Security Offerings Following the COVID-19 Pandemic: Do Traditional Corporate Finance Theories Still Hold?

Marie Dutordoir[*]
University of Manchester
marie.dutordoir@manchester.ac.uk

Joshua Shemesh
Monash University
joshua.shemesh@monash.edu

Chris Veld
Monash University
chris.veld@monash.edu

Qing Wang
Monash University
qing.wang1@monash.edu

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Abstract

We document substantial increases in corporate security offerings since the start of the COVID-19 pandemic. While the rise in seasoned equity offerings (SEOs) is attributable to shifts in macroeconomic conditions, convertible and straight bond offering increases cannot be explained by standard security choice determinants or government interventions. We also find that COVID-period SEO announcements are often contaminated by positive R&D-related news, with COVID-period offering proceeds more likely to be hoarded as cash. Overall, COVID-period SEOs are consistent with market timing behavior, whilst COVID-period convertibles and straight bonds cannot be reconciled with pre-pandemic rationales. New theories may be needed to explain corporate financing decisions following long-lived multidimensional shocks.

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1. Introduction

It is widely acknowledged that the COVID-19 pandemic represents a unique, unprecedented, and unexpected global shock. Reinhardt (2020) argues that the COVID-19 pandemic diverges materially from past crises with respect to its cause, scope, and severity. Goldstein, Koijen, and Mueller (2021) exclaim: *"Is the COVID-19 crisis just "another" large-scale shock? We think not."* Miescu and Rossi (2021) state that it is problematic, both theoretically and empirically, to disentangle the many confounding factors happening contemporaneously during the COVID-19 pandemic. Pandemic-related factors that may affect firms include increases in uncertainty, negative or positive changes in consumer demand, supply chain disruptions, the introduction of social distancing and working from home, and government interventions aimed at improving credit access (Baker, Bloom, Davis, and Terry, 2020; Ramelli and Wagner, 2020). Baqaee and Farhi (2022) conclude that the COVID-19 crisis represents a *"messy combination"* of disaggregated sectoral demand and supply shocks.

The complex and multidimensional nature of the COVID-19 pandemic, hereafter referred to as the COVID pandemic or the COVID crisis, warrants research on how it has shaped corporate finance decisions. This question is the focus of our paper. We are the first, to our knowledge, to build and test a comprehensive model of firms' choice between seasoned equity, convertibles, straight bonds, and bank loans, enabling us to verify shifts in COVID-period securities issuance decisions relative to pre-COVID decisions. As an additional avenue to examine security offering motives, we compare the ex-post offering outcomes in terms of stock price effects and uses of proceeds during the COVID period with pre-pandemic stock price effects and uses of proceeds. More particularly, we investigate four related research questions: Did the COVID pandemic affect firms' choice between different security types (Q_1)? Did the COVID pandemic affect the immediate (Q_2) and medium-term (Q_3) shareholder wealth effects of corporate security offerings? And, did the COVID pandemic affect firms' use of security offering proceeds (Q_4)?

We consider these research questions through the lens of four major relevant theories on corporate finance: the trade-off theory (Kraus and Litzenberger, 1973), the pecking order theory

(Myers, 1984), the market timing theory (Baker and Wurgler, 2002), and the precautionary demand for cash theory (Bates, Kahle, and Stulz, 2009). We also consider convertible bond rationales that build on these theories (Brennan and Kraus, 1987; Brennan and Schwartz, 1988; Stein, 1992). In addition, we derive predictions from the investor supply-driven flight for quality theory (Caballero and Krishnamurthy, 2008). The COVID crisis represents a cluster of severe and long-lived shocks, some of which yield opposite predictions even for a given corporate finance theory. For example, the trade-off theory predicts firms will issue more equity-like securities during the COVID crisis, to the extent that the crisis exacerbated financial distress costs by increasing uncertainty and depressing cash flows, but it predicts firms will issue more debt-like securities, to the extent that the crisis improved firms' debt capacity through more flexible labor arrangements. Predictions for pandemic-induced shocks' net effect on stock price reactions and uses of proceeds of security offerings are equally ambiguous.[1] Therefore, the answers to $Q_1 - Q_4$ are essentially empirical matters.

Our sample includes the three main security types available to firms: seasoned equity offerings (SEOs), convertible bond offerings, and straight bond offerings. We obtain security offering data by publicly listed non-financial and non-utility U.S.-domiciled firms from Thomson Securities Data Company Platinum's New Issues database (hereafter: SDC). Our dataset also includes bank loans obtained from DealScan, since firms may trade off security offerings against bank loans. The sample period ranges from January 2010 to June 2021. Whilst COVID-19 infection and mortality rates have waxed and waned since the onset of the crisis in the U.S. in March 2020, it is fair to say that the COVID crisis lasted for the full duration of the interval between March 2020 and the end of our sample period (World Health Organization, 2022). We therefore label the entire interval from March 2020 until June 2021 the "COVID period" and the associated security offerings "COVID offerings", whilst designating the period before March 2020 the "pre-COVID period" and the associated security offerings "pre-COVID offerings".

Our key empirical results are as follows. With regards to Q_1, we find a sharp growth in

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[1] In Section 2, we derive testable predictions for each of the four research questions by mapping COVID-related shocks to relevant corporate demand and investor supply theories. Table 1 in Section 2 summarizes the relevant COVID-related shocks and associated predictions.

security offering volumes since March 2020, with univariate results indicating a threefold increase in monthly SEO and convertible bond issue volumes, and a twofold increase in monthly straight bond volumes relative to pre-pandemic volumes. We next estimate a multinomial probit model analyzing the choice between the three security types, bank loans, and not raising external financing. The model includes firm and macroeconomic characteristics suggested by demand-driven corporate finance theories and used in previous security selection models (Lewis, Rogalski, and Seward, 1999; Erel, Julio, Kim, and Weisbach, 2012; Gomes and Phillips, 2012), industry controls, and a *COVIDPeriod* dummy equal to one for security offerings made since March 2020. The coefficients of the firm and macroeconomic characteristics inform us on the extent to which the traditional theories hold, while the significance of the *COVIDPeriod* dummy captures gaps in security offerings not explained by pre-pandemic rationales.

Our security choice model results indicate that the *CovidPeriod* dummy variable does not longer have a significant positive impact on SEOs after controlling for shifts in macroeconomic conditions during the COVID crisis. By contrast, the *CovidPeriod* dummy continues to have a significantly positive impact on convertible and straight bond issuance, even after controlling for relevant firm and macroeconomic characteristics derived from traditional corporate finance theories. Inconsistent with flight to quality or government stimuli explanations, which both predict bond offering increases predominantly for investment-grade firms, the increase in convertible bond offerings during the COVID crisis only holds for non-investment-grade firms, and the increase in straight bond offerings holds both for investment-grade and non-investment-grade firms. Furthermore, we document that applying pre-COVID security choice model coefficients cause significant underestimations of COVID-period convertible and straight bond offerings. The rise in COVID-period security issuance activity did not crowd out bank loans, as our security choice model results suggest that the latter also increased.

With regards to Q_2, we find that COVID SEOs are associated with higher average announcement returns compared to pre-COVID SEOs. However, this difference vanishes after incorporating the fact that COVID SEO announcements are significantly more likely to be accompanied by confounding information. More particularly, 42.46% of the COVID SEO

announcements are contaminated by other major news announcements, compared with 21.07% of pre-COVID SEOs. Most of the COVID-period contaminating announcements are distinctly positive in nature. Notably, 16.09% of SEO announcements during the COVID period are accompanied by statements on research and development (R&D) progress, while only 5.37% of pre-COVID SEO announcements are accompanied by such news. A possible explanation for this pattern is that issuers are aware of investors' keen anticipation of favorable research developments during the COVID crisis and cater to this investor demand. For convertible bond offerings, we find more negative stock price reactions during the COVID period, with differences disappearing after controlling for shifts in issuer and macroeconomic characteristics during the crisis.[2] Straight bond announcement effects remain stable throughout the sample period.

Regarding Q3, we detect more negative medium-term shareholder wealth effects of COVID SEOs in comparison with pre-COVID SEOs, whilst there are no significant differences for COVID versus pre-COVID convertibles and straight bonds, further corroborating a market timing motive for COVID SEOs. In line with this interpretation, our analysis of ex-post uses of proceeds (Q4) indicates that COVID SEO proceeds are more likely to be stored as cash than pre-COVID offerings. Finally, we detect significant shifts in corporate security choice and announcement return determinants during the COVID period. Proxy variables capturing a precautionary demand for cash have a weaker role in driving COVID SEOs, in comparison with pre-COVID SEOs. Moreover, investors are more sensitive to contaminating news for SEOs announced during the COVID crisis.

In further tests, we distinguish between the first seven "feverish" months of the COVID period and the remaining months that witnessed some relaxation of social distancing measures and the advent of vaccines (AJMC Staff, 2021). Whilst we find strong differences between COVID-period and pre-COVID-period security offerings, we do not detect meaningful differences between the early and later COVID subperiods. This pattern is consistent with the conjecture that the pandemic's effects on uncertainty, cash flows, supply chains, and work-from-home arrangements represent long-lived shocks for corporations, leading to a new

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[2] We find no evidence of an increase in confounding research-related announcements for convertible bond offerings during the COVID period.

"baseline" normal.

Taken together, our empirical results indicate that the COVID crisis has had a material impact on corporate financing decisions and their outcomes. Pre-pandemic studies suggest that SEOs are mostly driven by near-term cash needs, with market timing motives only playing an ancillary role (DeAngelo, DeAngelo, and Stulz, 2010; McLean, 2011; Huang and Ritter, 2021). Conversely, our combined evidence on the four research questions indicates COVID SEOs tend to be used for market timing reasons, rather than for funding immediate cash requirements, with firms cunningly packaging the offering's announcement with favorable news. Moreover, while pre-pandemic security offering studies document evidence for convertible and straight bond offerings consistent with the main corporate finance theories (Lewis et al., 1999; Erel et al., 2012; Gomes and Phillips, 2012), we find that the increase in convertible and straight bond offerings during the COVID crisis cannot be attributed to corporate demand, investor supply, or government intervention explanations. New theories may be needed to model corporate finance decisions following extreme, multidimensional, sustained shocks like the COVID crisis.

Our paper adds to three streams of literature. First, our study contributes to empirical corporate finance studies on corporate finance decisions during (financial) crises. Previous studies have focused on the Great Recession (Giroud and Mueller, 2017), the Asian financial crisis (Almeida, Kim, and Kim, 2015), and the Global Financial Crisis (GFC) (Campello, Graham, and Harvey, 2010; Beber and Pagano, 2013; Kahle and Stulz, 2013). These studies predominantly use crises as a laboratory to examine the effects of severe increases in financing or short-selling constraints. The COVID crisis differs from previous crises by originating as a health crisis and immediately affecting the real economy, rather than as a financial crisis (Fahlenbrach, Rageth, and Stulz, 2021), and by representing a cluster of diverse, long-lived shocks for corporations. It has been argued that "once in a lifetime" events like the COVID crisis will become much more common in the years to come, due to the combined effects of increased population, climate change, political instability, global integration, and urbanization (Whiting, 2020; Hague, 2022). Despite its extreme nature, the COVID crisis is therefore likely to be more representative for future crises than earlier crises such as the GFC.

Secondly, our paper contributes to studies on corporate disclosure around security

offerings. Prior studies document strategic increases in earnings management and disclosure activity *prior to* SEO announcements (Lang and Lundholm, 2000; Cohen and Zarowin, 2010). Our evidence suggests that firms also time positive but unrelated announcements *contemporaneously* with the SEO announcement. This finding is consistent with documented "impression offsetting" activity in the context of Mergers and Acquisitions (M&A), where acquiring firms deliberately time the announcement of an M&A to occur with favorable news (Graffin, Haleblian, and Kiley, 2016).

Thirdly, we add to studies on the financial impact of the COVID crisis. A growing literature addresses the influence of the COVID-19 pandemic on stock returns.[3] In comparison, the impact of pandemic-induced shocks on corporate financing decisions has received only scant attention so far. Previous (working) papers in this substream of literature tend to focus on individual corporate financing decisions. Cejnek, Randl, and Zecher (2021) and Pettenuzzo, Sabbatucci, and Timmermann (2023) examine changes in corporate dividend policy during the pandemic. Acharya and Steffen (2020) and Li, Strahan, and Zhang (2020) document the pandemic's effect on bank loans. Darmouni and Siani (2022), Halling, Yu, and Zechner (2020), and Becker and Benmelech (2021) study bond issuance, and Halling et al. (2020) report univariate results on equity issuance during the pandemic. Hotchkiss, Nini, and Smith (2021) analyze the impact of forecasted revenue and earnings shocks during the crisis on net capital raised by firms. Our study contributes to this line of research by being the first to build a comprehensive security choice model including all major external financing choices available to firms. Our empirical design is based on the premise that firms' incremental financing decisions likely result from a tradeoff against other external financing options, requiring simultaneous modelling of all choices in firms' external financing menu, as well as the option not to raise any financing. Moreover, to our knowledge, we are the first to compare COVID-period security offering stock price reactions and uses of proceeds with pre-COVID outcomes.

The remainder of the paper is structured as follows. Section 2 develops our testable predictions from relevant theory. Section 3 describes the data and methodology. Sections 4, 5,

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[3] Examples of studies in this area include Albuquerque, Koskinen, Yang, and Zhang (2020), Alfaro, Chari, Greenland, and Schott (2020), Baker et al. (2020), Croce, Farroni, and Wolfskeil (2020), Pagano, Wagner, and Zechner (2020), Ramelli and Wagner (2020), Ding, Levine, Lin, and Xie (2021), and Fahlenbrach et al. (2021).

and 6 provide empirical results on the determinants, stock price effects, and uses of proceeds of COVID versus pre-COVID security offerings, respectively. Section 6 concludes and provides the practical implications of our research.

2. The impact of the COVID pandemic on corporate security offerings

In this section, we consider our four research questions through the lens of major relevant finance theories. The literature agrees that the COVID crisis represents a sudden, unexpected, exogenous, and highly disruptive shock to the economy (Albuquerque et al., 2020; Baker et al., 2020; Ellul, Erel, and Rajan, 2020). Theories on corporate financing all start from the impact of equity versus debt on firms' risk or (expected) cash flows. To formulate testable predictions, we therefore need to map out the crisis' likely implications for corporate risk and expected cash flows. In terms of corporate risk, the pandemic provoked a massive increase in uncertainty (Baker et al., 2020; Miescu and Rossi, 2021), with sources of ambiguity including the spread, severity and mortality rate of the disease, the duration of policy responses, the effectiveness of testing and vaccine strategies, and the disease's effects on human behavior and corporate productivity (Baker et al., 2020; Ramelli and Wagner, 2020). In terms of (expected) cash flows, the crisis caused declines in corporate profitability for some firms due to (among other elements) the effects of lockdowns, whilst other firms benefitted from increased demand for their goods or services (Pagano et al., 2020; Papanikolaou and Schmidt, 2022). Moreover, the crisis engendered previously unseen government interventions targeted at improving companies' credit access. Importantly, all these factors are long-lived. While the government interventions have been scaled down,[4] the effects of other COVID-related shocks can still be felt. For example, Barrero, Bloom, and Davis (2021) argue that the change to working from home induced by the pandemic will be permanent. In sum, the COVID crisis consists of a complex combination of simultaneous, sustained shocks to corporate uncertainty and predicted cash flows. When considering these crisis characteristics through the lens of major relevant finance

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[4] The Primary Market Corporate Credit Facility (PMCCF) instated in March 2020 enabled the Fed to buy new bond issues directly from corporations, and to provide loans to corporations. Borrowers could defer interest and principal payments for at least the first six months. Under the subsequent Secondary Market Corporate Credit Facility (SMCCF), the Fed could purchase existing corporate bonds as well as exchange-traded funds investing in investment grade corporate bonds (Milstein and Wessels, 2021). The Fed announced on June 2, 2021 that it would gradually wind down its $13.7 billion portfolio of corporate bonds (Fed, 2021).

theories, we obtain the following predictions.

The trade-off theory predicts that the COVID crisis results in a higher propensity for firms to issue equity instead of debt instruments, to the extent that the pandemic's impact on uncertainty and corporate cash flows increases financial distress costs (Kraus and Litzenberger, 1973; Frank and Goyal, 2009). However, the crisis may also lead to a higher propensity to issue debt-like securities, by improving firms' debt capacity through reduced (fixed) costs following a switch to work-from-home arrangements, or by creating more demand for firms' goods or services (Q_1). The theory yields no testable implications for Q_2 to Q_4.

