Erasmus University Rotterdam

Erasmus School of Economics

The Impact of the JOBS Act on IPO Pricing

An analysis of the distinctive effects of de-risking and de-burdening provisions

Abstract

I examine the effects of the Jumpstart Our Businesses Startups (JOBS) Act on initial public offering (IPO) pricing using a sample of 546 emerging growth companies (EGCs) that went public between April 5, 2012 and December 31, 2016. The objective of this study is to examine how de-risking and de-burdening provisions affect the IPO pricing process. De-risking provisions decrease the IPO risks for the issuer, whereas de-burdening provisions ease mandatory reporting and disclosure requirements. I find evidence that the JOBS Act increases the pricing accuracy of the initial price range. This result is driven by de-risking provisions that allow the underwriter to exchange information with investors in the pre-filing period. Also, I provide evidence that the JOBS Act increases the initial return. This finding is attributable to increased information uncertainty stemming from de-burdening provisions. The results of the initial return increase confirm previous research, whereas I am the first to address the effect of the JOBS Act on the offer price revision. As a result, this study is the first to provide a complete perspective on the effects of de-risking and de-burdening provisions on IPO pricing.

Keywords: IPO, JOBS Act, private information, information uncertainty, disclosure, offer price revision, underpricing, regulation

Author: Willem-Pieter Berger | 372487

Programme: MSc Economics and Business | Financial Economics

Supervisor: Dr. S. Gryglewicz

Co-reader: Mr. S. Xia

Publication date: February 28, 2018

Acknowledgements

In this section, I would like to express my gratitude towards a number of people who supported me during the thesis process. First, I would like to thank my thesis supervisor Dr. Gryglewicz for his valuable help, insights, and comments during the course of this empirical research. Second, I am grateful to Dr. Chaplinsky from the University of Virginia in Charlottesville, US, and Dr. Dambra from the University of Buffalo in New York, US. Both professors provided me with valuable feedback regarding the classification of the testing-the-waters provision. Third, I appreciate Mr. Xia for taking the time to evaluate my thesis. Fourth, I am pleased with the Erasmus Datateam for thinking along with me in the collection process of the JOBS Act provision data. Last and most importantly, I express my deepest gratitude to my family, friends, and girlfriend for their enduring and unconditional support during my life and studies.

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1. Introduction

The Jumpstart Our Business Startups (JOBS) Act was signed into law on April 5, 2012 to reduce the costs and risks of the initial public offering (IPO) filing process for small companies. The JOBS Act is designated for companies with revenues of not more than $1 billion, named emerging growth companies (EGCs). The primary objective of the JOBS Act is to reduce the costs of raising new equity and thereby "jumpstart" growth (Gupta and Israelsen, 2014). As IPO volume in the US had been substantially below historical levels since 2000 (Dambra, Field, Gustafson, 2015), the concern was that the regulatory burden was too cumbersome for small companies.

The JOBS Act intends to revitalize the IPO market by de-risking and de-burdening the IPO process (Dambra, Field, Gustafson, 2015). The de-risking provisions mitigate EGCs' risk of an unsuccessful IPO process by allowing EGCs to communicate with investors in the pre-filing period and to permit EGCs to file a draft registration statement (DRS) confidentially. The combination of both provisions allows EGCs to gain private information from investors without revealing proprietary information to competitors. The de-burdening provisions ease the mandatory reporting and disclosure requirements for EGCs. These reduced disclosure requirements limit the amount of financial and executive compensation disclosure, whereas delayed compliance provisions exempt EGCs from costly disclosures, such as the internal controls audits (Gupta and Israelsen, 2014). As a result, EGCs experience a cutback in various auditor and legal fees.

De-risking and de-burdening provisions have a distinctive influence on IPO pricing, as both provisions alter the information flow between the underwriter and investors differently. De-risking provisions enlarge and expedite the information flow from investors to the underwriter. As a consequence, the JOBS Act enables the underwriter to gather private information earlier in the IPO pricing process. Since information production theories (e.g. Benveniste and Spindt, 1989) suggest that private information empowers the underwriter to value the IPO more accurately, the JOBS Act could increase the accuracy of IPO pricing. Conversely, de-burdening provisions curb the information flow from the underwriter to investors. As a result, the amount and quality of information flowing to investors deteriorates. Intuitively, a reduction in information disclosure increases information uncertainty. Thus, risk-averse investors will require additional compensation for bearing this ex ante uncertainty (Beatty and Ritter, 1986). In sum, private information gathering could increase the accuracy of IPO pricing, however heightened information uncertainty counteracts this effect.

Previous JOBS Act studies focus on the relation between reduced disclosure and initial returns (Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017).

These studies show that increased information uncertainty causes an average increase of 7.0% in the initial return. However, two crucial aspects of the influence of the JOBS Act on IPO pricing remain untouched. First, the differential effect of de-risking provisions is overlooked because these studies consider all JOBS Act provisions to increase information uncertainty. De-risking provisions make the underwriter more informed whereas de-burdening provisions leave investors less informed, thus I anticipate both types of provisions to impact IPO pricing significantly different. Second, the impact of the JOBS Act is only measured on the initial return. The initial return solely provides a partial explanation for the effects of the JOBS Act, as the initial return is highly dependent on the offer price revision. According to Ritter and Welch (2002), the initial return can only be explained by focusing on the offer price revision, which subsumes the interplay of supply and demand. Thus, the effect of the JOBS Act on IPO pricing remains largely unclear. Therefore, I attempt to answer the following research question:

How do the de-risking and de-burdening provisions of the JOBS Act alter the IPO pricing process?

As this research question is rather broad and does not allow for a single answer, I address the research question by the following sub-questions:

Does the JOBS Act increase the pricing accuracy of the initial price range?

Does the JOBS Act increase the initial return?

This study aims to assess how de-risking and de-burdening provisions distinctively change the IPO pricing process. More specifically, I examine how private information gathering and information uncertainty drive IPO pricing. Furthermore, I test the consequences of the JOBS on an aggregated basis as well as on an individual JOBS Act provision basis. Last, I analyze whether the effects of de-risking or de-burdening provisions primarily accrue to both the offer price revision and the initial return.

In this study, I use a unique data set comprising 546 EGC IPOs ranging from the enactment of the JOBS Act on April 5, 2012 to December 31, 2016. On the other hand, the control sample consists of 1,032 IPOs that went public between January 2003 and the implementation of the JOBS Act. I gather data from a wide array of financial databases and collect a large sum by hand, as no database covers JOBS Act data. As the JOBS Act induces different types of companies to pursue an IPO, I propensity-score match (PSM) the EGC sample to the control sample to mitigate endogeneity. Subsequently, I use the PSM sample to conduct ordinary least squares (OLS) and difference-in-differences (DD) regressions to assess the effect of the JOBS Act on IPO pricing. Next to the regressions on the full sample, I also test how the JOBS Act distinctively affects smaller reporting companies (SRCs) and non-SRCs. SRCs could

benefit from mostly similar de-burdening provisions before the JOBS Act, thus testing the effect on SRCs and non-SRCs allows me to disentangle the effects of de-burdening and de-risking provisions. Last, I conduct OLS regressions on the individual JOBS Act provisions to uncover the effect of each provision separately.

The results indicate that private information production helps the underwriter to more accurately set the initial price range, as the offer price revision is 3.8% higher and the magnitude of the offer price revision is 2.0% lower after implementation of the JOBS Act. Further, I find that the reduced mandatory disclosure requirements of the JOBS Act induce a rise in initial return of 8.3%, driven by increased information uncertainty. The insignificant results on the individual JOBS Act provisions do not confirm these findings. However, I presume the regressions on individual JOBS Act provisions to suffer from endogeneity. Last, I find partial evidence that de-risking provisions affect the offer price revision primarily, whereas the effect of de-burdening provisions mainly accrues to the initial return.

This study contributes to existing literature in a variety of ways. First, my findings contribute to private information production theories (Benveniste and Spindt, 1989; Sherman and Titman, 2002). As information exchange between the underwriter and investors was prohibited in the pre-filing period prior to the JOBS Act, a lower magnitude of the offer price revision post-JOBS Act indicates that private information helps the underwriter to value the IPO accurately. Moreover, the shortened bookbuilding period, combined with a lower magnitude of the offer price revision post-JOBS Act, shows that private information is gathered during the pre-filing period, while the underwriter uses the bookbuilding period to market the IPO (Aussenegg, Pichler, and Stomper, 2006). Second, my results contribute to IPO disclosure studies (Leone, Rock, and Willenborg, 2007; Chahine and Filatochev, 2008), because I validate that the amount and quality of IPO disclosure holds an inverse relation with initial returns. Thus, less IPO disclosure induces increased information uncertainty. Last, I also contribute to the literature on the effects of the JOBS Act (Gupta and Israelsen, 2014; Dambra, Field, Gustafson, 2015; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017). I confirm and expand the findings that de-burdening provisions increase the initial return by using an extended sample period and by segmenting provisions into de-risking and de-burdening provisions. More importantly, I provide evidence that the de-risking provisions increase the accuracy of the initial price range. To the best of my knowledge, I am the first to examine the effects of de-risking provisions.

The results also have significant implications for stakeholders. Investors could exploit inaccurately priced IPOs if the issuer fails to gather sufficient private information. Alternatively, investors should gather more private information since the informational advantage of private information is

larger in situations with high information uncertainty. Further, issuers should elect de-burdening provisions if they would otherwise incur significant reporting and disclosure costs, as the election of de-burdening provisions does not lead to an increase in initial return. Underwriters should induce private information revelation, because a more profound understanding of the value of the issuer aids the underwriter in the IPO pricing strategy. Last, regulators should allow communication with investors in the pre-filing period, as increased IPO pricing accuracy seems beneficial in reducing valuation uncertainty. Also, regulators should contemplate reduced mandatory disclosure, as companies that pursue an IPO benefit from alleviated reporting and disclosure requirements at the expense of a higher initial return.

The remainder of this research is structured as follows. Section 2 describes the theoretical framework, comprising a description of information exchange during the IPO process, regulatory background, and a theoretical assessment of the JOBS Act provisions. Section 3 provides an overview of the data and elaborates on the methodology used. Section 4 presents the empirical results and discusses the relation between the results and existing literature. Section 5 reports the conclusion, followed by limitations and directions for future research.

2. Theoretical framework

In this section, I provide the relevant concepts, regulatory background, literature, and hypotheses. First, I elaborate on the IPO pricing process and the nature of information exchange. Second, I discuss the regulatory background that is of importance in further analyses. Third, I provide an overview of the existing theoretical research on private information and information uncertainty. Last, I use the relevant concepts and literature to motivate the hypotheses.

2.1. Initial public offering pricing process

Fig. 1 provides an overview of the IPO process in the US prior to the JOBS Act. The IPO process is governed by the 1933 Securities Act, which divides the IPO process into three distinctive stages: The pre-filing period, the waiting period, and the post-effective period. According to legal advisors, the pre-filing period commences once the issuer appoints the underwriter. In practice, the pre-filing period lasts for several months before the issuer files the initial registration statement with the Securities and Exchange Commission (SEC). During the pre-filing period, the Securities Act strictly prohibits the issuer and underwriter from revealing any information that could be understood as an offer to sell.[1] Hence, legal advisors strongly discourage both parties to engage in any communication with investors during

[1] Securities Act of 1933, s 5.

this stage (Jenkinson, Morrison, and Wilhelm, 2006). At most, a "pink herring" could be distributed, containing elementary information about the company and the notice that it is considering an IPO. If the SEC finds that the issuer or underwriter has revealed any information of interest, they consider this breach "gun-jumping." Before permitting any offering, the SEC will oblige the company to temporary suspend the IPO process.

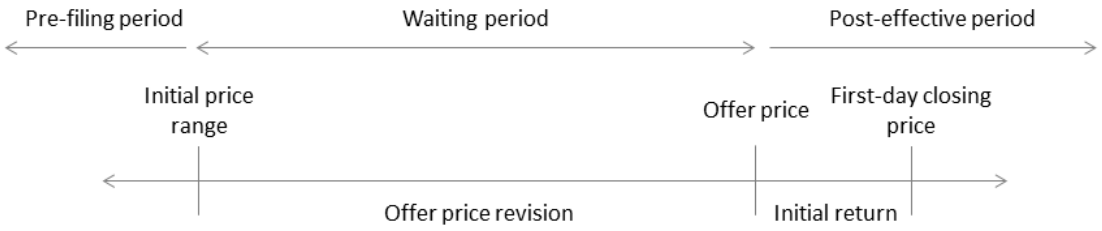

Fig. 1. The stages of the initial public offering price formation process in the US.

The waiting period commences when the issuer files the initial registration statement, also known as the preliminary prospectus, or "red herring," with the SEC (Lowry, Michaely, and Volkova, 2017). Afterwards, the SEC evaluates the registration statement and interacts with the issuer and underwriter, who typically respond via amended registration statements. The underwriter benefits from the regulatory process because it enhances the reliability of the information provided at the expense of increased IPO costs, especially in a long-lasting IPO process (Lowry, Michaely, and Volkova, 2017). The underwriter and issuer are permitted to communicate with investors after a registration statement is filed including an initial price range (Jenkinson, Morrison, and Wilhelm, 2006). Typically, the initial price range is included in an amended prospectus (Lowry, Michaely, and Volkova, 2017). Subsequently, the roadshow begins, in which the underwriter has the objective to market the IPO and gather private information from institutional investors. Private information contains indications of interest, which are not legally binding, and other feedback from investors (Jenkinson, Morrison, and Wilhelm, 2006). If the underwriter receives compelling favorable or unfavorable information during the roadshow, he could issue a renewed registration statement with an amended price range. Finally, the issuer and underwriter evaluate the indications of interest, set the offer price, and determine the exact number of stocks to be issued on the offer date (Lowry, Michaely, and Volkova, 2017).

When the last registration statement, the final prospectus, is filed and approved, the post-effective period begins. The final prospectus contains a price amendment, which includes the final offer price. In this period, the underwriter engages in after-market stabilization activities. Furthermore, the underwriter is permitted to provide information about the valuation and earnings estimates after 25 to 40 days following the IPO (Lowry, Michaely, and Volkova, 2017).

2.2. Regulatory background

In both subsections, I focus on the way the regulatory environment and the JOBS Act affect information revelation and information uncertainty. As regulations mainly drive the flow of information during the IPO pricing process, it is important to gain an understanding of the regulatory framework.

2.2.1. Smaller reporting companies

The SEC has several categories in place for public companies: SRCs, accelerated companies, and larger accelerated companies (both non-SRCs). Companies with a public float of less than $75 million and annual revenues of less than $50 million were eligible to become an SRC (Shirodkar and Darnell-Weichelt, 2011). If the public float or annual revenues increased above these thresholds, the SRC was required to changeover to the larger reporting system within two quarters.

The mandatory level of disclosure for periodic reports and registration statements depends on the classification of the company. For example, the SEC exempted SRCs from several burdensome and costly regulations. Under Regulation S-K, SRCs were required to comply only with a subset of public disclosure and financial reporting requirements. SRCs could select each exemption individually at their own discretion. The exemptions comprised of reduced financial statement and executive compensation disclosure, and delayed compliance with the Sarbanes-Oxley Act (SOX) 404(b) and Dodd-Frank corporate governance requirements (Chaplinsky, Hanley, and Moon, 2017). These exemptions were later extended to a broader set of companies, known as the JOBS Act.

Reduced financial statement disclosure contains mandatory disclosure of two years of audited financial statements. Reduced executive compensation consists of mandatory disclosure of executive compensation of at least three executives, and no requirement to include a compensation discussion and analysis. Delayed compliance with SOX 404(b) involves the exemption of management assessment and external auditor attestation of internal control over financial disclosure. The SEC postponed compliance until 2010, and permanently exempted SRCs from SOX 404(b) afterward. Delayed compliance with Dodd-Frank governance requirements encompasses exemption from Say-On-Pay requirements until the first annual or other meeting in which stockholders elect directors.[2]

Non-SRCs could not elect any exemption, and were obliged to comply with the 1933 Securities Act fully. Hence, non-SRCs were required to present at least three years of audited financial statements and report the compensation of at least five executives including a full compensation discussion and

[2] For more information concerning the exemptions and other regulation applicable to SRCs, see: The Small Entity Compliance Guide. (January 25, 2008). Retrieved from www.sec.gov/info/smallbus/secg/smrepcosysguid.pdf.

analysis. Furthermore, non-SRCs were enforced to fully comply with SOX 404(b) and Dodd-Frank governance requirements.

2.2.2. Jumpstart Our Business Startups Act

The JOBS Act was enacted on April 5, 2012 to encourage small companies to pursue an IPO, and consequently, revitalize the US IPO market.[3] Companies are eligible to elect the EGC status if they have (1) no more than $1 billion revenues during the year prior to the IPO, (2) not issued more than $1 billion of nonconvertible debt over the preceding three years, and (3) a non-accelerated or accelerated filer status.[4] Companies lose the EGC status if they surpass these thresholds, or after five years following the IPO. Once companies lose the EGC status, they have to comply fully with the 1933 Securities Act.

EGCs can benefit from easing regulation concerning securities and capital raising. EGCs may choose to elect all, some, or none of the JOBS Act provisions. Dambra, Field, and Gustafson (2015) segment the JOBS Act provisions into two broad categories: de-risking and de-burdening provisions. De-risking provisions decrease the IPO risks for the issuer, whereas de-burdening provisions ease mandatory reporting and disclosure requirements.

De-risking provisions

De-risking provisions comprise a provision to test-the-waters (TTW) and a provision to confidentially file the IPO with the SEC. TTW permits EGCs and underwriters, if authorized by the EGC, to engage in oral or written communications with qualified institutional buyers (QIBs) and other institutional accredited investors to gauge the interest in a potential offer before the initial price range is filed. The communication may encompass indications of interest, albeit soliciting a binding customer order is prohibited. Before the JOBS Act, issuers and underwriters were strictly prohibited from communicating with potential investors prior to filing the initial price range.

Confidential filing allows EGCs to initiate the SEC registration process confidentially. After submitting the DRS, the EGC must publicly file the confidential registration statement and all related amendments at least 21 days before commencing the roadshow if it desires to advance with the IPO process. Accordingly, EGCs that decide to withdraw the IPO will not disclose any information publicly. Before the JOBS Act, companies could only publicly file registration statements.

[3] For more information concerning the JOBS Act, see H.R. 3606 "Jumpstart Our Business Startups Act."

[4] The SEC has constructed three filer statuses: Non-accelerated, accelerated, and large accelerated filer status. Only when the company holds the large accelerated filer status (public float larger than $700 million), it cannot elect the EGC status.

De-burdening provisions

De-burdening provisions include provisions to reduce mandatory disclosure of financial statements and executive compensation, and provisions to delay compliance with sections of SOX, General Accepted Accounting Principles (GAAP), Dodd-Frank, and the Public Company Accounting Oversight Board (PCAOB). The main benefit of de-burdening provisions encompasses a reduction in direct IPO process costs.

Reduced financial statement disclosure permits EGCs to disclose only two years of audited financial statements and selected financial data. Prior to the JOBS Act, companies had to report at least three years of audited financial statements and five years of selected financial data. Reduced executive compensation disclosure requires EGCs to disclose the compensation for as few as three executives. Besides, EGCs are not required to include a full compensation discussion and analysis. Previously, companies were obliged to report the compensation of at least five executives, and publish a full compensation discussion and analysis.

Delayed compliance with SOX 404(b) exempts EGCs from complying with the management assessment and the external auditor attestation of internal control over financial disclosure. Delayed compliance with GAAP offers EGCs the option to comply with private company accounting standards for an extended period. As a consequence, EGCs can choose the effective date on which they desire to adopt new or revised accounting standards. Delayed compliance with Dodd-Frank governance requirements presents EGCs the opportunity to delay Say-on-Pay, Say-on-Frequency, or Say-on-Golden Parachute non-binding advisory votes, as outlined in the Dodd-Frank Act. Delayed compliance with PCAOB rulings exempts EGCs from future public accounting standards. Before the JOBS Act, companies were obliged to comply fully with SOX, GAAP, Dodd-Frank, and PCAOB.

2.3. Literature review

In the subsections below, I address the consequences of the JOBS Act on IPO pricing from a theoretical perspective. The JOBS Act alters the information flow between the underwriter and investors in opposite directions, since de-risking provisions increase and expedite the information flow from investors to underwriters, whereas de-burdening provisions curtail the mandatory information flow from the underwriter to investors. Therefore, I discuss literature relating to de-risking and de-burdening provisions separately.

2.3.1. De-risking and initial public offering pricing

De-risking provisions affect IPO pricing predominantly because it permits the underwriter to communicate with institutional investors, or QIBs, prior to filing the initial price range.[5] Prior to the JOBS Act, information revelation only occurred during the bookbuilding stage. To the best of my knowledge, the effect of de-risking provisions on IPO pricing remains an untouched topic in JOBS Act research.[6] Research focused on the effect of private information revelation during the pre-filing period in a similar regulatory framework as in the US is non-existent. Due to the absence of prior literature, I disentangle the effects of private information revelation on IPO pricing. First, I discuss studies relating to the effects of private information on IPO pricing. Second, I elaborate on literature about the function of the pre-filing period in IPO pricing. Third, I review research regarding confidential filing.

First, the underwriter and investors exchange information in the bookbuilding stage via private meetings or, most often, via group presentations led by the management of the issuer. During the meeting, the issuer first transmits information about the IPO to investors. Subsequently, investors provide valuable information and feedback directly at the meeting, or later via indications of interest (Jenkinson, Jones, and Sundheim, 2017). The underwriter uses the information to overcome informational frictions that affect IPO pricing. Ideally, the underwriter incorporates as much information as possible into the offer price. According to Benveniste and Spindt (1989), informational frictions arise because the issuer is more informed about its own business situation. This situation of asymmetric information gives rise to issuers misrepresenting themselves to investors as higher quality than they are. Furthermore, as Rock (1986) explains, investors hold more information about the industry and other factors that are difficult to assess as an insider, in comparison to the issuer. For example, investors may possess valuable information about the issuer's competitors or the quality of management. Nevertheless, investors are more capable of interpreting how the market perceives the value of the issuer, which Benveniste and Spindt (1989) consider most important.

[5] De-risking provisions also include confidential filing. However, Dambra, Field, and Gustafson's (2015) and Chaplinsky, Hanley, and Moon (2017) note that confidential filing's main benefit is derived in combination with TTW. The combination is beneficial because the issuer only experiences reduced IPO withdrawal costs if he gathers private information in the "confidential" period, which enables the issuer to assess whether it is worthwhile to advance with the IPO publicly.

