around the announcement of privileged and non-privileged information both for the sample of firms with a relatively low number of minority-appointed directors (Figure 6) and for the sample of firms with a relatively high number of minority-appointed directors (Figure 7). In both cases, the difference in CAR in the [-1; +1] day window is statistically significant (*t* stat are 1.660 and 2.112, respectively). This evidence implies that the higher market reactions to the disclosures of privileged information are not essentially driven by firms with more minority appointed directors in the board. Said differently, market participants deem as more value relevant all privileged information, regardless of the presence of minority-appointed directors, alleviating the concern that boards with more minority-appointed directors may disclose unnecessary privileged information.

Overall, our analyses in section 4 suggest that minority-appointed directors are not only positively associated with the likelihood of disclosing privileged information, but also with the quantity of the information reported. Moreover, we do not seem to be dealing with information that is qualified as price-sensitive only due to the overly-caution of minority-appointed directors, but with information that the market does in fact seem to consider particularly value relevant.

5. Conclusions and some Policy Implications

We believe our results are quite self-evident and do not need extensive elaborations. In short, both independent directors and minority-appointed directors positively affect the quantity, frequency and possibly quality (at least measured by market reactions) of information disclosed to the market. The empirical evidence seems to support a tenant of modern corporate governance, *i.e.* that independent directors foster minority protections and transparency. But it also confirms that directors appointed by minority shareholders (generally supported by institutional investors) are an interesting and valuable tool of Italian corporate law, at least if a rigorous compliance with disclosure obligations is desired. Legislatures and policy makers in other countries might want to take notice. A more diverse board and a proportional system to elect directors might, in fact, benefit information efficiency.

Interestingly enough, the market seems also to consider the professional and educational qualifications of board members in assessing information disclosed by the board, reacting more decidedly to – one might say, taking more seriously – communications originating from more "skilled" boards. Of course causation remains uncertain, and it might be that larger, more established and reputed issuers –

considered credible by the market – attract more qualified board members. The result is, however, interesting and… somehow comforting for a group of professors of law, accounting and business: education seems to have a value!

More generally, while the most immediate suggestion of this work is that a certain degree of "diversity" on the board is conducive to a better flow of information to the market, considering also the empirical evidence pointing at a positive correlation between diversity and dissent, we feel confident in concluding that the presence of minority-appointed directors, as well as of truly independent ones, is beneficial to the effectiveness of board's discussions and analysis. Needless to say, it is however very hard to derive general policy implications that might fit all situations. If outside directors are often a useful and authoritative voice, we shall not forget that the presence of "strong," competent, and well-informed executive directors is equally crucial for the success of the business.

APPENDIX

Empirical definition of the variables and sources.

Variables	**Definition**	**Sources**
disclosure	Natural log of one plus the total number of press releases for firm *i* at year *t*.	KeyDevelopment
ind_dir	Natural log of one plus independent directors over board members for firm *i* at year *t*.	Corporate Governance Report
for_sales	Percentage of foreign sales over total sales for firm *i* at year *t*.	Datastream
us_listed	1 if firm *i* in year *t* has shares listed on United States stock markets.	Datastream
concentration	Natural log one plus of *HH* index using relevant ownerships data of firm *i* at year *t*.	Consob
size	Natural log of one plus total assets for firm *i* at year *t*.	Compustat Global
roa	Natural log of one plus return on assets for firm *i* at year *t*.	Compustat Global
ret_vol	Natural log of one plus standard deviation of firm *i*'s daily returns in year *t*.	Datastream
min_dir	Natural log of one plus % minority independent directors for firm *i* at year *t*.	Corporate Governance Relation
pages	Natural log of one plus pages in privileged information for firm *i* at year *t*.	SDIR (1info, emarketstorage)
info_priv	1 if firm *i* reports a privileged information	SDIR (1info, emarketstorage)
Year	Fiscal years end as reported in Compustat Global	Compustat Global
Industry	2-digit sic codes	Compustat Global

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