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Mandatory disclosure and learning from external market participants: Evidence from the JOBS act

Jedson Pinto

School of Management, University of Texas at Dallas, United States



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ABSTRACT

This paper examines whether mandatory disclosure affects the extent to which firms learn from external market participants. Conventional wisdom suggests that mandatory disclosure should increase the total amount of information in financial markets. However, disclosure can also reduce investors' incentives to acquire and produce information. Using the JOBS Act to identify variations in disclosure requirements, this paper finds that firms with reduced disclosure requirements attract more informed investors and learn more from financial markets than those with stricter disclosure requirements. This learning is concentrated among firms that attract sophisticated investors, particularly those with industry expertise, and weakens once firms are forced to disclose more information. Overall, the results suggest that one benefit from regulators' recent efforts to reduce U.S. firm disclosure requirements is an increase in firm learning.

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1. Introduction

Within the company you have, at least in theory, access to all the information, but there is only you. Outside you have imperfect information but a lot of brains. If you accept these two different realities and use that creatively, you can learn a lot.
David Allen, former managing director and chief of staff of BP¹

This paper examines whether mandatory disclosure affects how much firms learn from external market participants, that is, whether there is a market feedback effect. Financial markets can aggregate dispersed information, which can help guide managers' investment decisions and promote economic growth (Fama and Miller, 1972). Conventional wisdom suggests that increased mandatory disclosure would increase the total amount of information in financial markets. However, disclosure can also crowd out incentives for investors to acquire, analyze and share new information (Gao and Liang, 2013; Goldstein and Yang, 2019; Schneemeier, 2017), which could reduce the information available to managers when making investment decisions.

To understand the relation between mandatory disclosure and market feedback, I exploit a recent regulation that reduces the amount of information that newly filing firms must disclose: the Jumpstart Our Business Startups Act (the JOBS Act).

¹ E-mail address: jedson.pinto@utdallas.edu.

¹ Extracted from Miller et al. (2006).

Enacted in 2012, the act aims to facilitate the access to capital markets by eliminating disclosure requirements for newly public firms. The act creates a new category of issuer, the emerging growth company (EGC), that can choose to provide reduced disclosure to investors.² To qualify as an EGC, the firm must have gross revenues of less than \$1 billion during the most recent fiscal year ending before the initial public offering (IPO). Moreover, the firm loses its EGC status 1) at the fifth anniversary of being a publicly traded company, 2) if it becomes a large accelerated filer, 3) if it has issued more than \$1 billion in nonconvertible debt in the past three years, or 4) if its total annual gross revenues exceed \$1.07 billion in the current year.

The JOBS Act is one of the main changes in disclosure requirements since the passage of the Sarbanes-Oxley Act (Barth et al., 2017). Nevertheless, little is known about the benefits associated with the JOBS Act provisions and reduced disclosure. This is of importance given that recent studies document significant costs associated with the act (Barth et al., 2017; Chaplinsky et al., 2017) and since regulators are increasingly reducing disclosure requirements for U.S. firms and expanding the JOBS Act provisions to more firms.³

Following prior studies examining the consequences of the JOBS Act (e.g., Barth et al., 2017; Chaplinsky et al., 2017), I compare IPO firms with EGC status to firms that would have qualified for EGC status had their IPO occurred after the effective date of the act (non-EGCs). Specifically, I use IPO firms from 2003 to 2012 with gross revenues of less than \$ 1 billion as my control group.⁴ I also exploit a unique feature of the JOBS Act that is previously unexplored: firms lose their EGC status at different points in time and are forced to disclose more information.⁵ This staggered increase in disclosure allows me to estimate a staggered difference-in-differences model that I use to further assess whether the effects of the JOBS Act reverse when EGCs disclose more. Importantly, this feature also helps me identify how mandatory disclosure is associated with the market feedback effect.

One key benefit of reduced disclosure requirements is the ability of firms to foster information production by informed investors, which could then contribute to firms' learning from external market participants. Hence, as a first test, this paper examines how mandatory disclosure is associated with the presence of informed investors, specifically whether EGCs attract more informed investors relative to non-EGCs.⁶ I find that EGCs do attract a greater number and proportion of informed investors relative to non-EGCs. In terms of economic magnitude, EGCs attract approximately 8% more informed investors than similar non-EGCs.

Next, I examine whether firms learn more from external market participants when they can disclose less. Specifically, I examine whether EGCs learn more from external market participants than non-EGCs. I measure the extent to which firms learn from external market participants via differences in investment-to-price sensitivity (Chen et al., 2007; Jayaraman and Wu, 2019). Conceptually, the investment-to-price sensitivity captures how much weight a firm assigns to the information in stock prices when deciding future investment decisions, with greater coefficients capturing greater learning (Jayaraman and Wu, 2019).⁷ Consistent with reduced mandatory disclosure strengthening the information flow from capital markets to firms, I find that EGCs have higher investment-to-price sensitivity than non-EGCs. The difference is economically significant, representing a 39% increase in investment-to-price sensitivity relative to non-EGCs. This result suggests that the more flexible disclosure requirements of the JOBS Act might increase firm learning from capital markets.⁸ These results are consistent with theoretical predictions on the relation between disclosure and the feedback effect from prices (Gao and Liang, 2013). Furthermore, these results indicate that an unexplored benefit of the JOBS Act is firms' ability to attract more informed investors and learn more from capital markets.⁹

The validity of my analyses depends on whether non-EGCs represent a reasonable counterfactual for what would happen to EGCs absent the JOBS Act. One concern is that EGCs could be systematically different from non-EGCs in meaningful ways.¹⁰ For example, they could be smaller, younger, or more financially constrained than non-EGCs. To mitigate this concern, I create

² Specifically, among the provisions related to reduced disclosure, EGCs can provide to disclose only two instead of three years of audited financial statements. A firm may also disclose two instead of five years of selected financial data. EGCs do not need to provide a compensation discussion and analysis and only need to disclose two years of compensation information for as few as three named executives, including the CEO. I discuss all the JOBS Act provisions in Section 2.2.

³ See, for example, <https://www.sec.gov/corpfin/announcement/draft-registration-statement-processing-procedures-expanded> or <https://www.sec.gov/news/press-release/2018-116>.

⁴ My main research design is visually represented in Fig. 1 of the paper and consists of comparing EGCs to non-EGCs post IPO. I discuss in more detail my research design in section 3.

⁵ In my sample, the main reason why firms lose their EGC status is the fifth anniversary of the firm.

⁶ I identify an investor as informed if the investor (IP address) acquired substantial financial information via EDGAR in the prior year. The measure of informed investor is the total number of unique informed investors paying attention to a firm in a given year. This measure tries to capture how many different people with private information are following the firm. I discuss more about the measure in section 3 of the paper.

⁷ The investment-to-price sensitivity might also capture other important constructs (e.g., financial constraints), which I discuss in further detail below.

⁸ This paper only examines the effect of disclosure on the ability of prices to guide firms' investment decisions. Even though stock prices might possess more information that is new to the manager, the total amount of information in prices might still be equal to or potentially lower than in an alternative disclosure regime.

⁹ Investors might use multiple channels to transmit their private information and expertise to the manager. For example, investors could voice their opinions trading on the stock market, using voice or other forms of direct engagements with the manager. In this paper, I do not argue that investors use only one channel. It is important to note, however, that stock prices still timely aggregate all relevant public and private information available about the firm.

¹⁰ Prior studies document that the number of firms going public in the United States decreased over time, with the decrease being concentrated among small offerings (Gao et al., 2013) and younger firms (Dojidge et al., 2017). Thus, one could be concerned that EGCs are inherently different from non-EGCs.

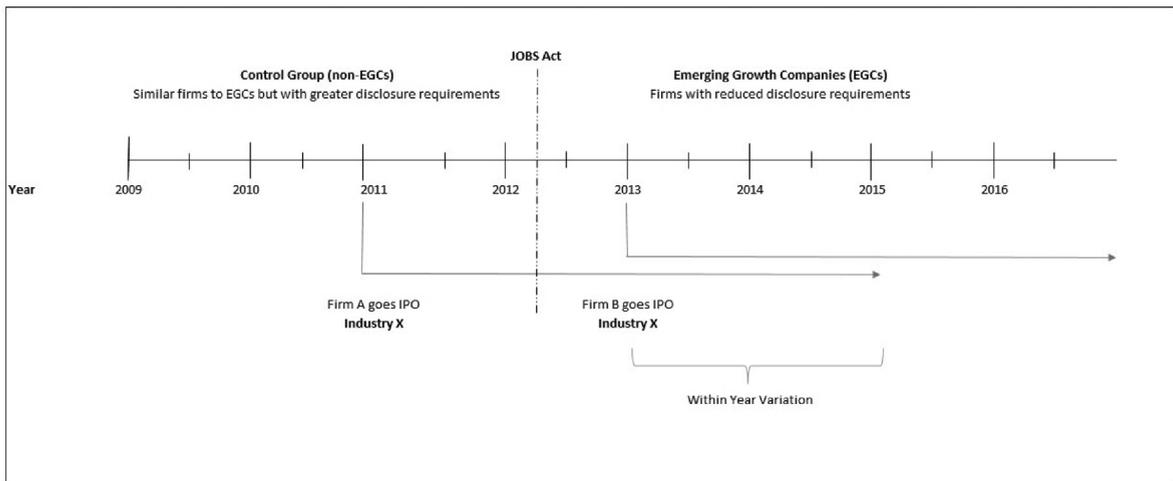


Fig. 1. Visual representation of Research Design, This figure displays the research design implemented in the main analysis of the paper. My main group of interest is IPO firms post-JOBS Act that benefit from any of the JOBS Act provisions (firms with reduced mandatory disclosure - EGCs). I use firms before the JOBS Act as my control group (non-EGCs). Specifically, I use firms that would have benefited from the Act had their IPOs been after the enactment of the regulation (firms with gross revenues below one billion dollars). I control for time-invariant industry-specific and year-specific characteristics by including industry and year fixed effects.

an entropy-balanced sample of non-EGCs that match EGCs based on proceeds raised during the IPO, age, and size using an entropy-balance matching technique. Size and age influence the decision of firms to go public (Pagano et al., 1998). Furthermore, balancing the firms based on IPO proceeds alleviates concerns that EGCs and non-EGCs differ in terms of access to capital and financial constraints. Consistent with the unbalanced results, I find that EGCs exhibit greater investment-to-price sensitivity than non-EGCs.¹¹ I also perform two falsification tests (placebo regressions and lagged regressions) and find that my results are unlikely to be spurious, bolstering the validity of my analyses.

Prior studies document that financially constrained firms exhibit high investment-to-price sensitivity (i.e., Baker et al., 2003; Chen et al., 2007). Thus, one could be concerned that EGCs' higher investment-to-price sensitivity might be due to financial constraints. To address this concern, I split EGCs into two groups (financially constrained and unconstrained) and find that the difference in EGC and non-EGC investment-to-price sensitivity is driven by EGCs that are financially *unconstrained*. This result reinforces the inference that EGCs' greater investment-to-price sensitivity is due to increased learning.

To further address concerns of omitted correlated variables and selection bias, I use the unique feature that firms lose their EGC status after five years of being publicly traded.¹² EGCs then must provide increased financial accounting and executive compensation information, cannot delay the adoption of new accounting standards, and must comply with SOX 404(b). I use this feature to estimate a staggered difference-in-differences design, where I can conduct within-firm analysis and use the firm as its own control. Consistent with mandatory disclosure crowding out the learning from the market, I find that EGCs' investment-to-price sensitivity decreases once EGCs have to disclose more information. For one correlated omitted variable to explain these results, it would need to explain both the EGCs' initial greater investment-to-price sensitivity and the staggered reversal once firms lose their EGC status.