[6] JOBS Act studies (Chaplinsky, Hanley, and Moon, 2017; Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017) do not include TTW in their regressions. Besides, these studies approach each provision as a de-burdening provision. Dambra, Field, and Gustafson (2015) use the de-burdening and de-risking provisions classification, but their research is not tailored towards IPO pricing. Therefore, the effect of de-risking provisions on IPO pricing is an untouched topic until now.

The SEC permits the underwriter to gather private information only from QIBs and other institutional accredited investors. Rock (1986) classifies investors that have an informational advantage, which enables them to assess the value of the issuer more accurately, as "informed" investors. All other investors are considered "uninformed" investors. The former denotes institutional investors, whereas the latter refers to retail investors. Benveniste and Spindt (1989) posit that investors produce private information for free. However, private information gathering is commonly considered costly as information about private companies is not widely available. For instance, Sherman and Titman (2002) suggest that institutional investors only receive an informational advantage if they engage in a costly information acquisition process. In addition, Sherman (2005) argues that the costs of information acquisition depend on market conditions, as the opportunity costs of information gathering are higher in markets with favorable conditions. To conclude, if informed investors engage a costly information acquisition process, they are the underwriter's source of private information.

Most academic studies measure information via the nature of the bids presented during the bookbuilding stage. Jenkinson and Jones (2008, p. 1480) stress that bids are solely a partial explanation of the whole information exchange, pointing to the importance of interactions that take place before the bids are submitted. Therefore, they conclude that "there is virtually no systemic evidence about the nature of the information exchange between investors and the investment banks." Their research, which uses surveys, addresses IPO pricing from the viewpoint of fund managers. Their findings suggest that investors produce only limited information. For example, most institutional investors do not build their own valuation model. Moreover, they argue that information primarily flows from the underwriter to investors, which indicates that the bookbuilding period mainly serves a marketing purpose. However, like Jenkinson, Jones, and Sundheim (2017) note, the exchange of valuable information may only materialize between the underwriter and larger investors. Larger investors are considered to be more sophisticated and possess closer relationships with most underwriters. Further, they note that it is impossible to identify precisely how much information flows from investors to the underwriter. Nonetheless, they find that investors who attend meetings with the underwriter receive more generous stock allocations. This result suggests that the underwriter rewards investors for information they convey during these meetings. In sum, the nature of information exchange remains largely unclear, whereas literature provides only partial evidence of the value of private information.

The question remains why institutional investors are willing to share private information, in particular when information acquisition appears costly. Namely, if investors presume that the value of the issuer is above the underwriter's estimate, sharing their views with the underwriter encourages the

underwriter to set a higher offer price, which harms the returns of investors. As a result, investors only share positive private information with the underwriter if they receive a financial reward by doing so. Benveniste and Spindt (1989) construct a model[7] to overcome this issue, in which underwriters extract positive private information from investors by rewarding them with a higher initial return. The equilibrium outcome is that investors share their positive private information in return for a final offer price that only partially incorporates positive private information, and thereby enlarges the initial return. Hanley (1993) provides evidence in favor of this so-called "partial adjustment phenomenon," showing that the initial return is 20.1% higher for IPOs whereby the offer price is set above the initial price range, in comparison to IPOs where the offer price is set below the initial price range. Sherman and Titman (2002) extend Benveniste and Spindt's model, arguing that underwriters allot a larger ration of underpriced stock to investors that engage in a costly information acquisition process. However, investors may provide incentives to withhold some information. For instance, Chemmanur, Hu, and Huang (2010) infer that institutional investors do not reveal all their private information during the IPO pricing process, because institutional trading in the months after the IPO bears predictive power over ensuing long-term IPO returns. This result indicates that institutional investors that engage in costly information acquisition could choose not to disclose all private information if they anticipate that the compensation is not being sufficiently rewarded. However, the literature suggests that investors who reveal a significant amount of information subsequently get rewarded in the form of an increased initial return or a larger ration of stock allotment.

Information production theories also receive criticism. For example, Lowry and Schwert (2004) and Loughran and Ritter (2002) find that public information is only partially incorporated in the offer price revision.[8] This finding contradicts Benveniste and Spindt's (1989) model, because underwriters have no reason to reward investors for revealing public information that is readily available.[9] Therefore, they conclude, information production theories cannot hold. Instead, they point to agency theories, which focus on the relationship between the underwriter and stockholders or managers of the issuer. Nevertheless, information production and agency theories are not mutually exclusive, as the

[7] Arguably, Benveniste and Spindt's (1989) model is perceived the leading theoretical paradigm in IPO research.

[8] However, both studies find that negative private information is fully incorporated into the offer price, in agreement with Benveniste and Spindt's model. Thus, they only partially reject information production theories.

[9] Sherman (2005) counters that information production theories do not hold because of the partial adjustment to public information. He argues that if the opportunity cost of information acquisition correlates with positive public information, then increased information acquisition costs justify the partial adjustment to public information. However, my point of the paragraph is that not all studies acknowledge information as the main driver for IPO pricing effects.

underwriter may favor investors who produce substantial information as well as investors from whom they maximize revenues (Jenkinson, Jones, and Sundheim, 2017).

Second, I examine the importance of the pre-filing period in IPO pricing. Loughran and Ritter (2002) hypothesize that issuers irrationally anchor to the midpoint of the initial price range, and subsequently are unwilling to adjust the offer price upward if positive information is revealed. In addition, although the initial price range poses no binding constraints on the offer price revision, Hanley (1993) finds that the initial price range has a confining effect on the offer price revision. Likewise, Bradley and Jordan (2002) suggest that upward price range revisions only occur to prevent IPOs with excessive initial returns. Overall, the initial price range, and thus the offer price revision, seems to play an essential and committing role in IPO pricing.

Before the JOBS Act, the SEC prohibited the exchange of information in the pre-filing period. Research from Europe offers insight, as the regulatory environment allows the underwriter to communicate with investors before the initial price range is set. Jenkinson, Morrison, and Wilhelm (2006) propose a model that explains information revelation in a setting where information exchange occurs in the pre-filing period. The model assumes that the underwriter uses the initial price range as an instrument to induce investors to reveal private information, on the condition that the maximum and minimum of the price range constrain the offer price. Although they do not test the model empirically, their statistics show that the price range is sticky in Europe. Namely, 90% of the IPOs are priced within the initial price range, compared to 50% in the US. Furthermore, the total price revision, the percentage change between the midpoint of the initial price range and the first-day closing price, is 7.1% lower in Europe than in the US. Both results imply that private information gathering in the pre-filing period enables the underwriter to set the initial price range more accurately. However, drawing conclusions by merely comparing IPO pricing in Europe to the US is premature, as the regulatory framework and IPO conventions differ significantly across both continents. For example, the width of the initial price range is constrained in the US,[10] and the frequency of price range revision is significantly lower in Europe by convention. More evidence stems from Aussenegg, Pichler, and Stomper (2006), who study the IPO pricing process in Germany. The German regulatory framework facilitates companies to trade on a so-called "when-issued" market during the bookbuilding period. They do not find evidence for the partial adjustment phenomenon, which indicates that the underwriter does not gather private information during the bookbuilding stage, or that the underwriter obtains private information for free.

[10] The safe harbor for the width of the price range contains the greater of $2 or 20% of the lower bound of the price range (Jenkinson, Morrison, and Wilhelm, 2006).

Interestingly, stocks that trade on the when-issued market experience high initial returns relative to their when-issued prices. This finding indicates that investors who provide feedback in the pre-filing period appear to receive compensation in the form of a higher initial return. Thus, if the underwriter is permitted to gather private information in the pre-filing period, the underwriter uses the bookbuilding period to market the IPO.

Third, literature concerning the effect of confidential filing on IPO pricing is only preliminary. Important to note, the SEC does not disclose any information about companies that confidentially file for an IPO but subsequently withdraw their offering. Therefore, as Chaplinsky, Hanley, and Moon (2017) mention, assessing the consequences of the confidential filing provision provides only a partial explanation. Nevertheless, confidential filing decreases the costs of IPO withdrawal and erodes the costs of proprietary information disclosure. Dambra, Field, and Gustafson (2015) argue that confidential filing is often combined with TTW because the combination reduces the likelihood, and thereby the costs, of IPO withdrawal. As a result, Cheng (2015) finds that the frequency of IPO withdrawals declines after the JOBS Act.[11] Academic literature does not indicate a distinctive impact of IPO withdrawal on IPO pricing. Edelen and Kadlec (2005) report that most IPO withdrawals occur in periods of negative market returns. As a consequence, the relation between downward offer price revisions and negative public information is weaker when adjusting for IPO withdrawals. However, the effect of IPO withdrawals on the initial return is rather small (İnce, 2014; Edelen and Kadlec, 2005). Therefore, I presume that the effect of reduced withdrawal costs on IPO pricing is only minor. Furthermore, the reduction in proprietary disclosure costs changes the type of companies that go public. Companies with more proprietary information usually prefer private financing over an IPO, because valuable information is less likely to be revealed to competitors when the company finances privately (Maksimovic and Pichler, 2001). As confidential filing conceals proprietary information, more of these companies pursue an IPO (Dambra, Field, and Gustafson, 2015). Companies with a high level of proprietary information are often perceived as difficult-to-value, thus the change in the types of companies that pursue an IPO may alter IPO pricing indirectly (Lowry, Officer, and Schwert, 2010).

Based on existing empirical research, I conclude that de-risking provisions should aid the underwriter to enhance the accuracy of the initial price range. Private information seems beneficial to overcome informational frictions; mainly stemming from evidence from information revelation theories and more accurate IPO pricing in Europe. Moreover, the initial price range appears to have a confining

[11] In untabulated results, I find that the average withdrawal rate equals 11.0% prior to the JOBS Act (January 2003 to April 2012) compared to 5.2% post-JOBS Act (April 2012 to December 2016).

effect, which could increase the accuracy of the complete IPO pricing process. Last, the effect of confidential filing remains largely unclear. Nevertheless, I presume confidential filing to affect IPO pricing mainly indirectly, via a change in the types of companies that conduct an IPO.

2.3.2. De-burdening and initial public offering pricing

De-burdening provisions reduce mandatory disclosure and reporting requirements. Before the JOBS Act, only SRCs could benefit from largely similar de-burdening provisions. Reduced disclosure may curb direct costs, at the expense of higher indirect costs (Chaplinsky, Hanley, and Moon, 2017). Direct IPO costs involve accounting, legal, and underwriting costs, whereas indirect costs comprise the initial return and proprietary information revelation costs. Companies that opt-out of specific de-burdening provisions implicitly disclose information voluntary. As companies only voluntary disclose information when the benefits outweigh the costs, companies not electing de-burdening provisions anticipate that a reduction of the initial return outweighs the benefits of less disclosure. This argument is in line with existing empirical studies which show that reduced mandatory disclosure is generally associated with increased information uncertainty and thus higher initial returns.

Ritter and Welch (2002) infer that practically all theories that try to explain underpricing assume a positive relation between information asymmetry and initial returns. The primary assumptions in asymmetric information theories encompass that investors are risk-averse and underwriters are rational. Beatty and Ritter (1986) develop a model in which they find an equilibrium between the initial return and ex ante uncertainty about the value of a company. Albeit most IPOs yield positive initial returns, investors cannot be certain about the value of a company before it commences trading. Investors want a compensation for bearing this ex ante uncertainty, and therefore demand an additional risk premium for IPOs with higher uncertainty. Thus, information uncertainty impedes investors to accurately value the IPO, which drives the initial return (Lowry, Officer, and Schwert, 2010).

The quality and amount of information disclosure during the IPO process directly impacts IPO pricing.[12] Beatty (1989) finds an inverse relation between auditor reputation and initial returns, which shows that enhanced quality and reliability of the information provided in the prospectus decreases the initial return. Leone, Rock, and Willenborg (2007) examine the disclosure of the "Use of Proceeds" section in IPO prospectuses and find that the initial return and the use of proceeds disclosure move in opposite directions. They conclude that the volume of disclosure aids investors to narrow the estimated valuation range of the IPO down. Likewise, Chahine and Filatochev (2008) find that voluntary

[12] See Healy and Palepu (2001) for an extensive overview of empirical disclosure literature regarding information asymmetry, corporate disclosure, and their relation to the capital market.

information disclosure in the IPO prospectus successfully reduces information asymmetry, and consequently lessens initial returns. Nevertheless, they infer that the type of voluntary information disclosure disparately impacts information asymmetry. For example, risk and human resources disclosure decreases the initial return significantly, while R&D and technology disclosure increases the initial return. Evidently, investors perceive proprietary information disclosure as jeopardizing competitive advantage. Also, the instructiveness of the information provided affects the initial return. Hanley and Hoberg (2010) find that companies that include more informative content in the IPO prospectus experience lower offer price revisions and lower initial returns. On the contrary, standard or non-informative content hampers the accuracy of IPO pricing, although marginally. Usually, investors ascribe more value to "hard" information in comparison to "soft" information. Textual content raises ambiguity because it allows for different interpretations, whereas numerical content provides clarity (Arnold, Fische, and North, 2010). Loughran and McDonald (2013) infer that only negative, weak modal and uncertain words and texts in the IPO prospectus increase the initial return. Weak modal and uncertain words appear to raise ambiguity, whereas negative words increase IPO valuation uncertainty. Altogether, prior research provides evidence of an inverse relationship between the amount and quality of disclosure and the initial return, unless the information raises information uncertainty or exposes valuable proprietary information.

Alternatively, the reduction of mandatory disclosure could indirectly affect IPO pricing because regulatory amendments make an IPO more beneficial for certain types of companies. For example, Coates and Srinivasan (2014) find that the enactment of SOX raised the direct costs of being public disproportionally for small companies, as the costs of implementation are relatively burdensome for small companies. De-burdening provisions delay mandatory compliance with SOX 404(b), which heightens the attractiveness of an IPO for small companies. Likewise, the de-burdening provisions could boost the number of IPOs of companies that try to hide poor performance or remunerate their executives excessively (Barth, Landsman, and Taylor, 2017). Hence, de-burdening provisions could induce a surge in IPOs of small or "risky" companies. These companies are considered difficult-to-value, which increases the initial return indirectly (Lowry, Officer, and Schwert, 2010).

Prior JOBS Act research mainly focuses on the effects of reduced disclosure on initial returns (Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017). These studies all find that the JOBS Act provisions boost the initial return, although they address different aspects. Gupta and Israelsen (2014) were the first to study the effects of the JOBS Act on the initial return. In their research, they conclude that the JOBS Act increases the level of information

asymmetry between EGCs and investors, which drives an average initial return increase of 7.0%. They argue that a potential explanation is that investors are more uncertain about the valuation and prospects of the IPO. Interestingly, small companies that did not elect the EGC status after the JOBS Act experience less underpricing.[13] Therefore, the initial return increase is attributable to the provisions of the JOBS Act. Chaplinsky, Hanley, and Moon (2017) also find that the initial return increases, but only for large companies. The initial return increase solely accrues to large companies because large companies (non-SRCs) could not benefit from de-burdening provisions pre-JOBS Act. Large EGC IPOs experience an initial return increase of 11.9% compared to IPOs of similar-sized companies before the JOBS Act. Additionally, they find that the initial return increases over time, together with the growing adoption of JOBS Act provisions. The increase of JOBS Act provision adoption shows that EGCs are convinced that the benefits of the provisions outweigh the costs of a steeper initial return. In line with both papers, Barth, Landsman, and Taylor (2017) find an increase of the initial return of 7.1%. They imply that several individual JOBS Act provisions reduce the initial return, namely confidential filing,[14] reduced executive compensation, and delayed compliance with GAAP. This result contradicts Gupta and Israelsen (2014), who do not find significant results in their regressions of initial return on individual provisions. Further, they conclude that the change in the initial return is attributable to the JOBS Act. Last, their regressions of post-IPO volatility, which is a proxy for information uncertainty, suggest that the increase in the initial return is due to information uncertainty. Conclusively, prior research suggests that the provisions of the JOBS Act increase the initial return by 7.0% as a result of increased information uncertainty.

Alternatively, Dambra, Field, and Gustafson (2015) examine which benefits of the JOBS Act drive the IPO decision. Next to their inferences that IPO volume increases and the ration of small companies pursuing an IPO grows, they find a sharp increase in IPO activity for companies with high proprietary disclosure costs, like biotechnology and pharmaceutical (biotech/pharma) companies. This result is in line with previous JOBS Act research (Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017). They do not find evidence that reduced compliance costs are the reason for the surge in IPO volume. Instead, de-risking provisions, and not de-burdening provisions, seem to be the cause for the rise in IPO activity. Therefore, de-burdening provisions indirectly affect IPO pricing because the ration of difficult-to-value companies that conduct an IPO increases.

[13] This result is odd, as I find only five companies that did not elect the EGC status after the JOBS Act. That sample is too small to draw conclusions on.

[14] In line with Dambra, Field, and Gustafson (2015), I classify confidential filing as a de-risking provision. Barth, Landsman, and Taylor (2017) do not use de-risking provisions, but instead approach all JOBS Act provisions as de-burdening provisions.

Building on existing literature, I infer that de-burdening provisions increase information uncertainty and therefore should increase the initial return. The reduced reporting requirements reduce the amount of information provided, whereas the delayed compliance requirements decrease the quality of the information presented. Both factors raise information uncertainty directly. Likely, the initial return also increases indirectly, as the regulatory environment becomes more friendly to difficult-to-value companies.

2.4 Hypotheses

Based on prior academic literature, theory and own reasoning, I develop several hypotheses to answer the research question: "How do the de-risking and be-burdening provisions of the JOBS Act alter the IPO pricing process?" These hypotheses form the basis for the development of the methodology and empirical analyses.

The first hypothesis builds on the idea corresponding to information production theories; that investors possess private information that aids the underwriter to price the IPO more accurately (Benveniste and Spindt, 1989; Sherman and Titman, 2002). De-risking provisions permit the underwriter to communicate with institutional investors in the pre-filing period and allow the issuer to file the registration statement with the SEC secretly. As a consequence, private information is incorporated into the initial price range, and the IPO withdrawal costs are reduced (Dambra, Field, and Gustafson, 2015). Prior to the JOBS Act, the underwriter was strictly prohibited from communicating with investors in the pre-filing period and could only file registration statements publicly. Therefore, de-risking provisions should allow the underwriter to set a more accurate initial price range. In addition, preliminary evidence from Europe indicates that the initial price range is more accurately priced in Europe than in the US (Jenkinson, Morrison, and Wilhelm, 2006). This result suggests that a regulatory environment that resembles the framework applied in Europe should enhance the accuracy of the initial price range.

H_1: The JOBS Act increases the pricing accuracy of the initial price range.

According to Beatty and Ritter's (1986) model, investors demand an additional risk premium for IPOs with high information uncertainty. Existing literature finds that reduced IPO disclosure increases the level of information uncertainty (Leone, Rock, and Willenborg, 2007; Chahine and Filatochev, 2008). Moreover, prior studies provide evidence that JOBS Act provisions increase the initial return (Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017). Therefore, I expect the JOBS Act to increase underpricing.

H_2: The JOBS Act increases the initial return.

Following the second hypothesis, companies electing more de-burdening provisions encounter more information uncertainty. Surprisingly, empirical literature that tests the effects of individual JOBS Act provisions on the initial return provides mixed results. Gupta and Israelsen (2014) and Chaplinsky, Hanley, and Moon (2017) do not find a significant relation between individual JOBS Act provision elections and initial returns. The contingent election of provisions is an endogenous decision, and as they do not control for endogeneity, their results could be biased. Conversely, Barth, Landsman, and Taylor (2017) yield significant coefficients for some provisions.[15] Nonetheless, their findings could be biased as well, as the inclusion of an unmatched control sample raises sample selection bias. Although evidence stemming from JOBS Act research is controversial, I follow existing IPO disclosure literature (Leone, Rock, and Willenborg, 2007; Chahine and Filatochev, 2008) that predicts a positive relation between the election of de-burdening provisions and the initial return.

H_3: The election of more de-burdening provisions increases the initial return.

In the absence of JOBS Act research on the effects of the offer price revision, I have to rely on my own intuition. As de-risking provisions were non-existent prior to the JOBS Act, both SRCs and non-SRCs encounter the same regulatory shock. Furthermore, IPO disclosure theories predict that an increase in information uncertainty results in a higher initial return (Leone, Rock, and Willenborg, 2007; Chahine and Filatochev, 2008). However, these theories do not mention any effect of information uncertainty on the offer price revision. The initial return increases because the offer price is set lower (Chaplinsky, Hanley, and Moon, 2017), as investors require an additional risk premium for the heightened information uncertainty. I presume that the size of the risk premium is similar in the pre-filing and bookbuilding period because the amount and quality of the information disclosed by the underwriter and issuer remains similar in the pre-filing and bookbuilding period. Moreover, investors cannot receive financial compensation from an offer price revision, thus they have no financial incentive to require a different risk premium in the pre-filing period. As a result, I do not expect a significant impact of de-burdening provisions on the offer price revision. Therefore, I expect the effect of the JOBS Act on the offer price revision to be similar for SRCs and non-SRCs.

[15] Barth, Landsman, and Taylor (2017) find significant variables for confidential filing, reduced executive compensation, JOBS Index (number of provisions elected), and High Index (dummy that equals one if the company elects four or more provisions). As I classify confidential filing as a de-risking provision, the result of confidential filing is unrelated to my research.

H_4: The effects of the JOBS Act on the offer price revision accrue to both SRCs and non-SRCs.

Chaplinsky, Hanley, and Moon (2017) provide evidence for the last hypothesis, as they find that only non-SRCs experience an upward shock in initial returns due to the JOBS Act. The differential effect arises because non-SRCs could not benefit from de-burdening provisions prior to the JOBS Act, whereas SRCs enjoyed mostly similar de-burdening provisions before and after the enactment of the JOBS Act (Shirodkar and Darnell-Weichelt, 2011). Thereby, they implicitly argue that the effect of de-risking provisions on the initial return is trivial.