Signaling and pecking order theories rest on an assumption of adverse selection problems resulting from information asymmetry between managers and investors (Myers, 1984; Myers and Majluf, 1984; Choe, Masulis, and Nanda, 1993). Whilst we know that the COVID crisis generates more uncertainty overall, it is unclear how that uncertainty is distributed between firm insiders and outsiders. To the extent that the increased uncertainty exacerbates equity-related adverse selection costs by being asymmetrically distributed across insiders and outsiders, these theories predict that the COVID crisis will result in a higher propensity for firms to issue debt-like instead of equity-like securities (Q_1), as well as more negative immediate stock price reactions to equity-like security offerings, relative to those in pre-COVID times (Q_2). It does not generate predictions for Q_3 or Q_4.

The market timing theory predicts that firms resort to opportunistic exploitation of "windows of opportunity" during the COVID crisis, to the extent that their own market valuations, macroeconomic conditions, or government interventions generate favorable circumstances for doing so (Graham and Harvey, 2001; Baker and Wurgler, 2002; Barry, Mann, Mihov, and Rodriguez, 2008). The theory yields no predictions as to what particular security type firms will choose during the COVID crisis (Q_1), as this choice depends on companies' pragmatic weighing of the relative timing benefits of raising equity-like versus debt-like securities. To the extent that investors are unaware of opportunistic issuer motives at the time of the offering's announcement, the market timing theory yields no predictions about immediate stock price reactions to offering announcements either (Q_2). However, it does predict a negative longer-term stock price reaction following the announcement, as investors

gradually realize that the offering was inspired by an exploitation of issuer overvaluation – and more so for equity-like than for debt-like offerings, as the former securities are more sensitive to issuer overvaluation. Thus, to the extent that we have a higher prevalence of market-timed offerings during the COVID period, we should observe more negative longer-term stock price reactions during that period, particularly following equity-like offerings (Q3). Finally, the market timing theory predicts a higher likelihood for security offering proceeds to be hoarded as cash rather than being used for investment purposes, since it presumes firms have no genuine need for the security offerings (Kim and Weisbach, 2008) (Q4).

Theory on the precautionary demand for cash (hereafter "precautionary motive"), in turn, predicts a higher overall likelihood of *any* security offering type during the crisis (Q1), relative to not raising external financing, since firms wish to increase their cash holdings as a buffer to deal with future adverse cash flow shocks (Keynes, 1936; Bates et al., 2009; McLean, 2011). We expect precautionary security offerings to result in less negative stock price reactions, to the extent that investors are aware of their motives. The underlying rationale is the following. Myers and Majluf's (1984) signaling model implies that firms with substantial financial slack have more negative stock price reactions to equity offering announcements, since investors perceive high amounts of slack as a sign that the firm does not strictly need the additional funding, therefore inferring an overvaluation motive for the offering. Reversing this argument, a security offering by a firm with high values for observable precautionary motive proxy variables should signal a lower likelihood of an overvaluation motive, therefore yielding more favorable investor reactions (Q2). The precautionary motive theory does not have implications regarding longer-term stock price reactions to security offerings (Q3), but it does predict a higher likelihood of offering proceeds being stored as cash, as firms use the funding as "dry powder" to deal with future cash flow shocks (Q4) (McLean, 2011; Erel et al., 2012).

Whilst the above theories are framed around the dual choice between seasoned equity and straight bonds, firms can also opt for hybrid, convertible bond financing. The literature offers several rationales for convertible bond offerings.[5] Two of these theories are particularly relevant in the context of our paper, as they highlight convertible bond issuance motives that

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[5] Dutordoir, Lewis, Rogalski, and Veld (2014) provide a comprehensive overview of convertible bond theories.

may be affected by the COVID crisis. The Brennan and Kraus (1987) and Brennan and Schwartz (1988) risk uncertainty rationale implies that convertibles are useful for firms with high uncertainty about firm risk, who would otherwise face high costs of raising straight bond financing. The Stein (1992) backdoor equity rationale implies that convertibles are useful for firms with high information asymmetry about firm value, who would otherwise face high costs of raising seasoned equity. Together, these two theories predict that firms are more likely to substitute convertibles for straight bonds and equity, respectively, during the COVID period, to the extent that this period is marked by heightened adverse selection costs engendered by risk uncertainty and information asymmetry about firm value (Q_1). Heightened adverse selection costs would also imply more negative immediate stock price effects for COVID convertibles (Q_2). The theories have no testable implications regarding Q_3 and Q_4.

In addition to these corporate demand-driven theories, we consider the supply-driven flight to quality theory. This theory argues that investors will flock into safer assets during crisis times (Caballero and Krishnamurthy, 2008), due to Knightian uncertainty (Knight, 1921) or increased investor risk aversion (Guiso, Sapienza, and Zingales, 2018). The stronger investor appetite for safer assets will make it relatively more attractive for companies to issue "safer" bond-like securities during crises. The flight to quality theory thus predicts a higher likelihood of more debt-like securities during the COVID period (Q_1), particularly by investment-grade issuers. Whilst the theory has no direct implications for Q_2 and Q_3, it also predicts that companies are more likely to store the security offering proceeds as cash, as they primarily make the offerings to cater to investor preferences and have no immediate need for the funding (Q_4) (Erel et al., 2012). Table 1 summarizes the four theories' predictions for our research questions. We now bring these predictions to the data.

<< Please insert Table 1 here >>

3. Dataset and variables

In this section, we describe the construction of our dataset and provide a univariate analysis of pre-COVID and COVID security offerings and bank loans. This section also motivates the industry, firm, and macroeconomic characteristics included in the security choice model.

3.1. Sample construction

Our dataset includes security offerings and bank loans made by U.S.-domiciled, publicly listed firms. We exclude utilities (SIC codes 4900–4999) and financial firms (SIC codes 6000–6999) that may face regulatory restrictions on their capital structure. Our sample period ranges from January 2010 until June 2021. In line with previous studies (Darmouni and Siani, 2022; Halling et al., 2020; Li et al., 2020), we use March 2020 as the start of the COVID period. We label the remaining period between January 2010 and February 2020 as the pre-COVID period.[6]

We retrieve samples of SEOs, convertible bond offerings, and straight bond offerings from the SDC database. We subject the raw data to standard data screens (e.g., Duca, Dutordoir, Veld, and Verwijmeren, 2012; Kim and Purnanandam, 2014; Kim, 2016). More particularly, we remove offerings with missing issue proceeds (Dahiya, Klapper, Parthasarathy, and Singer, 2017). We also exclude privately placed non-Rule 144A security offerings due to the very low numbers of these offerings during the COVID period. Specifically, we obtain no privately placed non-Rule 144A SEOs or convertible bond offerings and only one privately placed non-Rule 144A straight bond offering during the COVID period. We do not exclude Rule 144A offerings since these offerings are highly similar to public offerings (Gomes and Phillips, 2012). We furthermore eliminate units, warrants, preferred stocks, exchangeable bonds, and mandatory convertible bonds from the security offering sample, and delete purely secondary share offerings from the SEO sample (Hovakimian and Hu, 2016). When security offerings have multiple tranches, we only include the main tranche to avoid double counting (Hanselaar, Stulz, and Van Dijk, 2019).

We retrieve deal-based bank loan data from the DealScan database. To match bank loan data with firm characteristics, we use the DealScan–Compustat link provided by Chava and Roberts (2008) and extend this link to June 2021 by using the CUSIP and company names provided by DealScan and the Center for Research in Security Prices (CRSP)–Compustat merged database (hereafter CCM). We manually verify the accuracy of the matched pairs.

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[6] The pre-COVID period does not contain any economic recessions. The recession most closely preceding the start of our sample period, according to the National Bureau of Economic Research's definition, lasted from January 2008 to June 2009.

Following Erel et al. (2012), we collapse firms' security offerings and bank loans at the monthly level. In case of multiple security offerings and bank loans made by one firm in a given calendar month, we only include the security offering or bank loan with the highest proceeds (Ball, Hail, and Vasvari, 2018). We then match these firm–month observations with quarterly accounting data from the CCM database and stock price data from the CRSP database. We restrict the sample to firms listed on the New York Stock Exchange (NYSE), NYSE American, and NASDAQ with a CRSP share code of 10 or 11. We also require firms to have sufficient data available on CCM and CRSP to construct the firm characteristics defined in the Appendix and described in Section 3.3. Finally, to ensure that the sample firms are in principle able to raise external financing through bank loans or security offerings, we impose the requirement that firms issue at least one security or initiate at least one bank loan during the sample period, in line with Erel et al. (2012). After applying these criteria, we obtain a final sample consisting of 3,373 firm–months with SEOs made by 1,436 firms, 661 firm–months with convertible bond offerings made by 450 firms, 3,241 firm–months with straight bond offerings made by 847 firms, 3,980 firm–months with bank loans made by 1,790 firms, and 269,757 "no issue" firm–months with no security offering or bank loan, totaling 281,012 firm–months from 3,076 firms.

3.2. Security offerings and bank loans in pre-COVID and COVID periods

Table 2 reports summary statistics of monthly SEOs, convertible bond offerings, straight bond offerings, and bank loans during the pre-COVID period and the COVID period.

<<Please insert Table 2 here >>

The table reports the proportion of months in which firms choose to make a particular security offering or obtain a new bank loan (out of all firm–months) and the proportion of proceeds raised from each type of external financing. Compared with the pre-COVID period, we observe a significant increase in the monthly number of all security offerings in the COVID period, while the number of bank loans decreases. Average monthly seasoned equity and convertible bond issue volumes in the COVID period are approximately triple the size of average pre-COVID volumes, and average monthly COVID-period straight bond volumes are approximately twice the size of pre-COVID volumes. Figure 1 corroborates that all three types

of security offerings reach record-high issuance proceeds during the COVID period. We obtain

similar patterns when we plot the number of offerings and loans (not reported for brevity).

<<Please insert Figure 1 here>>

Table 3 presents the industry distribution of security offerings and bank loans during the

pre-COVID and COVID periods, using the Fama and French (1997) 12-industry classification.

<<Please insert Table 3 here >>

We find that COVID-period industry distributions resemble pre-COVID distributions.

Remarkably, approximately 60% of SEOs occur in the Healthcare industry, both in the pre-

COVID and the COVID period. For convertible bonds, straight bonds, and loans, most issuance

activity occurs in the Business Equipment & Software industry in both periods under

consideration.

3.3. Firm and macroeconomic control variables

We verify whether the increase of security offerings during the COVID crisis documented

in the univariate results persists after controlling for relevant security choice determinants

suggested by the main corporate finance theories. In general, these theories predict higher

equity-related (debt-related) costs to result in a higher likelihood of issuing more debt-like

(equity-like) securities. It is difficult to uniquely link a given firm or macroeconomic

characteristic to a given corporate finance theory. To give just one example, the ratio of fixed

to total assets can be used as an inverse proxy for firms' financial distress costs and thus of

debt-related financing costs (trade-off theory) as well as an inverse proxy for information

asymmetry about the firm's asset value and thus of equity-related adverse selection costs

(pecking order theory). For ease of exposition, we discuss the firm and macroeconomic

variables in the context of the corporate finance theory they are most often associated with in

empirical studies.[7] To better capture the impact of COVID-19 on firm characteristics such as

profitability, we use of quarterly rather than annual accounting data.[8] We also include variables

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[7] We base the issuer and macroeconomic variables on empirical analyses in security choice and capital structure studies by MacKie-Mason (1990), Blume, Lim, and MacKinlay (1998), Lewis et al. (1999), Shyam-Sunder and Myers (1999), Korajczyk and Levy (2003), Welch (2004), Bates et al. (2009), Lee and Masulis (2009), DeAngelo et al. (2010), McLean (2011), Erel et al. (2012), Gomes and Phillips (2012) and Goyal and Wang (2013). For space reasons, we do not repeat these reference papers when mentioning each of the individual control variables.
[8] Our results are robust when we use annual accounting data instead. Results of all unreported robustness tests are available from the corresponding author.

based on stock prices and macroeconomic conditions, which are measured at a higher frequency. We measure all variables as closely as possible, but prior to the given month, to avoid a simultaneity bias (Bayless and Chaplinsky, 1991) [9] The Appendix provides detailed descriptions of all variables. All continuous variables are winsorized at the 1st and 99th percentiles to reduce potential problems caused by influential outliers.

To capture trade-off considerations in security choice, we use *Tax* as a proxy for tax shields provided by interest payments, *Leverage* as a proxy for risk-shifting incentives and financial distress costs, and *InterestCoverage* and *Profitability* as proxies for firms' ability to pay off their debt obligations. *Tax*, *InterestCoverage*, and *Profitability* thus act as inverse debt-related costs proxies, whilst *Leverage* in principle acts as a debt-related costs proxy (Frank and Goyal, 2009), although we note that a low current *Leverage* could also capture higher barriers to raise debt financing, and thus higher debt-related costs. Pecking order models predict higher equity-related adverse selection costs for firms with higher financial slack and information asymmetry (Myers and Majluf, 1984). To capture pecking order considerations, we include *Cash* as a proxy for financial slack. We further use the following standard issuer characteristics to capture information asymmetry: firm size (*LogAssets*), age (*LogAge*), fixed to total assets ratio (*FixedAssets*), a dummy equal to one for firms with a long-term credit rating (*RatedFirm*), and idiosyncratic stock return volatility (*ResidualVolatility*). The first four measures act as inverse proxies for information asymmetry, while *ResidualVolatility* captures higher information asymmetry. To measure market timing determinants at the firm level, we include the issuer's pre-issue stock runup (*StockReturn*) and market to book value (*MarkettoBook*). In addition to overvaluation, these variables can capture growth opportunities. Under both interpretations, we would expect them to have a positive impact on firms' likelihood of issuing more equity-like security types, since higher growth opportunities increase debt-related agency costs (Jung, Kim, and Stulz, 1996). To capture precautionary motives, we rely on industry cash flow volatility (*CashFlowVolatility*), R&D expenditure (*R&DExpenditure*), and dividend-paying status

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[9] Since we need to rely on ex ante information and accounting data are only available on a quarterly basis, for security offerings in the first months of the COVID period the issuer accounting information may still be captured in the pre-COVID period. Reassuringly, in robustness tests discussed further in the paper, we obtain similar results when focusing on security offerings in the second half of the COVID crisis, for which issuer accounting data are exclusively captured during the COVID crisis. This indicates that our findings are not attributable to staleness in the accounting information used.

(*DividendPaying*) as standard measures.

Table 4 shows average values of firm characteristics for each external financing option as well as for no-issue firm-months for the pre-COVID- and COVID-period subsamples.

<<Please insert Table 4 here>>

The pre-COVID averages and the differences in these averages across external financing type subsamples are highly consistent with descriptive statistics and patterns reported in other (pre-COVID) security choice studies (Lewis et al., 1999; Erel et al., 2012; Gomes and Phillips, 2012). More interesting for our research purpose, the table presents test statistics for differences in firm characteristics between the pre-COVID and COVID periods. We find that COVID-period issuers of straight bonds and bank loans have higher values on trade-off debt-related costs proxies than pre-COVID issuers. COVID-period seasoned equity issuers, in turn, have higher values on proxies for market timing (*StockReturn* and *MarkettoBook*) motives than pre-COVID issuers.