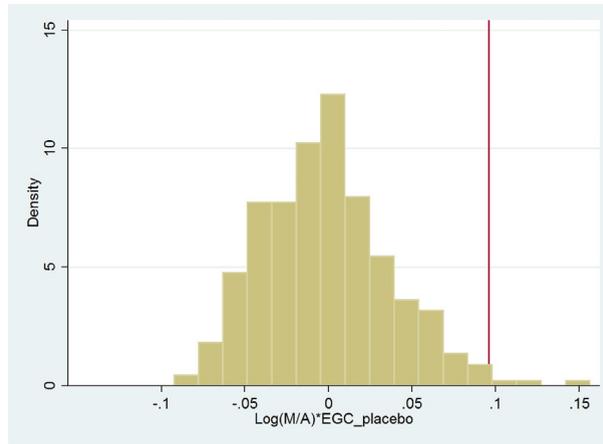
Another concern is that the results could be specific to the JOBS Act and not broadly applicable (Glaeser and Guay, 2017). To investigate this concern, I use the 2008 SEC decision to discontinue the 10KSB form for small firms as an alternative change to mandatory disclosure for publicly traded companies. 10KSB forms were available to firms with less than \$25 million in public float, and, relative to 10K reports, 10KSB did not require many disclosures, omitting, for example, the disclosure of foreign operations and segment information, executive compensation, the compensation committee report, interlocking directorships, and stock performance graphs. I use the discontinuation of the 10KSB to estimate a difference-in-differences model, where I use as my control group firms that filed a 10-K in 2007 and as my treated group firms that filed a 10KSB in 2007. As with the JOBS Act, I find that firms learn less from external market participants once they must disclose more. These results suggest that my results might *not* be unique to the JOBS Act setting.

In the previous analyses, I find that EGCs attract more informed investors and learn more from external market participants. In additional analyses, I assess whether the extent to which EGCs learn more from external market participants is

¹¹ One concern is that entropy-balancing matching only helps control for observable characteristics. I conduct additional tests using a staggered difference-in-differences model with firm fixed effects to control for time-invariant unobservables. Further, as I will discuss in more detail below, I use another setting to estimate a difference-in-differences design, which allows me to minimize concerns associated with the decision to go public.

¹² Firms might lose their EGC status for other reasons, which I discuss in more detail in Sections 2 and 5. I hand-check all firms that meet one of the criteria and find that most lose their EGC status because of the time.

Panel A: Placebo Investment-to-Price Coefficient Estimates



Panel B: Placebo T-statistics

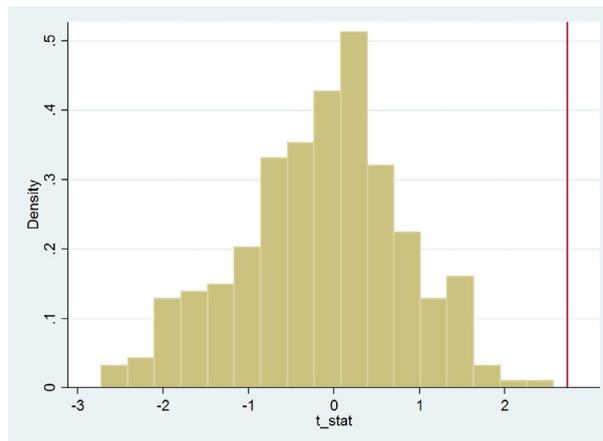


Fig. 2. Falsification estimates, This figure compares Table 3's investment-to-price sensitivity estimate with estimates coming from placebo treatments. Specifically, I randomly assign 300 non-EGCs as EGCs and test whether the placebo EGCs exhibit different investment-to-price sensitivity than non-EGCs. I repeat this process 300 times and plot the distribution of the coefficients estimates of my main variable of interest: $\text{Log}(M/A) * \text{EGC placebo}$. For comparison, I add a reference line in each histogram with the main estimates in the papers.

attributed to the presence of informed market participants. Informed participants, such as institutional investors and analysts, possess private information and expertise that can help firms improve their investment decisions, especially newly filing firms.¹³ I proxy for the presence of informed investors using levels of institutional ownership and analyst coverage, and I find that the EGCs' high investment-to-price sensitivity is concentrated among EGCs with high institutional ownership and high analyst following.

I also explore the role of underpricing in affecting the extent to which EGCs learn from external market participants. Survey (Brau and Fawcett, 2006) and theoretical studies (Gao and Liang, 2013; Brown, 2016) suggest that IPO underpricing helps attract investors' attention and incentivizes information production by analysts and investors (Loughran and Ritter, 2004; Gao and Liang, 2013), which could affect firms' learning. Accordingly, I find that EGCs' greater investment-to-price sensitivity seems to be concentrated among firms with significant IPO underpricing.

The prior results suggest that EGCs learn more from capital markets in the presence of sophisticated market participants. To provide evidence on the type of information that firms learn, I split EGCs into two groups based on the number of investors

¹³ Analysts could crowd in or crowd out the extent to which firms learn from external market participants (Chen et al., 2007). I discuss in section 5.2.4 how analysts might bolster learning from capital markets for newly filing firms (young and small firms).

with substantial industry expertise in the firm's industry. I identify an investor with industry expertise based on whether that investor acquired a substantial amount of public information about the firm's *competitors* in the prior year.¹⁴ Expert investors might help the firm identify industry trends, assess product quality, and estimate future demand. Consistent with industry expertise influencing how much firms learn from external market participants, I find that EGCs' high investment-to-price sensitivity seems driven by EGCs that have investors who are industry experts.

As a final test, I examine whether the feedback effect from capital markets is associated with future performance. Specifically, I examine whether EGCs have higher sales growth than non-EGCs. I focus on sales because many newly listed firms have negative earnings for several years. I measure sales growth using sales growth at $t+1$ and as an average sales growth from $t+1$ to $t+3$. Consistent with managerial learning helping managers invest better, I find that EGCs have greater future sales growth than non-EGCs. Collectively, these results suggest that the JOBS Act provisions have substantial unexplored benefits. My results, however, cannot speak to whether these benefits outweigh any costs associated with reduced mandatory disclosure.

This paper contributes to three main areas of research. First, it contributes to the disclosure literature by demonstrating a relatively new reason why more flexible disclosure requirements might be desirable: firms with reduced disclosure requirements can use their disclosures to attract investors, increasing the extent to which they learn from the capital markets, which then fosters their growth.¹⁵ Prior studies mainly focus on proprietary costs as a reason why firms might want to withhold private information.

To the best of my knowledge, my paper is one of the first to document significant benefits of the JOBS Act.¹⁶ Studies have documented substantial *costs* of the reduced disclosure requirements. For example, [Chaplinsky et al. \(2017\)](#) find an increase in the indirect costs and no significant decrease in the direct costs of issuing equity for the first time. [Hsueh \(2019\)](#) finds that EGCs afford less investor protection than non-EGCs. In contrast, this paper documents significant benefits of more flexible disclosure requirements for young, small firms. This result may help inform lawmakers and regulators by identifying an unexplored benefit of reduced mandatory disclosure.

Third, my paper adds to the feedback effect literature by studying learning in an IPO setting. Being a publicly traded firm allows managers to access the information of investors and equity analysts. However, high disclosure requirements can crowd out the feedback from financial markets, thus reducing the benefits of being a publicly traded company.¹⁷ Ultimately, reduced disclosure requirements could encourage firms to issue equity by increasing the expected benefits of being publicly traded, holding constant other costs. This result is consistent with the positive effect of the JOBS Act on the number of firms issuing equity ([Dambra et al., 2015](#)).

2. Related literature and predictions

2.1. The information content of prices

A central topic in information economics is whether market prices are informative about the value of traded assets. Informative prices are desirable because they facilitate efficient resource allocation ([Fama and Miller, 1972](#)), which is a primary goal of standard setters. Most of the initial studies on price efficiency focused on the ability of prices to forecast (reflect) firms' future fundamentals. Early examples are the work of [Grossman and Stiglitz \(1980\)](#), [Verrecchia \(1982\)](#), and [Diamond \(1985\)](#), in which firm terminal value is assumed to be exogenous, and prices cannot convey new information to managers.

Anecdotal and systematic evidence, however, suggest that stock prices can be an important source of information for firms. For example, David Allen, a former managing director and chief of staff of British Petroleum, stated: "Within the company you have, at least in theory, access to all the information, but there is only you. Outside you have imperfect information but a lot of brains. If you accept these two different realities and use that creatively, you can learn a lot." Along similar lines, [Roll \(1984\)](#) documents that citrus futures markets provided information *incremental* to traditional meteorological forecasts in forecasting weather. In a more recent study, [Luo \(2005\)](#) finds that the market reaction to mergers and

¹⁴ Similar to my first test, I use an individual IP addresses to identify an investors' information set. I discuss this analysis in more detail in section 5.2.6.

¹⁵ My paper provides a timely assessment of the effects of mandatory disclosure. In doing so, it complements the findings of [Jayaraman and Wu \(2019\)](#). [Jayaraman and Wu \(2019\)](#) examined the effect of segment reporting on learning from prices. The segment reporting mandate was passed almost 25 years ago, and, since then, financial markets and financial reporting rules have evolved (i.e., market microstructure changes, SOX, Dodd-Frank, and others), which warrants a fresh analysis of the effect of disclosure on learning. Moreover, the information affected by the JOBS Act differs from the information contained in the segment reports. Different types of information can have different effects on external information acquisition. Hence it is unclear whether these different policies would have the same effect. Furthermore, unlike the segment disclosure regulation, the JOBS Act has affected mostly young and small firms trying to access the equity market. Young and small firms are an essential part of the U.S. economy and might be differently affected by financial reporting requirements. Importantly, the JOBS Act allows me to explore within the same setting both a decrease and a staggered increase in mandatory disclosure, which helps me better examine the relation between disclosure and learning. Finally, the JOBS Act allows me to perform unique cross-sectional tests to better understand the real effects of disclosure on firms' decisions. For example, survey ([Brau and Fawcett, 2006](#)) and theory papers ([Gao and Liang, 2013](#); [Brown, 2016](#)) suggest that IPO underpricing plays a crucial role in attracting investors' attention and information production. My results corroborate these findings.

¹⁶ One exception is the work of [Dambra et al. \(2015\)](#), who document that the JOBS Act provisions are associated with more firms issuing equity for the first time.

¹⁷ In the extreme, prohibitive disclosure requirements could result in firms choosing alternative financing sources ([Subrahmanyam and Titman, 1999](#)).

acquisitions announcements affects the probability of concluding the deal.¹⁸ Consistent with the managerial learning hypothesis, the author finds a significant flow of information from stock prices to firms. Luo (2005) also finds that companies are more likely to learn from stock prices when canceling an announced deal is easier or when the market is expected to have more information than the companies.¹⁹

The idea that prices produce new information dates back at least to Hayek (1945). Prices have the ability to aggregate and filter information from dispersed sources (Dow and Gorton, 1997; Subrahmanyam and Titman, 1999).²⁰ For example, prices can timely and credibly aggregate investors' private information about firms' investment decisions (Luo, 2005). Furthermore, they can incorporate information about macroeconomic conditions, industry competition, and consumer demand. They can also be informative to managers if internal organizational channels are inefficient in aggregating the information that exists within the firm's scope, such as information that is difficult to standardize, hard to interpret, or incentive-incompatible with those who possess it (e.g., Rajan and Zingales, 2004). Hence managers might look to prices to guide their real decisions, creating a feedback from prices to managerial actions.

Bond et al. (2012) classify the ability of prices to *reflect* and *reveal* new information to managers as two different dimensions of price efficiency. Specifically, the authors refer to the traditional notion of forecasting firm value as forecasting price efficiency (FPE), whereas they identify the ability to provide new information to managers as revelatory price efficiency (RPE). This distinction matters because the value of secondary stock markets partially relies on its ability to support an efficient capital allocation within the firm. This distinction is also important because, as Bond et al. (2012) suggest, prices can be informative in forecasting fundamentals but uninformative in revealing new information to managers. Hence it is important to understand what affects the different dimensions of price informativeness. I focus on the ability of prices to guide firms' investment decisions, given the lack of studies examining the information content of prices and given the fact that theory suggests a nontrivial relation between disclosure and RPE (Gao and Liang, 2013).²¹

Disclosure plays a crucial role in protecting investors, but it can also crowd-out information production and dissemination from alternative sources (Diamond, 1985; Gao and Liang, 2013; Goldstein and Yang, 2019), possibly reducing the quality of the overall information available to decision-makers. Specifically, Gao and Liang (2013) show that managers are willing to trade off the costs of reduced disclosure (e.g., higher underpricing in the IPO) with the benefits of less disclosure (attracting informed investors and informed trading). Their model provides new insights into how firms might be optimally opaque. Their model also suggests that forcing all firms to disclose more information could reduce welfare. Consistent with partial disclosures potentially crowding in market information production, Fergus MacLeod, former investor relations director of British Petroleum, stated: "It's quite a subtle game. BP makes projections and gives indicators—but never gives everything. Thus the analysts pick up on that partial picture and paint the rest with their point of view. But either way as you keep cycling that round with the market you learn something about yourself and the marketplace."