Nevertheless, I believe that the influence of de-risking provisions on the initial return remains ambiguous. Benveniste and Spindt's model (1989) suggests that investors are rewarded for revealing positive private information by an increased initial return. However, their model assumes that private information gathering only takes place during the bookbuilding period. Thus, it remains unclear whether the underwriter rewards investors that reveal positive private information during the pre-filing period similarly. On one hand, I do not presume that an investor should be rewarded differently for disclosing information during the pre-filing period compared to the bookbuilding period. This presumption is in agreement with Aussenegg, Pichler, and Stomper (2006), who find that when-issued IPOs experience a positive initial return relative to their when-issued price.[16] On the other hand, more information gathering, as a consequence of an extended period of communication with investors, could require the underwriter to reward more investors by further increasing the initial return. Furthermore, the offer price revision appears to have predictive power over the initial return, because the offer price revision only partially incorporates information. The partial adjustment of the offer price can have multiple causes. For example, partial adjustment may emerge because of anchoring (Loughran and Ritter, 2002), stickiness of the price implicitly agreed on between the underwriter and issuer (Lowry and Schwert, 2004), information revelation by using the price range as an instrument (as modeled by Jenkinson, Morrison, and Wilhelm, 2006), underwriter's unwillingness to revise the price range in the absence of extremely priced indications of interest (Bradley and Jordan, 2002), or the motive to mitigate IPO failure risk (Edelen and Kadlec, 2005).[17] Conclusively, de-risking provisions could affect the initial return in a

[16] As the effect of information production during the when-issued period is directly translated into the when-issued price, the initial return should be approximately zero if the amount of private information disclosure in the pre-filing period is negligible. However, the average initial return appears significantly positive, which indicates that investors who share information before the when-issued period begins are rewarded with a higher initial return.

[17] Edelen and Kadlec (2005) posit that the offer price revision only partially adjusts to new information because of the fear that a full adjustment would raise the likelihood of IPO withdrawal significantly.

variety of ways. By any means, as the effect seems highly versatile, I follow the only available empirical evidence from Chaplinsky, Hanley, and Moon (2017).

H_5: The effects of the JOBS Act on the initial return accrue primarily to non-SRCs.

3. Data and methodology

In the following section, I elaborate on the data and the methodology used to examine the hypotheses. First, I clarify how I collect the data and which sources I use. Second, I explain all variables included in the regressions. Third, I provide an overview of the data set using descriptive statistics. Last, I discuss the methodology that allows for an empirical examination of the hypotheses.

3.1 Data and data sources

The sample comprises data from several databases: Thomson Reuters Securities Data Company (SDC) Platinum New Issues database, Wharton Research Data Services Compustat North America database (Compustat), Center for Research in Security Prices (CRSP) database, SEC Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database, and Ritter's IPO database. Moreover, I collect a large sum of data by hand, as this information is unavailable in any database.

Appendix A1 provides an overview of the sample selection process. I include all US IPOs between January 15, 2003 and December 31, 2016 from the Thomson Reuters SDC database, because the SEC enacted relaxation of several de-burdening provisions applicable to SRCs on January 15, 2003. Initially, the de-burdening provisions were only available for SRCs with IPO proceeds of not more than $25 million under Regulation S-B. On February 4, 2008, the SEC expanded the availability of de-burdening provisions to companies with IPO proceeds up to $75 million. The starting dates are in line with Chaplinsky, Moon, and Hanley (2017), however my sample period is more extensive. I exclude banks, savings and loans institutions, real estate investment trusts (REITs), limited partnerships, rights issues, closed-end funds, and unit offerings.[18] The firm-commitment underwriting method is applied in largely every IPO listed on the NYSE or the Nasdaq. As the price formation process differs per underwriting method, I exclude IPOs using other underwriting methods. I exclude IPOs raising less than $5 million to achieve a more homogeneous sample. I set the revenue limit at $1 billion because companies generating more than $1 billion revenue per year cannot elect the EGC status. Furthermore, I

[18] Specifically, in line with prior IPO research, I exclude the following SIC codes: National commercial banks (6021), state commercial banks (6022), other commercial banks (6029), savings institutions, federal (6035), savings institutions, non-federal (6036), non-deposit trusts (6091), business credit institutions (6159), pension, health, and welfare funds (6371), investment offices (6722), unit investment trusts (6726), religious, and educational trusts (6732), other trusts (6733), REITs (6798), and investors (6799).

exclude secondary listings because their IPO pricing is highly interlinked with the stock price of the primary listing. Last, I only include companies that list either on the NYSE or Nasdaq, thereby excluding IPOs listing on the over-the-counter market. The total sample, consisting of EGC and control IPOs, contains 1,583 observations.

Subsequently, I merge the sample with the Compustat database to obtain the following accounting data: Revenue, net income, total debt, total assets, property, plant and equipment (PP&E), and research & development (R&D). Then, I add data from the CRSP database to supplement the observations with missing stock price data. In the rare event that stock price data is absent on Compustat, I collect the data from SDC or, if the data is still missing, from Yahoo! Finance. Last, I use Field-Ritter's database[19] to gather founding dates of pre-JOBS Act companies in the absence of founding dates on SDC. If founding dates are missing in either SDC or Ritter's database, I hand-collect the data from S-1's available on SEC EDGAR.

To gather the sample of EGC IPOs, I manually verify whether companies elect the EGC status. Companies disclose their contingent EGC election in all their registration statements. The EGC sample contains companies that pursue an IPO in conjunction with the EGC status between the enactment of the JOBS Act on April 5, 2012 and December 31, 2016. As only five companies that conduct an IPO during this period do not elect the EGC status, the final EGC sample consists of 546 IPOs. Since the control sample comprises 1,032 IPOs, the total sample includes 1,578 IPOs.

JOBS Act data are not available in any database.[20] Therefore, I use the SEC EDGAR database to hand-collect JOBS Act provision data from registration statements (S-1 and S-1/A), underwriting agreements (EX-1.1), and prospectuses (424B). I broadly use the same classification method as Dambra, Field, and Gustafson (2015), except for the TTW provision classification, to identify whether companies elect specific JOBS Act provisions. If the company does not disclose the contingent election of a JOBS Act provision in their filings, I treat this as a non-election. Likewise, if the company discloses that it may take advantage of a provision, I also treat this as a non-election, as it remains unclear whether the company will take advantage of the provision. This classification method ensures that JOBS Act provisions are only coded as an election if the company definitely intends to take advantage of the provision.[21]

[19] I use Field-Ritter's database, updated in January 2018.

[20] The Erasmus Datateam has confirmed that JOBS Act data are not available in any database.

[21] For example, EGCs frequently state that they "may take advantage of" certain provisions. I classify this as a non-election, as it remains unclear whether the company will take advantage of the provisions. On the contrary, some EGCs disclose that they "intend to take advantage of" certain provisions. This statement clearly confirms that the company will take advantage of the provision. Therefore, I classify this as an election.

First, I check whether the issuer files the registration statement confidentially. Companies disclose contingent confidential filing on the face of the initial registration statement, in two possible manners. Prior to October 1, 2012, companies attached an additional confidential filing form to their initial registration statement (Form S-1). Afterwards, companies used Form DRS to file confidentially.

Second, I examine the registration statement (S-1) and the amended registration statements (S-1/A) to locate the underwriting agreement (EX-1.1). The underwriting agreement indicates whether the EGC authorizes the underwriter to engage in TTW. I do not make a distinction whether solely the underwriter or both the underwriter and issuer engage in TTW, as I consider both parties to operate as a team. I deem the words "Testing-the-waters Communication," "Section 5(d) Communication" and, although rarely used, "Exempt Written Communication", to indicate TTW election. With this, I diverge from previous JOBS Act studies (Dambra, Field, and Gustafson, 2015; Chaplinsky, Hanley, and Moon, 2017; Barth, Landsman, and Taylor, 2017), which only classify Testing-the-waters Communication as an election of TTW. The Securities Act clearly states that Section 5(d) Communication involves oral or written communication with potential investors that are QIBs prior to, and following, the filing of a registration statement.[22] Hence, I interpret Section 5(d) Communication to have a similar meaning as Testing-the-waters Communication. In addition, Testing-the-waters Communication always refers to Section 5(d) of the Securities Act, which underlines the interchangeableness of both classifications.[23] Appendix A2 provides Section 5(d) of the Securities Act of 1933.

To ensure the validity of my interpretation regarding TTW classification, I have contacted Dr. Chaplinsky and Dr. Dambra, as both professors published leading research in the field of the JOBS Act.[24] [25] Dr. Chaplinsky affirms that my classification method is exactly right and posits that she would include Section 5(d) Communication if she had to redo her analysis. Dr. Dambra acknowledges that my method may be more accurate, however he mentions that Section 5(d) Communication also covers post-IPO communications. I disagree with Dr. Dambra, as Section 5 of the Securities Act only relates to the interstate commerce and mails prior to filing the registration statement, or while the registration statement is the subject of a refusal or stop order. In other words, Section 5 of the Securities Act covers

[22] Securities Act of 1933, s 5(d).

[23] See Thomson Reuters Practical Law: *Testing the waters Communications and Anchor Investors in IPOs*, and Latham & Watkins: *The JOBS Act, Two Years Later: An Updated Look at the IPO Landscape*. Both available online.

[24] I thank both Dr. Dambra and Dr. Chaplinsky for sharing their views with me. I especially thank Dr. Dambra for sharing his TTW election data with me, as this allowed me to resolve my queries regarding TTW classification.

[25] Dr. Dambra is an assistant professor at the University of Buffalo with publications in the Journal of Financial Economics, Journal of Accounting and Economics, and The Accounting Review. Dr. Chaplinsky is a finance professor from the University of Virginia with publications in the Journal of Finance, Journal of Financial Economics, Review of Financial Studies, Journal of Business and Financial Management, and the Journal of Accounting Research.

regulation applicable to the pre-filing period. Hence, post-IPO communication is not relevant to this section of the Securities Act.

Third, I hand-collect the provisions relating to reduced disclosure and delayed compliance obligations from the prospectus (Form 424B). Companies disclose the election of these provisions in a specific "Emerging Growth Company" paragraph, often included in the "Risk Factors" section. Next to that, I count the number of audited financial statements in the "Financial Statements" section to assess whether the company takes advantage of the reduced accounting disclosure provision.

Last, I hand-collect the date on which the company files the initial price range. I examine all the company's registration statements, whereby I commence with the initial registration statement (S-1) and advance to the amended registration statements (S-1/A) until I find the registration statement that contains a price range. In most cases, the amended registration statement includes the initial price range.[26]

3.2. Variables

IPO variables are gathered from previous IPO research (Lowry and Schwert, 2004; Loughran and Ritter, 2004; Aussenegg, Pichler, and Stomper, 2006; Kutsuna, Smith, and Smith, 2009; İnce, 2014; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017). Although most IPO research focuses solely on the initial return, the independent variables included in the initial return regressions are also suitable for the offer price revision regressions.

3.2.1. Dependent variables

The dependent variable *PriceRevision*, a proxy for the accuracy of the initial price range, is the offer price revision. The offer price revision regressions are of particular relevance to test the first and fourth hypotheses, both relating to de-risking provisions. Eq. (1) displays the calculation of the offer price revision.

$$PriceRevision_i = \frac{Offer\ Price_i - Midpoint\ Initial\ Price\ Range_i}{Midpoint\ Initial\ Price\ Range_i} \quad (1)$$

Offer Price is the IPO price of the company. *Midpoint Initial Price Range* is the average of the upper and lower bound of the initial price range.

[26] I manually verify a random sample of 15 observations to ensure the data set is free of errors. The random sample yields similar results as the information provided in the registration statements on SEC EDGAR. Therefore, I conclude that the sample is correctly gathered.

In line with prior IPO pricing research (Lowry and Schwert, 2004; Aussenegg, Pichler, and Stomper, 2006; Kutsuna, Smith, and Smith, 2009), I use the raw offer price revision instead of the market-adjusted offer price revision. To incorporate the effects of fluctuations in market conditions, I include several proxies that measure the condition of the market. This method allows me to assess the effects of market conditions on the offer price revision, which is unattainable in case I would use the market-adjusted price revision.

I construct four proxies that assess the pricing accuracy of the initial price range. *PriceRevision* is the raw offer price revision. This variable is the only offer price revision proxy that prior IPO pricing research uses. In the absence of evidence from existing research, I construct the other proxies based on my own insight. First, *PriceRevisionAbs* is the absolute offer price revisions, i.e. the magnitude of the offer price revision. A smaller magnitude of the offer price revision indicates that the initial price range is more accurately priced because the midpoint of the initial price range lies closer to the offer price. Second, *WithinRange* is a dummy equal to one if the offer price is set within the initial price range, otherwise zero. Jenkinson, Morrison, and Wilhelm (2006) mention that the SEC requires that the width of the initial price range not exceeds the greater of $2 or 20% of the lower bound. All companies that list in the US deal with the same regulation concerning the width of the price range, which justifies the comparison between EGC and control IPOs. An offer price set within the initial price range indicates an accurately set initial price range. Third, *NumberRevision* measures the frequency of price range revisions. If the underwriter gathers private information before the initial price range is filed, I expect the company to be less inclined to adjust the price range because less private information is revealed during the bookbuilding period.

The dependent variable *InitialReturn* is the percentage change between the offer price and the first-day closing price, shown in Eq. (2). The initial return is of specific relevance to test the second, third, and fifth hypotheses, all linked to de-burdening provisions.

$$InitialReturn_i = \frac{First\text{-}Day\ Closing\ Price_i - Offer\ Price_i}{Offer\ Price_i} \qquad (2)$$

First-Day Closing Price is the closing price of the first trading day. *Offer Price* is the IPO price of the company.

I only measure the initial return over a one-day time window. As daily market movements are too small to impact the initial return significantly, I choose to measure the initial return based on raw

returns rather than market-adjusted returns, which is in line with existing IPO research (Loughran and Ritter, 2004; Ritter and Welch, 2002; Jenkinson, Morrison, and Wilhelm, 2006).[27]

3.2.2. Independent variables

In the first section, *EGC* is the main variable of interest used to test hypothesis one, two, four, and five. The *EGC* dummy is similar to a post-JOBS Act dummy, as I exclude companies that do not elect the EGC status after implementation of the JOBS Act from the sample.[28] Thereby, the *EGC* variable represents the incremental effect of the JOBS Act on the mean offer price revision or initial return. *EGC* is a dummy variable that equals one if the company elects the EGC status, otherwise it equals zero. Previous JOBS Act research uses a similar *EGC* variable (Gustafson and Israelsen, 2014; Chaplinsky, Hanley, and Moon, 2017; Barth, Landsman, and Taylor, 2017).

In the second section, *Provision* is the main variable of interest used to examine the third hypothesis. *Provision* measures the incremental effect of each individual JOBS Act provision on the offer price revision and the initial return. The de-risking provisions comprise: *TTW* is a dummy that equals one if the issuer authorizes the underwriter to engage in TTW; and *Confidential* is a dummy that equals one if the issuer files the registration statement confidentially with the SEC. The de-burdening provisions contain: *ReduceAcc* is a dummy that equals one if the issuer discloses two years of financial statements; *ReduceComp* is a dummy that equals one if the issuer discloses executive compensation of fewer than five executives; *DelaySOX* is a dummy that equals one if the issuer delays the implementation of the internal control system; *DelayGAAP* is a dummy that equals one if the issuer delays compliance with public company disclosure; *DelayDodd* is a dummy that equals one if the issuer delays implementation of the governance requirements; and *DelayPCAOB* is a dummy that equals one if the issuer delays mandatory audit firm rotation. The JOBS Act variables are in line with Dambra, Field, and Gustafson (2015), since other JOBS Act studies use a less extensive set of JOBS Act variables (Gustafson and Israelsen, 2014; Chaplinsky, Hanley, and Moon, 2017; Barth, Landsman, and Taylor, 2017).

Furthermore, like Barth, Landsman, and Taylor (2017), I construct two indices. Both indices serve as a proxy for information uncertainty, since both indices contain solely de-burdening provisions. These indices allow me to draw conclusions based on the number of de-burdening provisions elected, instead of solely assessing the incremental effects of each individual de-burdening provision. Using indices is particularly relevant when a provision is infrequently elected, as an infrequently elected

[27] Untabulated results whereby the initial return is measured on a market-adjusted basis produce similar conclusions.

[28] I find solely five companies that do not elect the EGC status after implementation of the JOBS Act. The high frequency of EGC status adoption shows that companies consider the JOBS Act to be highly beneficial.

provision impedes the measurement of the provision's incremental effects. *JOBSIndex* is an ordinal variable that amounts to the number of de-burdening provisions elected. *HighIndex* is a dummy that equals one if the issuer elects three or more de-burdening provisions. I set the threshold level at three or more de-burdening provisions because this threshold comes closest to a uniform distribution.[29] Both indices have unique benefits, since *JOBSIndex* explains more cross-sectional variation, whereas *HighIndex* better accounts for potential non-linearity.

3.2.3. Control variables

I include a control variable only after a profound examination of the theoretical relevance, inspection of the Pearson correlation matrix, and assessment of preliminary regression results. The firm and deal-specific variables correct for differences in firm and deal characteristics that impact the offer price revision and the initial return. *UnderwriterRank* represents the reputation of the underwriter, based on Loughran and Ritter's (2002) classification. Ritter ranks underwriters from 0 to 9, whereby 9 represents the most reputable rank.[30] To incorporate the effects of the distinctive nature of the technology and biotech/pharma industry, I construct two dummies based on Fama-French's 49 industry biotech/pharma classification and Loughran and Ritter's technology classification. Valuation uncertainty characterizes both industries, which I expect to amplify the effects on the offer price revision and the initial return. I disentangle both industry effects into separate dummies, similar to Dambra, Field, and Gustafson (2015), since biotech/pharma companies benefit particularly from the de-burdening provisions of the JOBS Act. *Tech* is a dummy that equals one if the company is a technology company, otherwise zero.[31] *Biotech* is a dummy that equals one if the company is a biotech/pharma company, otherwise zero.[32] I include two complementary proxies for firm size. First, *ProceedsFiled* is the amount that the company intends to raise from the IPO. I include the filed proceeds instead of the actual proceeds because the filed proceeds incorporate less public and private information learned during the IPO process. Second, *Assets* measures the total assets of the company the year preceding the IPO.

[29] EGCs elect 2.6 de-burdening provisions on average.

[30] I use the most recent rank (Rank1215) of Ritter's website. If the rank of the lead underwriter is missing, I verify whether the underwriter was ranked in previous years. Furthermore, I check on underwriter name changes and underwriter M&A if the rank is missing. Available at https://site.warrington.ufl.edu/ritter/ipo-data.

[31] I follow Loughran and Ritter (2002b) regarding their classification of technology stocks. Tech stocks are defined as: computer hardware (3571, 3572, 3575, 3577, 3578), communication equipment (3661, 3663, 3669), electronics (3671, 3672, 3674, 3675, 3677, 3678, 3679), navigation equipment (3812), measuring and controlling devices (3823, 3825, 3826, 3827, 3829), medical instruments (3841, 3845), telephone equipment (4812, 4813), communications services (4899), and software (7371, 7372, 7373, 7374, 7375, 7378, 7379).

[32] I use Fama-French's 49 industry portfolios to classify biotech/pharma companies. Industry 13, pharmaceutical products, includes SIC codes 2830, 2831, 2833, 2834, 2835, and 2836.

ProceedsFiled and *Assets* measure different aspects of size, as proceeds filed assesses the size of the IPO relative to the size of the company, and total assets measures the size of the company's resources. *Age* is the number of years between the founding date and the IPO date. To incorporate the differential effects of the Nasdaq and NYSE, I include a *NYSE* dummy. The dummy equals one if the company lists on the NYSE, otherwise zero. *VC* is a dummy that equals one if the IPO is backed by venture capital, otherwise zero. *DaysRegistration* is the number of days between the filing date of the initial price range and the offer date, also known as the bookbuilding period. I include this variable because a long-lasting bookbuilding period enables the underwriter to gather more private information.

Furthermore, I include market return variables to correct for fluctuations in market conditions. I construct three market condition proxies. Following Lowry and Schwert (2004), *MarketReturn* is the return of the CRSP equally-weighted (EW) index of NYSE, AMEX, and Nasdaq stocks between the filing date of the initial price range and the offer date. As they find asymmetric price effects of market returns, I include the dummy *MarketReturn+*, that equals one if market returns are positive, otherwise zero. Like Chaplinsky, Moon, and Hanley (2017), I use *HotMarket*, which provides the number of IPOs that occurred within 90 days before the offer date. I expect *MarketReturn* and *HotMarket* to be complementary, as the former precisely measures public information, whereas the latter assesses the IPO activity.

Besides, I include *MarketReturnAbs* in the *PriceRevisionAbs* regressions instead of *MarketReturn* and *MarketReturn+*. To assess the relation between the magnitude of the offer price revision and market returns, I have to include the absolute values of both variables. Also, I add the offer price revision in the initial return regressions. Hanley (1993) finds that offer prices only partially adjust to positive private information, which spurs the relationship between the offer price revision and initial return. Thus, *PriceRevision* serves as a control variable and as a dependent variable in the offer price revision regressions. İnce (2014) finds that offer prices fully adjust to negative information, which shows that the price effect of the offer price revision is asymmetric. To control for asymmetry, I include *Price Revision+*, which is a dummy that equals one if the offer price revision is positive, otherwise zero.

Last, I include industry fixed effects if a Hausman test indicates that the random effects estimation model is rejected. Industry fixed effects, incorporated following the Fama-French 17 industry classifications, subsume the effects of industry level variables. I do not include year fixed effects, because market return variables already correct for fluctuations in IPO market conditions.

3.3. Descriptive statistics

Table 1 provides an overview of the distribution of IPOs across industries and years. The variables *ProceedsFiled* and *Revenue* are winsorized at the 1% and 99% level.[33] [34] I use Fama-French 17 industry classifications to construct the industry segmentation, since I use the same industry classifications in further analyses. The revenue cut-off point lies at $1 billion for all IPOs included, as only companies with less than $1 billion are eligible to elect the EGC status.

Table 1. Initial public offering (IPO) volume by year and Fama-French 17 industry classifications.

This table reports the number of IPOs segmented by year and industry. The industry classification is based on Fama-French 17 industry classifications: (1) Food, (2) Mining and Minerals, (3) Oil and Petroleum Products, (4) Textiles, Apparel & Footwear, (5) Consumer Durables, (6) Chemicals, (7) Drugs, Soap, Perfumes, Tobacco, (8) Construction, (9) Steel, (10) Fabricated Products, (11) Machinery, (12) Automobiles, (13) Transportation, (14) Utilities, (15) Retail Stores, (16) Financial Institutions, and (17) Other.