Apart from firm characteristics, we control for macroeconomic conditions capturing economy-wide equity- or debt-related financing costs. We employ two proxies to measure timing opportunities in the equity market: the S&P 500 return (*MarketReturn*) and the *CAPE* ratio, introduced by Campbell and Shiller (1988) to proxy for the U.S. stock market valuation. We use ten-year U.S. Treasury Bond rates (*TBYield*) to measure market timing opportunities in the bond market. Bond issuance may also be favorably influenced by lower default spreads (*DefaultSpread*) and term spreads (*TermSpread*) (Barry et al., 2008). We furthermore include stock market volatility (*MarketVolatility*) in our analysis. Higher stock market volatility could be associated with higher adverse selection costs resulting from information asymmetry about firm risk and firm value, thereby resulting in higher costs of accessing external finance (Choe et al., 1993). We include *GDPGrowth* to capture growth opportunities at the macroeconomic level, expecting larger growth to increase firms' likelihood of tapping security markets and bank loans. Given the documented impact of convertible arbitrage investors on convertible bond issuance, we also control for changes in arbitrage demand for convertible bonds by including convertible arbitrage hedge fund flows (*CAFundFlow*) (Choi, Getmansky, Henderson, and Tookes, 2010). To account for bank loan supply at the macroeconomic level,

we include a bank lending tightness (*LendTightness*) measure based on the Federal Reserve System's Senior Loan Officer Opinion Survey on Bank Lending Practices (Lown, Morgan, and Rohatgi, 2000). Figure 2 plots the macroeconomic variables over the sample period.[10]

<< Please insert Figure 2 here >>

We observe steep declines in proxies for equity market valuation (*MarketReturn* and *CAPE*) at the origin of the COVID crisis, followed by a sharp correction thereafter. By the end of the sample period, *MarketReturn* oscillates around pre-COVID levels, whilst *CAPE* is still increasing. *GDPGrowth* shows a similar pattern. The opposite pattern, that is an initial sharp increase followed by a decrease, holds for *DefaultSpread*, *MarketVolatility*, and *LendTightness*. *TBYield* dropped to historically low levels at the onset of the crisis and remained lower than in pre-COVID times during the entire COVID period. In an unreported test, we verify that multicollinearity is not an issue for the control variables.

4. Does the COVID crisis affect corporate security choice?

To examine the impact of the COVID crisis on corporate security choices (Q_1), we estimate a model analyzing firms' choice between SEOs, convertibles, straight bonds, bank loans, or no external financing in a calendar month. Given that the dependent variable is categorical without any clear ordering of the alternatives, we can employ a multinomial logit or probit model (Gujarati and Porter, 2009). We conduct Hausman tests to examine if the independence of irrelevant alternatives (IIA) assumption holds for the choice alternatives in our sample, which is a prerequisite for using a multinomial logit model. The IIA assumption requires that the log odds ratio for any two external financing choices is independent of the inclusion or exclusion of any other external financing choices (Hausman and McFadden, 1984). Hausman and Small-Hsiao test results indicate that the IIA assumption is violated in our sample, leading us to employ the multinomial probit model instead. We estimate the following specification:

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[10] We thought it would be more insightful to provide visual plots of macroeconomic variables rather than summary statistics. A table with summary statistics of the macroeconomic variables is available from the corresponding author.

$$\text{Pr(External financing option=j)} = \frac{e^{\beta_j'X}}{\sum_{k=0}^{4} e^{\beta_k'X}} \qquad (1)$$

where j equals 0 for no external financing, 1 for SEOs, 2 for convertible bond offerings, 3 for straight bond offerings, and 4 for bank loans for a given firm–month (we do not include subscripts denoting firm-months in Equation (1) for clarity of exposition). β_j is a vector of coefficients for option j, relative to the baseline of not raising any external financing, and X is a vector of explanatory variables. All security choice regressions use robust standard errors clustered by firm. Table 5 reports the multinomial probit results.

<< Please insert Table 5 here >>

Specification (1) only includes the *COVIDPeriod* dummy. In line with the univariate analysis, we find that firms are more likely to make SEOs, convertible bond offerings, and straight bond offerings, and less likely to obtain bank loans during the COVID period. The significant effect of the *COVIDPeriod* dummy could be caused by shifts in industry or firm characteristics during the pandemic. We therefore add industry- and firm-specific control variables outlined in the previous section to the model in Specification (2). We do not report the coefficients on the industry fixed effects for brevity. We find that the *COVIDPeriod* dummy variable is still significantly positive for all three security types but loses its significance for the bank loan choice. The negative (positive) coefficient on *LogAssets* (*ResidualVolatility*) for SEOs and the negative coefficient on *InterestCoverage* for straight bonds go against our expectations for these proxies. Significant coefficients on the other firm characteristics are largely in line with predictions and are therefore not discussed in detail. Specification (3) adds macroeconomic characteristics to the control variables. We find that the *COVIDPeriod* dummy variable is no longer significant for the SEO choice, suggesting that firms' higher propensity of issuing equity during the pandemic is attributable to macroeconomic conditions. However, the *COVIDPeriod* dummy maintains its significant positive impact for convertible and straight bond offerings (albeit only at the ten percent level for convertibles) and is now also significantly positive for bank loans. Coefficients on the significant macroeconomic variables are mostly in line with predictions, except for the positive impact of *MarketVolatility* on the likelihood of an SEO.

We subsequently perform robustness tests on the results in Specification (3). In Specification (4), we re-estimate the security choice model with two separate dummies for the COVID period. The first dummy (*COVIDPeriod1*) captures the start of the crisis until October 2020. These initial months were marked by lockdowns affecting corporate cash flows and a high level of uncertainty about the severity and treatment of the pandemic. The second dummy (*COVIDPeriod2*) captures the months following those initial months, with the advent of vaccines, some reduction in social distancing measures, but also new variants of the pandemic and high uncertainty prevailing on many dimensions. We find that the increased straight bond and loan issuance persists across the two COVID subperiods. For convertibles, only the *COVIDPeriod2* dummy variable has a significant impact.

Our control variables capture corporate demand-driven security choice determinants rather than investor preferences. To gauge whether the increase in bond issuance during the COVID period could be explained by the investor supply-driven flight to quality theory rather than by corporate demand explanations, we separately estimate Specification (3) for subsamples of investment-grade and non-investment-grade issuers, identified based on S&P long-term issuer credit ratings obtained from Compustat as of the month before the given month.[11] The results of this unreported analysis indicate that the increase in straight bonds and bank loans pertains to both types of issuers, whilst for convertibles it only holds for non-investment-grade issuers. Moreover, the coefficient on the *COVIDPeriod* dummy for non-investment-grade straight bond issuers is higher than that for investment-grade bond issuers in both magnitude and significance level. This pattern is inconsistent with a flight to quality rationale, to the extent that we would mostly expect to observe increases in securities issuance by "safer" issuers with an investment-grade rating under this explanation (Erel et al., 2012). It is also inconsistent with government interventions aimed at improving credit access being the driving force of the COVID-period increase in (convertible) bond offerings, because these interventions pertained only to investment-grade firms.

In a next test, we examine differences in security choice determinants in the COVID

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[11] In line with the literature, we code unrated issuers as non-investment-grade. We cannot include industry fixed effects for the investment-grade sample as the number of investment-grade seasoned equity and convertible bond issuers is too small, preventing the multinomial probit analysis from converging.

versus pre-COVID periods, by estimating the security choice model in Table 5, Specification (3) separately for pre-COVID months (Table 6, Specification (1)) and COVID months (Table 6, Specification (2)).

<<Please insert Table 6 here >>

For the SEOs, we find that the three precautionary motive proxies (*CashFlowVolatility*, *R&DExpenditure*, and *DividendPaying*) are all significant with the predicted sign during the pre-COVID period but only *R&DExpenditure* remains significant during the COVID period. Conversely, we find a significantly positive impact of *CAPE* during the COVID period, whilst this market timing proxy is not significant for pre-COVID SEOs. Overall, this pattern suggests a stronger prevalence of market timing motives and a weaker importance of precautionary motives for COVID SEOs relative to pre-COVID SEOs. We furthermore find a positive impact of *FixedAssets* and a negative impact of *ResidualVolatility* on the likelihood of COVID convertible bond offerings, whilst these variables do not significantly influence pre-COVID convertible offerings. A higher portion of fixed assets and a lower stock return volatility are consistent with lower information asymmetry and therefore lower adverse selection costs. This pattern thus suggests that COVID-period convertible issuance is unlikely to be explained by motives described in theories by Brennan and Kraus (1987), Brennan and Schwartz (1988), and Stein (1992). For straight bond offerings, we do not find material differences in determinants across the two periods.

Consistent with the approach in Custódio, Ferreira, and Laureano (2013), we subsequently verify the extent to which a pre-COVID security choice model can explain COVID offerings. The results of this analysis are reported in Panel B of Table 6. We estimate predicted probabilities of external financing options by applying the coefficients from Specification (1) of Table 6, Panel A and multiplying these with the corresponding firm and macroeconomic characteristics of COVID firm-months. We find that predicted probabilities of issuing (convertible) bonds and loans are significantly lower than the actual frequencies during the COVID period, further corroborating that pre-COVID security choice models cannot account for the increase in COVID bond offerings. There are no significant differences in predicted and actual probabilities of SEOs.

5. Does the COVID crisis affect stock price reactions to corporate security offerings?

In this section, we examine the impact of the COVID crisis on security offering announcement returns (Q_2) and medium-term stock returns following security offerings (Q_3).

5.1. The impact of the COVID crisis on security offering announcement returns

To examine Q_2, we first identify the announcement date for each security offering. Following the approach of previous studies, we use the issue date as the announcement date for Rule 144A offerings and Rule 415 shelf offerings and the filing date as the announcement date for the non-144A and non-shelf offerings.[12] We exclude a small number of security offerings that do not have an identifiable announcement date available. We do not analyze bank loans since these typically do not have a clearly identifiable announcement date (Maskara and Mullineaux, 2011).

We then calculate the abnormal stock returns over three trading days around the announcement dates, labeled as *CAR(−1, 1)*, by employing the conventional event study methodology described by Brown and Warner (1985). We use the CRSP equally weighted market index to proxy for the market return and estimate market model regressions over the days −240 to −40 before the announcement date. We require a minimum of 30 daily returns in the estimation period. The final sample used for the analysis of security offering announcement returns consists of 3,295 SEOs, 512 convertible bond offerings, and 1,731 straight bond offerings. Table 7 presents univariate results for security offering announcement returns.

<< Please insert Table 7 here >>

In line with previous studies (Heron and Lie, 2004; Duca et al., 2012), we find that pre-COVID SEOs have a significantly negative announcement return, with an average of −5.17% and a median of −4.58%. By contrast, COVID SEOs have an average *CAR(−1, 1)* of 1.97%. The median *CAR(−1, 1)* for COVID SEOs, in turn, is −5.66%, and is not significantly different from the pre-COVID median. COVID convertible bonds are associated with a significant negative average announcement return of −6.06%, significantly lower than the pre-

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[12] Kim and Purnanandam (2014) argue that the firm's intention to issue a security is generally announced on the filing date. However, Rule 144A offerings have no filing date and are often announced and issued overnight, leading us to use the issue date instead. For shelf offerings, the filing date can fall several years before the actual offering date. The announcement of the shelf takedown and the actual shelf takedown typically occur very closely together, also leading us to use the issue (i.e., takedown) date (Duca et al., 2012).

COVID average (−3.85%). Median stock returns tell a similar story. Straight bond announcement returns are statistically insignificant during the COVID and pre-COVID periods.

The large dispersion of average and median values for COVID SEOs suggests the existence of some extremely high SEO announcement returns during the COVID period. To verify the reason for these outliers, we examine whether there are any major confounding announcements within the three trading days around the SEO announcement date. We perform the same analysis for convertible bond announcements, for which we also registered significant stock price reactions. We conduct a manual search in Factiva for each SEO and convertible bond announcement. We define major announcements as any firm-specific news that is potentially relevant to the firm's stock price, including news about corporate actions such as M&A and dividends, financial results, management team changes, R&D, and other important corporate operations. We report the results in Table 8.

<< Please insert Table 8 here >>

Panel A contains the results for the SEO announcements. Our search reveals that 42.46% of the COVID SEOs are combined with confounding news, significantly higher than the 21.07% recorded for pre-COVID SEOs. Upon closer inspection, we notice that the information released together with COVID SEOs is predominantly favorable in nature. To cite just one example, Aclaris Therapeutics, Inc. (NASDAQ: ACRS) revealed positive mid-stage clinical trial results for its experimental rheumatoid arthritis therapy on January 19, 2021 and announced an SEO on the same day (George, 2021). We find a *CAR(−1, 1)* of 209.58% for this SEO announcement. This example is illustrative for a large part of our sample: 16.09% of companies that announce an SEO during the COVID period package the information with updates on R&D progress, compared with only 5.37% of pre-COVID SEO announcements. The difference between the two periods is significant at the 1% level. Apart from the category "Other", we do not find any further significant differences in contamination between the pre-COVID and COVID periods.

In Panel B of Table 8, we report the same analysis for the convertible bond announcements. We find no significant increases in the prevalence of R&D-related news for these announcements, unlike for the SEO results.

We next turn to multivariate analysis of SEO announcement returns to further examine the drivers of differences in these returns between the COVID and pre-COVID periods documented in the univariate analysis. In contrast to security choice analysis, which utilizes quarterly accounting data, and in line with previous event studies on security offering announcement effects that we cited earlier, we employ annual accounting data in the announcement effects analysis to increase the likelihood that investors have these data available at the time of the offering announcement. A (maximum) three-month lag, as would be the case with quarterly accounting data, may be too short for that purpose (Hirshleifer, Hou, Teoh, and Zhang, 2004).[13]

As control variables, we include the issuer and macroeconomic characteristics described in Section 3. Since these variables capture a range of equity- and debt-related costs proxies based on corporate finance theory, they are also expected to influence the stock market reaction to an equity(-linked) security offering. Notably, we predict equity-related adverse selection and market timing proxies to have a negative influence on stock price reactions to SEOs. Debt-related costs proxies and precautionary motive proxies, in turn, should have a positive impact, as investors are less likely to perceive SEOs by firms with difficulties of obtaining debt and a higher need for capital as signs of overvaluation (Bayless and Chaplinsky, 1991). In addition to the issuer and macroeconomic characteristics mentioned in Section 3, we include a set of issue characteristics obtained from SDC. These characteristics are typically omitted from security choice models to avoid a simultaneity bias (Bayless and Chaplinsky, 1991). We include the offering's size (*IssueSize*), measured as the ratio of offering proceeds to total assets. Larger issue sizes indicate stock overvaluation and hence induce higher adverse selection costs (Krasker, 1986). On the other hand, there are economies of scale in issuance costs (Lee, Lochhead, Ritter, and Zhao, 1996). Therefore, we have no clear expectations about the impact of the issue size on announcement returns. We include a shelf dummy (*Shelf*) indicating whether the security offering is shelf-registered. Shelf offerings face higher information asymmetry and adverse selection costs due to the lack of investment bank certification, leading us to expect a negative impact (Bhagat, Marr, and Thompson, 1985; Denis, 1991). Following

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[13] In unreported tests, we rerun the event study analysis with quarterly accounting data and the results do not materially change.

Lee and Masulis (2009) and Dutordoir, Strong, and Sun (2018), we furthermore include a secondary dummy (*Secondary*) equal to one if an SEO includes shares sold by existing shareholders in the SEO announcement return analysis. Investors may perceive the sales of secondary equity as an overvaluation signal. Therefore, we expect a negative relationship between *Secondary* and SEO announcement return. Table 9 presents the regression results of SEO announcement returns. We present *t*-statistics calculated using robust standard errors clustered at the issuer level in parentheses.

<<Please insert Table 9 here>>

Specification (1) only includes the *COVIDPeriod* dummy. In line with the univariate analysis, announcement returns during the COVID period are significantly higher than those during the pre-COVID period. Specification (2)–(4) cumulatively add issuer and industry characteristics, macroeconomic conditions, and issue characteristics. The coefficient of the *COVIDPeriod* dummy is still significantly positive after these additions. Findings for the control variables are largely in line with expectations, except for the positive impact of *Tax* and the negative impact of *TBYield* and *DefaultSpread*. Having established that the positive coefficient on *COVIDPeriod* cannot be explained by standard control variables, we next examine the role of contaminating news. As shown in Specification (5), the coefficient of the *COVIDPeriod* dummy is no longer significantly positive after we add a *ContaminatingNews* dummy variable equal to one for offerings for which we identified major confounding news in the trading days surrounding the announcement date. This result suggests that the significantly higher average SEO announcement return during the COVID crisis can be attributed to the fact that an increased proportion of SEO firms publish favorable news around the SEO announcement date, as we documented earlier. In an unreported test, we run Specification (5), without the *COVIDPeriod* dummy variable, separately for pre-COVID and COVID SEOs. Whilst there are no major differences in the coefficients of the independent variables across the two subperiods, we do find that investors react more positively to contaminating news during the COVID period. Notably, the coefficient on the *ContaminatingNews* dummy is 0.211 in the COVID period, compared with 0.066 in the pre-COVID period, with the *p*-value for the difference in coefficients equal to 0.000. In Specifications (6) and (7), we replicate the prior

two specifications with dummy variables capturing the first part (*COVIDPeriod1*) and the later part (*COVIDPeriod2*) of the COVID crisis. We find that stock price reactions are more favorable in both subperiods, but the significance of both dummies disappears again after controlling for contaminating news.