Understanding how disclosure requirements affect firm learning from capital markets is a timely and important question. Lawmakers and regulators are striving to reduce disclosure requirements for publicly traded firms. Nevertheless, there is very little evidence on the effects of disclosure on some dimensions of price efficiency. The current paper aims to fill this void by exploring how reduced mandatory disclosure in the IPO setting affects learning from external market participants.

One exception is the study by Jayaraman and Wu (2019). The authors examine how the mandatory disclosure of segment data affects how much managers learn new information from prices. This paper complements their work in meaningful ways. While both papers examine how disclosure affects the information content of prices, each paper examines different regulatory settings. Jayaraman and Wu (2019) focus on the mandatory disclosure of segment data in 1997. By contrast, the current paper focuses on the financial market consequences of the JOBS Act, which reduced mandatory disclosure for IPO firms trying to access equity markets. Examining the consequences of reduced mandatory disclosure in the IPO setting is important because recent studies have documented an overall decrease in the number of U.S. public companies (Doidge et al., 2017). Excessive disclosure requirements may crowd out the benefits of financial markets (such as feedback from stock prices), which might increase firms' preference for private financing (Subrahmanyam and Titman, 1999). Furthermore, it is unclear whether we would observe similar consequences from regulations that force firms to disclose relative to regulations that

¹⁸ Anecdotal evidence suggests that managers do learn from prices. First, Lucent stopped merger discussions with Alcatel because investors signaled displeasure. Second, after dropping negotiations with PricewaterhouseCoopers, in a conversation with analysts and institutional investors, the CEO of Hewlett-Packard said: "[A] number of you verbalized your concerns ... and others simply voted with their positions in the stock ... I realize you made some valid points." A third example was Coca-Cola's attempt to acquire Quaker Oats. On November 20, 2000, *The Wall Street Journal* reported that Coca-Cola was negotiating to acquire Quaker, which Coca-Cola soon confirmed. The market reacted negatively, sending Coke's shares down almost 8% on November 20 and more than 2% on November 21. The drop represented more than \$15 billion for shareholders. Coca-Cola management brought the deal to its board on November 21. Late that night, Coca-Cola's board announced that it had rejected the proposed acquisition. On November 22, Coca-Cola's shares rebounded almost 8%.

¹⁹ Along similar lines, Kau et al. (2008) find that firms are more likely to cancel investments when more of their shares are held by large blockholders or when their CEOs have higher pay-performance sensitivities.

²⁰ The notion that managers might learn from prices (learning hypothesis) does not assume that managers are less informed than investors. Managerial learning only requires that managers do not have perfect information. Thus investors may collectively possess new information that managers do not have and care to learn.

²¹ Recent empirical papers that examine the feedback effect from prices include the work of Zuo (2016), Edmans et al. (2017), Jayaraman and Wu (2020).

relax mandatory disclosure requirements. Finally, I explore the unique features of the JOBS Act setting to better understand the real effects of disclosure on firms' decisions.

2.2. Institutional framework and the JOBS act

In April 2012, U.S. policymakers enacted the JOBS Act in an attempt to reduce the cost of accessing capital markets. The act introduces a new category of firms—the EGC—that benefits from reduced mandatory disclosure. To qualify as an EGC, the firm must have total gross annual revenues of less than \$ 1 billion during the most recent fiscal year ending before the initial public offering (IPO). Moreover, the firm may lose its EGC status 1) at the fifth anniversary of going public, 2) if it becomes a large accelerated filer, 3) if it has issued more than \$1 billion in nonconvertible debt in the past three years, or 4) if its total annual gross revenues that exceed \$1 billion.

The act allows EGCs to “test the waters” by engaging in oral or written communications with accredited investors either before or after filing the first registration statement. EGCs can also confidentially file their registration statement with the SEC, provided that the filing and any amendments are made public no later than 21 days before conducting the roadshow. A regular filer cannot confidentially file its registration statement.

In contrast to regular filers, EGCs can disclose less. Specifically, a firm may opt to disclose only two instead of three years of audited financial statements. Moreover, the firm may disclose only two instead of five years of selected financial data. EGCs can also provide reduced disclosure of executive compensation. Before the act, IPO firms had to provide a compensation discussion and analysis and disclose three years of compensation information for five named executives of the firm (CEO, CFO, and three others). By contrast, EGCs do not need to provide a compensation discussion and analysis and are only required to disclose two years of compensation information for as few as three named executives, including the CEO. Moreover, EGCs are exempt from requirements in the Dodd-Frank Act of 2010 that require firms to hold advisory say-on-pay votes and to disclose the ratio of CEO pay-to-median employee pay.

EGCs can also delay compliance with Section 404(b) of the Sarbanes-Oxley Act (SOX), which requires an internal control audit. Moreover, unless the SEC states otherwise, EGCs are exempt from the Public Company Accounting Oversight Board (PCAOB) rules. They can also opt to continue to use private accounting standards. Before the act, regular new filers had to apply new or revised accounting standards as of their effective dates.

These provisions might benefit new issuers in many ways. First, by allowing companies to “test the waters,” firms can assess investors' interest without committing to an IPO. Second, registration statement confidentiality allows the firm to timely address potential SEC comments with minimal negative publicity. The provisions also reduce potential disclosure costs of becoming a public company. For example, firms can delay the application of public company accounting standards. EGCs might also save money by being able to provide fewer audited financial statements or by delaying compliance with SOX 404(b). Indeed, a recent study by [Dambra et al. \(2015\)](#) suggests that the provisions in the JOBS Act increased the number of firms accessing the equity market. Taken together, the JOBS Act's provisions provide a unique setting to study the effects of reduced disclosure on the extent to which managers learn from capital markets.

The JOBS Act was one of the first steps taken by the SEC when reviewing disclosure requirements for public firms and aims to facilitate capital formation and promote economic growth. Since 2012, the SEC has been investigating and implementing further reductions in mandatory disclosure requirements. For example, in June 2017, the SEC expanded the confidential filing of the registration statement for all firms, no longer restricting it to just EGCs.²² Moreover, in June 2018, the SEC expanded the scope of smaller public companies that qualify for scaled disclosures.²³ These actions suggest that the SEC is increasingly considering reducing mandatory disclosure requirements for all publicly traded firms. Hence understanding whether and how the reduction in mandatory disclosure affects learning from capital markets is relevant to the SEC.

This paper complements previous JOBS Act studies by examining how reduced mandatory disclosure affects the ability of prices to convey information to managers. Less disclosure can attract investors who profit from acquiring and producing new information ([Gao and Liang, 2013](#)). Therefore less disclosure could *increase* the extent to which managers learn new information from external market participants. Specifically, I conjecture that EGCs learn more from capital markets than do non-EGCs. It is not clear whether reduced mandatory disclosure will lead to an increase in the information flow from outsiders to insiders. If investors do not profit from acquiring and trading on the information, then we might observe a decrease to the extent that prices guide future investment decisions.

The JOBS Act also allows unique cross-sectional tests to better understand the real effects of disclosure on firms' decisions. Survey ([Brau and Fawcett, 2006](#)) and theory papers ([Gao and Liang, 2013](#); [Brown, 2016](#)) suggest that IPO underpricing helps attract investors' attention and information production. Therefore I conjecture that managerial learning is stronger for firms with high underpricing.

Institutional investors and analysts might also play an important role in managerial learning from prices ([Bai et al., 2016](#)). They are more likely to have information relevant to firms, which can contribute to better investment decisions. Their information might be especially important for young and small firms. Therefore, I conjecture that managerial learning is stronger for firms with a greater presence of sophisticated market participants. However, if analysts and other investors only

²² <https://www.sec.gov/corpfin/announcement/draft-registration-statement-processing-procedures-expanded>.

²³ <https://www.sec.gov/news/press-release/2018-116>.

produce information already known by managers, then we might observe similar or lower levels of managerial learning from prices relative to the control group (Chen et al., 2007).

3. Research design

3.1. Market feedback effect

I measure the effects of reduced mandatory disclosure on market feedback by comparing the investment-to-price sensitivity of EGCs and non-EGCs. EGCs are IPO firms post-JOBS Act that benefit from any of the act provisions. Non-EGCs are firms involved in an IPO from 2003 to 2012 that would have benefited from the JOBS Act had their IPOs been after the enactment of the act. Thus non-EGCs form an effective control group of firms that resemble EGCs but must disclose more information (Barth et al., 2017).

I measure the extent to which firms learn from capital markets following Bai et al. (2016). The ability of prices in the year (t) to inform internal investment decisions in t+1 is captured by the following regression.

$$Inv_{it+1} = \alpha_0 + \alpha_1 \log\left(\frac{M_{it}}{A_{it}}\right) + X\beta + \varepsilon_{it+1} \quad (1)$$

where Inv_{it+1} is the capital expenditure for firm i in year t+1 scaled by fixed assets of the firm i in year t, $\log\left(\frac{M_{it}}{A_{it}}\right)$ is the firm market capitalization scaled by the total assets, and X_{it} is a vector of controls for firm i that includes current earnings and industry sector (SIC one digit) fixed effects and year fixed effects. As shown by prior studies (e.g., Chen et al., 2007), the weight that firms put on stock prices (α_1) is positively associated with the market feedback effect.²⁴

To test how reduced mandatory disclosure affected learning from capital markets, I augment equation one by adding an indicator variable capturing whether the firm is an EGC. Specifically, I estimate the following.

$$Inv_{it+1} = \alpha_0 + \alpha_1 \log\left(\frac{M_{it}}{A_{it}}\right) + \alpha_2 EGC * \log\left(\frac{M_{it}}{A_{it}}\right) + \alpha_3 EGC + X\beta + \varepsilon_{it+1} \quad (2)$$

Thus α_2 captures EGC's incremental investment-to-price sensitivity relative to non-EGCs. Reduced mandatory disclosure can attract more informed investors who profit from acquiring and producing information. As a consequence, prices can incorporate more new information, thus increasing the ability of prices to guide managers' investment decisions. In this case, holding everything else constant, I would expect to observe $\alpha_2 > 0$.

3.2. Informed investor analysis

I also study the effect of the JOBS Act on attracting informed investors' attention. Specifically, I examine whether EGCs attract a greater number and proportion of informed investors than non-EGCs. I use several different measures of informed investor ownership and attention.

First, I use the EDGAR Logfile data to measure how many different unique informed investors (IP addresses) are paying attention to the firm in a given year.²⁵ I classify an IP address as informed if it downloaded more than 10, 30, or 50 filings in the prior year. Prior research has shown that low-search volumes are more likely to come from retail investors (Chi and Shanthikumar, 2018). Specifically, 90% of IP addresses download fewer than 20 filings in seven years or fewer than three filings per year. The total number and the proportion of informed investors are intuitive and easy-to-calculate measures and more likely to embody a wider range of informed market participants and allow for variation across years.²⁶ I aggregate the number and proportion of informed investors to the annual level to maintain consistency with prior analyses and to better manage the data. Furthermore, I log-transform measures of information acquisition to smooth potential data skewness.²⁷

Following prior studies that used EDGAR's logfile, I exclude IP addresses identified by EDGAR as web crawlers.²⁸ Furthermore, I exclude IP addresses with more than 1000 downloads per day because those are more likely to be attributable to web crawlers. To remove potential redundancy among observations, I remove clicks on index pages. To remove the potential noise of one-time users, I also exclude IP addresses with only one download in a given year.

²⁴ Prices aggregate and transmit investors' private information. Thus the coefficient of regressing future investment into prices is positively associated with the amount of investors' private information that is into prices.

²⁵ The EDGAR Log File Data can be found in the following link: <https://www.sec.gov/dera/data/edgar-logfile-data-set.html>. For the information attention tests, I use data from 2003 through 2016 given data availability constraints.

²⁶ Untabulated correlations suggest that UniqueInformedIPs and PropInformedIPs are positively correlated with institutional ownership and analyst coverage, two important financial market participants. Using IP addresses allows me to consider any type of informed market participants, including competitors, the board of directors, venture capitalists, regulators, customers and suppliers, and others.

²⁷ I do not log the proportion of downloads coming from sophisticated IP addresses since this measure ranges from 0 to 1.

²⁸ See Lee et al. (2015); Drake et al. (2017); Dyer (2019); and Chen et al. (2018).

Following [Barth et al. \(2017\)](#), I also examine whether EGCs attract more informed investors by examining institutional ownership measures. Specifically, I examine whether the institutional investors attracted by EGCs are dedicated, transient, or quasi-indexers.

