Research Article

COVID-19 government grants, liquidity indicators and going concern uncertainty

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Abstract

The purpose of this study is to enhance our understanding of the effect of the liquidity position on going concern reporting during the COVID-19 liquidity crisis. The first possible effects of COVID-19 as they occur in 2020 are enclosed in the financial statements of 2019 as an event after the balance sheet date. By studying a sample of 579 financial statements of private (non-listed) companies that are subject to a statutory audit in the Netherlands, we find that both liquidity indicators and government grant applications result in a higher propensity to issue a mandatory going concern paragraph in the financial statements. Additionally, we find no evidence that liquidity levels prior to the COVID-19 pandemic crisis affect an application for a government grant.

Relevance for practice

The findings in this study can be important for corporate management in their assessment of the going concern assumption, for auditors when auditing the appropriateness of going concern assumptions and can offer financial statement users and society some insight into the contribution of government grants programs for businesses during the COVID-19 pandemic.

Keywords

1. Introduction

The COVID-19 virus has had a firm grip on global society for almost two years. On March 11, 2020, the World Health Organization (WHO) proclaimed the COVID-19 virus to be a worldwide pandemic, which subsequently ushered in a worldwide economic crisis. Consequently, the government in the Netherlands took drastic measures via temporary legislation acts, that strongly disrupted both societies as well as businesses. For example, the travel and hospitality industry came to an almost complete standstill and other industries were confronted with large uncertainty concerning their future. Because of this, the COVID-19 pandemic crisis for business was also characterized as a liquidity crisis (Borio 2020; Cowling et al. 2020).

To support businesses throughout the COVID-19 pandemic crisis, governments of many countries all over the world decided on measures in the form of business support. Examples of these government programs contain benefits, loans, and grants for businesses or VAT deferral plans. One of the most costly business support programs for governments are programs supporting payroll and fixed costs (Alstadsaeter et al. 2021; Bartlett and Morse 2021). These governmental programs financially support the coverage of employee costs. For example, the payroll support program in the US provides a continuation of payment of employee salaries, wages and other benefits. Another example is the Temporary Emergency Bridging Measure for Sustained Employment program (NOW) in the Netherlands, which is a government grant for employee costs. These government support programs also materialize in

the financial statements. They are not only accounted for in the profit and loss statement or as a repayment obligation in the balance sheet, but also impact the going concern principle that underlies the financial statements (ESMA 2020; RJ 2020; SEC 2020). However, for most companies the first possible effects of COVID-19 are an event after the balance sheet date and are disclosed in the financial statement of fiscal year 2019 (Donatella et al. 2022).

Prior research on the consequences of COVID-19 shows that it may directly affect the liquidity of firms (e.g. De Vito and Gómez 2020; Fahlenbrach et al. 2021), to a lesser extent the risk of company bankruptcy (e.g. Mirza et al. 2020; Skvortsova et al. 2020), and only limited evidence on the contribution of various government support programs (e.g. Almeida 2021; Alstadsaeter et al. 2021; Bartlett and Morse 2021). These studies indicate the relevance and contributions of government programs in general. However, surprisingly there is no research on the association between application for government grants and going concern uncertainty disclosures in the financial statements. Therefore, the purpose of this study is to enhance our understanding of the effect of the liquidity position on going concern reporting in the financial statements during the COVID-19 liquidity crisis. More specifically, our main interest focuses on the association between government grants for business support during COVID-19 and the uncertainty concerning business continuity that is disclosed and accounted for in the financial statements, to gain more insight into its mutual relationship.

The structure of this paper is as follows. In paragraph 2 we discuss prior literature on the antecedents of going concern uncertainty reporting and develop hypotheses. Thereafter, in paragraph 3, we describe the research

2. Literature and hypotheses

In paragraph 2.1 we describe the Dutch accounting standards concerning going concern in the financial statements. This description is based on laws and regulations concerning Title 9 Book 2 of the Dutch Civil Code. Thereafter, in paragraph 2.2, we will deal with prior literature on liquidity and going concern reporting and formulate hypotheses.

2.1. Financial accounting and going concern in the Netherlands

Requirements for the annual financial statements in the Netherlands are enclosed in Title 9 Book 2 of the Civil Code. According to article 2:384 of the Civil Code financial statements are prepared based on the going concern assumption, unless there is reason to assume otherwise. The Civil Code states; 'The valuation of assets and liabilities shall be based on the assumption that all the activities of the legal person to which those assets and liabilities are helpful, are to be continued unless that assumption is incorrect or its accuracy is subject to reasonable doubt; then this will be clarified, with mention of the impact thereof on capital and result'. Therefore, an explanation in the financial statements is obligatory when the assumption of continuity is no longer valid or there is reasonable doubt about its correctness. Figure 1 depicts a scheme that shows the requirements under the Dutch Civil Code for going concern reporting.