We also investigate the impact of the COVID crisis on stock market reactions to convertible bond announcements. Table 10 reports the results of this analysis.

<<Please insert Table 10 here >>

This analysis includes the bond's *CreditRating*, conversion premium (*ConvPremium*), *Maturity*, and a dummy variable capturing Rule *144A* offerings as additional control variables. After including the control variables, the coefficient on the *COVIDPeriod* dummy is no longer significant, suggesting that the documented univariate difference is attributable to shifts in convertible bond announcement return determinants during the crisis. *MarkettoBook* and *ConvPremium* positively affect announcement returns, consistent with our expectations. The convertible bond announcement returns regression results do not change after we include a *ContaminatingNews* dummy, and the *ContaminatingNews* dummy itself does not affect the convertible bond announcement returns.

5.2. The impact of the COVID crisis on medium-term stock returns following security offerings

To examine Q_3, we calculate post-announcement stock returns measured over the window (2, 60) relative to the security offering announcement date, labeled *CAR(2, 60)*, employing conventional market model event study methodology described by Brown and Warner (1985). To verify robustness, we also calculate buy and hold abnormal returns using the Fama and French (1993) three-factor model, labeled *BHAR(2, 60)*. Table 11 presents the results.

<<Please insert Table 11 here>>

In Panel A, we report the results using the market model. SEOs announced during the COVID period have a negative average post-announcement abnormal return of −14.58%, significantly lower than the pre-COVID period average post-announcement abnormal return of −4.64%. The difference in median abnormal returns (−14.04% versus −6.13%) is of the same magnitude. These results are confirmed in Panel B where we use the Fama and French (1993) three-factor model. We do not find any significant differences between COVID and pre-

COVID average and post-median announcement returns for convertibles. For straight bonds, we only find a significant difference for the median post-announcement return and then only at the 10% level. As outlined in Table 1, the more negative medium-term stock price reactions following COVID SEOs are consistent with a market timing interpretation.

6. Does the COVID crisis affect corporate security offering uses of proceeds?

To examine Q_4, we investigate changes in relevant issuer characteristics in the year following the offering. Consistent with Kim and Weisbach (2008) and Walker and Yost (2008), we use capital expenditures, R&D, acquisitions, long-term debt reduction, changes in inventory, changes in cash, and changes in working capital to measure the use of proceeds. Capital expenditures, R&D, acquisitions, and increases in inventory capture investment purposes for the offering proceeds. As noted in Table 1, increases in cash and working capital are consistent with market timing, precautionary, or flight to quality motives.[14] For income statement and cash flow statement items (capital expenditures, R&D, acquisitions, and long-term debt reduction), we take the log of one plus the total value of each variable since the issue date normalized by total assets before the issue date: Use of proceeds=$\ln[(\sum_{i=1}^{t} V_i/\text{total assets}_0)+1]$ where V is the variable being measured, quarter 0 is the fiscal quarter-end before the issue date, and quarter t is the number of the quarter after quarter 0. For balance sheet items (inventory, cash, and working capital), we take the log of one plus changes in each variable normalized by total assets before the issue date: Use of proceeds=$\ln[((V_t-V_0)/\text{total assets}_0)+1]$. We aggregate all proceeds raised by the same firm within the same fiscal quarter. To avoid confounding effects, we exclude firm-quarter observations with different types of securities issued.

For each type of security offering, we estimate the following regression similar to those reported in Kim and Weisbach (2008) and Erel et al. (2012), using the following specification:

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[14] Long-term debt reductions are less clear-cut in terms of inferred motive. This use of proceeds could be consistent with market timing (Hertzel and Li, 2010; Walker, Yost, and Zhao, 2016), but also with precautionary motives, to the extent that the firm frees up debt capacity to deal with future shocks to its cash flows.

$$\text{Use of proceeds} = \beta_0 + \beta_1 \text{LogProceeds} + \beta_2 \text{COVIDMonth} + \beta_3 \text{COVIDMonth} \times \text{LogProceeds}$$

$$+ \beta_4 \text{LogAssets} + \text{FE} + \varepsilon \qquad (2)$$

where *LogProceeds* captures the total proceeds raised from security issuance over the fiscal quarter. We take the log of one plus the ratio of total proceeds to total assets to minimize the effect of outliers. The *COVIDMonth* dummy variable equals one if the fiscal quarter includes a COVID-period month. The key variable of interest is the *COVIDMonth×LogProceeds* interaction term, which captures the impact of the COVID crisis on the use of proceeds. We also control for *LogAssets* and industry fixed effects in the regressions. Table 12 presents the regression results for each type of security, omitting the coefficients on *LogAssets* and industry dummies for brevity. *t*-statistics, calculated using robust standard errors clustered at the firm level, are reported in parentheses.

<<Please insert Table 12 here>>

Panel A represents the regression results for SEOs. We observe that *Proceeds* positively affects most of the potential uses of proceeds, consistent with the results of Kim and Weisbach (2008). Most importantly, we find significant positive coefficients on *COVIDMonth×LogProceeds* for changes in cash and working capital, further cementing a market timing interpretation for COVID-period SEOs. We also document significant negative coefficients on *COVIDMonth×Proceeds* for R&D expenditure. Panel B presents the regression results for convertible bond offerings. The results suggest that proceeds raised from COVID convertibles are less likely to be used for investments in R&D, and more likely to be used for increases in inventories and cash. Panel C represents the regression results for straight bond offerings. We find that the funds raised from COVID-period straight bond offerings are more likely to be used to finance acquisitions. We do not observe any other significant change in the use of proceeds between pre-COVID and COVID straight bond offerings.

7. Summary and implications

We examine the impact of the COVID crisis on corporate security choice (Q_1), security offering announcement effects (Q_2), post-announcement returns (Q_3), and uses of proceeds (Q_4).

Pre-COVID findings suggest seasoned equity offerings result from an urgent need for

funding (DeAngelo, DeAngelo, and Stulz, 2010; McLean, 2011; Huang and Ritter, 2021). Instead, our analysis indicates that COVID SEOs are timed opportunistically and often packaged with positive news, leading to an improved market reception. We conclude that the increased straight bond issuance since the onset of the COVID crisis cannot be explained by prevailing corporate finance theories. In a similar vein, we do not find any strong evidence for the main convertible bond rationales, nor for more general corporate finance theories, for COVID-period convertibles. Notably, our results during the COVID period are largely inconsistent with traditional convertible bond theories based on asymmetric information (Brennan and Kraus; Brennan and Schwartz, 1988; Stein, 1992). A plausible explanation is that the COVID shock increased overall uncertainty, rather than affecting the information asymmetry between managers and investors, which is a core foundation of these theories.

Our findings are relevant for corporate managers and investors considering and evaluating security offerings. Our study also has implications for future academic studies on corporate financing decisions. The corporate finance literature witnessed a burst of security choice analyses from the mid-1990s until approximately 2010, with contributions of Jung et al. (1996), Lewis et al. (1999), Erel et al. (2012) and Gomes and Phillips (2012), among others. Our evidence, however, suggests that security choice models from the pre-COVID era may no longer be adequate to explain security offerings in the new normal. In this context, the recent "imperfect managerial knowledge" rationale of DeAngelo (2022) could be potentially relevant. This capital structure theory argues that in a context where managers face uncertainty, they simply try to secure reliable funding. The rationale predicts that we will observe no clear mapping between equity- and debt-related financing costs proxies and corporate finance decisions, which seems to be the case for COVID-period convertible and straight bond offerings. The inability of established corporate finance theories to explain COVID-period straight bond and convertible bond offerings suggests that further theory development is needed to model corporate financing decisions in a setting with multiple long-lived shocks. These theories are also likely to be relevant for future crises, which are equally likely to be complex and multidimensional in terms of the shocks they represent for companies.

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Figure 1: Security issuance and bank loans over the sample period

This figure reports the monthly total proceeds of security offerings and bank loans from January 2010 to June 2021. The sample of the security offerings includes seasoned equity offerings (SEO), convertible bond offerings, and straight bond offerings. The grey dotted line represents the average monthly total proceeds of the pre-COVID period security offerings and bank loans ranging from January 2010 to February 2020. The shaded areas correspond to the COVID period starting in March 2020.
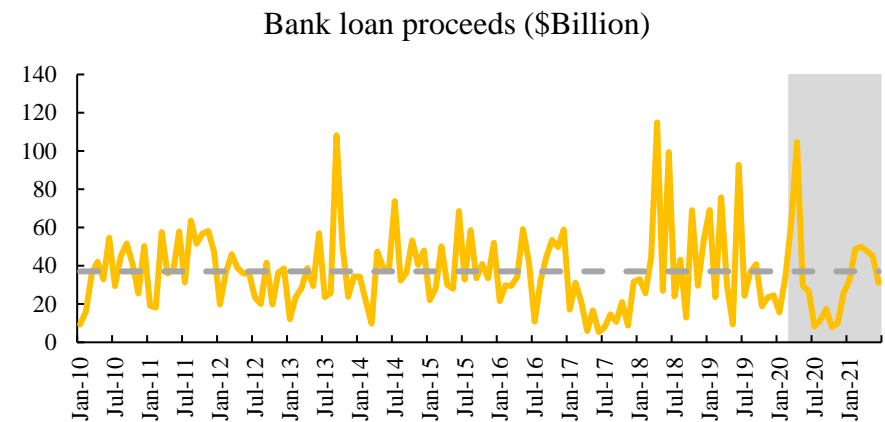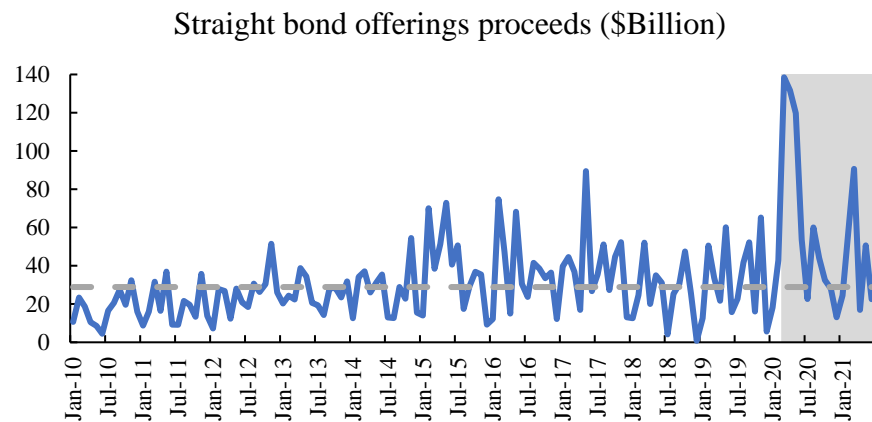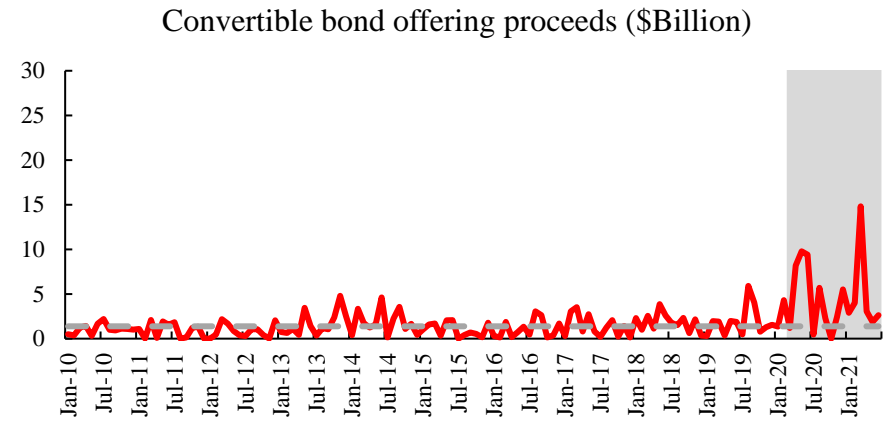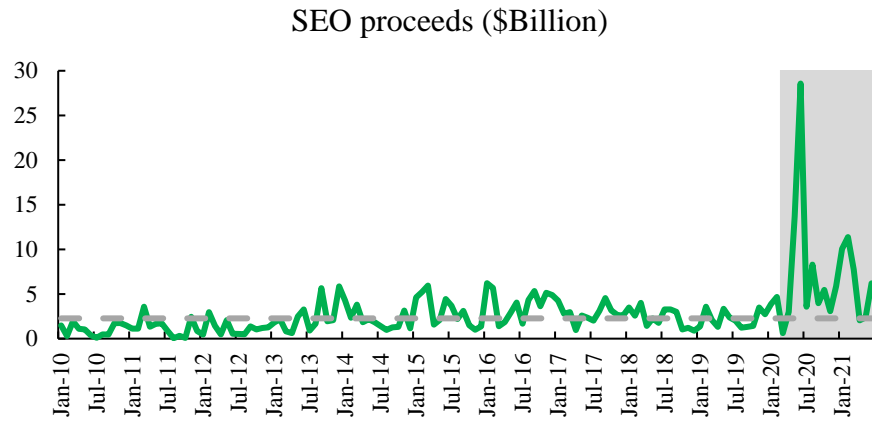
Figure 2: Variations in macroeconomic conditions

This figure shows macroeconomic conditions from January 2010 to June 2021. The Appendix provides variable definitions and sources. The grey dotted line represents the average of the pre-COVID period, ranging from January 2010 to February 2020. The shaded areas correspond to the COVID period, ranging from March 2020 to June 2021.
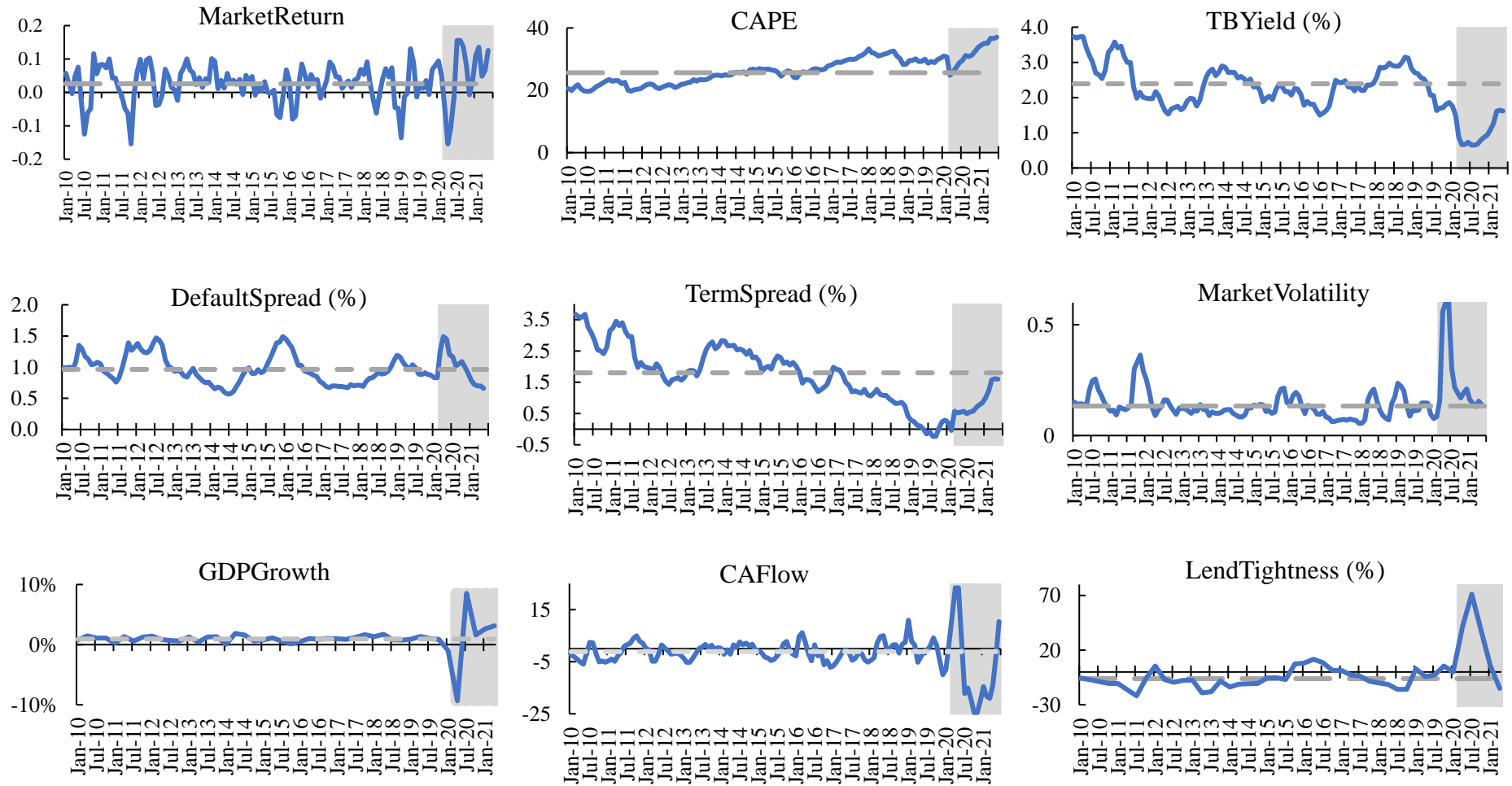
Table 1: Impact of COVID-induced shocks on corporate financing decisions and their outcomes