4. Sample and descriptive statistics

To study whether reduced mandatory disclosure affects learning from external market participants, I gather annual accounting data from Compustat, market data from CRSP, firm IPO information from AuditAnalytics and Securities Data Corporation (SDC) Platinum, analyst information from I/B/E/S, information retrieval data from EDGAR Logfile, and institutional ownership data from Thompson Reuters 13-F filings.

My sample period ranges from 2003 to 2019. My sample includes firms that were involved in an IPO from 2003 to 2017 with initial gross revenues below \$1 billion. Following [Barth et al. \(2017\)](#), I exclude IPOs that are leveraged buyouts, closed-end funds, open-end funds, trusts, and special purpose vehicles.²⁹ Furthermore, I exclude foreign firms listed in the United States (cross-listed firms) and observations with missing accounting information.³⁰ My control group is made of IPO firms from 2003 to 2012 that would have qualified for the JOBS Act had their IPOs occurred after the act (non-EGCs).

I collect the EGC status and provisions used by the companies from AuditAnalytics and a proprietary dataset. I hand-collect missing observations directly from S-1 (S-1/A). I keep the firms in my sample for at most five years to avoid over-sampling of observations pre JOBS Act.³¹ The final sample consists of an unbalanced panel of 375 unique EGCs and 724 non-EGCs, totaling 4381 observations from 2003 to 2019. All continuous variables are winsorized at 1% and 99% and are described in [Appendix A](#).

To test the consequences of losing EGC status, I augment the final sample with observations up to six years after the IPO. For some of my tests, my sample size decreases due to current data availability. For example, for the information attention tests, I use data from 2003 through 2016 because the 2017 logfiles were not available in EDGAR.

4.1. Descriptive statistics

[Table 1](#) presents the descriptive statistics for my main variables. Panel A provides the descriptive statistics for my pooled sample of EGCs and non-EGCs. Panel B displays the descriptive statistics by group (EGCs versus non-EGCs). Panel C presents the descriptive statistics for the provisions being used by EGCs in my sample. Panel D displays the correlation matrix of the JOBS Act provisions.

As both panels A and B suggest, the average firm in my sample has a negative income before interest. This result is consistent with prior studies that document that new publicly traded companies are usually unprofitable. Among other results, Panel B suggests that EGCs have higher scaled market capitalization, higher levels of information asymmetry, and higher future investment relative to non-EGCs. The difference in information asymmetry could be driven by the greater presence of investors that possesses private information. I formally test these differences in the multivariate analysis in [Table 2](#).

As [Table 1](#) Panel C suggests, almost all EGCs benefit from delaying compliance with SOX. Moreover, nearly all of them file their prospects confidentially. Among EGCs, 83% reduce compensation disclosure, and 77% opt to not disclose the compensation discussion and analysis on their 10-Ks. A similar proportion opts to have fewer financial statements on their prospects. Finally, approximately one-quarter of EGCs opt to delay the application of new accounting standards.

Disentangling which provision is the most influential is difficult. The average (median) EGC firm adopts four (five) out of the six provisions. This result suggests that firms perceive the benefits of these provisions to be higher than the costs. Moreover, [Table 1](#) panel D suggests that adopting one provision is generally positively correlated with the adoption of others.

5. Results

5.1. Informed investor analysis

In this subsection, I examine whether firms with reduced disclosure attract more informed investors and informed trading than firms that are forced to disclose more information. Theory suggests that reduced disclosure increases the ex-ante expected profitability of acquiring and trading on private information ([Gao and Liang, 2013](#)). To test this conjecture, I examine whether EGCs attract a larger number (*UniqueInformedIPs*) and proportion (*PropInformedIPs*) of informed investors relative to non-EGCs.³² [Table 2](#) panel A presents summary statistics suggesting that, relative to non-EGCs, EGCs do exhibit a greater number and proportion of informed investors paying attention to them.

²⁹ SIC codes 6091, 6371, 6722, 6726, 6732, 6733, and 6799.

³⁰ My results are robust to the inclusion of cross-listed firms.

³¹ The JOBS Act became law in 2012. Thus I will not have more than five years of data for many firms post JOBS Act. If I were to keep all firm-year observations, then I would oversample toward the control group.

³² These measures do not capture how many EDGAR filing downloads a firm has in a given year but rather how many different investors pay attention to the firm and, more importantly, how many of these investors are informed.

Table 1
Descriptive statistics.

Panel A: Descriptive Statistics for the entire sample						
	N	Mean	Std	Q1	Q2	Q3
Inv_t+1	4381	0.557	0.74	0.17	0.36	0.65
EGC	4381	0.223	0.42	0.00	0.00	0.00
job_index	4381	0.960	1.85	0.00	0.00	0.00
high_index	4381	0.179	0.38	0.00	0.00	0.00
Log (M/A)	4381	0.303	1.11	-0.32	0.44	1.08
ebit_defl	4381	-0.114	0.38	-0.21	0.01	0.09
prc_inv	4381	0.180	0.32	0.05	0.08	0.17
cf_defl	4381	-0.001	0.27	-0.05	0.05	0.13
BidAsk	4361	-5.927	1.25	-6.79	-6.11	-5.14
Illiq	4361	-1.889	1.86	-3.05	-2.18	-1.00
SalesGrowth [t+1]	4072	0.166	0.53	0.00	0.14	0.30
SalesGrowth [t+1t+3]	4072	0.134	0.38	0.00	0.12	0.24
Panel B: Panel B: Descriptive statistics by EGCs and non-EGCs						
	N	Mean	Std	Q1	Q2	Q3
<i>EGCs</i>						
Inv_t+1	979	0.70	1.06	0.15	0.35	0.72
EGC	979	1.00	0.00	1.00	1.00	1.00
job_index	979	4.29	1.03	4.00	5.00	5.00
high_index	979	0.80	0.40	1.00	1.00	1.00
Log (M/A)	979	0.43	1.07	-0.14	0.63	1.13
ebit_defl	979	-0.29	0.45	-0.44	-0.20	0.01
prc_inv	979	0.19	0.31	0.05	0.10	0.19
cf_defl	979	-0.10	0.32	-0.17	-0.03	0.06
BidAsk	975	-5.65	1.18	-6.55	-5.83	-4.84
Illiq	975	-1.52	1.60	-2.59	-1.80	-0.71
Ch_sale	805	0.20	0.68	0.00	0.16	0.37
SalesGrowth [t+1t+3]	843	0.21	0.60	0.00	0.16	0.35
<i>Non-EGCs</i>						
Inv_t+1	3402	0.52	0.61	0.17	0.36	0.64
EGC	3402	0.00	0.00	0.00	0.00	0.00
job_index	3402	0.00	0.00	0.00	0.00	0.00
high_index	3402	0.00	0.00	0.00	0.00	0.00
Log (M/A)	3402	0.27	1.13	-0.37	0.39	1.07
ebit_defl	3402	-0.06	0.34	-0.10	0.03	0.11
prc_inv	3402	0.18	0.32	0.04	0.07	0.16
cf_defl	3402	0.03	0.25	-0.00	0.07	0.15
BidAsk	3386	-6.01	1.26	-6.85	-6.18	-5.29
Illiq	3386	-2.00	1.91	-3.19	-2.30	-1.13
Ch_sale	3267	0.16	0.48	0.01	0.14	0.29
SalesGrowth [t+1t+3]	3309	0.13	0.37	0.00	0.11	0.22

Table 2 panel B further examines the differences in informed investors in a multivariate linear regression. Following prior studies that examine the market feedback effect (e.g., Jayaraman and Wu, 2019), I include measures of accounting profitability (*ebit defl*), cash flow from operations (*cf defl*), market capitalization (*Log(M/A)*), and the inverse of stock prices (*prc inv*), as firms with lower stock prices have larger bid-ask spreads. I also include industry and year fixed effects to control for firm- or time-invariant characteristics. The coefficient of EGC is positive and significant across all columns (p -value < 0.01). Columns 1–3 suggest that EGCs have more informed IPs paying attention to them relative to non-EGCs. Columns 4–6 suggest that EGCs also attract a higher proportion of informed investors than non-EGCs. In terms of economic magnitude, EGCs attract approximately 8% more informed investors than non-EGCs. Taken together, these results suggest that one benefit of the JOBS Act is the ability to attract more informed investors. Informed investors can combine their expertise in an industry, segment, or country to inform and evaluate firms' internal investment decisions (Bernard et al., 2020).

To corroborate the evidence of Table 2 panels A and B, I also examine whether EGCs have higher levels of dedicated (long-term oriented) institutional ownership. Reduced disclosure can attract more dedicated investors by discouraging short-term or passive investors from freeriding on long-term investors' efforts (McCahery et al., 2016). Table 2 panel C exhibits the results. The results suggest that EGCs do have higher levels of dedicated institutional investors (Columns 1 and 4), lower levels of transient (Columns 2 and 5) and quasi-index investors (Columns 3 and 6). Collectively, these results are consistent with EGCs using the JOBS Act provisions to attract more informed and engaged investors, who can then produce and transmit new information to firms.

I also examine whether EGCs have higher levels of bid-ask spread and illiquidity relative to non-EGCs. Trading in the stock market is a credible and efficient way that investors transmit their private information, which could result in greater

Table 2
Informed investor analysis.

Panel A: Univariate Analysis – Presence of Informed Investors							
		Mean EGCs	Mean non-EGCs	Difference	Std. Error	T-statistic	p-value
<i>UniqueInformedIPs</i>	InformedIP > 10	6.92	5.54	1.38	0.09	14.78	0.00
	InformedIP > 30	6.76	5.36	1.40	0.09	15.12	0.00
	InformedIP > 50	6.67	5.25	1.41	0.09	15.41	0.00
<i>PropInformedIPs</i>	InformedIP > 10	0.38	0.30	0.08	0.01	10.25	0.00
	InformedIP > 30	0.33	0.25	0.07	0.01	10.73	0.00
	InformedIP > 50	0.30	0.23	0.07	0.01	11.33	0.00

Panel B: Multivariate Analysis – Presence of Informed Investors							
Dep. Variable:	<i>UniqueInformedIPs_{it}</i>			<i>PropInformedIPs_{it}</i>			
Cutoff:	<i>InformedIP > 10</i>	<i>InformedIP > 30</i>	<i>InformedIP > 50</i>	<i>InformedIP > 10</i>	<i>InformedIP > 30</i>	<i>InformedIP > 50</i>	
	(1)	(2)	(3)	(4)	(5)	(6)	
EGC	0.08*	0.08*	0.09**	0.06***	0.05***	0.05***	
	(1.75)	(1.86)	(2.19)	(11.75)	(11.02)	(10.97)	
ebit_defl	-0.23**	-0.09**	-0.09**	-0.00	-0.00	-0.00	
	(-4.48)	(-2.30)	(-2.43)	(-0.28)	(-0.65)	(-0.69)	
prc_inv	0.24***	0.23***	0.22***	-0.02***	-0.02***	-0.02***	
	(5.99)	(5.81)	(5.57)	(-5.81)	(-6.05)	(-6.27)	
cf_defl	-0.10**	-0.09**	-0.08**	-0.01	-0.00	-0.00	
	(-2.46)	(-2.16)	(-2.04)	(-1.35)	(-0.64)	(-0.33)	
Log (M/A)	0.24***	0.23***	0.23***	-0.00***	-0.01***	-0.01***	
	(22.08)	(22.27)	(22.49)	(-3.72)	(-4.34)	(-4.71)	
N	3698	3698	3698	3698	3698	3698	
Sic-One FE	Yes	Yes	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	

Panel C: Institutional Ownership Analysis							
Dep. Variable:	<i>DedicatedIO</i>		<i>TransientIO</i>		<i>QuasiIO</i>		
	(1)	(2)	(3)	(4)	(5)	(6)	
EGC	0.031***	-0.024***	-0.061***	0.032***	-0.042***	-0.115***	
	(4.38)	(-3.40)	(-5.48)	(3.17)	(-3.79)	(-5.79)	
ebit_defl	-0.018**	-0.002	0.019	-0.009	0.011	0.042*	
	(-2.31)	(-0.16)	(0.95)	(-1.09)	(0.72)	(1.90)	
prc_inv	-0.006*	-0.066***	-0.108***	-0.004	-0.067***	-0.126***	
	(-1.79)	(-6.93)	(-9.98)	(-0.92)	(-6.70)	(-10.12)	
cf_defl	0.007	0.056***	0.049**	0.001	0.041**	0.015	
	(0.75)	(3.27)	(2.19)	(0.11)	(2.42)	(0.60)	
Log (M/A)	0.007**	0.013***	0.045***	0.009***	0.015***	0.047***	
	(2.45)	(4.61)	(9.47)	(2.91)	(4.87)	(8.56)	
N	4381	4381	4381	4381	4381	4381	
R ²	0.03	0.10	0.19	0.05	0.14	0.25	
Sic-One FE	No	No	No	Yes	Yes	Yes	
Year FE	No	No	No	Yes	Yes	Yes	