	Industry																	
Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	N
2003	1	1	0	0	1	1	6	0	1	0	5	1	5	0	5	14	21	61
2004	1	8	0	0	1	1	17	3	0	0	20	2	6	2	9	28	85	183
2005	3	8	0	4	0	0	11	2	0	0	19	0	15	1	10	20	67	156
2006	1	9	0	1	0	4	15	2	2	3	21	0	11	1	5	18	66	156
2007	3	10	0	1	2	3	23	1	3	1	22	1	7	2	2	14	84	175
2008	0	1	0	0	0	1	0	1	0	0	3	0	2	1	1	0	13	23
2009	0	1	0	0	1	1	3	0	1	0	3	0	2	0	3	1	20	35
2010	3	2	0	0	1	2	12	1	3	0	17	2	6	2	8	10	55	121
2011	2	5	0	1	0	2	7	1	0	0	9	1	2	0	4	2	44	79
2012	2	5	0	1	1	1	7	2	0	1	7	0	2	0	9	3	39	79
2013	0	6	0	0	1	1	26	1	0	0	9	1	2	2	5	15	62	131
2014	1	10	0	0	1	0	61	2	0	0	3	0	2	5	7	14	88	194
2015	2	4	0	0	0	1	37	1	0	0	6	2	3	2	9	5	47	115
2016	2	1	0	0	1	0	13	1	0	1	6	0	0	3	1	2	36	70
N	21	70	0	8	10	18	238	18	10	6	150	10	65	21	78	146	727	1,578

The table shows that the JOBS Act induces specific companies to pursue an IPO. Especially the surge of IPOs within industry 7, which consists of drugs, soaps, perfumes, and tobacco companies, is striking. Biotech/pharma companies are the main reason for the proliferation of IPOs within industry 7. Hence, in agreement with Dambra, Field, and Gustafson (2015), the JOBS Act appears specifically beneficial to companies with high proprietary disclosure cost. Next to that, the rise in IPO volume,

[33] During the data inspection, I assess the plausibility of the data points and check for outliers. I do not find illogical statistics after inspection of the mean, median, standard deviation, maximum, and minimum of all variables. I examine added-variable plots to detect outliers, which are data points with extreme values. Winsorizing improves statistical significance and increases the robustness of statistical conclusions, at the expense of bias. I detect outliers in the variables *ProceedsFiled* and *Revenue*, therefore I winsorize the variables at the 1% and 99% level. I also winsorize the matching variables *Debt* and *R&D*, because both variables contain outliers. Since both variables are multiples that are divided by total assets, large values are common for companies with few assets.

[34] The conclusions are robust for winsorizing at the 0.5% and 99.5%, and at the 2.5% and 97.5% level.

especially in 2014 when 194 EGCs pursued an IPO, is noteworthy. The surge in IPOs shows that the JOBS Act achieves its primary objective to revitalize the IPO market.[35]

Table 2. Descriptive statistics for emerging growth companies (EGCs) and pre-Jumpstart Our Business Startups (JOBS) Act issuers.

This table presents an overview of the data set including all variables used in further regressions and analyses. The sample includes 1,578 US initial public offerings (IPOs) from 2003 to 2016. The summary is segmented into EGC and control IPOs. The table reports the mean, median, standard deviation, minimum, maximum, and number of observations. The definitions of all variables are provided in Appendix A3. The variables are clustered by sort.

	EGC (N=546)					Control (N=1,032)				
Variable	Mean	Mdn	SD	Min	Max	Mean	Mdn	SD	Min	Max
Firm and deal-specific variables										
Age	9.49	7.74	9.35	0	80.34	15.61	8.95	20.46	0.25	165
Biotech	0.34	0	0.47	0	1	0.12	0	0.33	0	1
DaysRegistration	21.35	12	40.41	3	447	34.48	20	75.99	2	487
Leverage	0.27	0.07	0.42	0	2.25	0.25	0.09	0.38	0	2.25
PPE	0.16	0.07	0.22	0	0.95	0.21	0.10	0.25	0	0.99
ProceedsFiled	117.99	86	121.31	5	1000	146.79	100	145.61	5	1425
NYSE	0.29	0	0.45	0	1	0.32	0	0.49	0	1
R&D	0.68	0.47	0.75	0	4.17	0.66	0.51	0.86	0	4.17
Revenue	117.18	47.15	185.55	0	985	145.36	70.14	187.76	0	983.71
Tech	0.29	0	0.45	0	1	0.23	0	0.42	0	1
Assets	266.79	64.95	611.51	0	5,613	292.34	86.52	617.95	0	9,766
UnderwriterRank	7.82	8.5	1.75	0	9	7.38	8.5	2.64	0	9
Unprofitable	0.68	1	0.46	0	1	0.51	1	0.50	0	1
VC	0.62	1	0.48	0	1	0.50	0	0.49	0	1
Market condition variables										
HotMarket	123.06	118	34.81	44	190	85.22	85	24.33	8	152
MarketReturn	0.46	0.43	2.71	-7.65	17.39	1.80	1.32	4.69	-7.77	17.39
MarketReturn+	0.56	1	0.50	0	1	0.66	1	0.47	0	1
MarketReturnAbs	1.94	1.56	1.95	0.00	18.31	3.79	2.58	4.69	0	71.34
IPO pricing variables										
InitialReturn	19.77	11.00	33.18	-38.46	208.46	12.31	5.80	24.94	-72.16	327.78
NumberRevision	1.25	1	0.47	1	3	1.26	1	0.53	1	5
PriceRevision	-5.50	-0.23	22.21	-73.33	88.89	-3.84	-0.02	21.71	-70.59	146.15
PriceRevision+	0.37	0	0.48	0	1	0.40	0	0.49	0	1
PriceRevisionAbs	17.27	13.48	14.98	0	88.89	16.47	13.33	14.64	0	146.15
WithinRange	0.42	0	0.49	0	1	0.45	0	0.51	0	1

Table 2 provides an overview of the descriptive statistics of all variables. The sample is split between EGC and control IPOs to allow for a cross-sectional comparison. The firm and deal-specific characteristics show significant differences between EGC and control IPOs. Evidently, the number of difficult-to-value companies increases significantly as a consequence of the JOBS Act (Lowry, Officer, and Schwert, 2010). This increase is because EGCs are on average younger, smaller, unprofitable, venture-backed, and comprising of few tangible assets (PP&E). Correspondingly, EGCs frequently operate in difficult-to-value industries, like biotech/pharma and technology. Interestingly, the JOBS Act

[35] Except 2016, in which the IPO volume is strikingly low. The hit is attributable to market turmoil at the beginning of the year followed by increased uncertainty stemming from Brexit.

shortens the bookbuilding period by 13 days on average, from 34 days to 21 days. This preliminary result point to less information gathering during the bookbuilding period as a consequence of the JOBS Act. The market condition variables confirm that the JOBS Act successfully raises IPO volume, as the average number of IPOs within the 90 days before the offer date increases by 38. Market returns and volatility are slightly lower post-JOBS Act.

The IPO pricing variables indicate that EGCs yield an average initial return of 19.8%, which is 7.5% higher than the initial return of control IPOs. This result is in line with prior research (e.g. Gustafson and Israelsen, 2014; Chaplinsky, Hanley, and Moon, 2017; Barth, Landsman, and Taylor, 2017). Both samples are negatively skewed with a few IPOs yielding extreme initial returns. The standard deviation indicates that EGCs encounter more variation in initial returns. EGCs revise their price range down by 5.5% on average, against a negative offer price revision of 3.8% in the control sample. The JOBS Act hardly affects the number of offer price revisions, positive offer price revision, and absolute change in offer price revision. The findings of the absolute change in the offer price revision are especially counterintuitive, as private information gathering should benefit the underwriter to price the IPO more accurately. Possibly, this effect is offset by the increased ration of difficult-to-value companies, which impedes the underwriter to set the initial price range accurately.

Panel A of Table 3 presents the frequency of use of JOBS Act provisions. The extent to which EGCs adopt JOBS Act provisions differs significantly per provision. Most EGCs take advantage of the de-risking provisions, as 90% and 88% of EGCs elect the confidential filing and TTW provision, respectively. EGCs adopt the de-burdening provisions less frequently; delay GAAP requirements (12%), delay compliance with the PCAOB (23%), delay compliance with the Dodd-Frank Act (44%), reduced executive compensation disclosure (54%), delay compliance with SOX (56%), and reduced financial statement disclosure (65%). Interestingly, EGCs elect the reduced disclosure provisions more frequently than the delayed compliance provisions. This finding implies that EGCs perceive reduced disclosure to be more beneficial than delayed compliance, or that EGCs believe that delayed compliance provisions impact the initial return more adversely. The election of JOBS Act provisions increases slightly over the years until 2015, whereby the adoption of JOBS Act provisions falls to 52% on average in 2016. The descriptive statistics are largely in line with Dambra, Field, and Gustafson (2015), except for TTW and reduced financial statement disclosure election. The former is expected because I use a more extensive classification method, whereas the latter remains puzzling.[36]

[36] I classify JOBS Act elections according to Dambra, Field, and Gustafson (2015), except for the TTW provision. A comparison across both studies yields differences at the 10% level between the mean of TTW and reduced

Panel B of Table 3 shows the frequency of de-burdening provision elections by industry. The mean of the de-burdening provision elections illustrates that certain industries elect more de-burdening provisions. Moreover, industries with high proprietary disclosure cost, in which companies should benefit more from withholding valuable confidential information, do not elect more de-burdening provisions. For example, companies in industry 7, which consists mainly of biotech/pharma companies, elect less (2.4) de-burdening provisions compared to the sample mean (2.6).

Table 3. Frequency of use of Jumpstart Our Business Startups (JOBS) Act provisions.

The sample includes 546 emerging growth company (EGC) initial public offerings (IPOs) from 2012 to 2016. The sample is obtained from the Securities Data Company (SDC) database and the data on the frequency of use of JOBS Act provisions is hand-collected. Panel A reports the frequency of JOBS Act provision elections for EGCs segmented by year. The table reports the frequency of provision elections, and the total percentage of EGCs that elects the provision. The JOBS Act provisions include *Confidential,* confidential filing of the registration statement, *TTW,* testing-the-waters, *DelaySOX,* delay compliance with internal control, *DelayGAAP,* delay compliance with public accounting requirements, *DelayDodd,* delay compliance with governance requirements, *DelayPCAOB,* delay mandatory audit firm rotation, *ReduceAcc,* reduced accounting disclosure, and *ReduceComp,* reduced executive compensation disclosure. The information is gathered from the S-1 Filings, Form Draft Registration Statement (DRS), and Underwriting Agreements available on the Securities and Exchange Commission Electronic Data Gathering, and Analysis, and Retrieval (SEC EDGAR) system. Panel B reports the frequency of elections of de-burdening provisions, segmented by industry. The industry classification is based on Fama-French 17 industry classifications: (1) Food, (2) Mining and Minerals, (3) Oil and Petroleum Products, (4) Textiles, Apparel & Footwear, (5) Consumer Durables, (6) Chemicals, (7) Drugs, Soap, Perfumes, Tobacco, (8) Construction, (9) Steel, (10) Fabricated Products, (11) Machinery, (12) Automobiles, (13) Transportation, (14) Utilities, (15) Retail Stores, (16) Financial Institutions, and (17) Other.

Panel A. Frequency of use of JOBS Act provisions.

	Provision								
	De-risking		De-burdening						
Year	*Conf*	*TTW*	*DelSOX*	*DelGAAP*	*DelDodd*	*DelPCAOB*	*RedAcc*	*RedComp*	Mean
2012	33	35	20	3	13	7	23	16	19
	(92%)	(97%)	(56%)	(8%)	(36%)	(19%)	(64%)	(44%)	(52%)
2013	118	116	78	16	63	31	89	72	73
	(90%)	(89%)	(60%)	(12%)	(48%)	(24%)	(68%)	(55%)	(56%)
2014	176	163	102	25	83	41	117	107	102
	(92%)	(85%)	(53%)	(13%)	(43%)	(21%)	(61%)	(56%)	(55%)
2015	106	106	68	15	52	31	84	66	66
	(92%)	(92%)	(59%)	(13%)	(45%)	(27%)	(73%)	(57%)	(57%)
2016	58	60	38	4	30	16	40	35	35
	(86%)	(88%)	(56%)	(6%)	(44%)	(24%)	(59%)	(51%)	(52%)
N	491	480	306	63	241	126	353	296	546
	(90%)	(88%)	(56%)	(12%)	(44%)	(23%)	(65%)	(54%)	(-)

Panel B. Frequency of de-burdening provisions election by industry.

	Industry																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	N
Mean	3.7	3.0	-	-	2.3	1.5	2.3	2.3	-	0	2.3	2.7	3.7	2.9	3.1	2.6	2.6	2.6
N	6	22	0	0	3	2	141	6	0	1	27	3	7	12	28	36	252	546

financial statement disclosure. The former is in line with expectations, as I apply a more comprehensive classification method for TTW. The latter, in which the mean differs by 65% against 53%, is unexpected. Although the findings diverge partially because of different sample sizes, the dissimilarity remains puzzling. A comparison with other JOBS Act studies (Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017) is impractical, as these studies use different classification methods, do not include all JOBS Act provisions, or use significantly shorter time frames.

3.4. Methodology

I conduct several tests to assess the effects of the JOBS Act provisions. First, I construct two PSM samples to ensure that the EGC sample is representative of the control sample. After controlling for endogeneity, I conduct the following analyses on the Fama-French 17 industry classifications PSM sample: (1) univariate analysis, (2) bivariate analysis, (3) PSM OLS regressions on EGC, (4) PSM DD regressions on EGC, and (5) OLS regressions on individual JOBS Act provisions.

Disentangling the effects of de-burdening and de-risking provisions is of crucial importance to this research. Therefore, I focus on how the JOBS Act differentially impacts SRCs and non-SRCs. The comparison between both subsets is valuable because the regulatory environment was different for SRCs and non-SRCs prior to the JOBS Act. Fig. 2 provides a simplified overview of the regulatory amendments of the JOBS Act. As SRCs were eligible to elect largely similar de-burdening provisions prior to the JOBS Act, I attribute differences in the variable of interest (*EGC* or *Provision)* between SRCs and non-SRCs to de-burdening provisions. With this, I apply the same method as Chaplinsky, Hanley, and Moon (2017). Subsequently, I extrapolate this method to de-risking provisions. SRCs and non-SRCs experience the same regulatory shock from de-risking provisions, because de-risking provisions were non-existent prior to the JOBS Act. Therefore, I attribute similar findings of the variable of interest for SRCs and non-SRCs to de-risking provisions. Presumably, de-risking provisions primarily affect the offer price revision, whereas de-burdening provisions mainly influence the initial return.

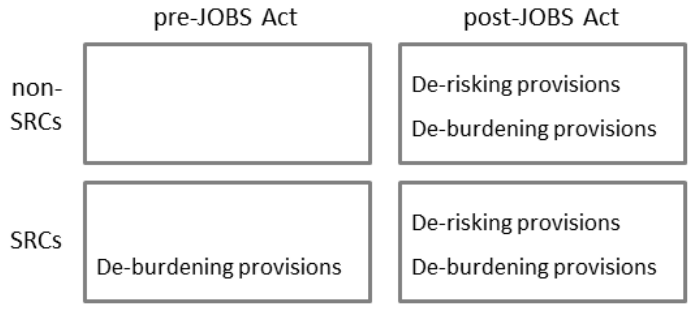

Fig. 2. The regulatory amendments of the Jumpstart Our Business Startups Act, segmented between smaller reporting companies (SRCs) and non-SRCs.

The method of Chaplinsky, Moon, and Hanley (2017) forms the basis of the methodology. However, my methodology differs significantly in two ways. First, I examine the effects of the JOBS Act on the offer price revision and the initial return, whereas they only test the effect of the JOBS Act on the initial return. Second, I split the function of the JOBS Act provisions into de-risking provisions and de-burdening provisions, because both types of provisions affect IPO pricing distinctively. Conversely,

they treat all JOBS Act provisions as de-burdening provisions and make no distinction between the types of provisions. The partition of de-risking and de-burdening provisions induces additional complexity, because the effects of both types of provisions have to be disentangled. Thus, I use Chaplinsky, Moon, and Hanley's (2017) method to gauge the effect of de-burdening provisions, and my own insight to assess the impact of de-risking provisions.

3.4.1. Propensity-score matching

A potential issue, which occurs in most studies based on observational data, arises with the differences between the characteristics of EGC and control IPOs. The regulatory amendments of the JOBS Act may cause companies with certain characteristics to pursue an IPO, which otherwise would remain private. For example, Dambra, Field, and Gustafson (2015) find an increase of 307% in the number of biotech/pharma IPOs post-JOBS Act. Hence, EGCs are likely to differ on a set of observable characteristics. As a result, *EGC* will be confounded by the selection bias term. In other words, *EGC* would reveal the effect of the JOBS Act and the effect of the differences between EGC and control IPOs on the dependent variables. Thus, comparing EGC to control IPOs on an unmatched basis gives rise to sample selection bias.

To control for endogeneity, I apply the PSM method of Rosenbaum and Rubin (1983) to reduce the confounding effects. The objective of PSM is to mimic a randomized controlled experiment by balancing differences in observable characteristics, since randomization precludes selection bias when dividing observations into control and treatment groups. The propensity score, the conditional probability that the observation receives the treatment based on observable variables, enables me to match each observation. To obtain propensity scores, I conduct a logit regression on the full sample of EGC and control IPOs. As Roberts and Whited (2013) recommend, I use the Mahalanobis distance metric, because it mitigates differences in variables within matched pairs in all directions. I include a broad set of matching variables, in agreement with Heckman, Ichimura, and Todd (1998). Matching variables ensure that the observable measures absorb the heterogeneity of the treatment effects. Thus, including a wide array of matching variables reduces unaccounted hidden bias. Eq. (3) shows the PSM regression.

$$EGC_i = \alpha + \beta_1 ProceedsFiled_i + \beta_2 Revenue_i + \beta_3 Unprofitable_i + \beta_4 Age_i + \beta_5 Leverage_i + \beta_6 PP\&E_i + \beta_7 R\&D_i + \beta_8 UnderwriterRank_i + \beta_9 MarketReturn_i + \varepsilon_i \quad (3)$$

ProceedsFiled is the proceeds filed at the onset of the bookbuilding period. *Revenue* is the total revenue. *Unprofitable* is a dummy that equals one if net income is negative. *Age* is the number of years

between the founding date and the IPO date. *Leverage* is total debt divided by total assets. *PP&E* is PP&E divided by total assets. *R&D* is R&D expenses divided by total assets. *UnderwriterRank* is the reputation of the underwriter, following Loughran and Ritter (2002). *MarketReturn* is the return of the CRSP EW index during the bookbuilding period. ε is a random error term.

I include largely similar variables as Chaplinsky, Hanley, and Moon (2017), who PSM on the basis of firm-specific, deal-specific and market condition variables which previous IPO pricing studies find important. As opposed to their research, I do not include the variable "industry P/E ratio," because I already incorporate industry fixed effects based on Fama-French 17 industry classifications. In addition, I use *MarketReturn* instead of the return of the Nasdaq 90 days prior to the offer date, because *MarketReturn* captures the impact of public information on IPO pricing more precisely.[37]

According to Rubin and Thomas (1996), variables that are not properly measured should be excluded. Therefore, I exclude the variable revenue growth. Revenue growth comprises the percentage change in revenue the year before the IPO and revenue two years before the IPO. Since 17% of the companies in the sample pursue an IPO within two years, the variable revenue growth equals zero for these variables. This outcome is not representative of the relevant situation, as companies that conduct an IPO relatively quickly after their establishment often show significant revenue growth. Therefore, including revenue growth in the PSM regression may cause rapidly growing companies that conduct an IPO within two years of their founding date to be falsely matched to companies that show little revenue growth. However, I do not predict a significant impact from the exclusion of revenue growth on the results of the PSM analysis, as I include several matching variables that incorporate the effects of revenue growth:[38] *Age*, *ProceedsFiled*, *Revenue,* and *PP&E*. Also, I match within industries, which is an important determinant of revenue growth.

Subsequently, I match the propensity scores on a nearest neighbor basis with replacement. Nearest neighbor matching on a single observation contributes to credible and relatively unbiased estimates, at the expense of the estimate's preciseness. Since the EGC sample contains significantly more biotech/pharma IPOs, I match with replacement. As a result, matching with replacement further enhances the quality of the matches and unbiasedness, however it also comes at the cost of precision.

[37] The OLS and DD regressions provide evidence that *MarketReturn* provides robust results, both statistically and economically. This finding reconfirms the validity of *MarketReturn* as a matching variable, instead of *HotMarket*.

[38] Henrekson and Johansson (2010) show that fast-growing companies are on average younger, smaller and consisting of more intangible assets than companies growing less rapidly.

3.4.2. Ordinary least squares regressions on emerging growth companies

First, I conduct OLS regressions on the full PSM sample to examine whether the JOBS Act increases the accuracy of the initial price range, and whether the JOBS Act enlarges initial returns. The former examines the first hypothesis, whereas the latter tests the second hypothesis. Eq. (4) displays the OLS regressions of the offer price revision.

$$PriceRevision_i = \alpha + \beta_1 EGC_i + \beta_2 Age_i + \beta_3 Biotech_i + \beta_4 DaysRegistration_i + \beta_5 ProceedsFiled_i + \beta_6 NYSE_i \quad (4)$$
$$+ \beta_7 Assets_i + \beta_8 UnderwriterRank_i + \beta_9 VC_i + \beta_{10} HotMarket_i + \beta_{11} MarketReturn_i +$$
$$\beta_{12} MarketReturn+_i + \beta_{13} MarketReturnAbs_i + \gamma FE_i + \varepsilon_i$$

PriceRevision is the offer price revision, which comprises either *PriceRevision, PriceRevisionAbs*, *WithinRange* or *NumberRevision. EGC* is a dummy that equals one if the company elects the EGC status. Appendix A3 provides a list of the definitions of control variables. *FE* are industry fixed effects using Fama-French 17 industry classifications, and ε is a random error term.

Whether I support the first hypothesis depends on the proxy used. First, a positive coefficient *EGC* in the *PriceRevision* regression shows that the JOBS Act drives the average offer price revision closer to zero, as the mean offer price revision of the control sample is -3.8%. Second, a negative coefficient *EGC* in the *PriceRevisionAbs* regression indicates that the JOBS Act decreases the magnitude of the offer price revision. Third, a positive coefficient *EGC* in the *WithinRange* regression provides evidence that the JOBS Act causes the offer price to be more frequently set within the initial price range. Fourth, a negative coefficient of *EGC* in the *NumberRevision* regression points to less urgency to revise the price range, and thus a more accurately set initial price range. In sum, if the *EGC* coefficient has the predicted sign and is economically and statistically significant in the *PriceRevision* regressions, this result indicates that private information helps the underwriter to set the initial price range more accurately.