Theory	COVID-induced shocks	Impact of COVID-induced shocks on:			
		Security choice: Q_1	Announcement stock return: Q_2	Medium-term stock return: Q_3	Use of proceeds: Q_4
Trade-off	Increased uncertainty, Reduced cash lows	Increased likelihood to issue equity-like instead of debt-like securities	No prediction	No prediction	No prediction
	Increased debt capacity through more flexible labor arrangements, increased cash flows	Increased likelihood to issue debt-like instead of equity-like securities			
Pecking order	Increased information asymmetry about firm value between firm insiders and outsiders	Increased likelihood to issue debt-like instead of equity-like securities	Negative	No prediction	No prediction
Market timing	Favorable conditions for raising debt (e.g., government stimuli)	Increased likelihood to issue debt-like instead of equity-like securities	No prediction	Negative	More likely to be used as cash, less likely to be invested
	Favorable conditions for raising equity (e.g., macroeconomic developments)	Increased likelihood to issue equity-like instead of debt-like securities			
Precautionary cash demand	Increased uncertainty, enhancing the benefits of cash as a safety cushion	Increased likelihood to issue any security type	Positive	No prediction	More likely to be used as cash, less likely to be invested
Risk uncertainty	Increased information asymmetry about firm risk between firm insiders and outsiders	Increased likelihood to issue convertible bonds instead of straight bonds	Negative	No prediction	No prediction
Backdoor equity	Increased information asymmetry about firm value between firm insiders and outsiders	Increased likelihood to issue convertible bonds instead of seasoned equity	Negative	No prediction	No prediction
Flight to quality	Keynesian uncertainty, higher investor risk aversion	Increased likelihood, particularly of investment-grade firms, to issue debt-like instead of equity-like securities	No prediction	No prediction	More likely to be used as cash, less likely to be invested

Table 2: Descriptive statistics of pre-COVID and COVID security offerings and bank loans

This table presents descriptive statistics of security offerings and bank loans (Loan) from January 2010 to June 2021. The security offering sample includes seasoned equity offerings (SEO), convertible bond offerings (CB), and straight bond offerings (SB). The pre-COVID period ranges from January 2010 to February 2020; the COVID period ranges from March 2020 to June 2021. For each security type and each of the two periods, we report monthly averages of the number of offerings and total proceeds. The proportion of months in which firms choose to make a particular security offering or a bank loan (out of all firm-months) and the proportion of proceeds raised from each type of external financing are reported in parentheses. We employ an independent sample *t*-test to examine the differences between the COVID and the pre-COVID period issue numbers and volumes. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Number of offerings				Total proceeds ($ Billion)			
	SEO	CB	SB	Loan	SEO	CB	SB	Loan
Pre-COVID period	21.70	4.13	22.24	29.60	2.27	1.38	28.89	37.08
	(1.06%)	(0.20%)	(1.09%)	(1.46%)	(3.50%)	(2.08%)	(41.54%)	(52.87%)
COVID period	45.31	9.81	33.00	23.06	7.24	4.64	56.67	34.93
	(2.28%)	(0.49%)	(1.65%)	(1.16%)	(8.36%)	(4.52%)	(52.90%)	(34.22%)
Difference	23.61***	5.68**	10.76**	−6.54**	4.97**	3.26***	27.79**	−2.15
	(1.21%***)	(0.29%**)	(0.57%**)	(−0.30%*)	(4.85%***)	(2.45%***)	(11.36%**)	(−18.66%***)

Table 3: Pre-COVID and COVID security offerings and bank loans by industry

This table presents the industry distribution of security offerings and bank loans (Loan) from January 2010 to June 2021. We use the Fama and French 12-industry definitions to classify firms into different industries. The security offering sample includes seasoned equity offerings (SEO), convertible bond offerings (CB), and straight bond offerings (SB). The pre-COVID period ranges from January 2010 to February 2020; the COVID period ranges from March 2020 to June 2021. For each external financing option and subperiod, the proportions of the number of offerings made by each industry are reported in parentheses.

Industry	Pre-COVID period				COVID period			
	SEO	CB	SB	Loan	SEO	CB	SB	Loan
Consumer Non-Durables	44	6	277	281	7	4	51	29
	(1.66%)	(1.19%)	(10.21%)	(7.78%)	(0.97%)	(2.55%)	(9.66%)	(7.86%)
Consumer Durables	40	9	59	122	9	2	12	14
	(1.51%)	(1.79%)	(2.17%)	(3.38%)	(1.24%)	(1.27%)	(2.27%)	(3.79%)
Manufacturing	109	34	344	559	20	9	74	56
	(4.12%)	(6.75%)	(12.68%)	(15.48%)	(2.76%)	(5.73%)	(14.02%)	(15.18%)
Energy	211	22	323	285	20	4	45	12
	(7.97%)	(4.37%)	(11.91%)	(7.89%)	(2.76%)	(2.55%)	(8.52%)	(3.25%)
Chemicals	26	9	137	185	9	1	24	15
	(0.98%)	(1.79%)	(5.05%)	(5.12%)	(1.24%)	(0.64%)	(4.55%)	(4.07%)
Business Equipment & Software	397	209	399	639	118	71	91	80
	(14.99%)	(41.47%)	(14.71%)	(17.70%)	(16.28%)	(45.22%)	(17.23%)	(21.68%)
Telecommunication	27	11	209	179	4	2	34	22
	(1.02%)	(2.18%)	(7.70%)	(4.96%)	(0.55%)	(1.27%)	(6.44%)	(5.96%)
Wholesale & Retail	58	17	291	459	31	10	69	54
	(2.19%)	(3.37%)	(10.73%)	(12.71%)	(4.28%)	(6.37%)	(13.07%)	(14.63%)
Healthcare	1,588	144	221	367	460	41	41	40
	(59.97%)	(28.57%)	(8.15%)	(10.16%)	(63.45%)	(26.11%)	(7.77%)	(10.84%)
Other	148	43	453	535	47	13	87	47
	(5.59%)	(8.53%)	(16.70%)	(14.82%)	(6.48%)	(8.28%)	(16.48%)	(12.74%)
N	2,648	504	2,713	3,611	725	157	528	369

Table 4: Differences between COVID and pre-COVID firm characteristics

This table reports the average values of characteristics of firms engaging in security offerings or bank loans (Loan) from January 2010 to June 2021. The security offering sample includes seasoned equity offerings (SEO), convertible bond offerings (CB), and straight bond offerings (SB). The pre-COVID period ranges from January 2010 to February 2020, while the COVID period ranges from March 2020 to June 2021. The Appendix provides variable definitions and sources. In part (3) ("Difference"), we employ an independent sample t-test to examine if the average value differs significantly between the COVID and pre-COVID periods. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	Pre-COVID period (1)					COVID period (2)					Difference (3)				
	No Issue	SEO	CB	SB	Loan	No Issue	SEO	CB	SB	Loan	No Issue	SEO	CB	SB	Loan
Tax ($\times 10^3$)	3.55	0.01	1.47	5.26	4.99	1.27	−0.56	−0.92	2.11	1.56	−2.28***	−0.57**	−2.39***	−3.14***	−3.43***
Leverage	0.22	0.17	0.20	0.31	0.26	0.27	0.18	0.30	0.38	0.32	0.06***	0.01	0.10***	0.07***	0.07***
InterestCoverage	33.03	38.91	25.84	17.49	27.21	29.84	39.90	20.47	15.38	22.39	−3.20***	0.99	−5.37	−2.11**	−4.82***
Profitability	−0.02	−0.14	−0.04	0.01	0.01	−0.04	−0.14	−0.04	0.01	0.00	−0.01***	0.00	0.00	−0.01***	−0.01***
Cash	0.24	0.47	0.32	0.10	0.12	0.30	0.52	0.35	0.11	0.14	0.07***	0.05***	0.03	0.01**	0.02**
Assets ($Billion)	4.56	0.69	2.08	21.98	8.94	5.27	1.10	2.79	24.63	16.07	0.71***	0.41*	0.71	2.66*	7.13***
FirmAge	20.31	9.74	13.59	33.84	25.54	21.63	9.84	11.96	36.74	31.77	1.32***	0.10	−1.63	2.90**	6.23***
FixedAssets	0.23	0.18	0.17	0.32	0.27	0.22	0.15	0.19	0.31	0.26	−0.01***	−0.03***	0.02	−0.01	−0.01
RatedFirm	0.34	0.09	0.20	0.87	0.54	0.33	0.06	0.17	0.93	0.63	0.00	−0.02**	−0.03	0.05***	0.09***
ResidualVolatility	0.41	0.69	0.43	0.25	0.31	0.62	0.94	0.62	0.43	0.48	0.20***	0.25***	0.19***	0.18***	0.16***
StockReturn	0.03	0.14	0.11	0.05	0.04	0.10	0.28	0.16	0.04	0.06	0.08***	0.14***	0.06*	−0.01	0.02
MarkettoBook	3.52	5.31	5.91	3.78	3.33	4.64	6.58	11.13	4.51	4.66	1.13***	1.26**	5.22***	0.73	1.33**
CashFlowVolatility	0.05	0.08	0.05	0.04	0.04	0.06	0.09	0.06	0.04	0.04	0.02***	0.01***	0.01***	0.00*	0.00**
R&DExpenditure	0.02	0.08	0.03	0.00	0.01	0.02	0.07	0.03	0.00	0.01	0.00***	−0.01***	−0.01	0.00	0.00
DividendPaying	0.33	0.03	0.10	0.66	0.47	0.28	0.03	0.08	0.66	0.53	−0.05***	0.00	−0.02	0.00	0.06**

Table 5: Impact of the COVID crisis on corporate security choice

This table presents the results of multinomial probit models. The choice menu includes seasoned equity offerings (SEO), convertible bond offerings (CB), straight bond offerings (SB), bank loans (Loan), and not raising external financing (the baseline option). Specification (1) only includes the *COVIDPeriod* dummy, which takes a value of one for months between March 2020 and June 2021 and zero for months between January 2010 and February 2020. Specification (2) adds firm characteristics and industry fixed effects, defined using the Fama and French 12-industry classification. Specification (3) adds macroeconomic variables. Specification (4) distinguishes between the first seven months (*COVIDPeriod1*) and the remaining months (*COVIDPeriod2*) of the pandemic. The Appendix provides variable definitions and sources. *t*-statistics, calculated using robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level.

	(1)				(2)				(3)				(4)			
	SEO	CB	SB	Loan	SEO	CB	SB	Loan	SEO	CB	SB	Loan	SEO	CB	SB	Loan
COVIDPeriod	0.427***	0.428***	0.252***	−0.066**	0.305***	0.326***	0.223***	−0.044	−0.064	0.219*	0.458***	0.597***				
	(17.11)	(10.82)	(10.06)	(−2.33)	(10.50)	(6.99)	(6.93)	(−1.39)	(−0.87)	(1.91)	(6.35)	(9.01)				
COVIDPeriod1													−0.120	0.150	0.638***	0.480***
													(−1.30)	(1.10)	(7.16)	(5.40)
COVIDPeriod2													−0.032	0.271*	0.296***	0.697***
													(−0.37)	(1.90)	(3.26)	(8.55)
Tax					−6.881***	−6.564***	2.696*	1.165	−6.922***	−6.716***	0.766	−0.569	−6.946***	−6.740***	0.837	−0.595
					(−5.49)	(−2.97)	(1.79)	(1.07)	(−5.54)	(−3.05)	(0.49)	(−0.51)	(−5.56)	(−3.04)	(0.54)	(−0.54)
Leverage					0.066	−0.165	0.240**	−0.181**	0.077	−0.148	0.350***	−0.044	0.078	−0.148	0.349***	−0.043
					(1.01)	(−1.37)	(2.50)	(−2.56)	(1.18)	(−1.22)	(3.55)	(−0.63)	(1.18)	(−1.22)	(3.53)	(−0.62)
InterestCoverage					−0.001*	−0.003***	−0.002**	0.001	−0.001*	−0.003***	−0.002**	0.001*	−0.001*	−0.003***	−0.002**	0.001*
					(−1.81)	(−5.69)	(−2.45)	(1.52)	(−1.73)	(−5.63)	(−2.38)	(1.69)	(−1.73)	(−5.63)	(−2.38)	(1.70)
Profitability					−0.955***	−0.914***	1.323**	0.887***	−0.981***	−1.019***	1.455***	0.694**	−0.982***	−1.020***	1.478***	0.684**
					(−6.77)	(−3.15)	(2.56)	(3.08)	(−6.89)	(−3.48)	(2.72)	(2.45)	(−6.90)	(−3.49)	(2.76)	(2.42)
Cash					−0.411***	−0.111	−0.505***	−0.797***	−0.415***	−0.108	−0.527***	−0.787***	−0.415***	−0.109	−0.528***	−0.789***
					(−6.24)	(−0.96)	(−3.32)	(−10.84)	(−6.24)	(−0.93)	(−3.40)	(−10.68)	(−6.25)	(−0.93)	(−3.40)	(−10.71)
LogAssets					−0.105***	0.173***	0.300***	0.115***	−0.106***	0.170***	0.303***	0.121***	−0.106***	0.170***	0.303***	0.121***
					(−9.87)	(12.14)	(23.66)	(14.00)	(−10.00)	(11.76)	(23.75)	(14.90)	(−10.00)	(11.76)	(23.73)	(14.91)
LogAge					−0.221***	−0.115***	0.014	−0.004	−0.220***	−0.113***	0.022	0.005	−0.221***	−0.113***	0.023	0.005
					(−14.35)	(−5.28)	(0.68)	(−0.38)	(−14.36)	(−5.16)	(1.04)	(0.43)	(−14.37)	(−5.17)	(1.06)	(0.41)
FixedAssets					0.195**	−0.007	0.229**	−0.006	0.199**	−0.005	0.200**	−0.053	0.200**	−0.006	0.202**	−0.053
					(2.26)	(−0.05)	(2.50)	(−0.10)	(2.31)	(−0.04)	(2.16)	(−0.93)	(2.31)	(−0.04)	(2.18)	(−0.94)
RatedFirm					−0.010	−0.348***	0.541***	0.111***	−0.011	−0.345***	0.538***	0.099***	−0.011	−0.345***	0.538***	0.099***
					(−0.21)	(−5.63)	(12.23)	(4.07)	(−0.22)	(−5.58)	(12.40)	(3.75)	(−0.22)	(−5.58)	(12.41)	(3.74)
ResidualVolatility					0.097***	−0.097	−0.233***	−0.109**	0.084**	−0.181**	−0.299***	−0.096*	0.084**	−0.182**	−0.303***	−0.095*
					(2.59)	(−1.37)	(−2.78)	(−2.06)	(2.16)	(−2.33)	(−3.35)	(−1.75)	(2.17)	(−2.33)	(−3.38)	(−1.73)
StockReturn					0.654***	0.410***	0.241***	0.103**	0.670***	0.542***	0.369***	0.196***	0.671***	0.543***	0.380***	0.193***
					(20.85)	(6.87)	(4.33)	(2.47)	(20.40)	(8.45)	(6.04)	(4.36)	(20.41)	(8.46)	(6.21)	(4.30)
MarkettoBook					0.004***	0.010***	0.003*	0.001	0.004***	0.009***	0.003**	0.003**	0.004***	0.009***	0.003**	0.003**
					(3.74)	(5.38)	(1.72)	(1.01)	(3.78)	(5.28)	(2.18)	(2.04)	(3.78)	(5.28)	(2.17)	(2.04)