Panel D: Information Asymmetry Analysis							
Dep. Variable:	<i>BidAsk</i>			<i>Illiq</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	
EGC	0.354***	0.176***	0.887***	0.479***	0.351***	1.246***	
	(4.90)	(3.09)	(9.73)	(4.81)	(3.71)	(7.74)	
ebit_defl		-0.751***	-0.792***		-0.583***	-0.770***	
		(-8.33)	(-8.20)		(-3.49)	(-4.31)	
prc_inv		1.381***	1.323***		0.755***	0.794***	
		(12.01)	(12.01)		(3.81)	(4.30)	
cf_defl		-0.203*	-0.129		-0.414**	-0.200	
		(-1.80)	(-1.12)		(-2.00)	(-0.97)	
Log (M/A)		-0.296***	-0.315***		-0.490***	-0.467***	
		(-10.26)	(-10.61)		(-8.32)	(-8.08)	
N	4361	4361	4361	4361	4361	4361	
R ²	0.01	0.37	0.50	0.01	0.17	0.26	
Sic-One FE	No	No	Yes	No	No	Yes	
Year FE	No	No	Yes	No	No	Yes	

This table examines whether Emerging Growth Companies (EGCs) attract more informed investors (Panel A, B, and C) and informed trading (Panel D) relative to non-EGCs. Panel A presents the univariate summary statistics for the variables that capture the presence of informed investor attention. UniqueInformedIP captures the (logged) number of unique informed IPs for firm 'i' at year 't'. I label an IP address as informed if the IP has more than 10 (row 1), 30

(row 2), or 50 (row 3) EDGAR requests in the prior year. PropInformedIPs reflects the proportion of downloads coming from an informed IP for a given firm in a given year. In Panel B, I estimate the following linear equation $Y_{it} = \beta_1 EGC + X\beta + \eta_{it}$, where Y_{it} is one of 2 measures of investors' attention: UniqueInformedIP and PropInformedIPs, using different thresholds to identify informed investor attention. In Panel C, Y_{it} is one of three measures of institutional ownership, DedicatedIO, TransientIO, or QuasiIO for firm i at year t . These measures capture the fraction of shares outstanding held by institutional investors as dedicated, transient, and quasi-indexers, respectively. The main variable of interest is EGC. In Panel D, Y_{it} is one of two measures of information asymmetry, bid-ask spread or Amihud's (2002) illiquidity measure for firm i at year t . The main variable of interest is EGC. The main coefficient of interest is that on EGC. EGC is an indicator variable equal to one if the firm identifies itself as an Emerging Growth Company, zero otherwise. X is a vector of controls such as ebit defl, prc inv, cf defl, as well fixed effects. All variables are defined in Appendix A. Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

information asymmetry between informed and uninformed investors.³³ Table 2 panel D presents the results. Following Panel B and Panel C, I report the estimations with and without controls and fixed effects. Consistent with an increase in information asymmetry and informed trading, I find that the coefficient of EGC is positive and significant across all columns ($p - value < 0.01$). These results extend Barth et al.'s (2017) findings by showing that EGCs exhibit greater information asymmetry even several months after the IPO.

5.2. The effect of reduced mandatory disclosure on market feedback

The preceding results suggest that EGCs attract more informed and dedicated investors than non-EGCs. Informed investors analyze and produce information, which could result in firms learning more from external market participants (a stronger market feedback effect). To test this conjecture, I examine whether EGCs exhibit a higher investment-to-price sensitivity than non-EGCs.

Table 3 presents the results. For robustness, I present the results with and without fixed effects. In the most conservative specification, I include industry and year fixed effects. In Table 3 panel A, I report estimations using my full sample. The main coefficient of interest is $\text{Log}(M/A) * EGC$, which is positive and significant across all columns ($p\text{-value} < 0.05$). These results suggest that EGCs exhibit greater investment-to-price sensitivity than non-EGCs. The fact that the coefficient is relatively stable across specifications suggests that the results are not due to a specific regression specification. Furthermore, the results are economically significant. I find that the EGCs' investment-to-price sensitivity is 39% higher than that of non-EGCs.³⁴ This result suggests that disclosure requirements for newly filing firms might restrict how much young firms learn from capital markets.

In Table 3 Panel B, I use entropy-balanced matching to create a counterfactual firm with similar pre-IPO characteristics. Entropy balancing reweights sample observations to achieve a balance between two groups (Hainmueller, 2012). The reweighted non-EGC sample has distributional moments (first and second) that are indistinguishable from those of the distribution of pre-IPO EGCs. The goal of entropy balancing is to minimize bias or inconsistency that could be driven by pre-existing covariate imbalance. I balance firms based on the amount of proceeds raised during the IPO, the total sales prior to the IPO, and the age of the firm. The main coefficient of interest is $\text{Log}(M/A) * EGC$, which is positive and significant across columns ($p\text{-value} < 0.05$). Similar to panel A, the coefficients are fairly robust across columns and similar in magnitudes.³⁵

The results in Table 3 are consistent with reduced mandatory disclosure increasing the information flow from outsiders to managers. The analyses shown in Table 2 suggest that the increase in learning might be due to the increased presence of sophisticated investors paying attention to the firm. These results provide one of the first large-scale analyses of the learning hypothesis in the IPO setting. A recent survey by Brau and Fawcett (2006) suggests that firms pursue IPOs to gather capital for future investment decisions. After issuing equity and gathering capital, these firms want to identify efficient investment opportunities. Strict disclosure requirements could, however, crowd out beneficial feedback from capital markets. Therefore, firms might want to find ways other than an IPO to gather capital, which might also help explain, in part, the recent trend away from IPOs in the United States. This result is also consistent with a recent survey of activist investors that highlights that stock liquidity discourages investors from engaging with the firms (McCahery et al., 2016).

5.2.1. Market feedback after losing EGC status

One concern is that EGCs differ systematically from non-EGCs (selection bias), and this difference might lead to the observed differences in investment-to-price sensitivity. In Table 3 panel B, I show that my results are robust to using an entropy-balanced sample of non-EGCs. In this subsection, I further address this concern by examining whether my results reverse once EGCs lose their EGC status and must disclose more information. If EGCs are inherently different from non-EGCs before the IPO, I should observe no change in the investment-to-price sensitivity once EGCs must disclose more information.

³³ Informed investors can use multiple channels of communication to transmit their information to managers, including direct engagement, dissemination of forecasts, and trading.

³⁴ Thirty-nine percent is calculated by dividing 0.069 by 0.175 (column 1 of Table 3). This result is comparable to the findings of Jayaraman and Wu (2019) that disclosure can reduce investment-to-price sensitivity to about 37% for certain firms. My estimates are larger partially because my sample comprised of young, small firms that are assessing the equity market for the first time. These firms are likely to learn more from external market participants.

³⁵ One concern is that the entropy balancing only helps control for observable characteristics. I conduct additional tests using a staggered difference-in-differences model with firm fixed effects to control for time-invariant unobservables. Furthermore, as I will discuss in more detail below, I use another setting to estimate a difference-in-differences design, which allows me to minimize concerns associated with the decision to go public.

Table 3
Mandatory disclosure and learning from capital markets.

Panel A: Investment-to-price sensitivity Analysis				
Dep. Variable:	Inv_{it+1}			
	(1)	(2)	(3)	(4)
$\log(M/A) \times EGC$	0.069** (2.11)	0.077** (2.34)	0.080** (2.47)	0.084*** (2.65)
$\log(M/A)$	0.175*** (14.23)	0.189*** (13.15)	0.203*** (13.57)	0.191*** (12.84)
<i>N</i>	4381	4381	4381	4381
adj. <i>R</i> ²	0.09	0.10	0.11	0.12
Controls	No	Yes	Yes	Yes
SicOne FE	No	No	Yes	Yes
Year FE	No	No	No	Yes
Panel B: Entropy-Balanced Sample				
Dep. Variable:	Inv_{it+1}			
	(1)	(2)	(3)	(4)
$\log(M/A) \times EGC$	0.095*** (2.81)	0.101*** (2.98)	0.087*** (2.65)	0.083** (2.53)
$\log(M/A)$	0.174*** (12.19)	0.200*** (12.39)	0.225*** (10.04)	0.216*** (9.77)
<i>N</i>	3354	3354	3354	3354
adj. <i>R</i> ²	0.08	0.09	0.11	0.13
Controls	No	Yes	Yes	Yes
SicOne FE	No	No	Yes	Yes
Year FE	No	No	No	Yes

This table examines whether Emerging Growth Companies (EGCs) exhibit greater investment-to-price sensitivity relative to non-EGCs. Specifically, I estimate the following linear equation $Inv_{it+1} = \alpha_0 + \alpha_1 \log\left(\frac{M}{A}\right) + \alpha_2 EGC * \log\left(\frac{M}{A}\right) + \alpha_3 EGC + X\beta + \varepsilon_{it+1}$. Inv_{it+1} is firm *i* capital expenditure at time *T*+1 scaled by PPE expenditures at time *T*. The main coefficient of interest is that on $EGC * \log\left(\frac{M}{A}\right)$. *EGC* is an indicator variable equal to one if the firm identifies itself as an Emerging Growth Company, zero otherwise. $\log(M/A)$ is the log of firm *i* market capitalization scaled by total assets at time *T*. *X* is a vector of controls including *ebit_defl*, *prc_inv*, *cf_defl*, as well fixed effects. I present the estimations using the entire sample of non-EGCs (Panel A) and using an entropy-balanced sample (Panel B). EGCs and non-EGCs are balanced based on age, proceeds raised from the IPO, and sales prior to the IPO. Column (1) estimates the model with no controls. Column (2) adds control variables. Column (3) adds industry fixed effects. Column (4) displays estimations with year and industry fixed effects. All variables are defined in Appendix A. Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

Firms can lose their EGC status for four main reasons: 1) total annual gross revenues exceed \$1.07 billion in the current year; 2) the firm becomes a “large accelerated filer”; 3) the firm has issued more than \$1 billion in nonconvertible debt in the past three years; or 4) the firm reaches the fifth anniversary of the date of the first sale of common equity securities pursuant to an effective registration statement.³⁶ Note that firms can lose their EGC status at different points in time. This feature allows me to implement a staggered difference-in-differences design, which helps me to rule out alternative explanations. Specifically, I augment equation (2) by including *I(Post)* and its interactions with *EGC* and $\log(M/A) * EGC$.³⁷ *I(Post)* is an indicator variable equal to one for the years after the firm meets any of the above criteria and zero otherwise.³⁸

$$Inv_{it+1} = \alpha_0 + \alpha_1 \log\left(\frac{M_{it}}{A_{it}}\right) * EGC * I(Post) + X\Gamma + \varepsilon_{it+1} \tag{3}$$

In my sample, the main reason why firms lose their EGC status is due to the fifth anniversary of the date of the first sale of common equity securities. To test the consequences of losing EGC status, I augment the final sample with observations up to six years after the IPO. Firms that lose their EGC status must disclose just as follow the same disclosure requirements as non-EGCs. I use this change to examine whether an increase in disclosure requirements leads to a decrease in prices’ ability to reveal new information to EGCs.

Table 4 displays the results. In columns 1 and 2, I present the results using the full sample. Columns 3 and 4 present the estimations of a subperiod where I delete the first two years of the IPO. Deleting the initial years allows me to better center the model around the staggered increase in disclosure and allows me to test whether my results are driven by JOBS Act provisions

³⁶ Once an EGC meets one of the four criteria, I manually check whether the firm starts reporting as a non-EGC in the following year. I use AuditAnalytics to help identify whether firms become large accelerated filers since there have been concerns that market capitalization is not a good proxy for public float.

³⁷ I include all of the main effects and double interactions in the regressions.

³⁸ Non-EGCs will also have *I(Post)* equal to one if they meet any of the criteria discussed in the previous paragraph.

Table 4
Reversal analysis.