The difference between the OLS regressions of the offer price revision and the initial return only comprises the addition of *PriceRevision* and *PriceRevision+*, to incorporate the partial adjustment hypothesis of Hanley (1993). Eq. (5) displays the initial return OLS regression.

$$InitialReturn_i = \alpha + \beta_1 EGC_i + \beta_2 Age_i + \beta_3 Biotech_i + \beta_4 DaysRegistration_i + \beta_5 ProceedsFiled + \beta_6 NYSE_i \quad (5)$$
$$+ \beta_7 Assets_i + \beta_8 UnderwriterRank_i + \beta_9 VC_i + \beta_{10} HotMarket_i + \beta_{11} MarketReturn_i +$$
$$\beta_{12} MarketReturn+_i + \beta_{13} PriceRevision_i + \beta_{14} PriceRevision+_i + \gamma FE_i + \varepsilon_i$$

InitialReturn is the initial return. *EGC* is a dummy that equals one if the company elects the EGC status. Appendix A3 provides a list of all control variable definitions. *FE* are industry fixed effects using Fama-French 17 industry classifications, and ε is a random error term.

I support the second hypothesis if the coefficient *EGC* is positive in the *InitialReturn* regression, indicating that the JOBS Act increases the initial return. This result would provide evidence that the JOBS Act increases information uncertainty.

Second, I run separate OLS regressions for SRCs and non-SRCs to test how the JOBS Act distinctively impacts both groups. The offer price revision regressions test the fourth hypothesis; whether the effects of the JOBS Act on the offer price revision accrue to both SRCs and non-SRCs. The initial return regressions examine the fifth hypothesis; whether the effects of the JOBS Act on the initial return accrue primarily to non-SRCs. The control variables are similar to the variables included in the OLS regressions using the full sample. Thus, the sole difference consists of the segmentation of the sample.

I confirm the fourth hypothesis when the effect of the JOBS Act on the offer price revision is similar for SRCs and non-SRCs. Irrespective of the proxy used for *PriceRevision*, similar economic and statistical results for the coefficient *EGC* indicate that the JOBS Act has the same effect on SRCs and non-SRCs. Thus, the objective of this regression is to assess whether de-risking provisions rather than de-burdening provisions primarily impact the offer price revision. If the *EGC* coefficient is similar for both subsets, I ascribe the change of the offer price revision to private information gathering. Thereby, I provide additional meaning to the findings of the first hypothesis, namely that private information gathering causes the increase in accuracy of the initial price range.

Likewise, I validate the fifth hypothesis when the effect of the JOBS Act on the initial return is dissimilar for non-SRCs and SRCs. Using the non-SRC sample, an economic and statistical significant *EGC* coefficient in the initial return regression indicates that the JOBS Act significantly affects the initial return for non-SRCs. Conversely, an economic and statistical insignificant *EGC* coefficient in the initial return regression, using the SRC sample, indicates that the JOBS Act does not affect the initial return of SRCs. This result would provide evidence that de-burdening provisions rather than de-risking provisions drive the increase in the initial return. As a result, I posit that the change in the initial return is attributable to information uncertainty. By that, I give further purpose to the results of hypothesis two and three, which would provide evidence that information uncertainty drives the increase in initial return.

3.4.3. Difference-in-differences regressions on emerging growth companies

I conduct multiple DD regressions to examine the differential effects of the de-risking and de-burdening provisions of the JOBS Act on the offer price revision and the initial return, which I cover in hypotheses four and five. In comparison to OLS regressions, DD regressions better address secular trends, which are persistent long-term movements of a variable over time. As in previous regressions, I use the 17 industry classifications PSM sample to mitigate endogeneity.

To assure consistency of the DD estimator, the key identifying assumption is the zero correlation assumption, also known as the "parallel trends" assumption. This assumption contends that the trend should similarly impact the outcomes of the treatment and control group in both periods; pre-JOBS Act and post-JOBS Act. Thus, in absence of the treatment, the change in the response variable should be similar for the treatment and control groups. In other words, the trend - predominantly comprising the effects of de-risking provisions - should bear an identical effect on the offer price revision and the initial return of the treatment group, non-SRCs, and the control group, SRCs. Otherwise, the DD estimator predicts the effect of the differential trend, on top of the estimation of the effects of the treatment. On one hand, I control for the relation between firm size and the dependent variables by including the control variables *Assets* and *ProceedsFiled*. In contrast, de-risking provisions could be more beneficial for difficult-to value companies, because de-risking provisions are more advantageous when the value of the company is more uncertain. Unfortunately, a formal test to examine the zero-correlation assumption is non-existent. Nonetheless, empirical evidence from Iliev (2010) and Chaplinsky, Moon, and Hanley (2017), who both employ a comparable DD approach whereby they distinguish between SRCs and non-SRCs, do not mention any potential concern regarding violation of the zero correlation assumption. Therefore, I assume that the zero correlation assumption holds.

Another potential concern ascends when the outcome variable contains differential pre-treatment levels for the treatment and control groups. Although the treatment accounts for these differences, the magnitude of the outcome variable is related to the sensitivity of the DD estimator to the functional form assumption. However, the differences in the outcome variables are small across the treatment and control groups, because the offer price revision and the initial return do not differ widely. Thus, this potential concern is not applicable to this research.

DD regressions comprise two difference estimators, a cross-sectional estimator and a time-series estimator, which are complementary to each other. The former corrects for differences stemming from trends, whereas the latter guarantees comparability of two different groups by examining the treatment on the same companies. In this research, the pre-treatment period represents

the pre-JOBS Act period, and the post-treatment period comprises the post-JOBS Act period. Non-SRCs represent the treatment group and SRCs form the control group. Eq. (6) and (7) provide the DD regressions.

$$PriceRevision_i = \alpha + \beta_1 Non\text{-}SRC \times Post_i + \beta_2 Non\text{-}SRC_i + \beta_3 Post_i + \gamma X_i + \varepsilon_i \quad (6)$$

$$InitialReturn_i = \alpha + \beta_1 Non\text{-}SRC \times Post_i + \beta_2 Non\text{-}SRC_i + \beta_3 Post_i + \gamma X_i + \varepsilon_i \quad (7)$$

PriceRevision is the offer price revision, which comprises either *PriceRevision, PriceRevisionAbs*, *WithinRange* or *NumberRevision. InitialReturn* is the initial return. *Non-SRC x Post* estimates the change in offer price revision or initial return for non-SRCs relative to SRCs after the JOBS Act. *Non-SRC* is a dummy variable that equals one if the company is not an SRC, and zero otherwise. *Post* is a dummy variable that equals one in the period post-JOBS Act, and zero otherwise. *X* is a vector of controls, as noted in Section 3.2.3.

As *Non-SRC* controls for permanent differences between the treatment and control group and *Post* controls for trends common to both treatment and control groups, *Non-SRC x Post* captures the surplus variation. Therefore, the interaction term, *Non-SRC x Post*, is the main variable of interest, which measures whether the change of the dependent variable differs between non-SRCs and SRCs after the implementation of the JOBS Act.

Also, I include exogenous control variables to enhance the efficiency of *Non-SRC x Post*, as these control variables reduce the variance of the error term. Noteworthy, the inclusion of additional independent variables should have a minor impact on *Non-SRC x Post,* because the PSM sample approaches non-random assignment. However, including control variables in the regression satisfies the condition of mean zero assumption, which is a prerequisite for unbiased estimates.

Eq. (6) analyzes whether the JOBS Act influences the offer price revision for SRCs and non-SRCS similarly, congruent to the fourth hypothesis. An insignificant coefficient of *Non-SRC x Post* indicates that de-risking provisions impact both SRCs and non-SRCs similarly. Thus, this result would provide evidence that private information gathering drives the change in IPO pricing accuracy. Inversely, if *Non-SRC x Post* is significant, de-burdening provisions impact the offer price revision significantly. Furthermore, the regression also acts as a supplementary test for the first hypothesis, since a negative coefficient *Post* in the *PriceRevisionAbs* DD regression suggests that that the JOBS Act increases the pricing accuracy of the initial price range.

Eq. (7) examines whether the JOBS Act affects the initial return for SRCs and non-SRCs differentially, following the fifth hypothesis. A significant coefficient of *Non-SRC x Post* implies that the

de-burdening provisions impact non-SRCs distinctively. Accordingly, this finding would suggest that information uncertainty drives the change in initial return. Conversely, if *Non-SRC x Post* is insignificant, de-burdening provisions do not impact initial return significantly. In addition, the regression serves as a supplementary test for the second hypothesis, because a significantly positive coefficient *Post* indicates that the JOBS Act increases the initial return.

The DD regressions and OLS regressions segmented by SRC status both address whether private information gathering or information uncertainty drive the change in offer price revision or initial return. Importantly, the DD method is leading in case both tests yield contradictive results, because DD regressions are more suitable to address the fourth hypothesis. As *Post* also subsumes all time-varying effects unrelated to the JOBS Act, DD regressions allow for a more accurate assessment of the distinctive effects that accrue to non-SRCs.

3.4.4. Ordinary least squares regressions on individual Jumpstart Our Business Startups Act provisions

In previous analyses, I measure the effects of the JOBS Act with *EGC*. In this section, I analyze the JOBS Act provisions separately to measure the differential influence of each de-burdening and de-risking provision. I solely use the EGC sample in these regressions, because the exclusion of the control sample ensures that the regressions do not suffer from sample selection bias. The regressions examine the third hypothesis; whether the election of more de-burdening provisions increases the initial return.

I use identical dependent and control variables as in prior OLS regressions, as shown in Eq. (4) and (5). To capture the effects of each individual JOBS Act provision, I replace *EGC* by the individual JOBS Act provision or the constructed JOBS Act index. I run the regressions including each JOBS Act variable separately to exclude bias from multicollinearity, in line with Chaplinky, Moon, and Hanley (2017). Importantly, I do not control for endogeneity in the individual JOBS Act provisions regressions. Therefore, the individual JOBS Act regressions are suggestive rather than conclusive. Eq. (8) and (9) show the regressions on each JOBS Act provision.

$$PriceRevision_i = \alpha + \beta_1 Provision_i + \gamma X_i + \varepsilon_i \qquad (8)$$

$$InitialReturn_i = \alpha + \beta_1 Provision_i + \gamma X_i + \varepsilon_i \qquad (9)$$

PriceRevision is the offer price revision, which comprises either *PriceRevision, PriceRevisionAbs*, *WithinRange* or *NumberRevision. InitialReturn* is the initial return. *Provision* is the JOBS Act provision, measured by *TTW, Confidential, ReduceAcc, ReduceComp, DelaySOX, DelayGAAP, DelayDodd*, *or DelayPCAOB,* or the constructed index *JOBSIndex or HighIndex*. *X* is a vector of controls, as noted in Section 3.2.3.

The variable of interest, *Provision*, reflects the effect of each JOBS Act provision individually on the offer price revision and the initial return. If *Provision* is significantly positive for a de-burdening provision in the initial return regressions, this result suggests that electing the provision raises information uncertainty. The de-burdening provisions comprise of *ReduceAcc, ReduceComp, DelaySOX, DelayGAAP, DelayDodd*, *or DelayPCAOB.* Alternatively, if the constructed indices, *JOBSIndex* or *HighIndex*, yield significantly positive coefficients, this result implies that the election of more de-burdening provisions increases the initial return, equal to the third hypothesis. In addition, the regressions provide support for the second hypothesis, because I should find that individual JOBS Act provisions increase the initial return if the JOBS Act increases initial return.

Furthermore, the regressions of *PriceRevision* on *Provision* also provide support for the first hypothesis. If de-risking provisions increase the accuracy of the initial price range, the coefficient *TTW* or *Confidential* should yield significant results. If the coefficient of a de-risking provision, either *TTW* or *Confidential*, is positive in the *PriceRevision* and *WithinRange* regressions, this result confirms hypothesis one. On the contrary, when the coefficient of a de-risking provision is negative in the *PriceRevisionAbs* and *NumberRevision* regressions, I also validate the first hypothesis.

4. Empirical results and analysis

After providing the descriptive statistics and explaining the methodology, I present the results of the empirical analyses in this section. First, I provide the results of each empirical method separately and elaborate upon the findings and relation to the defined hypotheses. Further, I conduct robustness checks to examine the reliability of the results. Then, I discuss the link between the results and existing literature.

4.1. Empirical results

Before conducting the tests, I examine whether each variable is normally distributed by checking the skewness and kurtosis using histograms. Histograms show whether the variable is bell-shaped, equal to a normal distribution. Skewness and kurtosis close to zero indicate that the variable is normally distributed. The variables *DaysRegistration, Assets, Age,* and *ProceedsFiled* are positively skewed. More importantly, the variables are multiplicative rather than additive. Therefore, I take the natural logarithm of these variables, in line with previous IPO pricing studies.

4.1.1. Propensity-score matching

This section discusses the results of the PSM analysis. The Fama-French 17 industry classifications sample is the primary sample of interest. The 3 industry classifications address the

concern that Fama-French's 17 industry classifications define biotech/pharma companies in industry 7, drugs, soap, perfumes, and tobacco, and technology companies in industry 17, other. The 3 industry classifications mitigate this issue by dividing the sample into categories that comprise biotech/pharma, technology, and other remaining industries. Hence, the 3 industry classifications matched sample serves as a robustness check.

Appendix A4 provides the distribution frequency of EGCs and SRCs by industry classifications and the corresponding weights of individual EGC IPOs. As I match EGC IPOs to control IPOs on propensity scores within the same Fama-French 17 industry and SRC status, I am only able to match an EGC IPO if a control IPO exists within the same industry and SRC status. Panel A shows that the control sample contains no companies with SRC status in industry 14, the utilities industry. Therefore, the PSM sample excludes four EGC IPOs, which leaves 542 EGC IPOs in total.[39] As the excluded companies only account for a minor portion of the total EGC sample, I assume that the exclusion of these observations does not affect the results significantly. I am able to match all EGC IPOs to control IPOs if I match within the same 3 industry and SRC status, thereby retaining all 546 EGC IPOs. This finding is in line with expectations because matching within fewer categories increases the likelihood of being able to match an observation from the treatment sample.

Panel C shows the distribution frequency of replacements of the EGC sample. The maximum number of matches is 22, which means that a single control IPO is matched to a maximum of 22 EGC IPOs. As I match EGC IPOs to control IPOs on propensity scores within the same Fama-French 17 industry and SRC status, observations that are frequently matched are in line with expectations. More specifically, the 22-times matched observation lies within industry 7, largely comprising the biotech/pharma industry. The JOBS Act causes the number of biotech/pharma IPOs to grow significantly, which requires me to match 89 EGC SRC IPOs to 24 control SRC IPOs within industry 7. Therefore, matching all biotech/pharma SRC EGC IPOs without a high frequency of replacements is inevitable. Ultimately, the control IPO sample consists of 299 unique observations. The maximum number of matches is 14 if I match within the same 3 industry and SRC status, whereby the control sample contains 278 unique observations. Logically, matching within larger subgroups decreases the number of unique observations, as control observations with low propensity scores are less likely to be matched in larger subgroups. Frequently matching increases the quality of the matches and induces less bias, at the cost

[39] The excluded companies are Spark Energy Inc, AquaVenture Holdings LLC, Sky Solar Holdings Ltd, and Azure Power Global Ltd.

of precision. Therefore, the 17 industry classifications matched sample is more precise, while the 3 industry classifications matched sample is of higher quality and contains less bias.

Table 4 shows the mean of the matching variables and the corresponding t-tests after the PSM analysis. PSM increases the comparability of most matching variables, as *ProceedsFiled*, *Revenue*, *Age*, *Leverage*, *PP&E*, *R&D*, and *MarketReturn* do not significantly differ between the EGC and control sample. However, the variables *Unprofitable* and *UnderwriterRank* still show significant differences after the PSM analysis at the 1% and 10% level, respectively. In the 3 industry classifications sample, in Appendix A5, only *Unprofitable* is significantly different at the 10% level between the EGC and control sample. Matching within a more extensive set of industries increases the differences across the matching variables, as a result of more variability across propensity scores. Therefore, matching within 3 industry classifications seems beneficial. However, it is impossible to include industry classifications as a matching variable,[40] while industry effects play an important role in the offer price revision and the initial return. Hence, the Fama-French 17 industry classifications are a more appropriate matching method to reduce sample selection bias.

Table 4. Descriptive statistics for matching variables after propensity-score matching (PSM) within the same Fama-French 17 industry classifications.

This table reports the descriptive statistics for the matching variables segmented by emerging growth company (EGC) status after PSM. The propensity score is derived from logit regressions of firm and deal-specific variables and market condition variables on EGC, mostly in line with Chaplinsky, Hanley, and Moon (2017). PSM is conducted on a nearest neighbor basis with replacement within the same Fama-French 17 industry classifications and smaller reporting company status. The matching variables are defined in Appendix A3. *T*-tests examine the differences between the matched variables. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	Mean EGC (N=542)	Mean Control (N=299)	Mean Difference	*t*-stat
Log(ProceedsFiled)	4.48	4.36	0.12	-0.89
Log(Revenue)	3.22	3.02	0.20	0.28
Unprofitable	0.68	0.61	0.07	-2.72***
Log(Age)	2.02	2.07	0.05	-1.08
Leverage	0.27	0.37	0.10	-0.23
PP&E	0.15	0.16	0.01	-1.27
R&D	0.68	0.66	0.02	1.06
UnderwriterRank	7.83	7.44	0.39	-1.78*
MarketReturn	0.46	0.40	0.06	0.92

[40] Including the Fama-French 17 industry classification as a matching variable would yield false results, because the sequence of numbering of industry classifications does not explain industry relatedness. For example, industry 17 (Other) is not closer related to industry 16 (Financial Institutions) than industry 1 (Food). Therefore, to incorporate the distinctive effect of each industry, matching within industries is an important requirement to mitigate sample selection bias.

4.1.2. Univariate results

I conduct univariate tests for two reasons. First, the univariate tests show the influence of PSM on the results. Second, the t-statistics assess whether the offer price revision and the initial return significantly differ across the EGC sample and both control samples.

Table 5 shows the mean, median, and corresponding t-statistics of all dependent variables for the EGC, unmatched control, and PSM control samples. The PSM analysis affects the control sample significantly, as compelling differences exist between both control samples. The dependent variables appear, to a great extent, similar across the EGC and unmatched control sample. After PSM, the effect of the JOBS Act on the dependent variables becomes apparent. Accordingly, the differences between the dependent variables across the control samples underline the importance of PSM.

Table 5. Cross-sectional test results for initial public offering (IPO) pricing variables.

This table reports the mean, median, and corresponding *t*-tests of the IPO pricing variables segmented by emerging growth company (EGC) status. The EGC IPO sample contains all IPOs that elected the EGC status between 2012 and 2016. The unmatched control sample contains all IPOs with maximum $1 billion revenue between 2003 and 2012. The propensity-score matched (PSM) sample consists of the control sample after PSM within 17 industry classifications and smaller reporting company status. *T*-tests examine the differences between the EGC sample and the unmatched or PSM control sample. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	EGC IPOs (N=546)		Unmatched Control IPOs (N=1,032)			PSM Control IPOs (N=299)		
Variable	Mean	Mdn	Mean	Mdn	*t*-stat	Mean	Mdn	*t*-stat
InitialReturn	19.77	11.00	12.31	5.80	5.02***	8.21	1.67	6.87***
NumberRevision	1.25	1	1.26	1	-0.46	1.30	1	-1.48
PriceRevision	-5.50	-0.23	-3.84	-0.02	-1.44	-11.71	-10.82	4.75***
PriceRevisionAbs	17.27	13.48	16.47	13.33	1.04	19.90	17.50	-2.79***
WithinRange	0.42	0	0.42	0	-0.18	0.38	0	1.30

The results of *InitialReturn*, *PriceRevision*, and *PriceRevisionAbs* show significant differences between the EGC and PSM control sample. After implementation of the JOBS Act, the mean of the offer price revision rises from -11.7% to -5.5%, whereas the magnitude of the offer price revision decreases by -2.6%. Prior research finds an offer price revision between -4.3% and 2.5% in the US.[41] Since the PSM control sample includes more difficult-to-value companies than the samples used in prior research, the lower offer price revision likely relates to differences across the samples.[42] Furthermore, as I conduct PSM with replacement, frequently matched control IPOs have a larger impact on the results. If a few frequently matched observations have profoundly negative offer price revisions, these observations lower the mean of the offer price revision significantly. Nonetheless, these results suggest that the JOBS

[41] Previous IPO pricing research finds a mean offer price revision of -4.3% (Hanley, 1993), -1.4% (Lowry and Schwert, 2004), 0.0% (Butler, Keefe, and Kieschink, 2014), 1.9% (Edelen, Kadlec, 2005), and 2.5% (Jenkinson, Morrison, and Wilhelm, 2004).

[42] Lowry, Officer, and Schwert (2010) argue that young, small, and technology companies are difficult to value.

Act increases the accuracy of the initial price range. The initial return increases from 8.2% to 19.8%, in line with Chaplinsky, Moon, and Hanley (2017), presumably driven by increased information uncertainty. The significant results provide preliminary support for the first and second hypotheses. I do not find significant differences for *NumberRevision* and *WithinRange* between the EGC and PSM control sample. The insignificant differences could indicate that both variables are not appropriate proxies to measure the accuracy of the initial price range. Alternatively, the insignificant differences could provide evidence that the JOBS Act does not increase the accuracy of the initial price range.

4.1.3. Bivariate results

I test the bivariate correlations across the dependent and independent variables to gain a deeper understanding of expected and unexpected relations between the variables. Furthermore, the inspection of the Pearson correlation matrix enables me to identify contingent multicollinearity.

Appendix A6 provides an overview of the Pearson correlation matrix including all the dependent and independent variables. The IPO pricing variables show strong correlations, as anticipated. As the dependent variables are not included in the regressions simultaneously, the strong correlations are not troublesome. Moreover, the offer price revision only partially incorporates new information, because the correlation between *PriceRevision* and *InitialReturn* is 0.48. Interestingly, if the offer price is set within the initial price range, the initial return decreases by 8.0%. This correlation provides preliminary evidence of the predictive power of the initial price range, as an accurately set initial price range reduces the initial return.

The variable of interest, *EGC*, holds a significantly positive relationship with *PriceRevision* and *InitialReturn,* of 0.14 and 0.20, respectively. This finding suggests that the JOBS Act increases the offer price revision and the initial return, consistent with the first and second hypotheses. The significantly negative correlation between *EGC* and *PriceRevisionAbs* of -0.08 implies that the JOBS Act decreases the magnitude of the offer price revision. This result indicates that the JOBS Act increases the accuracy of the pricing of the initial price range, which equals hypothesis one. The small and insignificant correlation coefficients for *NumberRevision* and *WithinRange* with *EGC* suggests, in line with the univariate results, that both dependent variables may not be appropriate proxies of the accuracy of the initial price range. Nonetheless, *EGC* points in the expected direction for both variables, namely towards a more accurately set initial price range.