The legislator gave further explanation of the legal provision stated above, in an Explanatory Memorandum. The explanation states (Parliamentary Papers II, 1979–1980, 16326 nr. 3, p. 21.): 'When continuity is not assured, this should be expressed in an explanatory statement; in

Figure 1. Accounting regulations for going concern under Dutch Civil Code.
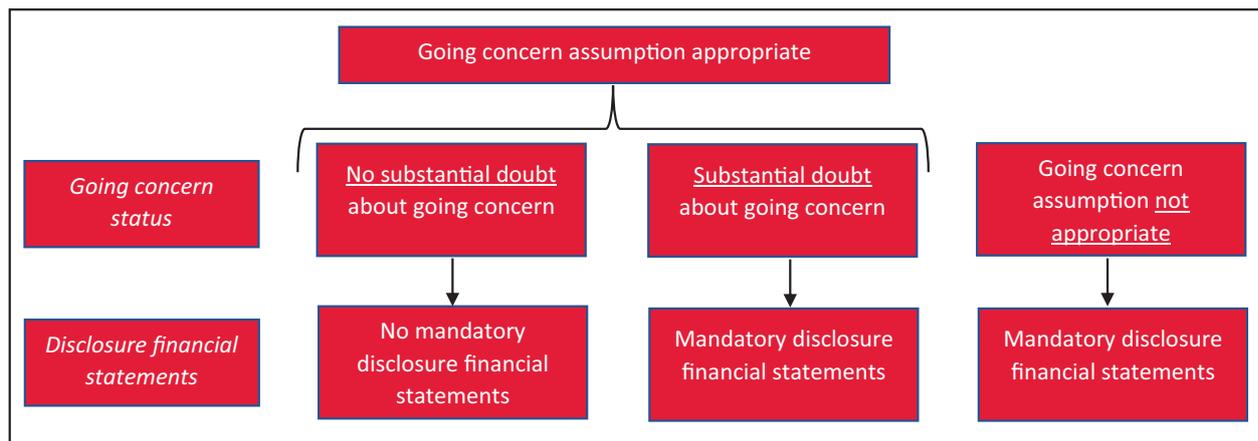
design and the data that are used. In paragraph 4 we present the results of this study, including some supplementary analyses. Finally, in paragraph 5, we conclude with a summary of the results and provide a short discussion of contributions and limitations.

that case, reason exists to valuate assets and liabilities on another base than usual, such as liquidation base. This course of action follows for the guidance of article 2 paragraph 5; in accordance with this provision it is required to describe the effect on equity and results.'. Therefore,

an explanatory statement in the financial statements is obliged when continuity is not assured. In addition, one can conclude from the Explanatory Memorandum that in a situation when continuity is not assured, there is no exact prescription for the wording and content of that explanatory statement. This is different in the situation when going concern is not assured and another valuation base is applied. In this situation, the legislator prescribes to present the effect on equity and results. In short, both law and explanatory memorandum do not state explicitly what is meant by 'reasonable doubt'.

The Dutch Accounting Standards Board – Raad voor de Jaarverslaggeving (RJ) – develops and publishes standards that explain the Civil Code. Standard A2.214 describes a situation of 'reasonable doubt' as follows (free translation); 'Reasonable about the continuity of the activities of the legal entity exists when the legal entity is no longer able to fulfill its obligations under own control. This means that the going concern of the legal entity is inevitable without further support of stakeholders to a larger extent than they are obliged to, while it is not sure if this further support would be provided. The standard furthermore indicates that 'reasonable doubt' anyhow exists in a situation where a company is not able to fulfill obligations under its own control. To answer the question of whether a business will no be able or not to fulfill its obligations under its own control it is particularly important to review the liquidity position of the legal entity. In line with the aforementioned, both the professional member organization of auditors (NBA) as the Dutch Accounting Standards board (RJ) in the Netherlands have frequently drawn attention to the liquidity position of companies in times of great uncertainty due to the COVID-19 pandemic crisis (NBA 2020; RJ 2020).

2.2. Academic literature

2.2.1. Liquidity indicators

Prior research has investigated many different financial indicators for going concern uncertainty (Carson et al. 2013; Geiger et al. 2021). In this body of literature financial statements and auditing are frequently seen as interchangeable elements. According to Gaynor et al. (2016) it is better to delineate these concepts because they have different determinants. Since we investigate accounting consequences we only focus on studies that can be directly linked to the financial statements.

One of the orientations in this body of research focuses on the financial characteristics of the reporting entities. These characteristics mostly originate directly from the published financial statements of the respective entity. Research within this orientation proves that less profitable businesses that have a higher leverage and are smaller, have a larger probability that the financial statements include an explanatory statement on going concern uncertainty (Carson et al. 2013). Especially when there is a breach of the bank covenants. Part of these indicators

relates to the liquidity of the business. In this paper three different determinants will be elaborated upon; negative cashflows, operational cashflows and liquid assets.

Prior research shows that negative cashflows can be an important indicator for an explanatory statement on going concern uncertainty in financial statements (Carson et al. 2013; Geiger et al. 2019). For example, Desai et al. (2017) explore the relationship between three indicators – loss, negative working capital, and negative cashflows – and the propensity of auditors to include a paragraph regarding going concern uncertainty in the audit report. In this paragraph, auditors draw attention to the uncertainty on going concern that is described by management in the financial statements. This research concludes that the three indicators together and each separately are indicators for uncertainty on going concern of a business. In particular, the study shows that amongst US-listed companies over a period between 1994 and 2015 negative cashflows increased to over 60% when going concern uncertainties are expressed. Based on the above, it can be concluded that negative cashflows can be an important indicator for an explanatory statement on going concern uncertainty in financial statements. Based on the aforementioned the following hypothesis is formulated:

H1a. When a company presents negative cashflow, there is a higher probability of a disclosure in the financial statements on going concern uncertainty, than in the absence of there-off.