Table 5 continued

	(1)				(2)				(3)				(4)			
	SEO	CB	SB	Loan	SEO	CB	SB	Loan	SEO	CB	SB	Loan	SEO	CB	SB	Loan
CashFlowVolatility					1.428***	0.133	0.914	1.684***	1.509***	0.670	0.550	0.180	1.493***	0.635	0.656	0.132
					(2.80)	(0.12)	(1.13)	(3.25)	(2.87)	(0.60)	(0.68)	(0.35)	(2.83)	(0.56)	(0.80)	(0.25)
R&DExpenditure					3.223***	1.856***	−2.599*	−3.072***	3.212***	1.714***	−2.059	−2.502***	3.218***	1.725***	−2.103	−2.484***
					(10.77)	(3.20)	(−1.66)	(−3.58)	(10.71)	(2.92)	(−1.33)	(−3.08)	(10.72)	(2.94)	(−1.35)	(−3.06)
DividendPaying					−0.410***	−0.531***	0.017	−0.060***	−0.413***	−0.545***	0.022	−0.038*	−0.412***	−0.544***	0.020	−0.036*
					(−7.82)	(−7.72)	(0.50)	(−2.87)	(−7.84)	(−7.85)	(0.65)	(−1.81)	(−7.83)	(−7.83)	(0.58)	(−1.76)
MarketReturn									0.642**	−0.186	−0.068	−0.663***	0.656***	−0.166	−0.126	−0.601***
									(2.55)	(−0.42)	(−0.27)	(−2.96)	(2.61)	(−0.38)	(−0.49)	(−2.68)
CAPE									0.012**	−0.010	−0.036***	−0.043***	0.011*	−0.013	−0.029***	−0.047***
									(2.16)	(−1.00)	(−6.71)	(−8.71)	(1.69)	(−1.17)	(−4.80)	(−8.77)
TBYield									−0.089***	−0.027	−0.125***	0.090***	−0.085***	−0.020	−0.146***	0.101***
									(−3.12)	(−0.59)	(−4.49)	(3.95)	(−2.93)	(−0.43)	(−5.11)	(4.28)
DefaultSpread									−0.328***	−0.558***	−0.143**	−0.020	−0.344***	−0.581***	−0.085	−0.050
									(−4.65)	(−4.33)	(−2.12)	(−0.33)	(−4.74)	(−4.37)	(−1.19)	(−0.79)
TermSpread									0.082***	−0.017	0.022	−0.007	0.075***	−0.028	0.053**	−0.023
									(3.67)	(−0.44)	(1.05)	(−0.36)	(3.08)	(−0.67)	(2.28)	(−1.04)
MarketVolatility									1.679***	1.307***	−0.158	−0.102	1.745***	1.382***	−0.300	−0.031
									(7.39)	(3.82)	(−0.70)	(−0.53)	(7.58)	(4.04)	(−1.32)	(−0.15)
GDPGrowth									0.750	−0.338	−0.473	1.643***	0.246	−1.047	1.534*	0.379
									(1.62)	(−0.42)	(−0.91)	(2.75)	(0.32)	(−0.84)	(1.88)	(0.45)
CAFundFlow									−0.000	0.007*	0.006**	−0.005*	0.000	0.008*	0.003	−0.002
									(−0.19)	(1.73)	(2.39)	(−1.92)	(0.09)	(1.90)	(1.00)	(−0.86)
LendTightness									0.001	−0.000	−0.004***	−0.008***	0.001	0.000	−0.004***	−0.007***
									(0.89)	(−0.14)	(−2.71)	(−6.94)	(1.05)	(0.01)	(−3.26)	(−6.33)
Constant	−3.167***	−3.900***	−3.155***	−3.014***	−2.448***	−4.797***	−5.779***	−3.589***	−2.621***	−4.062***	−4.520***	−2.821***	−2.560***	−3.962***	−4.783***	−2.682***
	(−193.18)	(−169.28)	(−134.52)	(−267.20)	(−20.58)	(−27.02)	(−44.64)	(−43.85)	(−11.64)	(−10.53)	(−20.99)	(−14.52)	(−10.47)	(−9.27)	(−20.41)	(−12.94)
Industry FE	No				Yes				Yes				Yes			
Wald χ^2	487.33				6,856.18				7,834.49				7,871.61			
N	281,012				281,012				281,012				281,012			

Table 6: Differences between COVID and pre-COVID security choice determinants

Panel A presents the results of multinomial probit models estimated separately for the pre-COVID period (from January 2010 to February 2020) in Specification (1) and the COVID period (from March 2020 to June 2021) in Specification (2). The choice menu includes seasoned equity offerings (SEO), convertible bond offerings (CB), straight bond offerings (SB), bank loans (Loan), and not raising external financing (the baseline option). *t*-statistics, calculated using robust standard errors clustered at the firm level, are reported in parentheses. Panel B reports the actual and predicted external financing choices during the COVID period. Predicted probabilities are calculated from the coefficients in the regression model shown in Specification (1) of Panel A. The last column employs an independent sample *t*-test to examine if the average predicted frequencies per external financing option differ significantly from the actual frequencies in the COVID period. The Appendix provides variable definitions and sources. ***, **, and * denote significance at the 1%, 5%, and 10% level.

Panel A: Security choice determinants

	(1)				(2)			
	Pre-COVID period				COVID period			
	SEO	CB	SB	Loan	SEO	CB	SB	Loan
Tax	−6.299***	−4.435*	1.383	0.006	−11.176***	−18.355***	−3.596	−8.153*
	(−4.64)	(−1.75)	(0.86)	(0.01)	(−3.13)	(−4.00)	(−0.75)	(−1.94)
Leverage	0.114	−0.256*	0.337***	−0.015	−0.171	0.148	0.400**	−0.355*
	(1.55)	(−1.82)	(3.26)	(−0.20)	(−1.27)	(0.68)	(2.15)	(−1.91)
InterestCoverage	−0.001	−0.004***	−0.002**	0.001	−0.001	−0.003*	−0.000	0.000
	(−1.57)	(−5.71)	(−2.52)	(1.57)	(−0.90)	(−1.81)	(−0.30)	(0.17)
Profitability	−1.053***	−1.125***	1.509**	0.788**	−0.603**	−0.344	1.607*	−0.003
	(−6.77)	(−3.46)	(2.41)	(2.54)	(−1.97)	(−0.53)	(1.76)	(−0.00)
Cash	−0.411***	−0.083	−0.540***	−0.791***	−0.500***	−0.368	−0.471*	−0.716***
	(−5.58)	(−0.65)	(−3.24)	(−10.19)	(−3.58)	(−1.58)	(−1.67)	(−3.32)
LogAssets	−0.096***	0.169***	0.302***	0.116***	−0.150***	0.170***	0.301***	0.172***
	(−8.23)	(10.39)	(22.74)	(13.80)	(−6.53)	(6.02)	(12.03)	(6.74)
LogAge	−0.207***	−0.083***	0.027	0.009	−0.302***	−0.296***	−0.023	−0.031
	(−12.25)	(−3.48)	(1.21)	(0.83)	(−8.85)	(−5.88)	(−0.58)	(−0.81)
FixedAssets	0.201**	−0.121	0.207**	−0.066	0.174	0.491**	0.204	0.065
	(2.07)	(−0.76)	(2.07)	(−1.12)	(0.97)	(1.97)	(1.28)	(0.36)
RatedFirm	−0.032	−0.304***	0.510***	0.095***	0.051	−0.486***	0.751***	0.116
	(−0.61)	(−4.42)	(11.43)	(3.46)	(0.58)	(−4.16)	(7.36)	(1.44)
ResidualVolatility	0.087**	−0.129	−0.371***	−0.107*	0.111	−0.452***	−0.273**	0.041
	(2.05)	(−1.39)	(−3.48)	(−1.71)	(1.41)	(−3.24)	(−2.02)	(0.32)
StockReturn	0.677***	0.534***	0.405***	0.206***	0.618***	0.575***	0.279**	0.156
	(18.28)	(7.28)	(5.89)	(4.24)	(8.76)	(4.14)	(2.22)	(1.36)
MarkettoBook	0.004***	0.007***	0.004**	0.003*	0.005**	0.014***	0.003	0.004
	(3.09)	(3.02)	(2.14)	(1.74)	(2.20)	(4.94)	(1.00)	(1.00)
CashFlowVolatility	1.606***	0.605	1.572*	0.424	1.341	1.652	−2.859*	−1.422
	(2.82)	(0.47)	(1.76)	(0.75)	(1.07)	(0.67)	(−1.84)	(−0.90)
R&DExpenditure	3.367***	1.696***	−2.159	−2.637***	2.417***	2.016	−2.371	−1.287
	(10.41)	(2.64)	(−1.27)	(−3.01)	(3.86)	(1.63)	(−0.74)	(−0.67)
DividendPaying	−0.466***	−0.558***	0.010	−0.048**	−0.147	−0.484***	0.051	0.092
	(−7.80)	(−7.17)	(0.26)	(−2.24)	(−1.30)	(−3.16)	(0.73)	(1.35)
MarketReturn	−0.270	0.465	−0.174	−0.509**	1.259	−8.915***	−2.479**	−0.276
	(−0.86)	(0.87)	(−0.59)	(−2.02)	(1.38)	(−5.64)	(−2.10)	(−0.26)
CAPE	−0.002	−0.029**	−0.030***	−0.042***	0.171***	0.262***	−0.006	−0.093**
	(−0.37)	(−2.32)	(−4.66)	(−7.38)	(4.16)	(3.88)	(−0.13)	(−2.22)
TBYield	−0.009	0.055	−0.128***	0.085***	−1.205***	−0.326	−0.956***	−0.570
	(−0.29)	(1.06)	(−4.20)	(3.44)	(−4.20)	(−0.63)	(−2.76)	(−1.42)
DefaultSpread	−0.292***	−0.455***	−0.058	−0.036	−1.235**	0.374	−1.263*	−2.597***
	(−3.71)	(−3.21)	(−0.76)	(−0.54)	(−2.12)	(0.37)	(−1.85)	(−3.84)
TermSpread	0.019	−0.090**	0.040	−0.008	−0.176	0.114	−0.059	−0.008
	(0.73)	(−1.97)	(1.59)	(−0.36)	(−1.10)	(0.44)	(−0.41)	(−0.05)

Table 6 continued

	(1) Pre-COVID period				(2) COVID period			
	SEO	CB	SB	Loan	SEO	CB	SB	Loan
MarketVolatility	0.072	−0.529	−0.532	0.273	4.000***	2.786	0.172	1.381
	(0.20)	(−0.83)	(−1.52)	(1.04)	(3.97)	(1.55)	(0.14)	(1.10)
GDPGrowth	−6.945**	−3.855	1.108	2.050	0.629	−9.641***	−1.159	1.872
	(−2.43)	(−0.78)	(0.41)	(0.82)	(0.57)	(−4.57)	(−0.79)	(1.45)
CAFundFlow	−0.010**	0.022**	−0.003	−0.005	0.016***	−0.007	−0.004	−0.006
	(−2.09)	(2.52)	(−0.74)	(−1.13)	(3.34)	(−1.00)	(−0.86)	(−1.17)
LendTightness	−0.001	−0.001	−0.003*	−0.006***	0.005	0.006	−0.012**	−0.009*
	(−0.81)	(−0.20)	(−1.82)	(−4.79)	(1.19)	(0.77)	(−2.41)	(−1.66)
Constant	−2.143***	−3.606***	−4.726***	−2.837***	−5.769***	−12.706***	−2.740	1.943
	(−8.08)	(−7.26)	(−18.04)	(−12.45)	(−3.27)	(−4.21)	(−1.35)	(1.04)
Industry FE	Yes				Yes			
Wald χ^2	6,442.36				2,312.65			
N	249,179				31,833			

Panel B: Actual versus predicted probability of security choices and bank loans in the COVID period

	Actual	Predicted	Difference
SEO	2.28%	1.95%	0.33%
CB	0.49%	0.15%	0.34%***
SB	1.65%	0.89%	0.77%***
Loan	1.16%	0.50%	0.66%***

Table 7: Differences between COVID and pre-COVID security offering announcement returns

This table presents summary statistics of cumulative abnormal stock returns (*CAR*) measured over the window (−1, 1) relative to the announcement date of seasoned equity offerings, convertible bond offerings, and straight bond offerings. The market model parameters are estimated using daily returns and the equal-weighted CRSP market index over the window (−240, −40) relative to the announcement date. The pre-COVID period ranges from January 2010 to February 2020; the COVID period ranges from March 2020 to June 2021. We use a standardized cross-sectional test to examine if the average *CAR(−1, 1)* is equal to zero (Boehmer, Masumeci, and Poulsen, 1991). We use a Wilcoxon signed-rank test to examine if the median *CAR(−1,1)* is equal to zero. We also report the differences in average and median *CAR(−1, 1)* between the COVID and pre-COVID periods. We use an independent sample *t*-test (Mann-Whitney U test) to examine if average (median) abnormal stock returns differ significantly across the two subperiods. The Appendix provides variable definitions and sources. ***, **, and * indicate the statistical significance of the test at the 1%, 5%, and 10% levels, respectively.

	N	Average	Median	Std. Dev	% with a negative value
Seasoned equity offerings					
Pre-COVID period (1)	2,605	−5.17%***	−4.58%***	16.07%	71.06%
COVID period (2)	690	1.97%	−5.66%***	41.41%	65.51%
Difference between (2) and (1)		7.14%***	−1.08%		
Convertible bond offerings					
Pre-COVID period (1)	382	−3.85%***	−3.22%***	14.01%	71.47%
COVID period (2)	130	−6.06%***	−5.79%***	8.66%	78.46%
Difference between (2) and (1)		−2.21%**	−2.57%***		
Straight bond offerings					
Pre-COVID period (1)	1,510	−0.08%	−0.08%	3.96%	51.39%
COVID period (2)	221	0.34%	−0.22%	6.97%	51.13%
Difference between (2) and (1)		0.42%	−0.14%		

Table 8: Contaminating news around COVID and pre-COVID SEO and convertible bond announcements

This table presents the nature and frequency of contaminating news for seasoned equity offering and convertible bond offering announcements. The pre-COVID period ranges from January 2010 to February 2020; the COVID period ranges from March 2020 to June 2021. We obtain information about confounding news from Factiva. We search for confounding announcements on the offering announcement date, as well as on the trading days immediately prior to and after the announcement. Corporate actions include items such as mergers and acquisitions, stock splits, share repurchases, and dividend payments. The category "Other" includes all major company-specific news that is not covered in the previous categories, such as important contract announcements. In case there is more than one contaminating announcement, we take the announcement that is mentioned first in the news coverage. We employ a *Chi*-square test to examine if the proportion of contaminating news differs significantly across the two subperiods. ***, **, and * indicate the statistical significance of the test at the 1%, 5%, and 10% levels, respectively.