The *EGC* variable correlates negatively with *DaysRegistration*, which indicates that the JOBS Act shortens the bookbuilding period. A potential explanation is that private information gathering during the pre-filing period reduces the need to gather incremental information during the bookbuilding

period. Furthermore, the significantly positive relation between *EGC* and *HotMarket* shows that the JOBS Act boosts the number of IPOs, which is the main objective of the JOBS Act. Last, the correlation matrix indicates that there are no odd or unexpected relationships between *EGC* and the control variables.

Inspection of the correlations among independent variables indicates weak evidence of contingent multicollinearity. As expected, only *PriceRevision* and *PriceRevision+* (0.73), and *MarketReturn* and *MarketReturn+* (0.72) correlate strongly. In untabulated results, the Variance Inflation Factor (VIF) test indicates that both dummies are not perfectly multicollinear.

4.1.4. Multivariate results

In all tests, I check for heteroskedasticity in the regression models to ensure the validity of the results. A critical assumption is that the variance of the residuals is constant, thus a systematical pattern should not be observed. I conduct Breusch-Pagan tests to detect contingent heteroskedasticity. The null hypothesis states that the residuals are homoskedastic at the 5% level. I find that the null hypothesis is rejected in most regressions. Since Stock and Watson (2003) argue that researchers should assume that heteroskedasticity is always present in the regression models, I use robust standard errors in all regressions.

Also, I conduct Hausman tests to examine whether I have to include industry fixed effects. The null hypothesis is that the preferred model is random effects at the 5% level. The alternate hypothesis states that the preferred model is fixed effects. I find that the null hypothesis is rejected in most regressions, which implies that there is a correlation between the unique errors and the regressors. Therefore, I incorporate industry fixed effects in all regressions.

Last, I include the *NumberRevision* and *WithinRange* regressions in Appendix A7. The univariate and bivariate tests indicate that both variables may not be appropriate proxies to measure the accuracy of the initial price range, as the OLS and DD regressions later confirm. To ensure that the research remains concise, I exclude the *NumberRevision* and *WithinRange* regressions from the main body of the research.

Ordinary least squares regressions on emerging growth companies

Table 6 presents the results of the offer price revision and the initial return regressions on EGC, including the full PSM sample. Model (1) and (2) examine the first hypothesis; whether the JOBS Act increases the accuracy of the initial price range. Model (3) examines the second hypothesis; whether the JOBS Act induces a higher initial return.

Table 6. Ordinary least squares (OLS) regressions of the offer price revision and initial return on emerging growth company (EGC) including the full sample.

This table reports OLS regressions of offer price revision, offer price revision on an absolute basis, and initial return. The dependent variables are *PriceRevision*, the percentage change between the midpoint of the price range and the offer price, *PriceRevisionAbs*, the percentage change between the midpoint of the price range and the offer price on an absolute basis, and *InitialReturn*, the percentage change between the offer price and the first-day closing price. *EGC* is the independent variable that equals one if the company elects the EGC status, otherwise zero. See Appendix A3 for definitions of the control variables. All regressions include industry fixed effects using Fama-French 17 industry classifications. The sample comprises 1,084 US initial public offerings from 2003 to 2016 after propensity-score matching within Fama-French 17 industry classifications and smaller reporting company status. T-statistics are in parentheses below the coefficients. All standard errors are robust and adjusted for clustering within industries. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	Price Revision	Price Revision Absolute	Initial Return
	(1)	(2)	(3)
EGC	3.77**	-2.00*	8.33***
	(2.38)	(-1.68)	(4.01)
Log(Age)	-1.47*	0.87	2.43**
	(1.89)	(1.60)	(2.38)
Biotech	-13.89***	6.39***	-1.12
	(-4.11)	(2.64)	(-0.38)
Log(DaysRegistration)	-4.89***	3.24***	1.50
	(-4.50)	(3.86)	(1.13)
Log(ProceedsFiled)	1.13	1.73*	-0.92
	(0.87)	(1.81)	(-0.65)
NYSE	2.08	0.78	-2.69
	(1.20)	(0.67)	(-1.31)
Tech	1.37	-0.74	1.89
	(0.90)	(-0.70)	(1.02)
Log(Assets)	0.15	-0.82**	-0.23
	(0.26)	(-2.16)	(-0.32)
UnderwriterRank	-0.55	0.80	0.70
	(-1.11)	(2.24)	(1.32)
VC	4.11***	4.81***	5.41**
	(2.62)	(4.40)	(2.45)
HotMarket	0.01	0.02	0.02
	(0.26)	(1.02)	(0.72)
MarketReturn	0.57*		-0.36
	(1.79)		(-1.34)
MarketReturn+	-2.26	0.91	4.72**
	(-1.14)	(0.98)	(2.32)
MarketReturnAbs		0.23	
		(1.11)	
PriceRevision			0.33***
			(6.89)
PriceRevision+			13.90***
			(5.79)
Constant	11.11	-9.93	-8.49
	(1.20)	(-1.48)	(-0.64)
Industry FE	Y	Y	Y
N	1,084	1,084	1,084
R^2	0.21	0.13	0.34

In model (1), *EGC* is significantly positive and the magnitude is economically significant. The offer price revision is 3.8% higher for EGCs than for control IPOs. Model (2) shows that *EGC* is significantly negative, which indicates that the magnitude of the offer price revision is 2.0% lower for

EGCs than for control IPOs. These findings indicate that the JOBS Act increases the accuracy of the initial price range, which is in line with the first hypothesis.

In model (3), *EGC* is significantly positive and the magnitude is economically significant. The initial return is 8.3% higher on average for EGCs than for control IPOs. This finding implies that the JOBS Act raises information uncertainty, and as a result, the initial return increases. Hence, the findings are consistent with the second hypothesis. The results suggest, in conjunction with the mean actual IPO proceeds of $130.2 million, that an additional $10.8 million per IPO is left on the table due to the JOBS Act.

Table 7 presents the results of the regressions of the offer price revision and the initial return on EGC, including the PSM sample segmented by SRC status. Models (1) to (4) address the fourth hypothesis; whether the effects of the JOBS Act on offer price revision accrue to both SRCs and non-SRCs. Models (5) and (6) examine the fifth hypothesis; whether the effects of the JOBS Act on initial return accrue primarily to non-SRCs.

Models (1) and (2) show that *EGC* is significantly positive for the SRC and non-SRC subset. The offer price revision increase is 1.5% higher for SRC EGCs compared to non-SRC EGCs. The minor difference between the average change in offer price revision for SRCs and non-SRCs indicates that the JOBS Act impacts both groups similarly. Therefore, the evidence suggests that the effects of de-risking provisions accrue to both SRCs and non-SRCs, whereas de-burdening provisions hardly affect the offer price revision.

In models (3) and (4), *EGC* is significantly negative for SRCs, while the coefficient is insignificant for non-SRCs. The JOBS Act decreases the magnitude of the offer price revision for SRCs by 7.6%. This result provides evidence that only SRCs are able to set their initial price range more accurately post-JOBS Act. Three potential explanations arise for the difference in the magnitude of the offer price revision between SRCs and non-SRCs. First, the hypothesis that both SRCs and non-SRCs benefit similarly from increased accuracy of the initial price range may still hold. However, de-burdening provisions, which accrue primarily to non-SRCs, induce information uncertainty which could distort the accuracy of the initial price range. As a consequence, the increase in magnitude stemming from de-burdening provisions could offset the decrease in magnitude related to de-risking provisions. Second, the benefits of de-risking provisions may simply not increase the accuracy of the initial price range for certain non-SRCs. For instance, larger companies arouse less valuation uncertainty, which may diminish the benefits of private information gathering. Third, and linked to the second argument, the pricing of non-SRCs could

have been relatively accurate before the JOBS Act, thus the incremental value of private information gathering is more difficult to measure.

Table 7. Ordinary least squares (OLS) regressions of the offer price revision and initial return on emerging growth company (EGC) including the sample segmented by smaller reporting company (SRC) status.

This table reports OLS regressions segmented by SRC status of the offer price revision, offer price revision on an absolute basis, and initial return. The dependent variables are *PriceRevision*, the percentage change between the midpoint of the price range and the offer price, *PriceRevisionAbs*, the percentage change between the midpoint of the price range and the offer price on an absolute basis, and *InitialReturn*, the percentage change between the offer price and the first-day closing price. *EGC* is the independent variable that equals one if the company elects the EGC status, otherwise zero. See Appendix A3 for definitions of the control variables. All regressions include industry fixed effects using Fama-French 17 industry classifications. The sample comprises 448 and 636 SRC and non-SRC initial public offerings, respectively, from 2003 to 2016 after propensity-score matching within Fama-French 17 industry classifications and SRC status. T-statistics are in parentheses below the coefficients. All standard errors are robust and adjusted for clustering within industries. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Price Revision		Price Revision Absolute		Initial Return	
Variable	SRC	non-SRC	SRC	non-SRC	SRC	non-SRC
	(1)	(2)	(3)	(4)	(5)	(6)
EGC	8.65***	7.11***	-7.63***	-1.77	6.82**	8.79***
	(3.72)	(3.86)	(-3.56)	(-1.33)	(2.06)	(3.83)
Log(Age)	-0.65	-0.37	0.74	0.52	4.35**	1.91
	(-0.51)	(-0.44)	(0.65)	(0.90)	(2.29)	(1.54)
Biotech	-8.64**	-5.92	6.45*	2.81	-3.00	4.03
	(-2.27)	(-1.37)	(1.85)	(0.89)	(-0.81)	(0.91)
Log(DaysRegistration)	-3.99***	-1.41	4.05***	2.22**	2.18	0.80
	(-3.10)	(-0.97)	(3.51)	(0.08)	(1.22)	(0.53)
Log(ProceedsFiled)	-10.73***	0.03	7.74***	2.22**	-1.03	-0.81
	(3.72)	(0.02)	(3.70)	(1.98)	(-0.43)	(-0.43)
NYSE	11.34***	0.41	-5.24**	1.19	-10.94***	-0.63
	(3.00)	(0.23)	(-2.01)	(0.90)	(-3.28)	(-0.25)
Tech	-4.92*	-0.98	2.75	0.82	5.03	0.48
	(-1.74)	(-0.61)	(1.16)	(0.74)	(1.35)	(0.22)
Log(Assets)	0.57	-1.37**	0.25	-1.04**	2.03	-1.39
	(0.68)	(-2.07)	(0.35)	(-2.48)	(1.64)	(-1.57)
UnderwriterRank	-0.63	2.47**	0.94	-0.26	0.43	0.67
	(-0.88)	(2.49)	(1.63)	(-0.45)	(0.57)	(0.81)
VC	-3.60	9.61***	4.85**	3.19***	1.34	3.95
	(-1.51)	(5.29)	(2.35)	(2.74)	(0.32)	(1.55)
HotMarket	-0.06*	0.02	0.04	0.02	-0.01	0.03
	(-1.73)	(0.80)	(1.43)	(1.31)	(-0.21)	(0.79)
MarketReturn	0.08	0.79**			-0.52	0.05
	(0.17)	(2.27)			(-1.56)	(0.12)
MarketReturn+	-1.67	-1.98	2.25	-0.76	1.98	4.03
	(-0.57)	(-0.96)	(1.19)	(-0.80)	(0.59)	(1.54)
MarketReturnAbs			0.48	-0.03		
			(1.74)	(-0.10)		
PriceRevision					0.16***	0.64***
					(2.67)	(7.74)
PriceRevision+					7.35	6.13**
					(0.82)	(2.02)
Constant	30.88**	-11.34	-29.41***	6.66	16.84	-14.32
	(2.52)	(-0.84)	(-2.93)	(0.85)	(0.60)	(-1.06)
Industry FE	Y	Y	Y	Y	Y	Y
N	448	636	448	636	448	636
R^2	0.27	0.25	0.27	0.09	0.16	0.44

In untabulated results, I find that the magnitude of the offer price revision is significantly lower for non-SRCs than for SRCs prior to the JOBS Act. This result appears logically, as small companies are more difficult to value and thus encounter more intense offer price revisions. As a consequence, the incremental value of private information gathering is higher for SRCs than for non-SRCs. After all, private information is more beneficial in IPOs facing high valuation uncertainty. Therefore, the insignificant result of the magnitude of the offer price revision for non-SRCs seems primarily driven by the relatively accurately pricing of non-SRC prior to the JOBS Act.

Models (5) and (6) display that *EGC* is significantly positive in the SRC and non-SRC subset. The initial return increase is 2.0% lower for SRC EGCs in comparison to non-SRC EGCs. The moderate difference of the impact of the JOBS Act on initial return between SRCs and non-SRCs suggests that the JOBS Act affects both groups largely similar. Presumably, de-burdening provisions cause the minor difference between the average initial return increase of both groups. This result serves as weak evidence that the effect of de-burdening provisions on the initial return primarily accrues to non-SRCs.

Conclusively, the results of models (1) and (2) are in line with the fourth hypothesis, as opposed to the findings of models (3) and (4) which only provide weak evidence. Also, the results of models (5) and (6) indicate weak evidence for the fifth hypothesis. Contingent rejection of the fourth and fifth hypotheses depends on further analyses.

Difference-in-differences regressions on emerging growth companies

Table 8 shows the results of the DD regressions of the offer price revision, magnitude of the offer price revision, and initial return.[43] The sample comprises the PSM sample using Fama-French 17 industry classifications. Models (1) and (2) examine the fourth hypothesis; whether the effects of the JOBS Act on the offer price revision accrue to SRCs and non-SRCs. Model (3) tests the fifth hypothesis; whether the effects of the JOBS Act on the initial return accrue primarily to non-SRCs. In addition, the regression serves as a supplementary test for the first and second hypotheses; whether the JOBS Act increases the pricing accuracy of the initial price range, and whether the JOBS Act enlarges initial returns.

[43] As a robustness check, I conduct the same DD regressions without control variables. According to Roberts and Whited (2013), adding control variables to the DD regressions should have a negligible effect if random assignment holds. In my PSM sample, I should approximate random assignment because the confounding effects are reduced. Hence, a significant discrepancy between *Post*, *non-SRC*, and *non-SRC x Post* with and without control variables raises a red flag. In untabulated results, I do not find significant differences for *Post*, *non-SRC*, and *non-SRC x Post* if I exclude the control variables. Nonetheless, as the inclusion of control variables increases the efficiency of the DD estimator (*non-SRC x Post*) and reduces the variance of the error term, I focus on DD regressions with controls.

Model (1) finds that *non-SRC x Post* is insignificant, and *Post* is significantly positive. Consistent with the fourth hypothesis, the former result indicates that the JOBS Act similarly affects the offer price revision for SRCs and non-SRCs. The latter finding suggests that the JOBS Act causes the offer price revision of SRCs to rise by 5.6% on average. However, the findings of *Post* should be interpreted with caution, because *Post* also subsumes time-varying effects unrelated to the JOBS Act. As the mean offer price revision is -11.7% in the PSM control sample, the increase of the offer price revision yields recurring evidence that the JOBS Act increases the accuracy of the initial price range, equal to the first hypothesis.

In Model (2), *non-SRC x Post* is significantly positive, and *Post* is significantly negative. This outcome implies that the JOBS Act decreases the magnitude of the offer price revision of SRCs by 7.3%. However, the enhanced accuracy is almost fully offset for non-SRCs, as the magnitude of the offer price revision is 6.6% higher relative to the decrease in the magnitude of the offer price revision for SRCs. This result is in line with the findings stemming from the OLS regressions using the sample segmented by SRC status. Likewise, this result also partly counters the fourth hypothesis.

Table 8. Difference-in-differences (DD) regressions of offer price revision and initial return on emerging growth company (EGC).

This table reports the results of the DD regressions of the offer price revision, offer price revision absolute, and initial return. The dependent variables are *PriceRevision*, the percentage change between the midpoint of the price range and the offer price, *PriceRevisionAbs*, the percentage change between the midpoint of the price range and the offer price on an absolute basis, and *InitialReturn*, the percentage change between the offer price and the first-day closing price. The independent variables include *non-SRC*, *Post*, and *non-SRC x Post*. *Non-SRC* is a dummy that equals one if the company is not a smaller reporting company (SRC), otherwise zero. *Post* is a dummy that equals one if the offer date is after implementation of the JOBS Act (April 5, 2012), otherwise zero. *Non-SRC x Post* is the interaction term of non-SRC and Post. The regressions include the same control variables as in Table 6 (see Appendix A3 for definitions of the control variables). I do not report the results of the control variables to focus on the variables of interest. All regressions include industry fixed effects using Fama-French 17 industry classifications. The sample comprises 1,084 US initial public offerings from 2003 to 2016 after propensity-score matching within Fama-French 17 industry classifications and SRC status. T-statistics are in parentheses below the coefficients. All standard errors are robust and adjusted for clustering within industries. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	Price Revision	Price Revision Absolute	Initial Return
	(1)	(2)	(3)
Non-SRC x Post	1.95	6.60***	6.70**
	(0.85)	(3.55)	(2.30)
Non-SRC	24.22***	-14.59***	-3.20
	(12.74)	(-9.60)	(-1.42)
Post	5.63***	-7.34***	4.29
	(2.74)	(-4.14)	(1.42)
Controls	Y	Y	Y
Industry FE	Y	Y	Y
N	1,084	1,084	1,084
R^2	0.39	0.22	0.35

Model (3) indicates that *non-SRC x Post* is significantly positive, and *Post* is insignificant. In line with the fifth hypothesis, the former result suggests that the 6.7% increase in initial return for non-SRCs

relative to SRCs, is stemming from the de-burdening provision. The latter finding implies that the initial return of SRCs is not significantly impacted by the JOBS Act, showing that de-risking provisions leave the initial return largely unchanged. This result contradicts the findings from the OLS regressions on the SRC and non-SRC subset, in which I find both SRCs and non-SRCs to experience significant positive initial return. As DD regressions address the distinctive effects of SRCs and non-SRCs more appropriately, I emphasize on these results. Therefore, I conclude that the effects of the JOBS Act on the initial return accrue primarily to non-SRCs. Last, the initial return regression provides moderate evidence for the second hypothesis. In spite of economically and statistically significant results of *non-SRC x Post*, the insignificant result of *Post* is contradictive.

Irrefutably, the results from the DD regressions and the OLS regressions allow me to draw conclusions. Consistent with the first hypothesis, both the OLS and DD regressions provide evidence that the JOBS Act increases the accuracy of the initial price range. Although the magnitude of the offer price revision decreases more for non-SRCs relative to SRCs, the magnitude of the offer price revision is significantly negative for the full sample. The JOBS Act causes a significantly positive effect on the offer price revision in all regressions, thereby undermining the negative direction of the offer price revision prior to the JOBS Act. Consistent with the second hypothesis, the JOBS Act increases the initial return significantly, strengthened by robust economic results. Still, the effect of the JOBS Act on the initial return is stronger for non-SRCs. I find mixed evidence for the fourth hypothesis. The magnitude of the offer price revision is significantly more negative for SRCs, although non-SRCs also experience a decline. The relatively low magnitude of the offer price revision before the JOBS Act raises difficulties to measure the incremental effect of the JOBS Act. Therefore, I only moderately support the fourth hypothesis. Last, the initial return is significantly positive for SRCs and non-SRCs in the OLS regressions, whereas the initial return is insignificant for SRCs in the DD regression. Since DD regressions more accurately assess the distinctive influences of the JOBS Act on the initial return for SRCs and non-SRCs, I fully support the fifth hypothesis.

Ordinary least squares regressions on individual Jumpstart Our Business Startups Act provisions

Appendix A8 reports the Pearson correlation matrix of JOBS Act provisions. The correlation matrix raises understanding of the expected and unexpected relations between JOBS Act provisions. The correlation between de-risking provisions is only 0.20, which indicates that there is a weak positive relation between TTW and confidential filing. This finding is contradictive to the argument that simultaneous election of the TTW and confidential filing provisions yields synergistic benefits. The de-burdening provisions show moderate to strong positive correlations, which suggest that EGCs believe

that combining the election of specific de-burdening provisions could be beneficial. In particular, delaying SOX, delaying Dodd-Frank, and reducing executive compensation show a robust positive relation among each other. The correlations between de-risking and de-burdening provisions are weak, underlining the distinctiveness of both types of provisions.

Table 9 presents the results of the regressions of the offer price revision, magnitude of the offer price, and initial return on each JOBS Act provision or index separately. The sample solely comprises EGC IPOs. Models (3) to (10) examine the third hypothesis; whether the election of more de-burdening provisions increases the initial return. Next to that, models (1) to (10) raise understanding how the individual JOBS Act provisions affect IPO pricing.

Models (1) and (2) show that de-risking provisions, *TTW* and *Confidential*, have a significantly negative effect on the offer price revision, and *Confidential* has a significantly positive effect on the magnitude of the offer price revision. The former finding indicates that companies electing de-risking provisions have a lower offer price revision, which encompasses -4.8% for *TTW* and -10.4% for *Confidential*. Since the offer price revision is on average -5.5% for EGCs, the de-risking provisions direct the offer price revision further downwards. A potential explanation could be that investors provide negative private information in the bookbuilding period to drive the offer price down, as this increases their initial return. Alternatively, investors may provide positive private information during the pre-filing period which results in a higher initial price range. Furthermore, the magnitude of the offer price revision increases by 6.0% if the company elects the provision to file the registration statement with the SEC confidentially. Possibly, EGCs that decide to confidentially file with the SEC are more uncertain about their valuation or face higher proprietary disclosure costs, which reflects a higher degree of information uncertainty. Alternatively, confidential filing could provide a signal to investors that the underwriter and issuer are uncertain about the viability of the IPO. Last, the regressions of initial return on de-risking provisions yield insignificant results, supporting the fifth hypothesis. Most likely, de-risking provisions do not affect the amount and quality of information provided to investors.