The cashflow statement generally is divided into the following categories (RJ 360.201); cashflow from operational activities, cashflow from investment activities, and cashflow from financing activities. Prior research shows that cashflow from operational activities in comparison with total liabilities can be an indicator of the presence of a disclosure on going concern uncertainty in financial statements (Carson et al. 2013; Geiger et al. 2021). The survey of Mutchler (1984) shows several financial ratios are important when assessing the going concern uncertainty. The ratio of cashflow from operational activities and interest-bearing debt is one of these indicators. LaSalle and Anandarajan (1996) surveyed 208 audit partners and ranked their responses that provide a rank on going concern uncertainty. Findings show that audit partners indicate the ratio between cashflow from operational activities and total liability as important for the identification of substantial doubt. These studies implicate that smaller cashflows compared to liabilities increase the likelihood of going concern uncertainty. Based on the aforementioned the following hypothesis is formulated:

H1b. The lower the ratio between operational cashflow and liabilities, the higher the probability of a disclosure in the financial statements on going concern uncertainty.

In addition to the relevance of cashflows, the amount of cash positions is also important for the going concern uncertainty. Prior research shows that the ratio between liquid assets and the total assets is negatively related to the probability of going concern uncertainty (DeFond et al. 2002; Goh et al. 2013). More recently Berglund et al. (2018) studied the size of audit firms and reporting on going concern uncertainty. The researchers find that the ratio between liquid assets and total assets is negatively correlated with a going concern opinion (GCO). In analogy with the above, it is expected that the same association that holds for the audit opinion also holds for the explanatory statement on going concern uncertainty prepared by the management in the financial statements. Based on the aforementioned the following hypothesis is formulated:

H1c. The lower the ratio between cash and total assets, the higher the probability of a disclosure in the financial statements on going concern uncertainty.

application for the NOW-grant will specifically be done in times of economic and consequently liquidity crisis.

The application for a NOW-grant also has an impact on the accountability of management in the financial statements (NBA 2020; RJ 2020). In particular, this applies to the assumption of going concern. The legislator has not defined in art. 2:384 par 3 Civil Code the period that should be taken into consideration when evaluating going concern uncertainty. Contrary to the accounting standards of Title 9 Book 2 Civil Code, the International Financial Reporting Standards (IFRS) do define the period that should be taken into consideration. IAS 1.26 states: 'Management takes into account all available information about the future, which is at least, but not limited to, twelve months from the end of the reporting period.' Eimers (2020) states that common practice in the Netherlands is similar to what IFRS prescribes. The consequence of the above is that the COVID-19 pandemic crisis and the corresponding application for government grants can also be part of the evaluation

Figure 2. Governance support and Going concern after fiscal year-end 2019.
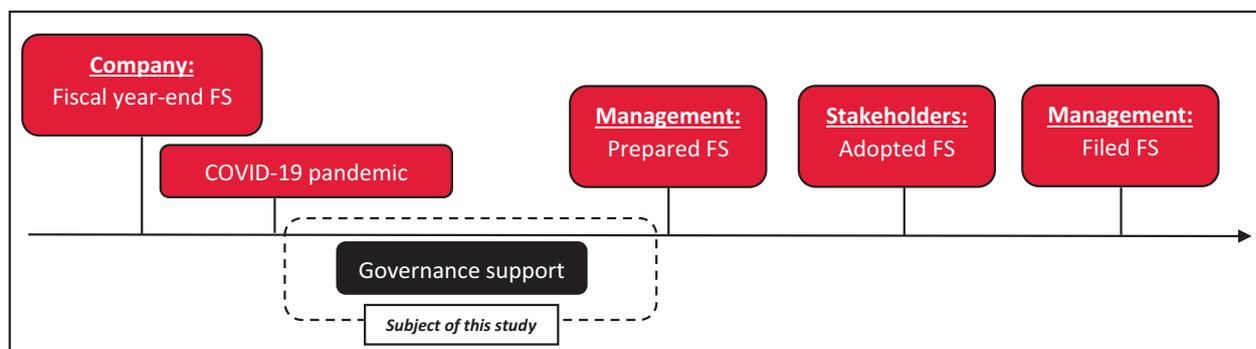
2.2.2. Government grant

The Dutch government has, as one of the measures during the COVID-19 pandemic crisis, established the NOW-grant program. Companies could apply for this program in case of an instant drop in revenues that occurred during a certain measurement period. During the year 2020 three different tranches were made available by the Dutch government; NOW1 for the period March-May, NOW2 for the period June – September, and NOW3 for the period October – December 2020.

The NOW-grant program aims to support employers to cover the payment of fixed labor costs. This would prevent companies from firing employees due to a lack of cash. The application for the grant is triggered by an instant drop in revenues. According to IAASB (2009), a drop in revenues in times of economic hardship is an important indicator for going concern uncertainty. In line with the above, research shows that an increase in revenues results in a lower probability of an explanatory statement on going concern uncertainty in the financial statements (Berglund et al. 2018). Vice versa one could assume that a decrease in revenues, increases the probability of an explanatory statement on going concern uncertainty in financial statements. In the case of a NOW-grant application that is – whether or not temporary – the case because the

of going concern uncertainty and possibly the inclusion of an explanatory statement on going concern uncertainty in financial statements (see figure 2). Based on the aforementioned the following hypothesis is formulated:

H2. The application for a government grant by the company increases the probability of the presence of an explanatory statement on going concern uncertainty in financial statements, than in absence of thereof.