Panel A: Seasoned equity offering announcements					
Types of announcements	Pre-COVID		COVID		Difference
	N	%	N	%	
Corporate actions	59	2.26%	16	2.32%	0.05%
Financial results	201	7.72%	63	9.13%	1.41%
Management team changes	31	1.19%	13	1.88%	0.69%
Research and development progress	140	5.37%	111	16.09%	10.71%***
Other	118	4.53%	90	13.04%	8.51%***
N	549	21.07%	293	42.46%	21.39%***
Panel B: Convertible bond offering announcements					
Types of announcements	Pre-COVID		COVID		Difference
	N	%	N	%	
Corporate actions	21	5.50%	4	3.08%	−2.42%
Financial results	18	4.71%	14	10.77%	6.06%**
Management team changes	2	0.52%	1	0.77%	0.25%
Research and development progress	5	1.31%	2	1.54%	0.23%
Other	32	8.38%	9	6.92%	−1.45%
N	87	22.77%	40	30.77%	7.99%*

Table 9: Impact of the COVID crisis on SEO announcement returns

This table presents the regression results of seasoned equity offering (SEO) announcement returns. The dependent variable is the cumulative abnormal return (*CAR*) measured over the window (−1,1) relative to the SEO announcement date. Specification (1) only includes the *COVIDPeriod* dummy. Specification (2) adds issuer characteristics and industry fixed effects, defined using the Fama and French 12-industry classification. Specification (3) adds macroeconomic conditions. Specification (4) adds issue characteristics. Specification (5) adds a *ContaminatingNews* dummy. Specifications (6) and (7) replicate the analysis in Specifications (4) and (5) but distinguish between the first seven months (*COVIDPeriod1*) and the remaining months (*COVIDPeriod2*) of the pandemic. *t*-statistics, calculated using robust standard errors clustered at the firm level, are reported in parentheses. The Appendix provides variable definitions and sources. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
COVIDPeriod	0.071***	0.081***	0.084***	0.077**	0.048		
	(4.35)	(4.53)	(2.61)	(2.41)	(1.60)		
COVIDPeriod1						0.112**	0.074
						(1.99)	(1.39)
COVIDPeriod2						0.064**	0.039
						(2.04)	(1.29)
ContaminatingNews					0.109***		0.109***
					(8.70)		(8.74)
Tax		0.365***	0.352***	0.330***	0.290***	0.325***	0.286**
		(3.21)	(3.10)	(2.97)	(2.59)	(2.94)	(2.56)
Leverage		−0.011	−0.011	−0.009	−0.009	−0.010	−0.009
		(−0.55)	(−0.56)	(−0.48)	(−0.45)	(−0.50)	(−0.46)
InterestCoverage		−0.000*	−0.000*	−0.000*	−0.000*	−0.000*	−0.000*
		(−1.77)	(−1.78)	(−1.94)	(−1.94)	(−1.96)	(−1.95)
Profitability		0.008	0.008	0.024	0.029**	0.023	0.029**
		(0.59)	(0.58)	(1.59)	(1.98)	(1.58)	(1.98)
Cash		0.027	0.028	0.009	0.005	0.010	0.006
		(1.16)	(1.21)	(0.37)	(0.23)	(0.43)	(0.28)
LogAssets		0.009**	0.010**	0.014***	0.010**	0.014***	0.010**
		(2.28)	(2.39)	(3.33)	(2.36)	(3.32)	(2.36)
LogAge		−0.002	−0.003	−0.000	0.000	0.000	0.000
		(−0.50)	(−0.59)	(−0.03)	(0.06)	(0.01)	(0.08)
FixedAssets		−0.041	−0.042	−0.036	−0.041	−0.036	−0.041
		(−1.39)	(−1.42)	(−1.22)	(−1.42)	(−1.22)	(−1.42)
RatedFirm		−0.003	−0.005	−0.011	−0.015	−0.012	−0.015
		(−0.27)	(−0.42)	(−0.87)	(−1.11)	(−0.90)	(−1.14)
ResidualVolatility		−0.013	−0.010	−0.005	−0.007	−0.005	−0.007
		(−1.37)	(−1.11)	(−0.59)	(−0.86)	(−0.59)	(−0.86)
StockReturn		−0.004	−0.006	−0.020**	−0.020**	−0.020**	−0.020**
		(−0.40)	(−0.65)	(−2.10)	(−2.12)	(−2.11)	(−2.12)
MarkettoBook		−0.000**	−0.000**	−0.000***	−0.000***	−0.000***	−0.000***
		(−2.30)	(−2.20)	(−2.96)	(−2.72)	(−2.93)	(−2.70)
CashFlowVolatility		0.080	0.065	0.063	0.035	0.060	0.033
		(1.13)	(0.82)	(0.80)	(0.44)	(0.77)	(0.42)
R&DExpenditure		0.005	0.006	−0.003	0.005	−0.003	0.004
		(0.23)	(0.25)	(−0.14)	(0.22)	(−0.15)	(0.20)
DividendPaying		−0.013	−0.012	−0.018	−0.014	−0.019	−0.014
		(−1.09)	(−0.97)	(−1.48)	(−1.12)	(−1.48)	(−1.12)
MarketReturn			−0.009	−0.002	0.017	−0.015	0.007
			(−0.10)	(−0.02)	(0.20)	(−0.17)	(0.09)
CAPE			−0.003	−0.005*	−0.005*	−0.004	−0.004
			(−1.10)	(−1.80)	(−1.72)	(−1.61)	(−1.59)

Table 9 continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TBYield			−0.015*	−0.015*	−0.020**	−0.016*	−0.021**
			(−1.65)	(−1.72)	(−2.27)	(−1.83)	(−2.35)
DefaultSpread			−0.056*	−0.056*	−0.066**	−0.046	−0.059**
			(−1.90)	(−1.91)	(−2.23)	(−1.57)	(−1.98)
TermSpread			−0.000	0.002	0.006	0.004	0.008
			(−0.00)	(0.15)	(0.55)	(0.44)	(0.78)
MarketVolatility			−0.015	−0.018	0.013	−0.086	−0.038
			(−0.17)	(−0.20)	(0.15)	(−0.74)	(−0.33)
GDPGrowth			0.136	0.141	0.148	0.403	0.343
			(0.37)	(0.38)	(0.42)	(0.81)	(0.71)
IssueSize				0.048***	0.047***	0.048***	0.047***
				(3.68)	(3.69)	(3.68)	(3.69)
Secondary				−0.019*	−0.007	−0.019*	−0.007
				(−1.80)	(−0.73)	(−1.80)	(−0.73)
Shelf				−0.027***	−0.020***	−0.025***	−0.019**
				(−3.51)	(−2.67)	(−3.39)	(−2.56)
Constant	−0.052***	−0.080**	0.082	0.113	0.121	0.085	0.100
	(−14.58)	(−2.35)	(0.79)	(1.06)	(1.15)	(0.86)	(1.01)
Industry FE	No	Yes	Yes	Yes	Yes	Yes	Yes
N	3,295	3,295	3,295	3,295	3,295	3,295	3,295
R-squared	1.48%	3.01%	3.25%	4.70%	8.36%	4.73%	8.38%

Table 10: Impact of the COVID crisis on convertible bond announcement returns

This table presents the regression results of convertible bond announcement returns. The dependent variable is the cumulative abnormal return (*CAR*) measured over the window (−1,1) relative to the convertible bond announcement date. Specification (1) only includes the *COVIDPeriod* dummy. Specification (2) adds issuer characteristics and industry fixed effects, defined using the Fama and French 12-industry classification. Specification (3) adds macroeconomic conditions. Specification (4) adds issue characteristics. Specification (5) adds a *ContaminatingNews* dummy. Specifications (6) and (7) replicate the analysis in Specifications (4) and (5) but distinguish between the first seven months (*COVIDPeriod1*) and the remaining months (*COVIDPeriod2*) of the pandemic. *t*-statistics, calculated using robust standard errors clustered at the firm level, are reported in parentheses. The Appendix provides variable definitions and sources. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
COVIDPeriod	−0.022**	−0.038*	0.020	0.018	0.018		
	(−2.08)	(−1.82)	(0.41)	(0.41)	(0.41)		
COVIDPeriod1						0.070	0.070
						(1.18)	(1.19)
COVIDPeriod2						−0.013	−0.013
						(−0.33)	(−0.33)
ContaminatingNews					0.003		0.003
					(0.23)		(0.22)
Tax		0.028	0.016	0.078	0.077	0.076	0.076
		(0.12)	(0.08)	(0.39)	(0.39)	(0.39)	(0.39)
Leverage		−0.052	−0.042	−0.034	−0.033	−0.032	−0.032
		(−1.42)	(−1.25)	(−1.12)	(−1.13)	(−1.08)	(−1.09)
InterestCoverage		−0.000	−0.000	−0.000	−0.000	−0.000	−0.000
		(−1.08)	(−1.23)	(−0.49)	(−0.47)	(−0.61)	(−0.60)
Profitability		−0.045	−0.039	−0.040	−0.039	−0.042	−0.042
		(−0.61)	(−0.56)	(−0.58)	(−0.58)	(−0.61)	(−0.62)
Cash		−0.021	−0.030	−0.028	−0.029	−0.029	−0.029
		(−0.35)	(−0.53)	(−0.56)	(−0.56)	(−0.58)	(−0.58)
LogAssets		0.008	0.008	−0.006	−0.006	−0.006	−0.006
		(1.01)	(1.16)	(−0.50)	(−0.51)	(−0.50)	(−0.50)
LogAge		−0.004	−0.004	−0.001	−0.001	−0.001	−0.001
		(−0.62)	(−0.58)	(−0.23)	(−0.23)	(−0.13)	(−0.14)
FixedAssets		−0.061	−0.075	−0.056	−0.056	−0.059	−0.058
		(−1.16)	(−1.29)	(−1.13)	(−1.15)	(−1.17)	(−1.19)
RatedFirm		0.011	0.012	0.015	0.015	0.015	0.015
		(0.73)	(0.83)	(1.12)	(1.12)	(1.14)	(1.14)
ResidualVolatility		0.039	0.049	0.067	0.067	0.068	0.068
		(0.49)	(0.60)	(0.88)	(0.88)	(0.89)	(0.89)
StockReturn		−0.009	−0.010	−0.022	−0.022	−0.022	−0.022
		(−0.53)	(−0.59)	(−1.43)	(−1.45)	(−1.51)	(−1.52)
MarkettoBook		0.001***	0.001***	0.001***	0.001***	0.001***	0.001***
		(3.80)	(3.84)	(2.66)	(2.66)	(2.77)	(2.78)
CashFlowVolatility		−0.025	−0.044	−0.007	−0.007	−0.004	−0.004
		(−0.21)	(−0.37)	(−0.07)	(−0.07)	(−0.04)	(−0.04)
R&DExpenditure		−0.138	−0.104	−0.120	−0.119	−0.127	−0.127
		(−0.83)	(−0.69)	(−0.89)	(−0.89)	(−0.94)	(−0.94)
DividendPaying		0.009	0.009	0.008	0.008	0.009	0.009
		(0.67)	(0.62)	(0.62)	(0.62)	(0.68)	(0.67)
MarketReturn			0.081	0.055	0.055	0.039	0.040
			(1.04)	(0.66)	(0.67)	(0.46)	(0.47)
CAPE			−0.003	−0.001	−0.001	0.001	0.001
			(−0.82)	(−0.33)	(−0.33)	(0.36)	(0.38)

Table 10 continued

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
TBYield			0.045	0.057*	0.057*	0.052*	0.052*
			(1.53)	(1.93)	(1.93)	(1.81)	(1.82)
DefaultSpread			−0.066**	−0.052*	−0.051*	−0.035	−0.035
			(−1.98)	(−1.72)	(−1.67)	(−1.12)	(−1.08)
TermSpread			−0.006	−0.011	−0.011	−0.002	−0.002
			(−0.46)	(−0.92)	(−0.92)	(−0.20)	(−0.19)
MarketVolatility			0.122	0.115	0.114	0.005	0.005
			(1.27)	(1.18)	(1.14)	(0.04)	(0.04)
GDPGrowth			−0.093	−0.094	−0.095	0.389	0.388
			(−0.64)	(−0.70)	(−0.70)	(1.33)	(1.34)
IssueSize				−0.019	−0.019	−0.019	−0.019
				(−0.78)	(−0.78)	(−0.78)	(−0.78)
Shelf				−0.027	−0.026	−0.023	−0.022
				(−1.08)	(−1.03)	(−0.92)	(−0.87)
CreditRating				0.002	0.002	0.002	0.002
				(0.58)	(0.56)	(0.65)	(0.63)
Maturity				0.001	0.001	0.001	0.001
				(0.95)	(0.97)	(0.91)	(0.94)
ConvPremium				0.003***	0.003***	0.003***	0.003***
				(3.81)	(3.86)	(3.84)	(3.88)
144A				0.005	0.006	0.008	0.009
				(0.18)	(0.19)	(0.30)	(0.30)
Constant	−0.039***	−0.105	−0.086	−0.203*	−0.206*	−0.271**	−0.274**
	(−5.14)	(−1.49)	(−0.71)	(−1.70)	(−1.75)	(−2.36)	(−2.39)
Industry FE	No	Yes	Yes	Yes	Yes	Yes	Yes
N	512	512	512	510	510	510	510
R−squared	0.56%	5.63%	9.36%	24.03%	24.04%	24.42%	24.43%

Table 11: Differences between post-announcement stock returns of COVID and pre-COVID security offerings

This table presents summary statistics for cumulative abnormal stock returns and buy-and-hold stock returns measured over the window (2,60) relative to the security offering announcement date of seasoned equity offerings, convertible bond offerings, and straight bond offerings, labeled as *CAR(2,60)* and *BHAR(2,60)*. The pre-COVID period ranges from January 2010 to February 2020, while the COVID period ranges from March 2020 to June 2021. We use a standardized cross-sectional test to examine if the average *CAR (2,60)* and *BHAR(2,60)* are equal to zero (Boehmer, Masumeci, and Poulsen, 1991). We use a Wilcoxon signed-rank test to examine if the median *CAR (2,60)* and *BHAR(2,60)* are equal to zero. We also report the difference in abnormal returns between the COVID and pre-COVID periods. We use an independent sample *t*-test (Mann-Whitney U test) to examine if average (median) abnormal stock returns differ significantly across the two subperiods. ***, **, and * indicate the statistical significance of the test at the 1%, 5%, and 10% levels, respectively.

	N	Average	Median	Std. Dev	% with a negative value
Panel A: *CAR(2,60)* using the market model					
Seasoned equity offerings					
Pre-COVID (1)	2,605	−4.64%***	−6.13%***	45.52%	58.43%
COVID (2)	690	−14.58%***	−14.04%***	54.93%	63.19%
Difference btw. (2) and (1)		−9.94%***	−7.91%***		
Convertible bond offerings					
Pre-COVID (1)	382	−2.80%***	−0.99%*	22.24%	52.62%
COVID (2)	130	−6.93%**	−3.79%**	33.19%	56.92%
Difference btw. (2) and (1)		−4.13%	−2.80%		
Straight bond offerings					
Pre-COVID (1)	1,509	−2.01%***	−1.15%***	17.82%	54.01%
COVID (2)	221	−1.45%**	−0.22%	22.03%	50.68%
Difference btw. (2) and (1)		0.56%	0.93%		
Panel B: *BHAR(2,60)* using Fama and French (1993) three-factor model					
Seasoned equity offerings					
Pre-COVID (1)	2,605	−8.73%***	−9.45%***	57.88%	63.72%
COVID (2)	690	−20.18%***	−17.17%***	89.81%	67.39%
Difference btw. (2) and (1)		−11.45%***	−7.72%***		
Convertible bond offerings					
Pre-COVID (1)	382	−4.81%***	−3.23%***	22.61%	59.42%
COVID (2)	130	−6.96%**	−5.11%**	40.40%	58.46%
Difference btw. (2) and (1)		−2.15%	−1.88%		
Straight bond offerings					
Pre-COVID (1)	1,509	−2.07%***	−1.55%***	18.06%	55.20%
COVID (2)	221	−4.77%***	−2.95%**	23.94%	57.92%
Difference btw. (2) and (1)		−2.70%	−1.40%*		

Table 12: Differences between uses of proceeds of COVID and pre-COVID security offerings