Models (3) to (10) produce insignificant results for all individual JOBS Act provisions. Surprisingly, even the constructed JOBS Act indices, which decrease the dependency of de-burdening provisions that are infrequently elected, find no significant results. Although the direction of *Provision* is in line with expectations, except for *DelayPCAOB*, the statistical and economic significance is rather small. Therefore, I reject the third hypothesis. Three potential causes can explain the insignificant results of the individual JOBS Act variables. First, the regressions likely suffer from endogeneity. Since the decision to elect an individual JOBS Act is more beneficial for certain types of companies, non-random

assignment to the treatment induces sample selection bias. Therefore, not controlling for endogeneity is an important limitation of all regressions on individual JOBS Act provisions. As a result, regressions on the individual JOBS Act provisions are suggestive rather than conclusive. Second, the classification method of the JOBS Act provisions, largely in line with Dambra, Field, and Gustafson (2015), could bias the results. As I only consider a provision to be elected if the underwriter explicitly states that he "intends to" take advantage of the provision, this method may be too strict. Therefore, my interpretation of the wording in the registration statements or other offer documents could significantly impact the results. Third, almost all companies elect *Confidential* (90%) and *TTW* (88%), whereas only 12% elects *DelayGAAP*. Consequently, the results are largely dependent on a few observations. Nevertheless, this explanation is only partial, as it only holds for the unexpected results concerning *Confidential*, *TTW*, and *DelayGAAP.*

Table 9. Ordinary least squares (OLS) regressions of the offer price revision and initial return on individual Jumpstart Our Business Startups (JOBS) Act provisions including the emerging growth company (EGC) sample.

This table reports the results of the OLS regressions of the offer price revision, offer price revision absolute, and initial return on each JOBS Act provisions separately. The dependent variables are *PriceRevision*, the percentage change between the midpoint of the price range and the offer price, *PriceRevisionAbs*, the percentage change between the midpoint of the price range and the offer price on an absolute basis, and *InitialReturn*, the percentage change between the offer price and the first-day closing price. The JOBS Act provisions include *Confidential,* confidential filing of the registration statement, *TTW,* testing-the-waters, *DelaySOX,* delay compliance with internal control, *DelayGAAP,* delay compliance with public accounting requirements, *DelayDodd,* delay compliance with governance requirements, *DelayPCAOB,* delay mandatory audit firm rotation, *ReduceAcc,* reduced accounting disclosure, and *ReduceComp,* reduced executive compensation disclosure. The JOBS Act indices include *JOBSIndex,* number of de-burdening provisions elected, and *HighIndex,* dummy that equals one if more than two de-burdening provisions elected. The regressions include the same control variables as in Section 3.4.2 (see Appendix A3 for definitions of the control variables). I do not report the results of the control variables to focus on the variables of interest. All regressions include industry fixed effects using Fama-French 17 industry classifications. The sample comprises 546 US initial public offerings from 2012 to 2016 after propensity-score matching within Fama-French 17 industry classifications and smaller reporting company status. T-statistics are in parentheses below the coefficients. All standard errors are robust and adjusted for clustering within industries. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

	Provision									
Variable	*TTW*	*Confi-dential*	*Reduce Acc*	*Reduce Comp*	*Delay SOX*	*Delay GAAP*	*Delay Dodd*	*Delay PCAOB*	*JOBS Index*	*High Index*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Dependent variable: Offer price revision									
Provision	-4.81*	-10.42***	-0.97	-1.63	-0.21	-0.67	-2.23	0.99	-0.28	-0.56
	(-1.76)	(2.99)	(-0.47)	(-0.91)	(0.12)	(-0.24)	(-1.26)	(0.47)	(-0.59)	(-0.31)
R^2	0.22	0.23	0.21	0.22	0.21	0.21	0.22	0.21	0.21	0.21
	Dependent variable: Offer price revision absolute									
Provision	0.90	6.03***	0.51	0.16	0.72	-0.15	0.98	1.17	0.22	0.38
	(0.47)	(2.68)	(0.33)	(0.12)	(0.55)	(-0.08)	(0.76)	(0.80)	(0.62)	(0.29)
R^2	0.11	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
	Dependent variable: Initial return									
Provision	2.21	-3.17	-0.30	2.27	-1.50	-4.23	-0.71	-2.99	-0.29	-1.43
	(0.65)	(-0.57)	(-0.12)	(0.94)	(-0.60)	(-1.26)	(-0.30)	(-1.12)	(-0.49)	(-0.61)
R^2	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33	0.33
Controls	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	546	546	546	546	546	546	546	546	546	546

4.1.5. Robustness checks

To ensure that the findings are reliable, I conduct robustness checks. In this section, I only report the most significant robustness checks. Robustness checks of minor importance are presented in the footnotes.

Both robustness checks assess the impact of the PSM analysis on the results. According to Roberts and Whited (2013), the choice of matching method significantly impacts regression results. For example, the choice of distance metric, matching variables, matching with or without replacement, and matching within industries, affects the findings. As I use the same PSM sample based on Fama-French 17 industry classifications in all regressions on EGC, I examine the robustness of the conclusions by rerunning the main regressions using two different samples. Thereby, I examine whether the findings are generalizable to other samples.

First, I include the PSM sample based on the 3 industry classifications, which addresses the concern that the Fama-French's 17 industry classifications sample matches biotech/pharma companies, industry 7, and technology companies, industry 17, within industries comprising multiple subindustries. Second, I adopt the unmatched sample to exclude all effects relating to PSM.

The OLS regression results using the 3 industry classifications sample show that the offer price revision, magnitude of the offer price revision, and initial return all yield similar economically and statistically significant results in comparison to the findings from the 17 industry classifications sample. The DD regressions produce more differences across both samples. Combining the results of *Post* and *Non-SRC x Post* reveals that de-risking provisions drive the decrease in the magnitude of the offer price revision and the increase in initial return. The former is in line with previous results, whereas the latter suggests that de-risking provisions rather than de-burdening provisions drive the increase in the initial return. Thus, the regressions on the 3 industry classifications sample show that the JOBS Act increases the accuracy of the initial price range and increases the initial return, induced by de-risking provisions. The effect of de-risking provisions on the initial return is likely attributable to the sharp increase of *Post* by 8.6% in the initial return DD regression. This result differs significantly from the 17 industry classifications sample DD regression, which yields insignificant results for *Post*. Untabulated results show that the JOBS Act increases the height of the offer price revision and the initial return significantly for non-SRC biotech/pharma companies compared to SRC biotech/pharma companies.[44] Therefore, the

[44] In untabulated results, I construct the interaction term *EGC x BIO* to assess the impact of biotech/pharma companies. I run OLS regressions on offer price revision, magnitude of the offer price revision, and initial return on the 17 industry classifications sample. I conduct regressions on the full sample and the sample segmented by SRC status. Interestingly, the regressions show that the JOBS Act affects non-SRC biotech/pharma companies

sharp increase of *Post* is presumably attributable to alternative matches for non-SRC biotech/pharma companies. Panel B of Appendix A4 shows that the biotech/pharma industry is the most extensive subset, which indicates that matches within this group impact the results significantly.

The OLS regressions using the unmatched sample indicate that the magnitude of the offer price revision becomes economically and statistically insignificant, while the initial return increases significantly. The effect of the JOBS Act on the initial return seems precisely in line with findings using the 17 industry classifications sample. Conversely, the results suggest that the JOBS Act does not increase the accuracy of the initial price range. The results of the DD regressions of the unmatched sample highly contrast the results of the 17 industry classifications sample. Combining the findings of *Post* and *Non-SRC x Post* suggests that de-risking provisions increase the accuracy of the initial price range, but de-burdening provisions offset this effect. Also, de-risking provisions appear to drive the increase in the initial return, as *Non-SRC x Post* is insignificant. Generally, these results underline the impact of the types of companies included in the sample. The PSM control samples consist of significantly more difficult-to-value companies than the unmatched sample (Dambra, Field, and Gustafson, 2015; Lowry, Officer, and Schwert, 2010). Seemingly, the effect of the JOBS Act on the magnitude of the offer price revision only holds for companies that are difficult-to-value. On the contrary, the JOBS Act impacts the initial return similarly, irrespective of the valuation difficulties.

Conclusively, the results of the robustness checks underline the importance and arbitrariness of the PSM analysis on the conclusions. Omitting the PSM analysis gives rise to sample selection bias and yields significantly different results. Furthermore, conducting the PSM analysis within a less extensive set of industries affects the results only partially. The conclusions of the first and second hypotheses remain largely intact, as the JOBS Act increases the accuracy of the initial price range and increases the initial return. However, the inferences regarding the distinctive effects of the JOBS Act on SRCs and non-SRCs provide weak support.

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significantly more impactful than SRC biotech/pharma companies (*PriceRevision*: non-SRC +45.6% vs. +SRC 20.9%, and *InitialReturn*: non-SRC +30.8% vs. SRC -9.3%). For example, offer price revision OLS regressions find *BIO* of -13.1% and *EGC x BIO* of 7.9% for SRCs, while the coefficient *BIO* yields -20.6% and *EGC x BIO* 25.0% for non-SRCs. Likewise, the initial return OLS regressions show *BIO* of 0.4% and *EGC x BIO* of -8.9% for SRCs, while the coefficient are *BIO* -11.4% and *EGC x BIO* 19.5% for non-SRCs. All coefficients are significant at the 10% level.

Table 10. Robustness checks of the regressions of the offer price revision and initial return on emerging growth company (EGC) including alternative samples.

This table reports the result of the ordinary least squares (OLS) regression and difference-in-differences (DD) regressions of the offer price revision, offer price revision on an absolute basis, and initial return. The dependent variables are *PriceRevision*, the percentage change between the midpoint of the price range and the offer price, *PriceRevisionAbs*, the percentage change between the midpoint of the price range and the offer price on an absolute basis, and *InitialReturn*, the percentage change between the offer price and the first-day closing price. See Appendix A3 for definitions of the control variables. The first sample contains the propensity-score matched sample on 3 industry classifications, consisting of technology, biotech/pharma, and other companies. The second sample consists of the original unmatched sample. The sample comprises 1,090 and 1,573 US initial public offerings from 2003 to 2016 for the 3 industry and unmatched sample, respectively. I do not report the results of the control variables to focus on the variables of interest. All regressions include industry fixed effects using Fama-French 17 industry classifications. T-statistics are in parentheses below the coefficients. All standard errors are robust and adjusted for clustering within industries. Panel A shows the OLS regressions. *EGC* is the independent variable that equals one if the company elects the EGC status, otherwise zero. Panel B reports the results of the DD regressions. The independent variables include *non-SRC*, *Post*, and the interaction term *non-SRC x Post*. *Non-SRC* is a dummy that equals one if the company is not a smaller reporting company, otherwise zero. *Post* is a dummy that equals one if the offer date is after implementation of the Jumpstart Our Business Startups Act (April 5, 2012), otherwise zero. *Non-SRC x Post* is the interaction term between non-SRC and Post. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. OLS regressions.

	3 industry sample			Unmatched sample		
Variable	Price Revision (1)	Price Revision Absolute (2)	Initial Return (3)	Price Revision (1)	Price Revision Absolute (2)	Initial Return (3)
EGC	5.29***	-2.18*	7.25***	-1.60	-0.22	8.30**
	(3.32)	(-1.81)	(3.43)	(-1.10)	(-0.21)	(4.14)
Controls	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
N	1,090	1,090	1,090	1,573	1,573	1,573
R^2	0.21	0.15	0.33	0.15	0.09	0.28

Panel B. Difference-in-differences regressions.

	3 industry sample			Unmatched sample		
Variable	Price Revision (1)	Price Revision absolute (2)	Initial Return (3)	Price Revision (1)	Price Revision absolute (2)	Initial Return (3)
Non-SRC x Post	7.61***	1.46	0.56	4.65*	4.05**	3.06
	(2.86)	(0.67)	(0.16)	(1.87)	(2.02)	(0.95)
Non-SRC	16.57***	-8.35***	5.40**	18.51***	-9.01***	2.65
	(6.80)	(-4.09)	(2.11)	(8.81)	(-5.64)	(1.17)
Post	5.84**	-5.18**	8.63**	0.49	-4.94***	7.16**
	(2.40)	(-2.43)	(2.38)	(0.20)	(-2.52)	(2.21)
Controls	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
N	1,090	1,090	1,090	1,573	1,573	1,573
R^2	0.32	0.17	0.34	0.26	0.11	0.28

4.2. Relation with literature

First, the positive relation between the de-risking provisions and the magnitude of the offer price revision is in line with private information production studies (Benveniste and Spindt, 1989; Sherman and Titman, 2002). I find that the JOBS Act increases the offer price revision by 3.8%, and decreases the magnitude of the offer price revision by 2.0%. These results indicate that private

information aids the underwriter to price the IPO more accurately. In agreement with Rock (1986), these findings imply that investors possess an informational advantage over the underwriter and issuer. Jenkinson and Jones (2008) argue that the amount of information production by investors is limited. Therefore, the underwriter seems to benefit from private information because institutional investors provide the underwriter of feedback how the market perceives the value of the IPO. The results are also in line with Aussenegg, Pichler, and Stomper (2006), who suggest that the underwriter gathers most information during the pre-filing period, and subsequently uses the bookbuilding period predominantly to market the IPO.

However, IPO pricing still differs between Europe and the US despite both regulations allowing private information gathering during the pre-filing period. Prior to the JOBS Act, Jenkinson, Morrison, and Wilhelm (2006) find that the total price revision, the percentage change between the midpoint of the initial price range and the first-day closing price, is 7.1% lower in Europe than in the US. Despite the fact that the JOBS Act decreases the magnitude of the offer price revision by 2.0%, the IPO pricing process is still significantly more accurate in Europe. Moreover, they find that 90% of European IPOs are priced within the initial price range, while I find that only 42% of US IPOs are priced within the initial price range after the JOBS Act. The differences between Europe and the US could have several causes. First, information exchange during the pre-filing period may be more intensive in Europe. Second, IPO pricing conventions could affect the offer price revision distinctively. Third, the regulatory framework could still prolead to different effects on IPO pricing. For example, the safe harbor for the initial price range contains the greater of $2 or 20% of the lower bound of the price range in the US, whereas the maximum size of the initial price range is not specified in Europe. In sum, the findings indicate that private information aids the underwriter to set the initial price range more accurately, although IPO pricing in Europe remains significantly more accurate.

Second, the relation between de-burdening provisions and the initial return is in line with previous studies. The results show that the initial return increases 8.3% as a result of increased information uncertainty. Gupta and Israelsen (2014) and Barth, Landsman, and Taylor (2017) find an average increase of the initial return of 7.0% after implementation of the JOBS Act, which is largely in proportion to my findings. The minor difference in the initial return increase is likely attributable to the growing adoption of JOBS Act provisions over time. As I use a more extensive sample period, the rate of de-burdening provision elections is higher. Chaplinsky, Hanley, and Moon (2017) find that the initial return increases 11.5% for non-SRCs, whereas the results are insignificant for SRCs. Conversely, I find significant results for non-SRCs (8.8%) and SRCs (6.8%). Notwithstanding, the DD regressions yield

statistically insignificant results for SRCs, in line with their research. Thus, although the key findings are similar between both studies, statistical and economic differences emerge regarding the findings for SRCs and non-SRCs. Presumably, different PSM analyses drive these dissimilarities. For example, they match without replacement which yields more precise matches at the expense of the quality of matches and bias. Both methods have their advantages; there is no superior methodology. In addition, my sample includes more observations which results in different findings. Further, the results provide evidence that the ration of IPOs comprising companies with high disclosure costs, mainly biotech/pharma companies, increases sharply after the JOBS Act (Dambra, Field, and Gustafson, 2015). The main driver for biotech/pharma companies to pursue an IPO after the JOBS Act is related to the benefits of de-risking provisions. As 89% of IPOs elect the de-risking provisions, this result provides evidence that they cater towards reduced risks of an IPO. Besides, these results highlight the necessity to ensure that the control sample is representative of the EGC sample. All in all, my findings support previous empirical studies; the JOBS act increases information uncertainty and induces companies with high proprietary costs to conduct an IPO.

Third, I find that the individual JOBS Act provisions do not explain the change in the offer price revision and initial return, as my findings of the individual JOBS Act provisions are insignificant. However, prior research also produces insignificant results for the individual JOBS Act provisions (Gupta and Israelsen, 2014; Chaplinsky, Hanley, and Moon, 2017).[45] On the contrary, Barth, Landsman, and Taylor (2017) identify significant coefficients for confidential filing, reduced executive compensation, and delayed compliance with GAAP on the initial return. However, they include a control sample without conducting a PSM analysis, thus their regressions likely suffer from sample selection bias. To conclude, the individual JOBS Act regressions likely suffer from endogeneity, causing insignificant results. Therefore, the finding that the JOBS Act increases the initial return remains intact.

Last, I provide partial evidence that de-risking provisions mainly affect the offer price revision, and de-burdening provisions predominantly alter the initial return. In other words, private information gathering seems related to changes in the offer price revision, whereas information uncertainty mainly affects the initial return. The former result indicates that private information aids the underwriter to set the initial price range closer to the offer price, but fails to reduce the initial return subsequently. This finding partly contradicts Hanley and Hoberg (2010), who posit that information production in the pre-filing period reduces the offer price revision and the initial return. Instead, investors still seem to

[45] Except for the reduced financial statement disclosure provision (Gupta and Israelsen, 2014). However, as the direction of the coefficient is opposed to their expectation and the result economically insignificant, this finding is of minor interest.

require similar financial compensation in the form of an increased initial return for private information revelation (Benveniste and Spindt, 1989). Nevertheless, measuring the effect of private information on the initial return is distorted by other factors (e.g. information uncertainty). As a result, the conclusions of the effect of private information on the initial return are preliminary. The finding that de-burdening provisions primarily affect the initial return is in line with Chaplinsky, Hanley, and Moon (2017). Furthermore, since information uncertainty does not impact the offer price revision significantly, the risk premium that investors seem to require in the pre-filing period is similar to the risk premium in the bookbuilding period. Conclusively, the offer price revision and the initial return are distinctively impacted by the effects of the JOBS Act.

5. Conclusion

In this section, I provide the conclusion, comprising a summary of the research objective, main results, contribution to existing literature, and implications for stakeholders. Second, I elaborate on alternative explanations and shortcomings of this research. Last, I propose directions for future research.

5.1. Conclusion

This paper examines the impact of the JOBS Act on IPO pricing. Studies analyzing the effects of the JOBS Act on IPO pricing typically focus on the effect of information uncertainty on the initial return. As a result, these studies do not address the influence of private information production on IPO pricing, despite the importance of this element on IPO pricing. Using the classification method of Dambra, Field, and Gustafson (2015), I segment the JOBS Act provisions into de-risking and de-burdening provisions. De-risking provisions assess the effects of private information gathering, whereas de-burdening provisions examine the effects of information uncertainty. Consequently, this study extends the line of research analyzing the effects of information uncertainty on the initial return, while contributing to the largely untouched research area of private information.

By conducting PSM analyses on an extensive set of matching variables, I mitigate sample selection bias. Subsequently, I conduct several univariate and bivariate tests to preliminary assess the impact of the JOBS Act on the offer price revision and the initial return. Afterwards, I run OLS and DD regressions to assess the effect of the JOBS Act on IPO pricing. Next to the regressions on the full sample, I test how the JOBS Act distinctively affects SRCs and non-SRCs. This distinction allows me to disentangle the effects of private information production and information uncertainty. Also, I conduct OLS regressions on individual JOBS Act provisions to uncover the effects of each provision separately.

Last, I test for robustness by rerunning all regressions using an alternative PSM and unmatched sample. The unique data set comprises 546 EGCs that went public between the enactment of the JOBS Act and December 2016, and 1,032 control IPOs.

The results indicate that private information production aids the underwriter to more accurately set the initial price range, as the offer price revision is 3.8% higher and the magnitude of the offer price revision 2.0% lower after implementation of the JOBS Act. Further, I find that reduced mandatory disclosure requirements of the JOBS Act induce a rise in the initial return of 8.3%, driven by increased information uncertainty. The insignificant results on the individual JOBS Act provisions do not confirm these findings. However, I presume that the regressions on individual JOBS Act provisions suffer from endogeneity. Last, I find partial evidence that de-risking provisions affect the offer price revision primarily, whereas de-burdening provisions mainly influence the initial return.

The findings of the de-risking provisions support empirical evidence based on information production studies (Benveniste and Spindt, 1989; Sherman and Titman, 2002). As the initial price range is more accurately priced post-JOBS Act, this study provides evidence that private information aids the underwriter to value the IPO more accurately. Moreover, the results indicate that private information is gathered during the pre-filing period, while the underwriter uses the bookbuilding period to market the IPO (Aussenegg, Pichler, and Stomper, 2006). However, IPO pricing is still significantly more accurate in Europe (Jenkinson, Morrison, and Wilhelm, 2006), which shows that the increased exchange of private information only partially enhances the accuracy of IPO pricing. Further, the findings concerning de-burdening provisions validate existing literature (Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017; Chaplinsky, Hanley, and Moon, 2017), since the JOBS Act causes an increase in the initial return as a result of more information uncertainty. In addition, the insignificant results for the individual JOBS Act provisions correspond to prior research (Gupta and Israelsen, 2014; Chaplinsky, Hanley, and Moon, 2017), which confirms that these regressions suffer from endogeneity. Last, the effects of de-burdening provisions accrue primarily to non-SRCs, although the results are less distinctive in comparison to Chaplinsky, Hanley, and Moon (2017).

Last, the findings have significant implications for stakeholders. Investors could take advantage of inaccurately priced IPOs if the underwriter fails to gather sufficient private information. Differently, investors should gather more private information as an informational advantage is valuable in situations with heightened information uncertainty. Further, issuers should adopt de-burdening provisions if the reporting and disclosure requirements would otherwise increase costs significantly, as the election of de-burdening provisions does not result in an initial return increase. Underwriters should gather private

information, since a more accurate understanding of the value of the issuer helps the underwriter with the IPO pricing process. Finally, regulators should allow communication with investors in the pre-filing period, because IPO pricing accuracy seems advantageous to mitigate valuation uncertainty. Furthermore, regulators should contemplate reduced mandatory disclosure, as companies that pursue an IPO benefit from eased reporting and disclosure requirements at the expense of a higher initial return.

5.2. Limitations and shortcomings

The inferences are highly dependent on the way PSM is conducted. First, a limitation of PSM is that matching can only be done on observable characteristics, while unobservable characteristics could explain an essential part of the differences between the samples. Thus, if the EGC sample significantly differs from the control sample on unobservable characteristics, the selection bias term is still nonzero after the PSM analysis (Roberts and Whited, 2013). Second, the number of SRC EGC IPOs (89) within industry 7, mainly comprising biotech/pharma, is significantly larger than the amount of SRC control IPOs (24) within the same industry. As a result, some SRC control IPOs are frequently matched, thereby gravitating their impact on the results. Not matching within industries and SRC status could resolve this issue, however this comes at the cost of preciseness. Third, preferably I would also include a sample based on PSM without replacement to assess the impact of matching with and without replacement. Since the sample size of SRC control IPOs is limited, matching without replacement would result in a significant number of EGC IPOs to remain unmatched. As a result, unmatched EGC IPOs would be excluded from the sample, which makes the sample less representative of the population. Therefore, I do not match without replacement. In sum, PSM analysis, which requires somewhat arbitrary decisions, has a profound influence on the results. However, as I clearly report the steps and decisions I take and, more importantly, run all regressions on an alternative PSM and unmatched sample as a robustness check, I mitigate the complications stemming from PSM adequately.