3. Research design

This paragraph describes the data and research model. In paragraph 3.1 we will explain the databases and the data collection included. Thereafter, in paragraph 3.2 we will describe the regression model that is used in this study and elaborate upon it.

3.1. Data

In this study, we use two different databases. The selection criteria are summarized in Table 1. First, we identified all limited liability companies that are subject to a statutory audit in the Netherlands in the database via Company.info. This is a commercial company that discloses

financial information of companies in the Netherlands. Financial statement information in the database is collected continuously via the Chamber of Commerce. After selection based on the aforementioned criteria, we excluded:

1. public companies;
2. companies that report on another standard than Title 9 Book 2 Civil Code (i.e. IFRS) because we are primarily interested in the application of the Dutch Civil Code;
3. all companies with a fiscal year-end date after COVID-19 outbreak as were included in their financial statements (for instance fiscal year-end March 31, 2020);
4. companies that filed the financial statements before the COVID-19 outbreak, since the effects of COVID-19 could not be included in these financial statements (for instance a company with a fiscal year-end date December 31, 2019 publishing before COVID-19 outbreak).

Table 1. Database.

Database	
	N
Total mandatory audits in the Netherlands fiscal year-end 2019 (AFM 2021)	18,560
Less:	
• Non-limited liability legal entities	
• Public companies (and subsidiaries)	
• Non-reporting Civil Code (i.e. IFRS)	
• Fiscal year-end-after COVID-19 outbreak	
• Companies that filed before COVID-19	-5,777
Total number of entities in the database (via company.info)	12,783

Next, we randomly drew a sample of 760 companies. The sample selection criteria are summarized in Table 2. Based on the selection criteria for this study the minimum sample size is 373. However, we increased the initial sample because some variables included in the model, see paragraph 3.2, are not included in the financial statements. For example, according to the Dutch Accounting Standards, a cashflow statement is mandatory for medium and large-sized companies. However, prior research shows that it is not uncommon that companies apply for an exemption to

include a cashflow statement or omit the cashflow statement without disclosure for a valid reason (Vergoossen and Meershoek 2018). Another example is that the preparation date of the financial statement is not given in every financial statement (Vergoossen and Van Beest 2019).

From all the companies in the sample, we collected the annual financial statements and we manually parsed the data from these financial statements. For the application for a government grant, we use the data register of the UWV (the Employee Insurance Agency in the Netherlands). This institute publishes data on the application for government grants. In total 181 companies were removed from the sample when parsing data failed or data were not included in the financial statements. This results in a total of 579 companies being included in the dataset for this study.

Table 2. Sample size.

Sample	
	N
Minimum sample size	373
• Population: 12.783	
• Confidence level: 95%	
• Margin of error: 5%	
Number selected items	760
Less: Missing values	-181
Total items in this study	579

3.2 Research model

Following prior research (e.g. Fargher and Jiang 2008; Berglund et al. 2018; Hardies et al. 2018), we use the following logistic regression model to explain the probability of a mandatory going concern disclosure:

$$GC\text{-}FS = \beta0 + \beta1\ GRANT + \beta2\ NCF + \beta3\ CFO + \beta4\ CASH + \beta5\ SIZE + \beta6\ LEV + \beta7\ ROA + \beta8\ BIGN + \varepsilon$$

The variables used in this research are defined in Table 3. The dependent variable (GC-FS) is a dummy variable equal to 1 (one) if the financial statements contain a mandatory explanatory statement on going concern uncertainty, and equal to 0 (zero) otherwise.

Table 3. Definitions variables.

Variable	Definition	Reference
GC-FS	Indicator variable: 1 (one) if the financial statement includes an explanatory statement on going concern disclosure (substantial doubt), and 0 (zero) otherwise.	Bédard et al. (2017)
GRANT	Indicator variable: 1 (one) if a company applied for a government grant before the preparation date of the financial statements, and 0 (zero) otherwise.	N/A
N_GRANT	Calculated as: the total number of applications for a government grant in the year 2020 before the preparation date of the financial statements.	N/A
A_GRANT	Indicator variable: 1 (one) if the company before the preparation date of the financial statements applied for all three available grant programs in the year 2020, and 0 (zero) otherwise.	N/A
NCF	Indicator variable: 1 (one) if the cashflow is negative, and 0 (zero) otherwise.	Desai et al. (2017)
CFO	Calculated as: cashflow from operations divided by total liabilities.	LaSalle and Anandarajan (1996)
CASH	Calculated as: cash assets divided by total assets.	Fargher and Jiang (2008)
SIZE	Calculated as: the natural log of total assets.	Berglund et al. (2019); Fargher and Jiang (2008)
LEV	Calculated as: total liabilities divided by total assets.	Hardies et al. (2018)
ROA	Calculated as: net income divided by total assets.	Brunelli et al. (2021)
BIGN	Indicator variable: 1 (one) for a Big 4 auditor (identified using the audit opinion), and 0 (zero) otherwise.	Fargher and Jiang (2008); Hardies et al. (2018); Berglund et al. (2019)

We use two types of test variables, being government grants and liquidity indicators. We use three different variables for a government grant (GRANT). GRANT is a dummy variable equaling to 1 (one) if a company applied for a government grant before the preparation date of the financial statements, and 0 (zero) otherwise. N-GRANT is the total number of applications for a government grant before the preparation date of the financial statements. A-GRANT is a dummy variable equaling to 1 (one) if a company applied for all government grants before the preparation date of the financial statements, and 0 (zero) otherwise. We use three proxies for liquidity indicators in this study. NCF is a dummy variable equal to 1 (one) if the cashflow is negative, and 0 (zero) otherwise. CFO is calculated as the ratio between cashflow from operations and total liabilities. CASH is calculated as the total sum of cash and cash equivalents divided by total assets.