Dep. Variable:	Inv_{it+1}			
	Full Sample		Deleting the first two years of data	
	(1)	(2)	(3)	(4)
$\log(M/A) \times EGC \times I(Post)$	-0.15*** (-3.27)	-0.11** (-2.25)	-0.15* (-1.76)	-0.14* (-1.79)
$\log(M/A) \times EGC$	0.15** (2.03)	0.16** (2.13)	0.27** (1.65)	0.30* (1.82)
$\log(M/A) \times I(Post)$	-0.07*** (-3.20)	-0.06*** (-2.63)	-0.01 (-0.45)	-0.01 (-0.301)
$EGC \times I(Post)$	0.09*** (2.48)	0.19*** (1.76)	0.07 (1.40)	0.19 (1.34)
$\log(M/A)$	0.33*** (12.97)	0.28*** (10.59)	0.20*** (7.32)	0.18*** (6.44)
<i>N</i>	6317	6317	3754	3754
adj. <i>R</i> ²	0.25	0.26	0.28	0.28
Main Effects	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes

This table examines whether investment-to-price reverses (decreases) when firms lose their EGC status. Specifically, the main variable of interest is $\log(M/A) \times EGC \times I(Post)$. $I(Post)$ is an indicator variable equal to one for the years after the firm meets any of the criteria that result in the firm losing the JOBS Act benefits, zero otherwise. This test augments the original sample period to include observations up to 6 years after the IPO to have more observations after the firm's fifth anniversary. Controls include *ebit_defl*, *prc_inv*, *cf_defl*, the main effects, and industry and year fixed effects. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

that only affect the IPO period (“confidential filing” and “testing the waters”). The coefficient of interest, $\log(M/A) \times EGC \times I(Post)$, is negative and statistically significant across all columns. This result suggests that learning weakens after firms are forced to disclose more, suggesting that any differences in the feedback effect for EGCs reverse after they lose their EGC status. Furthermore, the decrease in investment-to-price sensitivity is also economically significant, representing a drop of 25%–39% in learning from external market participants.³⁹ These tests bolster my inferences that disclosure requirements significantly affect market incentives to produce information, which affects the extent to which firms learn from prices. Any omitted correlated variable would need to explain why EGCs initially exhibit higher investment-to-price sensitivity than non-EGCs but *not* once they lose their EGC status.

The fact that the market feedback weakens after firms lose their EGC status also suggests that EGCs' greater investment-to-price sensitivity is not solely due to de-risking provisions (“confidential filing” and “testing the waters”). Prior research suggests that the de-risking provisions are the most important and frequently adopted of all JOBS Act provisions (Dambra et al., 2015). Therefore, one concern is that the greater investment-to-price sensitivity is driven by these provisions. However, both provisions relate to the first years of the IPO. If they were the main reason for the observed differences, I should observe no reversal once the EGC is forced to disclose more information. Nevertheless, I still observe a significant reversal once firms lose their EGC status. The reversals are likely driven by the increased disclosure of financial accounting information and executive compensation, which can attract passive investors and crowd out active external information production. Taken together, these results corroborate the significant effect of disclosure on market-based information production.

5.2.2. Falsification tests

I conduct two falsification tests to assess whether my results are driven by spurious correlations. First, I examine whether current prices are correlated with *past* investment instead of *future* investment. If prices capture information already known to the manager, then I would observe a significant incremental relation between current prices and past investment. Table 5 Panel A presents the results, which suggest that there is no significant association between current prices and past investment.

I run placebo regressions as my second falsification test. Specifically, I compare my main estimations with 300 placebo estimates based on randomized “placebo EGCs.” The distribution of the coefficient estimates is presented in Fig. 2 and is centered around zero, which differs significantly from the estimated effects in Table 3 (indicated by the red line). Table 5 Panel B presents the summary statistics for the variable of interest and its t-statistic. The average placebo coefficient and t-statistic are close to zero and have the opposite sign of Table 3 estimates. Taken together, these results suggest that the increase in investment-to-price sensitivity documented in Table 3 is unlikely to be driven by spurious correlations.

³⁹ Twenty-five percent and 39% are calculated using the estimates in column 2 (with the full sample and with firm and year fixed effects). Twenty-five percent is equivalent to $0.11/(0.28 + 0.16)$. 39% is equivalent to $0.11/0.28$.

Table 5
Falsification tests.

Panel A: Lagged Investment-to-price Specifications				
Dep. Variable:	Inv_{it-1}			
	(1)	(2)	(3)	(4)
log (M/A)×EGC	-0.001 (-0.05)	-0.008 (-0.68)	-0.004 (-0.34)	-0.006 (-0.54)
log (M/A)	0.034*** (6.74)	0.034*** (6.01)	0.034*** (5.91)	0.039*** (6.54)
N	4354	4354	4354	4354
adj. R ²	0.02	0.05	0.09	0.10
Controls	No	Yes	Yes	Yes
SicOne FE	No	No	Yes	Yes
Year FE	No	No	No	Yes

Panel B: Descriptive Statistics of Placebo Regressions						
	N	Mean	Std Dev	Q1	Q2	Q3
Log (M/A)*Placebo_EGC	300	-0.001	0.038	-0.028	-0.003	0.020
T-Statistic	300	-0.147	0.962	-0.738	-0.085	0.473

This table displays two falsification tests that examine whether my results are due to spurious correlations. Panel A displays the results of regressing *past* investment on current prices. Specifically, I estimate the following linear equation $Inv_{it-1} = \alpha_0 + \alpha_1 \log(\frac{M}{A}) + \alpha_2 EGC * \log(\frac{M}{A}) + \alpha_3 EGC + X\beta + \varepsilon_{it-1}$, where Inv_{it-1} is firm *i* capital expenditure at time *T*-1 scaled by PPE expenditures at time *T*-2. The main coefficient of interest is that on $EGC * \log(\frac{M}{A})$. *EGC* is an indicator variable equal to one if the firm identifies itself as an Emerging Growth Company, zero otherwise. *X* is a vector of controls including *ebit_defl*, *prc_inv*, *cf_defl*, as well as fixed effects. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively. Panel B exhibits the summary statistics of estimating 300 placebo regressions where I contrast the investment-to-price sensitivity of non-EGCs that are randomly assigned as “*placebo_EGCs*” with other non-EGCs.

5.2.3. The role of financial constraints in investment-to-price sensitivity

Prior studies (e.g., [Baker et al., 2003](#) and [Chen et al., 2007](#)) have shown that the investment-to-price sensitivity increases in the level of capital constraints faced by the firm. In this subsection, I explore the extent to which financial constraints affect EGCs' investment-to-price sensitivity. Specifically, I split my treated group into financially constrained and unconstrained EGCs (*constrained_EGC* and *unconstrained_EGC*) based on the median value of the [Hadlock and Pierce \(2010\)](#) index. To minimize potential concerns of endogeneity, I construct the index using the financial data of the firms in the 12 months before the IPO.

Learning from external market participants should be concentrated among EGCs that are not financially constrained ([Jayaraman and Wu, 2019](#)). The intuition for this prediction relies on the fact that financially constrained firms are likely constrained in how they can allocate their capital and hence less likely to learn from capital markets. On the other hand, if EGCs' greater investment-to-price sensitivity is driven by financial constraints, then I should find that only *constrained_EGCs* have high investment-to-price sensitivity. The results, presented in [Table 6](#), suggest that EGCs' greater investment-to-price sensitivity is driven by *unconstrained_EGCs*. The results are also economically significant, as *unconstrained_EGCs*'s investment-to-price sensitivity is almost two times greater than that of non-EGCs. Like [Jayaraman and Wu \(2019\)](#), I interpret this result as being consistent with the learning hypothesis.

Table 6
The role of financial constraints on learning from capital markets.

Dep. Variable:	Inv_{it+1}			
	(1)	(2)	(3)	(4)
log (M/A)×unconstrained_EGC	0.13** (2.10)	0.14** (2.19)	0.14** (2.36)	0.15** (2.45)
log (M/A)×constrained_EGC	-0.00 (-0.04)	0.00 (0.07)	0.01 (0.24)	0.01 (0.41)
log (M/A)	0.18*** (14.23)	0.19*** (13.15)	0.20*** (13.57)	0.19*** (12.85)
N	4381	4381	4381	4381
adj. R ²	0.10	0.10	0.11	0.12
Controls	No	Yes	Yes	Yes
SicOne FE	No	No	Yes	Yes
Year FE	No	No	No	Yes

This table examines whether financial constraints play a role in the extent to which EGCs learn from external market participants. Specifically, I repeat the analysis from [Table 3](#) by separating EGCs into two groups: *unconstrained_EGC* and *constrained_EGC* based on the [Hadlock and Pierce \(2010\)](#) index. Column (1) estimates the model with no controls. Column (2) adds control variables. Column (3) adds industry fixed effects. Column (4) displays estimations with year and industry fixed effects. All variables are defined in [Appendix A](#). Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

Table 7
Which EGCs learn from external market participants?

Dep. Variable:	Inv_{it+1}		
	(1)	(2)	(3)
log (M/A)xEGC_highIO	0.14** (2.43)		
log (M/A)xEGC_lowIO	0.05 (1.46)		
log (M/A)xEGC_highCOV		0.12*** (2.98)	
log (M/A)xEGC_lowCOV		0.03 (0.77)	
log (M/A)xEGC_Underpric			0.09** (2.55)
log (M/A)xEGC_noUnderpric			0.08 (1.39)
log (M/A)	0.19*** (12.87)	0.19*** (12.91)	0.19*** (12.85)
N	4381	4381	4381
adj. R ²	0.12	0.12	0.12
SicOne FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Controls	Yes	Yes	Yes

This table examines whether the presence of informed investors (Columns 1 and 2) and certain IPO characteristics (Column 3) affect the extent to which EGCs learn from capital markets. Specifically, in each column, I split EGCs into two groups based on certain characteristics. In Column 1, EGC is split into *EGC_highIO* and *EGC_lowIO*, which capture the extent to which EGCs attract high (low) institutional ownership. In Column 2, EGC is split into *EGC_highCOV* and *EGC_lowCOV*, which captures the extent to which EGCs attract high (low) analyst coverage. In Column 3, EGC is split into *EGC_Underpric* and *EGC_noUnderpric*, which captures whether the EGC was underpriced at the IPO. Controls include the variables reported in Table 3. All variables are defined in Appendix A. Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

5.2.4. Market feedback effect and sophisticated market participants

In this subsection, I examine the role of sophisticated market participants in the extent to which EGCs learn from capital markets. On the one hand, if the information produced by sophisticated market participants is new to managers, then I would expect a positive relation between high institutional ownership and analyst coverage with investment-to-price sensitivity. On the other hand, sophisticated market participants might help disseminate a manager's information to other investors, which could result in EGCs having lower investment-to-price sensitivity. To test how sophisticated market participants affect EGCs' investment-to-price sensitivity, I split EGCs into two groups based on firms with high (above median) institutional ownership and high (above median) levels of analyst coverage. Table 7 Columns 1 and 2 display the results. The results suggest that *only* EGCs with high institutional ownership and high analyst coverage exhibit greater investment-to-price sensitivity relative to non-EGCs (p-value < 0.05 and < 0.01, respectively).⁴⁰ These results suggest that the market feedback effect is concentrated among firms with investors that are more likely to possess information unknown to their managers.

My results contrast with those of Chen et al. (2007), who find lower investment-to-price sensitivity for firms with high institutional ownership and high levels of analyst coverage. While both of our studies acknowledge that there is no clear prediction for the direction of these cross-sectional results, their results and mine are not mutually exclusive. I focus on a particular type of firm: companies issuing equity for the first time. The role of institutional investors and financial analysts might differ depending on the operational stage of the firm. Analysts and institutional investors might be more likely to produce information new to managers of young firms (recently publicly traded). However, as firms mature, their managers may learn information that was previously known only by outsiders, thus attenuating subsequent learning from prices. Therefore, both results could coexist. Moreover, the sample period in Chen et al. (2007) includes years before Regulation Fair Disclosure. Therefore, analyst coverage and institutional ownership could have been driven by private access to managers. Taken together, these results expand previous papers by documenting the positive role of institutional investors and analysts in information production in recent years for IPO firms.

5.2.5. IPO underpricing and market feedback

In this subsection, I examine the role of IPO underpricing in learning from capital markets. Gao and Liang (2013) predict that firms will trade off liquidity costs, in the form of IPO underpricing, with the benefits of learning from prices when deciding their optimal level of disclosure. Brau and Fawcett (2006) also provide indirect evidence of how IPO underpricing can boost feedback effects from prices. In a survey of 336 CFOs, they find that firms underprice their stock to attract institutional investors. Also consistent with underpricing as a way to attract more sophisticated market participants, Loughran and Ritter

⁴⁰ The difference of coefficients across EGC types is statistically significant for the analyst coverage split (p-value < 0.1) and marginally insignificant for the institutional ownership split (p-value < 0.15).