Next, the interpretation of wording used in registration statements or other offer documents significantly impacts the results. As the underwriter has some discretion in the way he formulates the information in the registration statements, it sometimes remains unclear or arbitrary whether the company definitely intends to take advantage of a provision or whether the company may take advantage of a provision. Although I follow the leading JOBS Act study of Dambra, Field, and Gustafson (2015), the existing literature provides no superior classification method yet. Therefore, I contacted the SEC to elucidate this issue, but unfortunately they do not help academic researchers.

Further, I do not control for endogeneity in the regressions on individual JOBS Act provisions, similar to existing JOBS Act research (Gupta and Israelsen, 2014; Chaplinsky, Hanley, and Moon, 2017). As a consequence, the results of these regressions are rather suggestive. I find insignificant JOBS Act provision coefficients, as do other JOBS Act studies, which is likely driven by the presence of endogeneity in the regression models. Given the relatively limited time available to conduct this research, also controlling for endogeneity in the individual JOBS Act provisions is beyond the scope of this thesis.

5.3. Directions for future research

Remarkably, the influence of private information on IPO pricing is still a largely untouched topic, despite it enabling the underwriter to price an IPO more accurately. First, it would be interesting to research the nature of private information exchange. Until now, Jenkinson and Jones (2008) and Jenkinson, Morrison, and Wilhelm (2006) are the only researchers addressing this issue. The former study infers that the level of information production is limited. As a result, they find it puzzling that private information helps the underwriter to price the IPO accurately. Moreover, as information production theories (e.g. Benveniste and Spindt, 1989) are arguably the leading theoretical paradigm in IPO research, the disregard of the content of private information is striking. Most studies measure private information via the bids that are submitted. However, the bids only provide a partial explanation of the total information production, as the underwriter and investors exchange a large sum of information before the bids are submitted. Therefore, I suggest applying alternative research methods, like surveys, to address this issue.

The study of Jenkinson, Morrison, and Wilhelm (2006) explores the interaction between the underwriter and investors, and draws comparisons between the European and US IPO pricing process. If I compare my results to theirs, I find that IPO pricing is still less accurate in the US compared to Europe, despite the allowance of interactions between investors and the underwriter in the pre-filing period. It would be interesting to know what constitutes the accuracy of IPO pricing in Europe. Furthermore, Jenkinson, Morrison, and Wilhelm (2006) develop a model that tries to explain the apparent inefficient pricing behavior. The model builds upon Benveniste and Spindt's (1989) model, in which it tries to explain how information production in the pre-filing period would affect their model. Since the JOBS Act allows information exchange in the pre-filing period, examining their model using a US data set could offer interesting insights into the dynamics of IPO pricing.

Last, further research into the effects of confidential filing would be interesting. Until now, the only inferences drawn from confidential filing is that it lowers the frequency of IPO withdrawals and

reduces proprietary information disclosure costs. However, I find that the election of the confidential filing provision decreases the offer price revision and increases the magnitude of the offer price revisions. Besides, prior research (Gupta and Israelsen, 2014; Barth, Landsman, and Taylor, 2017) finds that confidential filing significantly increases the initial return. These results imply that confidential filing decreases the accuracy of IPO pricing, and results in more money left on the table. Remarkably, these findings contradict the frequent adoption of the confidential filing provision. Therefore, gaining a better understanding of the effects of confidential filing would help companies in their decisions to elect or opt-out of this provision.

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Appendix

Table A1. Sample selection process.

The table reports the selection process of the complete data set. The emerging growth company (EGC) sample is the sample of main interest. The EGC sample contains initial public offerings (IPOs) from 2012 to 2016, after implementation of the Jumpstart Our Business Startups (JOBS) Act. The final EGC sample contains 546 observations, as five IPOs do not elect the EGC status after implementation of the JOBS Act. The control sample contains US IPOs from 2003 to 2012, before implementation of the JOBS Act. Both samples are gathered from SDC and supplemented by several other databases (as noted in Section 3.1). The exclusion of SIC codes is conducted manually.

Selection criteria	EGC obs	Control obs	Total obs
All IPOs	n/a	n/a	n/a
US Common Stock	n/a	n/a	38,961
Issue Date: 15/01/2003 to 31/12/2016	4,964	7,374	12,337
Issue Type: IPO	1,084	1,924	3,008
Primary Exchange Nation of Issue: USA	1,083	1,920	3,002
Transaction Status: Live	1,083	1,920	3,002
No Closed End Funds	1,083	1,920	3,002
No Unit Issue	1,083	1,919	3,001
No Rights Issue	1,077	1,919	2,996
No Limited Partnership	1,013	1,858	2,871
Revenues Before IPO	922	1,774	2,696
Proceeds IPO: $5m to HI	844	1,708	2,552
Offering Technique: Firm Commitment	810	1,539	2,349
Exclude SIC codes: 6021, 6022, 6029, 6035, 6036, 6091, 6159, 6371, 6722, 6726, 6732, 6733, 6798, 6799	551	1,032	1,583
Final sample	551	1,032	1,583

Table A2. Securities Act of 1933, s 5(d).

(d) LIMITATION.—Notwithstanding any other provision of this section, an emerging growth company or any person authorized to act on behalf of an emerging growth company may engage in oral or written communications with potential investors that are qualified institutional buyers or institutions that are accredited investors, as such terms are respectively defined in section 230.144A and section 230.501(a) of title 17, Code of Federal Regulations, or any successor thereto, to determine whether such investors might have an interest in a contemplated securities offering, either prior to or following the date of filing of a registration statement with respect to such securities with the Commission, subject to the requirement of subsection (b)(2).

Table A3. Definitions of the variables.

This table provides a detailed description of all variables included in this thesis. The data is collected from a wide array of sources: Thomson Reuters Securities Data Company (SDC) Platinum New Issues database, WRDS Compustat North America database (Compustat), Center for Research in Security Prices (CRSP) database, SEC Electronic Data Gathering, Analysis, and Retrieval (EDGAR) database, Ritter's IPO (Ritter) database, and Yahoo! Finance. Moreover, I collect a large sum of data by hand, as this information is unavailable in any database.

Variable	Description	Source
Status		
Control	Initial public offering (IPO) of a company during the before the Jumpstart Our Business Startups (JOBS) Act period, between 01/01/2003 and 04/04/2012.	Hand-collected
EGC	IPO of a company that elects the emerging growth company (EGC) status.	Hand-collected
SRC	IPO of a company that qualifies as a smaller reporting company (SRC), which allows the company to raise a maximal amount of $75 million (from 05/02/2008 onwards), or $25 million (before 05/02/2008), excluding the over-allotment option.	SDC
Firm and deal-specific variables		
Age	Number of years between the company's founding date and IPO date.	Ritter/SDC
Biotech	Biotechnology and pharmaceutical dummy that equals one if the company's SIC code is 2830, 2831, 2833, 2834, 2835, or 2836.	SDC
DaysRegistration	Number of days between the filing date of the initial price range and the offer date, also known as the bookbuilding period.	SDC/Hand-collected
Leverage	Total debt divided by total assets, the year prior to the IPO.	Compustat
PP&E	Net Property Plant and Equipment divided by total assets, the year prior to the IPO.	Compustat
ProceedsFiled	Total proceeds filed at the onset of the bookbuilding period, which equals the midpoint of the initial price range multiplied by the number of shares filed.	SDC
NYSE	NYSE dummy that equals one if the company lists on the NYSE.	SDC
R&D	Research & Development expenses divided by total assets, the year prior to the IPO.	Compustat
Revenue	Revenue, or total sales, the year prior to the IPO.	Compustat
Tech	High Technology dummy that equals one if Fama-French's 49 industry classifications defines the company as "High Tech."	SDC
Assets	Total assets, the year prior to the IPO.	SDC
UnderwriterRank	The rank of the lead underwriter, based on Loughran and Ritter's (2002) classification, which ranks underwriters on a scale from 1.0 to 9.0, whereby 9.0 is the most reputable rank.	Ritter/SDC
Unprofitable	Unprofitable dummy that equals one if the company has negative net income the year prior to the IPO.	Compustat
VC	Venture capital dummy that equals one if the IPO is backed by a venture capitalist.	SDC
Initial pricing variables		
InitialReturn	Initial return, or underpricing, percentage change of the offer price to the first-day closing price.	CRSP/SDC/Yahoo! Finance
NumberRevision	Frequency of price range revisions, which equals the number of different price ranges issued.	SDC
PriceRevision	Offer price revision, percentage change of the midpoint of the initial price range to the offer price.	SDC
PriceRevision+	Positive price revision dummy that equals one if the offer price is higher than the midpoint of the initial price range.	SDC

Table A3. Definitions of the variables. (Continued)

PriceRevisionAbs	Offer price revision absolute, or magnitude of the offer price revisions, percentage change of the midpoint of the initial price range to the offer price on an absolute basis.	SDC
WithinRange	Offer price within initial price range dummy that equals one if the offer price is set within the initial price range.	SDC
Market return variables		
HotMarket	Number of IPOs within the last 90 days.	SDC
MarketReturn	Market returns of the CRSP Equally Weighted Index of NYSE, Nasdaq, and Amex stocks during the company's bookbuilding period, which consists of the period between the filling date of the initial price range and the offer price.	CRSP/Hand-collected
MarketReturn+	Positive market returns dummy that equals one if the market returns of the CRSP Equally Weighted Index were positive during the company's bookbuilding period.	CRSP/Hand-collected
MarketReturnAbs	Absolute market returns of the CRSP Equally Weighted Index during the company's bookbuilding period, which consists of the period between the filling date of the initial price range and the offer price.	CRSP/Hand-collected
JOBS Act variables		
Confidential	Confidential filing dummy that equals one if the company submitted the Draft Registration Statement confidentially with the SEC.	Hand-collected
DelaySOX	Delayed SOX 404(b) implementation dummy that equals one if the company elects to delay the internal control audit required by Section 404(b) of the Sarbanes-Oxley Act.	Hand-collected
DelayGAAP	Delayed GAAP implementation dummy that equals one if the company elects to delay complying with new or revised accounting standards.	Hand-collected
DelayDodd	Delayed Dodd-Frank Act governance dummy that equals one if the company elects to be exempted from Dodd-Frank's Say on Pay, Say on Frequency, and Golden Parachutes votes.	Hand-collected
DelayPCAOB	Delayed Public Company Accounting Oversight Board Rulings dummy that equals one if the company delays mandatory audit firm rotation, as required by the Public Company Accounting Oversight Board.	Hand-collected
HighIndex	Frequent de-burdening JOBS Act provision adoption dummy that equals one if the company elects three or more de-burdening provisions.	Hand-collected
JOBSIndex	Number of de-burdening JOBS Act provisions elected by the company.	Hand-collected
ReduceAcc	Reduced accounting disclosure that equals one if the company presents less than 3 years of audited financial statements.	Hand-collected
ReduceComp	Reduced executive compensation disclosure dummy that equals one if the company presents compensation for less than five executives.	Hand-collected
TTW	Testing-the-waters dummy that equals one if the underwriter authorized the issuer to engage in oral or written communication with potential investors.	Hand-collected

Table A4. Distribution frequency of emerging growth companies (EGCs) and control initial public offerings (IPOs).

Panel A reports the distribution of companies within Fama-French 17 industry classifications and smaller reporting company (SRC) status, segmented by EGC and SRC status. The sample comprises 542 EGC and 1,032 control IPOs. Panel B reports the distribution of 3 industry classifications within biotechnology or pharmaceutical, technology, or other industries. The sample comprises 546 EGCs and 1,032 control IPOs. Panel C reports the distribution frequency of replacements of EGC IPOs by 3 industry and 17 industry classifications. The weight comprises the frequency of matches of individual EGC IPOs to a single control IPO.

Panel A. Distribution EGC and SRC status by 17 industry classifications.

		EGC IPO		Control IPO	
Industry		SRCs	non-SRCs	SRCs	non-SRCs
1	Food	2	4	5	10
2	Mining	1	21	4	44
3	Oil	0	0	0	0
4	Textiles	0	0	2	6
5	Consumer	2	1	1	6
6	Chemicals	2	0	3	13
7	Drugs/Tobacco	89	52	24	73
8	Construction	2	4	4	8
9	Steel	0	0	4	6
10	Fabricated Products	1	0	1	4
11	Machinery	16	11	18	105
12	Automobiles	1	2	1	6
13	Transportation	0	7	5	53
14	Utilities	4	8	0	9
15	Retail Stores	1	27	7	43
16	Financial Institutions	14	22	6	104
17	Other	95	157	88	357
	N	226	316	173	859

Panel B. Distribution EGC and SRC status by 3 industry classifications.

1	Other	66	146	119	547
2	Bio/Pharma	86	68	32	93
3	Technology	78	102	22	219
	N	230	316	173	859

Panel C. Distribution frequency of replacements of EGC IPOs by matching method.

	Weight																					
Match	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
17IND	198	54	20	10	7	2	3	1	1	0	0	0	1	0	0	1	0	0	0	0	0	1
3IND	172	51	22	10	9	5	3	0	0	0	4	1	0	1	0	0	0	0	0	0	0	0

Table A5. Descriptive statistics for matching variables after propensity-score matching (PSM) within the same 3 industry classifications.

This table reports the descriptive statistics for the matching variables segmented by emerging growth company (EGC) status after PSM on 3 industry classifications and smaller reporting companies (SRC) status. The propensity score is derived from logit regressions of firm and deal-specific variables and market condition variables on EGC, mostly in line with Chaplinsky, Hanley, and Moon (2017). PSM is conducted on a nearest neighbor basis with replacement within the same Fama-French 17 industry classifications and SRC status. The matching variables are defined in Appendix A3. *T*-tests examine the differences between the matched variables. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Variable	Mean EGC (N=546)	Mean Control (N=278)	Mean Difference	*t*-stat
Log(ProceedsFiled)	4.48	4.42	0.06	0.84
Log(Revenue)	3.23	2.99	0.24	0.23
Unprofitable	0.68	0.63	0.05	-1.83*
Log(Age)	2.02	2.03	0.01	-1.08
Leverage	0.27	0.28	0.01	-0.03
PP&E	0.15	0.15	0.00	1.23
R&D	0.68	0.62	0.06	0.30
UnderwriterRank	7.82	7.59	0.23	-0.75
MarketReturn	0.46	0.38	0.08	1.39

Table A6. Pearson correlation matrix of firm and deal-specific, market condition and IPO pricing variables.

This matrix presents the Pearson correlations of all dependent and independent variables included in the ordinary least squares and difference-in-differences regressions. The sample includes 1,578 US initial public offerings (IPOs) from 2003 to 2016. *InitialReturn*, *NumberRevision*, *PriceRevision*, *PriceRevision+*, *PriceRevisionAbs*, and *WithinRange* account for the dependent variables, which represent IPO pricing measures. EGC is a dummy that equals one if the company elects the emerging growth company status. *Age*, *Biotech*, *DaysRegistration*, *ProceedsFiled*, *NYSE*, *Revenue*, *Tech*, *Assets*, and *UnderwriterRank* are control variables related to firm and deal-specific characteristics. *HotMarket*, *MarketReturn*, *MarketReturn+*, and *MarketReturnAbs* are control variables that correct for fluctuations in market conditions. The definitions of all variables are provided in Appendix A3. Significance levels: * 5%. Significance levels: * denotes statistical significance at 5% level.

Variable		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	*InitialReturn*	1.00																			
2	*NumberRevision*	0.06	1.00																		
3	*PriceRevision*	0.48*	-0.24*	1.00																	
4	*PriceRevision+*	0.49*	-0.04	0.73*	1.00																
5	*PriceRevisionAbs*	0.00	0.53*	-0.52*	-0.13*	1.00															
6	*WithinRange*	-0.08*	-0.31*	0.28*	-0.01	-0.71	1.00														
7	*EGC*	0.20*	-0.06	0.14*	0.11*	-0.08*	0.04	1.00													
8	*Age*	0.11*	0.01	-0.02	0.04	0.05	-0.06*	-0.03	1.00												
9	*Biotech*	-0.14*	0.08*	-0.34*	-0.22*	0.25*	-0.07*	-0.04	-0.03	1.00											
10	*DaysRegistration*	-0.16*	0.25*	-0.21*	-0.23*	0.10*	0.03	-0.33*	-0.01	0.03	1.00										
11	*ProceedsFiled*	0.07*	-0.03	0.14*	0.21*	-0.02	-0.14*	0.08*	-0.08*	-0.16*	-0.41*	1.00									
12	*NYSE*	0.03	-0.08*	0.18*	0.15*	-0.12*	-0.00	0.13*	-0.12*	-0.35*	-0.22*	0.38*	1.00								
13	*Revenue*	0.16*	-0.08*	0.27*	0.27*	-0.15*	-0.05	0.05	0.16*	-0.65	-0.27*	0.47*	0.42*	1.00							
14	*Tech*	0.14*	0.03	0.14*	0.10*	-0.05	0.01	0.10*	0.17*	-0.27*	0.01	-0.04	-0.10*	0.12*	1.00						
15	*Assets*	0.07*	-0.09*	0.19*	0.20*	-0.15*	-0.06*	0.07*	-0.02	-0.40*	-0.31*	0.68*	0.44*	0.75*	0.00	1.00					
16	*UnderwriterRank*	0.16*	-0.04	0.15*	0.24*	0.05	-0.20*	0.09*	0.04	-0.12*	-0.53*	0.69*	0.24*	0.43*	0.05	0.52*	1.00				
17	*HotMarket*	0.11*	-0.05	0.07*	0.05	-0.03	-0.01	0.56*	-0.09*	0.04	-0.19*	0.10*	0.06*	0.01	0.03	0.05	-0.00	1.00			
18	*MarketReturn*	-0.02	0.13*	-0.05	-0.03	0.05	0.03	0.01	0.05	0.11*	0.24*	-0.24*	-0.05	-0.19*	0.04	-0.24*	-0.15*	-0.13*	1.00		
19	*MarketReturn+*	0.01	0.08*	-0.06*	-0.02	0.04	0.04	-0.02	0.03	0.12*	0.09*	-0.14*	-0.04	-0.13*	-0.02	-0.15*	-0.15*	-0.17*	0.72*	1.00	
20	*MarketReturnAbs*	-0.13*	0.19*	-0.17*	-0.18	0.07*	-0.03	-0.24*	-0.07*	-0.04	0.45*	-0.16*	-0.12*	-0.14*	-0.06*	-0.16*	-0.22*	-0.15*	0.21*	0.00	1.00

Table A7. Ordinary least squares (OLS) and difference-in-differences (DD) regressions of the frequency of price range revisions and offer price within the initial price range.

This table reports the result of the OLS regression and DD regressions of the offer price revision, offer price revision on an absolute basis, and initial return. The dependent variables are *NumberRevision,* frequency of price range revisions, equal to the number of different price ranges issued, and *WithinRange*, the offer price within initial price range dummy that equals one if the offer price is set within the initial price range. *EGC* is the independent variable that equals one if the company elects the EGC status, otherwise zero. See Appendix A3 for definitions of the control variables. The sample contains 1,084 US IPOs using the PSM sample on a 17 industry classifications and SRC status. I do not report the results of the control variables to focus on the variables of interest. All regressions include industry fixed effects using Fama-French 17 industry classifications. T-statistics are in parentheses below the coefficients. All standard errors are robust and adjusted for clustering within industries. Panel A shows the OLS regressions. *EGC* is the independent variable that equals one if the company elects the EGC status, otherwise zero. Panel B reports the results of the DD regressions. The independent variables include *non-SRC*, *Post*, and the interaction term *non-SRC x Post*. *Non-SRC* is a dummy that equals one if the company is not a smaller reporting company, otherwise zero. *Post* is a dummy that equals one if the offer date is after implementation of the JOBS Act (April 5, 2012), otherwise zero. *Non-SRC x Post* is the interaction term between non-SRC and Post. Significance levels: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Panel A. OLS regressions.

Variable	Number of Price Range Revisions			Offer Price Within Price Range		
	Full	SRC	non-SRC	Full	SRC	non-SRC
	(1)	(2)	(3)	(4)	(5)	(6)
EGC	0.06	-0.13*	0.11**	0.05	0.10	0.06
	(1.48)	(-1.81)	(2.42)	(1.35)	(1.63)	(1.26)
Controls	Y	Y	Y	Y	Y	Y
Industry FE	Y	Y	Y	Y	Y	Y
N	1,084	448	636	1,084	448	636
R^2	0.13	0.22	0.10	0.10	0.23	0.09

Panel B. Difference-in-differences regression.

Variable	Number of Price Range revisions	Offer Price Within Price Range
	(1)	(2)
Non-SRC x Post	0.21***	-0.08
	(3.09)	(-1.37)
Non-SRC	-0.22***	0.22***
	(-3.84)	(4.87)
Post	-0.09	0.12**
	(-1.43)	(2.38)
Controls	Y	Y
Industry FE	Y	Y
N	1,084	1,084
R^2	0.15	0.12

Table A8. Pearson correlation matrix of Jumpstart Our Business Startups (JOBS) Act provisions.

This matrix presents the Pearson correlations of the JOBS Act provisions and indices. The individual JOBS Act provisions are coded as an election if the company discloses that it intends to take advantage of the specified provision. The sample contains all 546 emerging growth company initial public offerings between 2012 and 2016. Significance levels: * denotes significance at the 5% level.

Variable		1	2	3	4	5	6	7	8	9	10
1	*Confidential*	1.00									
2	*TTW*	0.20*	1.00								
3	*DelaySOX*	0.07	0.07	1.00							
4	*DelayGAAP*	-0.07	-0.08	0.11*	1.00						
5	*DelayDodd*	0.08	0.05	0.70*	0.12*	1.00					
6	*DelayPCAOB*	0.08	0.09*	0.47*	0.21*	0.54*	1.00				
7	*ReduceAcc*	0.07	0.19*	0.30*	0.12*	0.30*	0.31*	1.00			
8	*ReduceComp*	0.06	0.05	0.57*	0.17*	0.72*	0.39*	0.25*	1.00		
9	*JOBSIndex*	0.08	0.10*	0.79*	0.35*	0.85*	0.71*	0.57*	0.78*	1.00	
10	*HighIndex*	0.04	0.05	0.79*	0.25*	0.85*	0.56*	0.38*	0.75*	0.89*	1.00