We include multiple variables to control for factors that have previously been shown to be associated with going concern uncertainty disclosures in the financial statements. SIZE is calculated as the natural log of total assets. LEV is calculated as the ratio between total liabilities and total assets. ROA is calculated as the ratio between the net result and total assets. BIGN is a dummy variable equaling to 1 (one) if the auditor is a Big 4 audit firm, and 0 (zero) otherwise.

4. Results

In this paragraph, the results of this study will be described. In paragraph 4.1 we provide the descriptive statistics and correlations of the variables that are included in the research model. Hereafter, in paragraph 4.2 we present the results of the logistic regression. Lastly, in paragraph 4.3 we provide additional analyses on government grant applications.

4.1. Descriptive statistics

In Table 4 we present both the descriptive for the full sample and the univariate statistics for the independent groups. Table 4 presents the descriptive statistics for the full sample of companies (N = 579). In the sample of this study, 7% of the financial statements contain mandatory going concern expressions (GC-FS). This percentage is in line with prior research (Knechel and Vanstraelen 2007). As for the test variables, in total 20% of the companies applied for a government grant (GRANT) before preparation of the financial statements. As would be expected, fewer companies applied for all three grants (A-GRANT). In total 2% of the companies applied for all three grants. Furthermore, on average companies applied for 0.3 numbers of grants (N-GRANT). This value shows that on average companies that did apply for a grant on average opt 1.3 times. 41% of the companies present negative cashflows (NCF), on average 55% of the liabilities can be covered by operating cashflows (CFO) and on average 12% of the

total assets contain cash of cash equivalents (CASH). The mean values of the control variables are comparable with prior research; the log of the total assets is 17.27 (SIZE), 57% of the balance sheet contain liabilities (LEV), the return on assets is 6% (ROA) and 45% of the companies in this sample is audited by a Big 4 firm.

In addition, we performed the non-parametric Mann-Whitney test to compare the means of the two independent groups. Table 4 highlights some basic differences between the companies that expressed a disclosure and companies that did not express a disclosure on going concern in the financial statements. It appears that all the variables included in the model are significant factors determining the likelihood of a disclosure. Only the size of the company (SIZE) and when companies apply for all the grants in the year (A-GRANT) are not significant.

We identified items that potentially could indicate an outlier by verifying the standard deviation from mean values. We assessed each item and did not exclude any identified items because they all match with the selection criteria for this study. All the values of the aforementioned independent variables, test variables, and control variables are comparable with prior research (e.g. Knechel and Vanstraelen 2007; Fargher and Jiang 2008; Hossein et al. 2018).

The Pearson correlation matrix is shown in Table 5. The correlations that are shown concern both continuous variables and dichotomous variables. The correlations between the variables that reflect the application for a government grant (GRANT; A-GRANT and N-GRANT) vary between low and high. We do not combine these variables in a regression model. Other variables included in the research model correlate moderately at most. The correlation between the type of auditor (BIGN) and the size of the client (SIZE) is 0.455 and the correlation between the return on assets (ROA) and the ratio between operating cashflow and total liabilities (CFO) is 0.594. All other correlations between the independent variables are substantially lower. The aforementioned correlation levels are comparable with other studies on going concern uncertainty (i.e. Hardies et al. 2018). This indicates that only a very limited coherence exists between the independent variables. In addition to the Pearson correlation matrix, we performed VIF analyses and find low values. Based on the aforementioned we conclude there is no problem with multicollinearity.

4.2. Logistic regression results

In Table 6 the results of the logistic regression analysis are shown. The dependent variable is the going concern uncertainty disclosure in the financial statements (GC-FS). In the basic model (Model 1) we only include the control variables which are used in prior research. In the models thereafter (Model 2, 3, 4 and 5) we added the test variables for this study and conclude with the full model (Model 6) in which all variables are included.

Table 4. Descriptive statistics.

Variable	Min	Max	Total sample (n = 579)#	GC-FS (n = 42)#	NON GC-FS (n = 537)#	Mann-Whitney U (sign. 1-tailed)
GRANT	0	1	0.20 (0.40)	0.36 (0.48)	0.19 (0.39)	9391 (0.004)
N-GRANT	0	3	0.31 (0.65)	0.55 (0.83)	0.29 (0.63)	9302 (0.004)
A-GRANT	0	1	0.02 (0.14)	0.05 (0.21)	0.02 (0.13)	10950 (0.102)
NCF	0	1	0.41 (0.49)	0.60 (0.49)	0.39 (0.48)	8995 (0.050)
CFO	-3.20	120.65	0.55 (5.18)	0.08 (0.33)	0.59 (5.38)	7175 (0.000)
CASH	0	0.82	0.12 (0.15)	0.08 (0.10)	0.13 (0.16)	9359 (0.033)
SIZE	10.17	24.68	17.27 (1.60)	17.33 (1.71)	27.26 (1.60)	11131 (0.444)
LEV	0.00	2.11	0.57 (0.26)	0.74 (0.40)	0.56 (0.24)	8456 (0.003)
ROA	-0.80	2.24	0.06 (0.15)	0.03 (0.09)	0.07 (0.16)	8108 (0.001)
BIGN	0	1	0.29 (0.45)	0.45 (0.50)	0.28 (0.44)	8325 (0.009)