(2004) show that underwriters have increasingly focused on analyst research coverage of IPO processes. Taken together, these papers suggest that underpricing could boost learning from capital markets. To test this hypothesis, I split EGCs into firms that had a positive return on the first month after the initial offer (*EGC_underpric*) and those that had a negative return (*EGC_nounderpric*). Column 3 of Table 7 presents the investment-to-price sensitivity for these two groups, relative to non-EGCs. The results suggest that future investment is more sensitive to current prices *only* for EGCs with significant underpricing (p-value < 0.05).⁴¹ This result suggests that firms might optimally trade off the liquidity costs from less disclosure, via IPO underpricing, with the benefits of attracting informed trading (Gao and Liang, 2013).

5.2.6. What do managers learn from capital markets?

The prior results suggest that EGCs learn more from capital markets in the presence of sophisticated market participants. To try to provide evidence on what firms learn from external market participants, I conduct one additional test, where I split EGCs into two groups based on whether the EGC attracted a significant number of informed investors with expertise in the industry that the firm operates in. Expert investors might help the firm identify industry trends, assess product quality, and estimate future product demand. Therefore, EGCs with more expert investors might have greater investment-to-price sensitivity than EGCs without such investors.

To test this conjecture, I identify investors (IP addresses) with industry expertise as investors who downloaded substantial information (more than ten downloads) about the firm's competitors in the prior year. After identifying these IP addresses, I create a group of EGCs that have above median number of investors who are well-informed about the EGC's industry (*high_ind_expertise_EGC*). All other EGCs are grouped into the group *low_ind_expertise_EGC*. I re-estimate equation (2) by replacing the EGC indicator variable with these two new indicators. Table 8 presents the results. The results suggest that EGCs' greater investment-to-price sensitivity seems to be driven by EGCs that have investors that are well-informed about the firm's competitors.⁴² In other words, these results suggest that the stronger feedback effect that EGCs enjoy, relative to non-EGCs, seems to be driven by the investors' expertise in the firm's industry. In terms of economic magnitude, EGCs with investors that contain significant industry expertise have investment-to-price sensitivities that are 55% greater than non-EGCs.

5.2.7. Additional tests

I conduct several additional analyses to verify the validity of the inferences drawn from my previous analyses. First, I estimate alternative model specifications using different measures of investment. Table 9 Panel A presents the estimations. First, I replace capital expenditures for R&D as my main measure of investment (column 2 of Table 9). Second, I combine capital expenditures with research and development expenditures. Overall, inferences remain unchanged. That is, future investments are more sensitive to current prices for EGCs, relative to non-EGCs.

Second, I follow Barth et al. (2017) and replace *EGC* with two alternative measures of less disclosure: the number of JOBS Act provisions used by the firm and whether the firm uses more than four (out of six) provisions. For this test, I manually collect data on what provisions EGCs are taking advantage of. Table 9 panel B displays the results. The interaction between $\log(M/A)$ and the extent to which EGCs benefit from the JOBS Act is positive and significant. These results corroborate prior results suggesting that EGCs exhibit greater investment-to-price sensitivity than non-EGCs.

Third, in untabulated results, I augment my baseline regressions to include more granular fixed effects and control variables. Specifically, I include year-quarter fixed effects, auditor fixed effects, and stock exchange fixed effects and find similar inferences. Furthermore, the results are robust to controlling for industry-specific or industry-year investment-to-price sensitivity together with industry-year fixed effects. These findings allow me to further mitigate concerns of omitted correlated variables and alternative explanations.

Fourth, I control for current investment levels, leverage ratios, and total assets (untabulated). Directly controlling for total assets also helps assess whether my results are fully driven by size. Overall the inferences do not change.

Finally, I assess the robustness of my analysis by clustering my standard errors by industry or industry-state. Clustering by coarser dimensions captures potential associations between the units of observation in that cluster. The untabulated results suggest that the inferences do not change.

5.3. Change in future profitability

In this section, I examine whether the increase in the information flow from outsiders to the firm increases firms' profitability. Specifically, I examine whether EGCs exhibit greater sales growth, relative to non-EGCs. If managers learn information that helps them maximize real economic activity, then EGCs might invest more efficiently, which could translate into stronger operating performance (higher sales growth). Alternatively, if speculators strategically manipulate the information in prices, then managers might make suboptimal investment decisions. Therefore whether prices convey information helpful for real economic activities is an empirical question.

The results are presented in Table 10 and suggest that EGCs exhibit higher future sales growth than non-EGCs. In terms of economic significance, the sales of EGCs sales grow on average 6.5%–7% faster than those of non-EGCs. These results are

⁴¹ The difference of coefficients across EGC types is not statistically significant.

⁴² The difference of coefficients across groups is statistically significant across both columns (p-value < 0.10).

Table 8
The role of investor industry expertise in learning from capital markets.

Dep Variable:	Inv_{it+1}	
	(1)	(2)
log (M/A)xhigh-ind-expertise-EGC	0.121* (1.73)	0.119* (1.78)
log (M/A)xlow-ind-expertise-EGC	-0.067 (-0.97)	-0.052 (-0.78)
log (M/A)	0.188*** (13.11)	0.192*** (12.90)
N	4381	4381
adj. R^2	0.10	0.12
Controls	Yes	Yes
SicOne FE	No	Yes
Year FE	No	Yes

This table examines the role of investors' expertise on the incremental investment-to-price sensitivity. Specifically, I re-estimate equation (2) by splitting EGCs into two groups based on the investors' industry expertise. *high_ind_expertise_EGC* is a group of EGCs that attracted a high (above median) number of investors with industry expertise. Similarly, *low_ind_expertise_EGC* is a group of EGCs that attracted a low (below median) number of investors with industry expertise. The main variable of interest are that on $Log(M/A)*high_ind_expertise_EGC$ and $Log(M/A)*low_ind_expertise_EGC$. $Log(M/A)$ is the log of firm *i* market capitalization scaled by total assets at time *T*. *X* is a vector of controls including *ebit_defl*, *prc_inv*, *cf_defl*, as well fixed effects. All variables are defined in Appendix A. Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

Table 9
Alternative model specifications.

Panel A: Alternative Investment Measures				
Dep. Variable:	$CAPEX/PPENT$	$RD/PPENT$	$(CAPEX + RX)/PPENT$	
	(1)	(2)	(3)	
log (M/A)xEGC	0.084*** (2.65)	6.882*** (3.83)	6.919*** (3.84)	
log (M/A)	0.191*** (12.84)	0.189*** (13.15)	1.705*** (13.57)	
N	4381	4381	4381	
adj. R^2	0.12	0.19	0.19	
Controls	Yes	Yes	Yes	
SicOne FE	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	
Panel B: Alternative Measures of Reduced Disclosure				
	Inv_{it+1}			
	(1)	(2)	(3)	(4)
log (M/A)xJob_Index	0.019** (2.50)	0.020** (2.75)		
log (M/A)xHigh_Index			0.090** (2.35)	0.092** (2.49)
log (M/A)	0.188*** (13.22)	0.191*** (12.90)	0.203*** (13.63)	0.194*** (13.30)
N	4381	4381	4381	4381
adj. R^2	0.09	0.10	0.11	0.12
Controls	Yes	Yes	Yes	Yes
SicOne FE	No	Yes	No	Yes
Year FE	No	Yes	No	Yes

This table re-examines whether Emerging Growth Companies (EGCs) exhibit different investment-to-price sensitivity relative to non-EGCs using different investment measures (Panel A) or different measures of reduced disclosure (Panel B). In Panel A, I use future research and development (R&D) expenditures (column (2)) and the sum of CAPEX and R&D (column (3)) as alternative measures of investment. In Panel B, I replace the indicator variable (EGC) with two alternative measures related to the number of JOBS Act provisions that the firm applied for: *Jobs_Index* and *High_Index*. *Jobs_Index* is the sum of provisions that one firm applied, and it ranges from zero to six. *High_Index* is an indicator variable that equals one if the firm applies more than four provisions, zero otherwise. *X* is a vector of controls such as *ebit_defl*, *prc_inv*, *cf_defl*, as well as industry and year fixed effects. All variables are defined in Appendix A. Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

robust to controlling for the potential effects of size, age, industry concentration, or geographic and industry determinants of profitability. Collectively, these findings suggest that EGCs benefit from reduced mandatory disclosure by growing faster than similar firms (non-EGCs), which suggests that firms benefit from learning from capital markets.

Table 10
Future sales growth analysis.

Dep. Variable:	<i>SalesGrowth</i> _{t+1}		<i>SalesGrowth</i> _[t+1,t+3]	
	(1)	(2)	(3)	(4)
EGC	0.070** (2.50)	0.076** (2.75)	0.069** (2.10)	0.069* (1.96)
Log (MktCap)	0.075*** (10.60)	0.084*** (10.57)	0.062*** (9.00)	0.068*** (9.08)
Herfindahl_Index	0.195 (0.53)	0.485 (1.23)	0.334 (0.89)	0.485 (1.23)
Age	0.001*** (5.00)	0.001*** (3.87)	0.001*** (3.48)	0.001*** (2.88)
Ebit_defl	-0.196** (-2.58)	-0.220*** (-2.64)	-0.124* (-1.82)	-0.139** (-1.97)
CF_defl	-0.218** (-2.37)	-0.233** (-2.38)	-0.157* (-1.87)	-0.182** (-2.25)
N	4072	4058	4072	4058
adj. R ²	0.07	0.06	0.07	0.12
Industry FE	SicOne	SicOne*State	SicOne	SicOne*State
Year FE	Yes	Yes	Yes	Yes

This table examines whether Emerging Growth Companies (EGCs) exhibit greater future sales growth relative to non-EGCs. Specifically, I estimate the following linear equation $Future_Profit_{it} = \beta_1 EGC + X\beta + \eta_{it}$, where $Future_Profit_{it}$ captures future sales growth calculated at $t+1$ and from $t+1$ to $t+3$. The main variable of interest is that of *EGC*. *EGC* is an indicator variable equal to one if the firm identifies itself as an Emerging Growth Company, zero otherwise. X is a vector of controls such as $\log(Mktcap)$, cf_defl , $ebit_defl$, firm age, industry concentration (*Herfindahl_index*), as well as industry and year fixed effects. Columns 1 and 3 estimate the model with industry and year fixed effects. Columns 2 and 4 include industry-state fixed effects. Standard errors are clustered by firm. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

5.4. 10KSB discontinuation analysis

In this subsection, I use the discontinuation of the 10KSB form as an exogenous increase to mandatory disclosure (Cabezon, 2018) to further investigate the relation between disclosure requirements and the market feedback effect. On February 4, 2008, the SEC eliminated all “small business” forms, thus mandating that smaller reporting companies use regular forms such as 10-K, 10Q, and S1. 10KSB forms were available to firms with less than \$25 million in public float, and, relative to 10K reports, 10KSB did not require many disclosures, omitting, for example, the disclosure of foreign operations and segment information, executive compensation, the compensation committee report, interlocking directorships, and stock performance graphs.

To examine the effects of increased mandatory disclosure on investment-to-price sensitivity, I estimate the following equation.

$$Inv_{it+1} = \alpha_0 + \alpha_1 \log\left(\frac{M_{it}}{A_{it}}\right) * I(\text{Treated}) * I(\text{Post}) + X\Gamma + \varepsilon_{it+1} \quad (4)$$

Table 11
10KSB discontinuation analysis.