This table presents regression analyses of the impact of the COVID crisis on the uses of proceeds of seasoned equity offerings (SEO), convertible bond offerings (CB), and straight bond offerings (SB). We use capital expenditures, R&D, acquisitions, long-term debt reduction, changes in inventory, changes in cash, and changes in working capital to capture uses of proceeds. Specifically, for each of these potential uses of proceeds, we estimate: Use of proceeds=β_0+β_1LogProceeds+β_2COVIDMonth+β_3COVIDMonth $\times$ LogProceeds+β_4LogAssets+FX+ε. The dependent variable for asset-based variables (inventory, cash, and working capital) is: Use of proceeds=$ln\left[((V_t - V_0)/\text{total assets}_0) + 1\right]$, and for cash flow-based variables (capital expense, acquisition, R&D, reduction in long-term debt) is Use of proceeds=$ln[(\sum_{i=1}^{t} V_i/\text{total assets}_0)+1]$ where V is the variable being measured, and quarter 0 is the quarter end before issuance. The independent variables include *COVIDMonth, LogProceeds*, and their interaction term (i.e., *COVIDMonth$\times$ LogProceeds*). We control for firm size (*LogAssets*) and industry fixed effects, which we do not report in the table for brevity. The Appendix provides variable definitions and sources. *t*-statistics, calculated using robust standard errors clustered at the firm level, are reported in parentheses. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Variables		LogProceeds		COVIDMonth		COVIDMonth$\times$ LogProceeds		N	R^2
		β_1	t-stat	β_2	t-stat	β_3	t-stat		
Panel A: SEO									
$\sum$CapitalExpense	1	0.008***	(4.510)	−0.004***	(−2.678)	−0.001	(−0.270)	3,349	37.1%
	2	0.025***	(4.511)	−0.003	(−0.682)	−0.009	(−1.048)	3,349	27.3%
	3	0.045***	(4.430)	−0.010	(−1.341)	0.002	(0.117)	3,266	34.1%
	4	0.063***	(4.963)	−0.011	(−1.115)	0.006	(0.243)	3,217	34.9%
$\sum$R&D	1	0.088***	(13.580)	−0.002	(−0.472)	−0.037***	(−3.648)	3,349	45.1%
	2	0.186***	(12.156)	0.007	(0.676)	−0.082***	(−3.566)	3,349	39.4%
	3	0.269***	(12.456)	0.009	(0.737)	−0.108***	(−3.466)	3,266	47.1%
	4	0.340***	(13.293)	0.012	(0.776)	−0.125***	(−3.345)	3,218	49.8%
$\sum$Acquisition	1	0.005	(1.514)	−0.004	(−1.190)	0.005	(0.856)	3,349	4.4%
	2	0.018*	(1.863)	−0.003	(−0.282)	0.008	(0.524)	3,349	3.7%
	3	0.035***	(3.000)	−0.003	(−0.237)	0.025	(0.967)	3,265	6.8%
	4	0.033**	(2.506)	0.002	(0.139)	0.025	(0.944)	3,216	6.9%
$\sum$LTDReduction	1	−0.008*	(−1.961)	−0.010**	(−2.194)	0.011	(1.395)	3,349	9.1%
	2	−0.013	(−1.522)	−0.009	(−1.049)	0.005	(0.388)	3,349	6.5%
	3	−0.017*	(−1.912)	−0.017*	(−1.755)	0.013	(0.852)	3,266	9.3%
	4	−0.024*	(−1.950)	−0.023**	(−2.005)	0.014	(0.774)	3,217	9.4%
ΔInventory	1	0.003***	(2.670)	0.001	(0.720)	0.001	(0.619)	3,349	3.9%
	2	0.010***	(3.013)	0.002	(0.590)	0.005	(0.819)	3,349	4.5%
	3	0.020***	(3.872)	0.003	(0.557)	0.012	(0.983)	3,266	7.5%
	4	0.028***	(4.765)	0.004	(0.577)	0.016	(1.080)	3,218	7.6%

Table 12 continued

Variables		LogProceeds		COVIDMonth		COVIDMonth× LogProceeds		N	R^2
		β_1	t-stat	β_2	t-stat	β_3	t-stat		
Panel A: SEO									
ΔCash	1	0.864***	(42.776)	0.021*	(1.772)	0.066**	(2.202)	3,349	74.8%
	2	0.817***	(28.538)	0.029	(1.354)	0.166***	(3.817)	3,349	50.4%
	3	0.772***	(22.315)	0.040	(1.507)	0.183***	(3.174)	3,266	41.7%
	4	0.682***	(17.236)	0.050	(1.554)	0.191***	(3.020)	3,218	32.5%
ΔWC	1	0.880***	(39.830)	0.031**	(2.486)	0.059*	(1.913)	3,349	72.1%
	2	0.838***	(26.974)	0.045**	(2.039)	0.148***	(3.389)	3,349	48.0%
	3	0.789***	(21.530)	0.060**	(2.273)	0.170***	(3.098)	3,260	40.5%
	4	0.694***	(16.371)	0.070**	(2.169)	0.179***	(2.854)	3,208	30.3%
Panel B: CB									
∑CapitalExpense	1	0.011***	(3.004)	−0.007***	(−3.013)	0.007	(1.153)	633	14.3%
	2	0.035**	(2.485)	−0.010	(−1.644)	−0.003	(−0.155)	633	14.1%
	3	0.041***	(2.884)	−0.018**	(−1.981)	0.011	(0.372)	623	9.2%
	4	0.057***	(3.264)	−0.026**	(−2.407)	0.022	(0.682)	614	11.8%
∑R&D	1	0.078***	(5.058)	0.012**	(2.567)	−0.058***	(−3.179)	633	41.3%
	2	0.177***	(5.258)	0.033***	(3.279)	−0.146***	(−3.873)	633	44.0%
	3	0.232***	(5.569)	0.040***	(2.883)	−0.179***	(−3.484)	623	39.9%
	4	0.292***	(5.747)	0.052***	(3.026)	−0.226***	(−3.584)	614	41.5%
∑Acquisition	1	0.009	(0.625)	−0.006	(−0.963)	0.006	(0.315)	633	2.2%
	2	0.059*	(1.843)	0.019	(1.281)	−0.045	(−1.115)	633	3.5%
	3	0.084	(1.537)	−0.004	(−0.187)	0.058	(0.771)	623	4.3%
	4	0.090	(1.594)	−0.027	(−1.069)	0.144	(1.337)	614	5.5%
∑LTDReduction	1	0.015	(0.475)	−0.009	(−0.615)	0.070	(1.387)	633	2.3%
	2	0.050	(1.064)	−0.013	(−0.674)	0.065	(1.056)	633	3.3%
	3	0.041	(0.681)	−0.024	(−1.114)	0.083	(1.196)	623	3.9%
	4	0.021	(0.333)	−0.027	(−1.130)	0.091	(1.287)	614	3.9%
ΔInventory	1	0.001	(0.148)	−0.004*	(−1.711)	0.011*	(1.915)	633	5.0%
	2	0.015*	(1.676)	−0.005	(−1.152)	0.008	(0.607)	633	6.5%
	3	0.022**	(1.985)	−0.006	(−1.004)	0.015	(1.014)	623	7.1%
	4	0.024	(1.644)	−0.007	(−0.948)	0.024	(1.051)	614	10.4%
ΔCash	1	0.823***	(11.374)	−0.044**	(−2.047)	0.134*	(1.684)	633	61.2%
	2	0.814***	(10.329)	−0.032	(−1.322)	0.077	(0.893)	633	53.5%
	3	0.706***	(7.654)	−0.034	(−1.129)	0.080	(0.734)	623	40.8%
	4	0.647***	(6.852)	0.007	(0.191)	0.000	(0.001)	614	31.0%

Table 12 continued

Variables		LogProceeds		COVIDMonth		COVIDMonth× LogProceeds		N	R^2
		β_1	t-stat	β_2	t-stat	β_3	t-stat		
Panel B: CB									
ΔWC	1	0.850***	(11.874)	−0.039*	(−1.889)	0.109	(1.370)	633	61.4%
	2	0.828***	(8.477)	−0.011	(−0.401)	0.002	(0.022)	633	51.1%
	3	0.711***	(7.997)	−0.027	(−0.933)	0.052	(0.465)	619	41.1%
	4	0.648***	(6.766)	0.019	(0.498)	−0.075	(−0.533)	612	28.2%
Panel C: SB									
∑CapitalExpense	1	0.015**	(2.256)	−0.006***	(−5.579)	−0.008	(−1.036)	3,262	40.7%
	2	0.070***	(3.200)	−0.009***	(−3.528)	−0.038	(−1.360)	3,262	28.4%
	3	0.091***	(3.189)	−0.013***	(−4.041)	−0.045	(−1.464)	3,231	40.3%
	4	0.120***	(3.320)	−0.017***	(−4.119)	−0.044	(−1.119)	3,214	41.0%
∑R&D	1	0.010***	(2.888)	−0.001**	(−1.964)	0.004	(0.858)	3,262	27.2%
	2	0.043*	(1.756)	−0.001	(−0.297)	0.006	(0.141)	3,262	4.0%
	3	0.029***	(2.855)	−0.002	(−1.360)	0.013	(0.906)	3,231	32.4%
	4	0.039***	(2.955)	−0.003	(−1.627)	0.026	(1.342)	3,214	33.4%
∑Acquisition	1	0.161***	(5.312)	0.001	(0.240)	−0.058	(−1.179)	3,262	10.3%
	2	0.503***	(7.422)	0.003	(0.381)	−0.156	(−1.570)	3,262	19.2%
	3	0.625***	(6.649)	0.005	(0.629)	−0.188*	(−1.749)	3,230	25.1%
	4	0.658***	(6.851)	0.000	(0.006)	−0.126	(−0.940)	3,213	24.9%
∑LTDReduction	1	0.231***	(6.038)	0.000	(0.035)	0.097	(1.305)	3,262	27.2%
	2	0.387***	(8.027)	0.003	(0.411)	0.130	(1.576)	3,262	29.5%
	3	0.437***	(6.954)	0.006	(0.655)	0.111	(1.165)	3,231	26.1%
	4	0.479***	(7.033)	0.007	(0.727)	0.090	(0.884)	3,214	24.4%
ΔInventory	1	0.013**	(2.455)	−0.001	(−0.930)	0.002	(0.183)	3,262	3.9%
	2	0.055***	(3.382)	−0.000	(−0.189)	−0.005	(−0.185)	3,262	6.5%
	3	0.110*	(1.647)	0.004	(0.915)	−0.039	(−0.732)	3,231	9.6%
	4	0.097	(1.634)	0.004	(0.944)	−0.006	(−0.093)	3,214	9.1%
ΔCash	1	0.232***	(5.696)	−0.002	(−0.497)	0.083	(1.311)	3,262	11.3%
	2	0.228***	(3.228)	0.008	(0.881)	0.029	(0.286)	3,262	2.8%
	3	0.165	(1.593)	0.006	(0.786)	0.034	(0.410)	3,231	4.1%
	4	0.178*	(1.652)	0.004	(0.545)	−0.009	(−0.108)	3,214	3.9%
ΔWC	1	0.226***	(5.405)	−0.007	(−1.287)	0.096	(1.380)	3,262	11.1%
	2	0.268***	(2.911)	0.011	(1.112)	−0.019	(−0.164)	3,262	4.0%
	3	0.059*	(1.777)	0.001	(0.171)	0.069	(1.047)	3,230	2.7%
	4	0.050	(1.245)	0.003	(0.520)	0.022	(0.318)	3,213	1.9%

Appendix: Variable description

This Appendix defines the variables in our analysis and provides their sources. All balance sheet and income statement variables are measured at the fiscal quarter end preceding the given month (in the security choice analysis) or at the fiscal year end preceding the announcement date (in the announcement effect analysis), unless noted otherwise.

Variable	Calculation	Source
144A	Dummy variable equal to one if an offering is issued under Rule 144A	SDC
CAFundFlow	Capital flows into convertible arbitrage hedge funds over the quarter preceding the given month	Trading Advisor Selection System
CAPE	Campbell and Shiller's (1988) CAPE ratio in the month preceding the given month, calculated as the ratio of the S&P 500 Index to the average of the last ten years of inflation-adjusted earnings	www.econ.yale.edu/~shiller/data.htm
Cash	Ratio of cash and short-term investment (CHEQ) to total assets (ATQ)	CCM
CashFlowVolatility	Industry cash flow standard deviation over the last four years (minimum of three years) preceding the given month. Cash flow is the sum of earnings before extraordinary items (IBQ) and depreciation (DPQ), normalized by the total assets (ATQ) at the beginning of the quarter. The industry is measured as the two-digit SIC code level.	CCM
ContaminatingNews	Dummy variable equal to one if major confounding news is identified in the three trading days around the offering announcement date. Confounding news includes corporate actions, financial results, management team changes, research and development progress, and other major news about the firm's operations	Manual search in Factiva
ConvPremium	Excess of the convertible bond offering's conversion price over the stock price measured on trading day -5	SDC and CRSP
COVIDMonth	Dummy variable equal to one if the fiscal quarter includes any month between March 2020 and June 2021	
COVIDPeriod	Dummy variable equal to one for months between March 2020 and June 2021	
COVIDPeriod1	Dummy variable equal to one for months between March 2020 and September 2020	
COVIDPeriod2	Dummy variable equal to one for months between October 2020 and June 2021	
CreditRating	Moody's credit rating or equivalent S&P credit rating of the convertible bond as of the issue date. Consistent with Loncarski, Ter Horst, and Veld (2009), we assign Moody's rating of Baa2 to unrated bonds. In line with Chan and Chen (2007), we assign a value of one to Moody's Aaa ratings and add a value of one to each subsequent rating.	SDC
DefaultSpread	Average yield difference between BAA- and AAA-rated corporate bonds over the month preceding the given month	Federal Reserve Economic Data
DividendPaying	Dummy variable equal to one if a firm paid out a dividend (DVPSXQ) over the fiscal quarter preceding the given month	CCM
FixedAssets	Ratio of property, plant, and equipment (PPENTQ) to total assets (ATQ)	CCM
GDPGrowth	Gross domestic product growth over the quarter preceding the given month	Federal Reserve Economic Data
InterestCoverage	Ratio of operating income before depreciation (OIBDP) to interest expense (XINTQ) plus one. Following Blume et al. (1998), any ratio greater than 100 is capped at 100, and any negative interest coverage ratio is set at zero.	CCM
IssueSize	Ratio of offering proceeds to total assets (ATQ)	SDC and CCM
LendTightness	Net percentage of domestic banks tightening standards for commercial and industrial loans to large and middle-market firms over the quarter preceding the given month	Federal Reserve Economic Data
Leverage	Ratio of long-term debt (DLTTQ) to total assets (ATQ)	CCM
LogAge	Natural logarithm of one plus the number of years the firm has been listed	CRSP
LogAssets	Natural logarithm of total assets (ATQ), deflated by the Consumer Price Index	CCM and Federal Reserve Economic Data
LogProceeds	Natural logarithm of one plus the total proceeds raised in the fiscal quarter normalized by the total assets (ATQ)	SDC and CCM

Appendix continued

Variable	Calculation	Source
Maturity	Years until maturity of the (convertible) bond offering as of the issue date	SDC
MarketReturn	Return on the S&P 500 index over the quarter prior to the given month	Compustat Daily Updates - Index Prices
MarkettoBook	Market value of equity (PRC×SHROUT) measured five trading days preceding the given month, divided by the book value of equity (CEQQ)	CRSP and CCM
MarketVolatility	Annualized market return volatility, calculated using the daily S&P 500 index return over the quarter prior to the given month	Compustat Daily Updates - Index Prices
Profitability	Ratio of net income (NIQ) to total assets (ATQ)	CCM
RatedFirm	Dummy variable equal to one if the firm has an S&P domestic long-term issuer credit rating	Compustat
ResidualVolatility	Standard deviation of residuals obtained from a market model regression based on daily stock returns, using the CRSP equally weighted market index to proxy for the market return, over the quarter preceding the firm-month	Own calculations
R&DExpenditure	Ratio of research and development expense (XRDQ) to total assets (ATQ), where the missing value is set to zero	CCM
Secondary	Dummy variable equal to one if an SEO includes a tranche offered by existing shareholders	SDC
Shelf	Dummy variable equal to one for shelf-registered security offerings	SDC
StockReturn	Stock return over the quarter preceding the given month	CRSP
Tax	Ratio of income tax (TXTQ) to total assets (ATQ)	CCM
TBYield	Average yield on the ten-year U.S. Treasury bond over the month preceding the given month	Federal Reserve Economic Data
TermSpread	Average yield difference between the ten-year Treasury bond and three-month Treasury bill over the month preceding the given month	Federal Reserve Economic Data
ΔCash	Natural logarithm of one plus the change in cash (CHEQ) normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM
ΔInventory	Natural logarithm of one plus the change in inventory (INVTQ) normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM
ΔWC	Natural logarithm of one plus the change in working capital (WCAPQ) normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM
$\sum$Acquisition	Natural logarithm of one plus total acquisition since issuance normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM
$\sum$CapitalExpense	Natural logarithm of one plus total capital expenditure since issuance normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM
$\sum$LTDReduction	Natural logarithm of one plus total long-term debt reduction since issuance normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM
$\sum$R&D	Natural logarithm of one plus total research and development expense (XRDQ) since issuance normalized by the total assets (ATQ) measured at the fiscal quarter end before issuance	CCM