Standard deviation between brackets. GC-FS = Indicator variable: 1 (one) if the financial statement includes an explanatory statement on going concern disclosure (substantial doubt), and 0 (zero) otherwise. GRANT = Indicator variable: 1 (one) if a company applied for a government grant before the preparation date of the financial statements, and 0 (zero) otherwise. N-GRANT = Calculated as the total number of applications for a government grant in the year 2020 before the preparation date of the financial statements. A-GRANT = Indicator variable: 1 (one) if the company before preparation date of the financial statements applied for all three available grant programs in the year 2020, NCF = Indicator variable: 1 (one) if the cashflow is negative, and 0 (zero) otherwise. CFO = Calculated as cashflow from operations divided by total liabilities. CASH = Calculated as cash and cash equivalents divided by total assets. SIZE = Calculated as the natural log of total assets. LEV = Calculated as total liabilities divided by total assets. BIGN = Indicator variable: 1 (one) for a Big 4 auditor (identified using the audit opinion), and 0 (zero) otherwise. ROA = Calculated as income before extraordinary items (IB) divided by assets (AT).

Table 5. Pearson Correlation Matrix.

	GRANT	N_GRANT	A_GRANT	NCF	CFO	CASH	SIZE	LEV	ROA	BIGN	VIF
GRANT	1										1.036#
N_GRANT	0.869 (0.000)***	1									1.070#
A_GRANT	0.289 (0.000)***	0.562 (0.000)***	1								1.015#
NCF	0.029 (0.486)	0.024 (0.486)	-0.047 (0.262)	1							1.074
CFO	-0.034 (0.410)	-0.031 (0.451)	-0.008 (0.841)	0.020 (0.625)	1						1.589
CASH	-0.027 (0.520)	-0.011 (0.787)	0.026 (0.531)	-0.230 (0.000)***	-0.023 (0.581)	1					1.120
SIZE	-0.145 (0.000)***	-0.123 (0.003)***	-0.045 (0.275)	0.002 (0.959)	-0.018 (0.664)	-0.087 (0.035)**	1				1.306
LEV	0.091 (0.028)	0.109 (0.009)***	0.087 (0.035)**	0.053 (0.207)	-0.152 (0.000)***	-0.206 (0.000)***	-0.057 (0.169)	1			1.198
ROA	-0.087 (0.036)**	-0.099 (0.017)**	-0.065 (0.120)	-0.089 (0.033)**	0.594 (0.000)***	0.113 (0.006)***	-0.068 (0.102)	-0.351 (0.000)***	1		1.812
BIGN	-0.068 (0.104)	-0.046 (0.267)	0.013 (0.750)	0.086 (0.039)**	-0.003 (0.936)	-0.049 (0.241)	0.455 (0.000)***	0.013 (0.747)	-0.124 (0.003)***	1	1.294

*, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively (1-sided). Statistical p-value between brackets. # = We performed the VIF analysis with only the GRANT variable included and repeated it again with only the N-GRANT and A-GRANT and for obvious reasons, we do not include the GRANT, N-GRANT, and A-GRANT variables in one model combined. GC-FS = Indicator variable: 1 (one) if the financial statement includes an explanatory statement on going concern disclosure (substantial doubt), and 0 (zero) otherwise. GRANT = Indicator variable: 1 (one) if a company applied for a government grant before the preparation date of the financial statements, and 0 (zero) otherwise. NCF = Indicator variable: 1 (one) if the cashflow is negative, and 0 (zero) otherwise. CFO = Calculated as cashflow from operations divided by total liabilities. CASH = Calculated as cash and cash equivalents divided by total assets. SIZE = Calculated as the natural log of total assets. LEV = Calculated as total liabilities divided by total assets. BIGN = Indicator variable: 1 (one) for a Big 4 auditor (identified using the audit opinion), and 0 (zero) otherwise. ROA = Calculated as income before extraordinary items (IB) divided by assets (AT).

Hypothesis 1a focuses on the association between negative cashflow (NCF) and the explanatory statement on going concern uncertainty in financial statements (GC-FS). Results in Table 6 show that a going concern uncertainty disclosure is more likely for companies with negative cashflows (NCF) that show positive and significant results (Model 3: coefficient 0.730, p < .05, model 6: coefficient 0.625, p. < .05). Therefore the result is consistent with H1a. Hypothesis 1b focuses on the association between the operational cashflow and total liability ratio (CFO) and the explanatory statement on going concern uncertainty in financial statements (GC-FS). Results in Table 6 show that a going concern uncertainty disclosure is less likely for companies in which operational cashflow relative to liabilities is larger. CFO shows negative and significant results (Model 4:

Table 6. Logistic regression analysis for going concern disclosure.