Dep. Variable:	<i>Inv</i> _{it+1}			
	(1)	(2)	(3)	(4)
$\log(M/A) * \text{Treat} * I(\text{Post})$	-0.16** (-2.05)	-0.16** (-2.07)	-0.16** (-2.07)	-0.16** (-2.04)
$\log(M/A) * \text{Treat}$	0.15* (1.87)	0.15* (1.90)	0.16** (1.97)	0.16** (1.96)
$\log(M/A) * I(\text{Post})$	-0.04*** (-5.55)	-0.04*** (-5.51)	-0.04*** (-5.52)	-0.04*** (-5.71)
$\log(M/A)$	0.14*** (22.14)	0.15*** (22.34)	0.16*** (21.69)	0.16*** (21.54)
N	45725	45725	45725	45725
adj. R ²	0.07	0.07	0.08	0.09
Main Effects	Yes	Yes	Yes	Yes
Controls	No	Yes	Yes	Yes
SicOne FE	No	No	Yes	Yes
Year FE	No	No	No	Yes

This table uses the discontinuation of the 10KSB as an exogenous shock to disclosure requirements to further investigate the relation between disclosure requirements and market feedback. Specifically, I estimate the investment-to-price sensitivity in a difference-in-difference setting. The main variable of interest is $\log(M/A) * \text{Treat} * I(\text{Post})$. *Treat* is an indicator variable equal to one if the firm filed a 10KSB in 2007, zero otherwise. *I(Post)* is an indicator variable equal to one after 2007, zero otherwise. X is a vector of controls, including *ebit_defl*, *prc_inv*, *cf_defl*, the main effects, and different sets of fixed effects. ***, **, * indicates significance at the 0.01, 0.05, 0.10 level, respectively.

The main variable of interest is $\log(M/A)*I(Treated)*I(Post)$. $I(Treated)$ is an indicator variable equaling one if the firm filed a 10KSB in 2007 and zero otherwise. The control group comprises firms that file regular 10-Ks. $I(Post)$ is an indicator variable equaling one for years after 2007 and zero otherwise. X is a vector of control variables, including the main effects, $\log(M/A)*I(Treated)$, $\log(M/A)*I(Post)$, $\log(M/A)$, and control variables presented in Table 2.

Table 11 displays the results. For robustness, I report the estimates with and without controls and fixed effects. Across all columns, the coefficient of $\log(M/A)*I(Treated)*I(Post)$ is negative and significant. These results are consistent with the reversal test and with the findings of Jayaraman and Wu (2019), suggesting that greater disclosure requirements decrease investment-to-price sensitivity. These results reinforce the main results of the paper that disclosure requirements can increase market-based information production. Moreover, these results suggest that the previous findings might not be driven by unique features of the JOBS Act.

6. Conclusion

This paper examines the effect of the JOBS Act on the extent to which firms learn new information from capital markets. The act reduced disclosure requirements for a new category of equity issuers, EGCs. I conjecture that reduced disclosure attracts informed investors and increases market-based information production. My initial analyses suggest that EGCs attract more sophisticated investor attention than non-EGCs. One consequence might be an increase in information flow from the stock market to the firm (the market feedback effect). Consistent with this conjecture, I find that EGCs exhibit greater investment-to-price sensitivity than non-EGCs. Finally, I find suggestive evidence that managers benefit from stronger market feedback by documenting that EGCs grow significantly faster than non-EGCs. Collectively, these results suggest that more flexible disclosure requirements can help firms learn from capital markets and potentially grow.

This paper complements prior studies examining the role of mandatory disclosure in financial markets. My analyses provide new insights into the costs and benefits of the JOBS Act. Moreover, my study provides one of the first large-scale analyses of the managerial learning hypothesis in the IPO setting. Issuing public equity for the first time allows firms to take advantage of learning from external market participants, which is paramount for their growth and survival.

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Appendix A. Variable Definitions

Variable	Construction of Variable	Source
<i>Dependent variables</i>		
Inv_{it+1}	Capital expenditures (CAPX) as of year $t+1$ scaled by fixed assets (PPENT) as of year t .	Compustat
$UniqueInformedIPs_{it}$	Logarithm of one plus the number of informed IP addresses retrieving information for firm i as of year t . An Informed IP is an IP address that retrieved more than a given number of filings (10, 30 or 50) in the previous year.	EDGAR
$PropInformedIPs_{it}$	The number of informed IPs scaled by the total number of IPs that pay attention to a given firm in a given year. This variable captures the proportion of investors that are informed for a given firm in a given year. This variable ranges from zero to one.	EDGAR
$BidAsk_{it}$	Logarithm of the average bid-ask spread for firm i at year T . Average bid-ask spread is estimated using 30 days following the earnings announcement.	CRSP
$Illiq_{it}$	Logarithm of one plus stock illiquidity for firm i at year T . Following Amihud (2002), illiquidity is defined as the average of the ratio of daily unsigned stock returns scaled by dollar trading volume multiplied by 10^6 . Similar to the bid-ask spread measure, I use the 30 days following the earnings announcement of year t .	CRSP

(continued)

Variable	Construction of Variable	Source
SalesGrowth [t+1,t+3]	Average Future Sales growth, calculated as the logarithm of future sales scaled by current sales. Average is calculated from t+1 to t+3.	Compustat
Independent variables		
$\log (M_{it}/A_{it})$	Market capitalization for firm 'i' at year 't' divided by total assets at 't'.	Compustat
EGC	Indicator equal to one if firm is classified as "Emerging Growth Company" (EGC), zero otherwise.	AuditAnalytis, Hand-collected, EY
JOB Index	Score reflecting the number of JOBS Act provisions the firm uses. The index ranges from 0 to 6.	Calculated
High Index	Indicator equal to one if firm is using more than four JOBS Act provisions, zero otherwise.	Calculated
Additional Variables		
Price Inv _{it}	Inverse of the stock price for firm 'i' as of the end of the year 't'.	Compustat
cf defl _{it}	Cash flow as of year t. Defined as earnings before extraordinary items (IB) plus depreciation and amortization (DP) and research expenses (RD).	Compustat
HHI _{it}	Herfindahl-Hirschman Index.	Calculated
Age	Current year minus the year that the firm was founded.	Compustat and Jay Ritter's website
High InstOwn	Indicator equal to one if firm has high (above median) institutional ownership at year t, zero otherwise. This variable is used to split EGCs into two groups.	13Fs
High Cov	Indicator equal to one if firm has high (above median) analyst coverage at year t, zero otherwise. This variable is used to split EGCs into two groups.	IBES
UnderPric	Indicator equal to one if firm is underpriced, zero otherwise. This variable is used to split EGCs into two groups.	CRSP

References

- Bai, J., Philippon, T., Savov, A., 2016. Have financial markets become more informative? *J. Financ. Econ.* 122 (3), 625–654.
- Baker, M., Stein, J.C., Wurgler, J., 2003. When does the market matter? Stock prices and the investment of equity-dependent firms. *Q. J. Econ.* 118 (3), 969–1005.
- Barth, M.E., Landsman, W.R., Taylor, D.J., 2017. The JOBS Act and information uncertainty in IPO firms. *Account. Rev.* 92 (6), 25–47.
- Bernard, D., Blackburne, T., Thornock, J., 2020. Information flows among rivals and corporate investment. *J. Financ. Econ.* 136 (3), 760–779.
- Bond, P., Edmans, A., Goldstein, I., 2012. The real effects of financial markets. *Annu. Rev. Financ. Econ.* 4 (1), 339–360.
- Brau, J.C., Fawcett, S.E., 2006. Initial public offerings: an analysis of theory and practice. *J. Finance* 61 (1), 399–436.
- Brown, D.C., 2016. Investing in security price informativeness: the role of IPO underpricing. Available at: SSRN 2348309.
- Cabezon, F., 2018. The Effect of Mandatory Information Disclosure on Financial Constraints (Working Paper).
- Chaplinsky, S., Hanley, K.W., Moon, S.K., 2017. The JOBS Act and the costs of going public. *J. Account. Res.* 55 (4), 795–836.
- Chen, Q., Goldstein, I., Jiang, W., 2007. Price informativeness and investment sensitivity to stock price. *Rev. Financ. Stud.* 20, 619–650.
- Chen, Y., Kelly, B., Wu, W., 2018. Sophisticated Investors and Market Efficiency: Evidence from a Natural Experiment (Working Paper).
- Chi, S., Shanthikumar, D.M., 2018. Do Retail Investors Use SEC Filings? Evidence from EDGAR Search (Working Paper).
- Dambra, M., Field, L.C., Gustafson, M.T., 2015. The JOBS Act and IPO volume: evidence that disclosure costs affect the IPO decision. *J. Financ. Econ.* 116, 121–143.
- Diamond, D.W., 1985. Optimal release of information by firms. *J. Finance* 40, 1071–1094.
- Doidge, C., Karolyi, G.A., Stulz, R.M., 2017. The US listing gap. *J. Financ. Econ.* 123, 464–487.
- Dow, J., Gorton, G., 1997. Stock market efficiency and economic efficiency: is there a connection? *J. Finance* 52, 1087–1129.
- Drake, M.S., Quinn, P.J., Thornock, J.R., 2017. Who uses financial statements? A demographic analysis of financial statement downloads from EDGAR. *Account. Horiz.* 31, 55–68.
- Dyer, T., 2019. Does public information acquisition level the playing field or widen the gap? An analysis of local and non-local investors. Working Paper, 1–52.
- Edmans, A., Jayaraman, S., Schneemeier, J., 2017. The source of information in prices and investment-price sensitivity. *J. Financ. Econ.* 126, 74–96.
- Fama, E.F., Miller, M.H., 1972. *The Theory of Finance*. Holt Rinehart & Winston.
- Gao, X., Ritter, J.R., Zhu, Z., 2013. Where have all the IPOs gone? *J. Financ. Quant. Anal.* 48 (6), 1663–1692.
- Gao, P., Liang, P.J., 2013. Informational feedback, adverse selection, and optimal disclosure policy. *J. Account. Res.* 51, 1133–1158.
- Glaeser, S., Guay, W.R., 2017. Identification and generalizability in accounting research: a discussion of Christensen, floyd, liu, and Maffett (2017). *J. Account. Econ.* 64, 305–312.
- Goldstein, I., Yang, L., 2019. Good disclosure, bad disclosure. *J. Financ. Econ.* 131, 118–138.
- Grossman, S.J., Stiglitz, J.E., 1980. On the impossibility of informationally efficient markets. *Am. Econ. Rev.* 70, 393–408.
- Hadlock, C.J., Pierce, J.R., 2010. New evidence on measuring financial constraints: moving beyond the KZ index. *Rev. Financ. Stud.* 23, 1909–1940.
- Hainmueller, J., 2012. Entropy balancing for causal effects: a multivariate reweighting method to produce balanced samples in observational studies. *Polit. Anal.* 20, 25–46.
- Hayek, F.A., 1945. The use of knowledge in society. *Am. Econ. Rev.* 35, 519–530.
- Hsueh, K., 2019. Emerging Growth Companies and Investor Protection: Incidental Outcomes of the JOBS Act (Working Paper).
- Jayaraman, S., Wu, J.S., 2020. Should I stay or should I grow? Using voluntary disclosure to elicit market feedback. *Rev. Financ. Stud.* 33 (8), 3854–3888.
- Jayaraman, S., Wu, J.S., 2019. Is silence golden? Real effects of mandatory disclosure. *Rev. Financ. Stud.* 32 (6), 2225–2259.
- Kau, J.B., Linck, J.S., Rubin, P.H., 2008. Do managers listen to the market? *J. Corp. Finance* 14 (4), 347–362.
- Lee, C.M., Ma, P., Wang, C.C., 2015. Search-based peer firms: aggregating investor perceptions through internet co-searches. *J. Financ. Econ.* 116 (2), 410–431.
- Loughran, T., Ritter, J., 2004. Why has IPO underpricing changed over time? *Financ. Manag.* 5–37.
- Luo, Y., 2005. Do insiders learn from outsiders? Evidence from mergers and acquisitions. *J. Finance* 60 (4), 1951–1982.
- McCahery, J.A., Sautner, Z., Starks, L.T., 2016. Behind the scenes: the corporate governance preferences of institutional investors. *J. Finance* 71 (6), 2905–2932.
- Miller, G., Beyersdorfer, D., Sjöman, A., 2006. IR at BP: investor relations and information reconnaissance. Harvard Business School Case 107, 26.

- Pagano, M., Panetta, F., Zingales, L., 1998. Why do companies go public? An empirical analysis. *J. Finance* 53 (1), 27–64.
- Rajan, R.G., Zingales, L., 2004. *Saving Capitalism from the Capitalists: Unleashing the Power of Financial Markets to Create Wealth and Spread Opportunity*. Princeton University Press.
- Roll, R., 1984. Orange juice and weather. *Am. Econ. Rev.* 74 (5), 861–880.
- Schneemeier, J., 2017. Optimal disclosure and fight for attention (Available at: SSRN).
- Subrahmanyam, A., Titman, S., 1999. The going-public decision and the development of financial markets. *J. Finance* 54, 1045–1082.
- Verrecchia, R.E., 1982. Information acquisition in a noisy rational expectations economy. *Econometrica* 1415–1430.