Variable	Pred. Sign	DEPENDENT VARIABLE = GC-FS					
		GRANT	LIQUIDITY INDICATORS				
		(1) BASIC	(2) Add: GRANT	(3) Add: NCF	(4) Add: CFO	(5) Add: CASH	(6) FULL
Constant		-3.045	-4.057	-4.620	-3.714	-3.655	-4.038
		(0.042)**	(0.013)**	(0.007)***	(0.022)**	(0.023)**	(0.016)**
GRANT	+		0.887	0.900	0.866	0.893	0.900
			(0.007)***	(0.007)***	(0.008)***	(0.007)***	(0.007)***
NCF	+			0.730			0.625
				(0.015)**			(0.036)**
CFO	-				-0.914		-0.839
					(0.017)**		(0.033)**
CASH	-					-1.876	-1.296
						(0.097)*	(0.182)
SIZE	-	-0.072	-0.029	-0.015	-0.043	-0.038	-0.034
		(0.238)	(0.388)	(0.440)	(0.341)	(0.360)	(0.370)
LEV	+	2.174	2.170	2.153	2.151	2.064	2.119
		(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
ROA	+	0.772	1.038	1.121	2.091	1.053	2.428
		(0.242)	(0.164)	(0.126)	(0.068)*	(0.151)	(0.049)**
BIGN	+	0.863	0.906	0.817	0.917	0.906	0.864
		(0.010)**	(0.007)***	(0.015)**	(0.007)***	(0.007)***	(0.011)**
N		579	579	579	579	579	579
R2 (Nagelkerke)		0.086	0.109	0.128	0.127	0.117	0.148
Log-likelihood		280.686	275.085	270.352	270.540	273.106	265.508
Chi-squared		20.576	26.177	30.910	30.722	28.156	35.754

*, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively (1-sided). Statistical p-value between brackets. GC-FS = Indicator variable: 1 (one) if the financial statement includes an explanatory statement on going concern disclosure (substantial doubt), and 0 (zero) otherwise. GRANT = Indicator variable: 1 (one) if a company applied for a government grant before the preparation date of the financial statements, and 0 (zero) otherwise. NCF = Indicator variable: 1 (one) if the cash-flow is negative, and 0 (zero) otherwise. CFO = Calculated as cashflow from operations divided by total liabilities. CASH = Calculated as cash and cash equivalents divided by total assets. SIZE = Calculated as the natural log of total assets. LEV = Calculated as total liabilities divided by total assets. BIGN = Indicator variable: 1 (one) for a Big 4 auditor (identified using the audit opinion), and 0 (zero) otherwise. ROA = Calculated as income before extraordinary items (IB) divided by assets (AT).

coefficient -0.914, $p < .05$, Model 6: coefficient -0.839, $p < .05$). Therefore the result is consistent with H1b. Finally, Hypotheses 1c focuses on the association between the ratio between the size of liquid assets and total assets (CASH) and the explanatory statement on going concern uncertainty in financial statements (GC-FS). Results in Table 6 show that a going concern uncertainty disclosure is less likely for companies with higher liquid assets relative to their total assets. CASH shows negative and (in) significant results (Model 5: coefficient -1.876, $p < .05$, Model 6: coefficient -1.296 $p > .10$). Therefore the result is not consistent with H1c.

Hypotheses 2 focuses on the association between the application for a government grant (GRANT) and the explanatory statement on going concern uncertainty in financial statements (GC-FS). Results in Table 6 show that a going concern uncertainty disclosure is more likely for companies that applied for a government grant. GRANT shows positive and significant results (Model 2: coefficient 0.887, $p < .01$, Model 6: coefficient 0.900, p. < 0.01). The effect of an application of a government grant (GRANT) is positive and significant in all the regression models shown in Table 6. This indicates that the application for a government grant increases the propensity of issuing a going concern uncertainty disclosure in the financial statement. Therefore the result is consistent with H2.

4.3. Supplemental analysis

We performed several additional analyses on the association between the government grants and going concern uncertainty. In the basic model (see Table 6) an application for a government grant (GRANT) is defined as a company applying for a single grant before management prepared the financial statements. In the additional analyses, we substituted the primary test variable (GRANT) for the total number of applications for a government grant in 2020 before the preparation date of the financial statements (N-GRANT). Results in Table 7 show that a going concern uncertainty disclosure is more likely for companies with more grant applications. N-GRANT shows positive and significant results (coefficient 0.454, $p < .05$). Next, a company can apply for a maximum of three grants (A-GRANT). A-GRANT will be assigned value 1 (one) if the company before the preparation date of the financial statements applied for all three available grant programs in the year 2020, and 0 (zero) otherwise. A going concern uncertainty disclosure is more likely for companies that applied for all three available grant programs in the year 2020. A-GRANT shows positive, but no significant results (coefficient 0.901, $p > .10$).

In addition to the basic model, we replaced the dependent variable and then investigate the association

Table 7. Additional regression analysis for going concern disclosure.

	Pred. Sign	GS-FS	
Constant		-3.716	-3.106
		(0.024)**	(0.044)**
N-GRANT	+	0.454	
		(0.014)**	
A-GRANT	+		0.901
			(0.156)
NCF	+	0.613	0.619
		(0.038)**	(0.037)**
CFO	-	-0.861	-0.871
		(0.028)**	(0.025)**
CASH	-	-1.397	-1.402
		(0.166)	(0.165)
SIZE	-	-0.045	-0.070
		(0.333)	(0.248)
LEV	+	2.042	2.031
		(0.000)***	(0.000)***
ROA	+	2.459	2.379
		(0.046)**	(0.052)*
BIGN	+	0.852	0.821
		(0.013)**	(0.015)**
N		579	579
R2 (Nagelkerke)		0.142	0.128
Log-likelihood		266.873	270.237
Chi-squared		34.389	30.935

*, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively (1-sided). Statistical p-value between brackets. GC-FS = Indicator variable: 1 (one) if the financial statement includes an explanatory statement on going concern disclosure (substantial doubt), and 0 (zero) otherwise. N-GRANT = Calculated as the total number of applications for a government grant in the year 2020 before the preparation date of the financial statements. A-GRANT = Indicator variable: 1 (one) if the company before the preparation date of the financial statements applied for all three available grant programs in the year 2020, and 0 (zero) otherwise. NCF = Indicator variable: 1 (one) if the cashflow is negative, and 0 (zero) otherwise. CFO = Calculated as cashflow from operations divided by total liabilities. CASH = Calculated as cash and cash equivalents divided by total assets. SIZE = Calculated as the natural log of total assets. LEV = Calculated as total liabilities divided by total assets. BIGN = Indicator variable: 1 (one) for a Big 4 auditor (identified using the audit opinion), and 0 (zero) otherwise. ROA = Calculated as income before extraordinary items (IB) divided by assets (AT).

between multiple liquidity indicators and the application for a government grant (GRANT), and the application for the number of grants (N-GRANT). We expect that lower levels of liquidity, directly drawn from the financial statements, also affect the application for a government grant (GRANT), and the application for the number of grants (N-GRANT) in the period thereafter. In Table 8 the results for the logistic and linear regressions are shown. We do not find any significant results for negative cashflows (NCF), the ratio between operational cashflows and liabilities (CFO), and the total of cash to total assets ratio (CASH). These results indicate that liquidity indicators prior to COVID-19 do not affect the application for the government grant.

Table 8. Regression analysis for grant applications.

	Pred. Sign	GRANT	N-Grants
Constant		2.640	1.087
		(0.029)**	(0.000)***
NCF	+	0.052	0.017
		(0.407)	(0.385)
CFO	-	-0.179	0.005
		(0.224)	(0.214)
CASH	-	-0.226	0.035
		(0.377)	(0.423)
SIZE	-	-0.237	-0.050
		(0.000)***	(0.004)***
LEV	+	0.347	0.175
		(0.216)	(0.057)*
ROA	+	-1.438	-0.449
		(0.068)*	(0.026)**
BIGN	+	-0.148	-0.007
		(0.290)	(0.452)
N		579	579
R2 (Nagelkerke)		0.058	0.021
Log-likelihood		560.952	
Chi-squared		21.826	

*, **, *** Denote statistical significance at the 10 percent, 5 percent, and 1 percent levels, respectively (1-sided). Statistical p-value between brackets. GRANT = Indicator variable: 1 (one) if a company applied for a government grant before the preparation date of the financial statements, and 0 (zero) otherwise. N-GRANT = Calculated as the total number of applications for a government grant in the year 2020 before the preparation date of the financial statements. NCF = Indicator variable: 1 (one) if the cashflow is negative, and 0 (zero) otherwise. CFO = Calculated as cashflow from operations divided by total liabilities. CASH = Calculated as cash and cash equivalents divided by total assets. SIZE = Calculated as the natural log of total assets. LEV = Calculated as total liabilities divided by total assets. BIGN = Indicator variable: 1 (one) for a Big 4 auditor (identified using the audit opinion), and 0 (zero) otherwise. ROA = Calculated as income before extraordinary items (IB) divided by assets (AT).

5. Conclusions, contributions and limitations

In this study, we investigate the effect of liquidity and government grants on going concern reporting during the COVID-19 liquidity crisis. Prior research indicates that lower levels of liquidity result in a higher propensity to include an explanatory statement relating to going concern uncertainty in the financial statements. By studying a sample of 579 private companies in the Netherlands we find that both liquidity indicators and applications for governmental grants result in a higher propensity to include an explanatory going concern paragraph in the financial statements. In supplemental analysis, we do not find that liquidity prior to the COVID-19 outbreak affects an application for the government grant.

These results are important for academic research, corporate management, auditors, financial statement users and society. This study extends prior research by investigating the effect of government grant programs for the COVID-19

pandemic crisis on the propensity of going concern uncertainty disclosures. The results in this study can also be relevant for both corporate management and auditors. An application for a government grant potentially offers an indication for the going concern uncertainty expression in the financial statements. Thereof one can deduct that government grants are applied for by companies that find themselves in difficult and often uncertain circumstances. The results in this study can also contribute to the large societal discussion on the added value of government grant programs (Jongen and Koning 2020). The results show that companies in need of support, as indicated by the explanatory statement on going concern uncertainty, apply for government grants. To a certain extent, this also indicates that companies rightfully apply for a government grant.

Besides the contributions of this study, it potentially also has some limitations. First, this study uses applications for government grants. The applications can be (i) revoked at a later moment, (ii) denied, or (iii) a mandatory repayment obligation arises. In addition, when the government program is closed and finalized the grant register will be updated by the UWV with applications granted. This is potentially an interesting research topic for future research. Second, this study only focuses on the financial statements of the fiscal year 2019 in which COVID-19 is disclosed as an event after the balance sheet date as they occur in 2020. The COVID-19 pandemic crisis now extends for almost two years in which considerations about going concern uncertainty disclosures may have changed over time. Third and lastly, in this study, a relatively small regression model is used compared to prior research. Future research could investigate other and more liquidity indicators used in prior research (see for example Carson et al. 2013; Geiger et al. 2021).

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