

A Lesson Learned From the Crisis Period: Will Borrowers Be Penalized After a Drawdown?

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Large firms draw down lines of credit and add to existing credit facilities in response to the crisis of global pandemic. We examine whether borrowers are penalized with higher rates and stringent contract terms on new bank loans after drawdowns of credit lines. Our results show that borrowers are punished by various contract dimensions after a drawdown. The post-drawdown punishment is tempered to the borrowers of banks with high reputation. Last, we learn the lesson that the post-drawdown punishment is strengthened during the global financial crisis period, and our findings offer managerial implications referring to the impacts of similar crisis.

Keywords: lines of credit, drawdown, global financial crisis, bank reputation

INTRODUCTION

In compliance with a large-scale government lockdown to adjust upon unexpected COVID-19 global pandemic hit during the unchartered first half of year 2020, many businesses, regardless the industry, size, or region, were challenged by the liquidity concern during the operation when market confidence recede quickly. For many of those with liquidity and solvency come under significant constraint, their line of credits become truly the life-line. With a line of credit, the borrower may draw down up to the maximum amount at a pre-determined spread, at any time prior to maturity, paying interest. When the crisis of global pandemic suddenly hit, during a short span of 2020/3-2020/4, a list of large corporations is among 487 borrowers drawing down revolving lines of credit for 240 billion dollars (NY Times 2020) and adding to existing credit facilities to stay afloat for unknown periods. Lenders like Bank of America, Citigroup, Wells Fargo together provided a record \$1.2 trillion line of credit, and Morgan Stanley and Goldman Sachs had a combine \$260 billion reported (FT 2020). Furthermore, lines of credits are the most popular form of bank lending, representing 80% of commercial loans in the United States (Duca and Vanhoose 1990). Figure 1 below shows a sample of firms, which reflected the liquidity concern, and prompted to various drawdowns behaviors to save the struggled operations during the beginning of crisis. However, will borrowers be penalized after their drawdown of line of credit to respond the crisis time? As the COVID-19 crisis is still rolling since 2020, and various industries and sectors have been factor in liquidity toward different directions (i.e., some companies have prepared in high or low cash position), we are motivated to learn the

lesson by prior crisis incident during the global financial crisis of 2007-2009, and use the empirical evidence to demonstrate the unexplored research question.

**FIGURE 1
KEY DRAWDOWNS DURING THE PANDEMIC OUTBREAK OF 2020**

Companies	Activities	Companies	Activities
General Motors	drew down \$16 billion from revolver	Sysco	drew down \$1.6 billion of \$2 billion credit facility
Ford	drew down \$15.4 billion of revolver	Honeywell	renewed \$1.5 billion revolver
Fiat Chrysler	secured new \$3.8 billion credit facility	AT&T	landed new \$5.5 billion term loan agreement
Boeing	drew down entire \$13.8 billion credit line	Disney	secured new \$5 billion one-year line of credit
FedEx	drew down \$1.5 billion from credit line	iHeartMedia	drew down \$350 million of \$450 million revolver
Carnival Cruise	drew \$3 billion from bank credit lines	Live Nation	secured new \$120 million revolving credit facility
Workday	secured a term-loan facility of \$750 million and a revolver of \$750 million	AB Inbev	drew down entire \$9 billion credit facility
Shell	arranged a new \$12 billion credit facility	McDonald's	drew \$1 billion from a new 364-day credit facility agreement
Deere	renewed \$8 billion revolving line of credit	Wendy's	drew down \$120 million from credit facility
Tupperware	drew down \$225 million from credit agreement	GAP	drew down \$500 million credit line
Container Store	drew down \$50 million from credit facility	Abercrombie	drew down \$210 million from revolving facility

(from the SEC's 10-Qs and WSJ)

Rothschild and Stiglitz (1976) argue that credit lines are subject to the moral hazard problem. Specifically, if credit lines guarantee access to financing with pre-determined spread, borrowers have little incentive to avoid such concerns over which firms can exercise their control. Thus efficiency is served by conditions that motivate borrowers to mitigate preventable liquidity shocks. At the mean time whereas lenders seek to temper the incentive distortion of the firm. The broader literature suggests an *ex post* punishment mechanism as a response, such as future premia rising in response to claims (Radner, Myerson, and Maskin, 1986; Atkeson and Lucas, 1995).

Lenders can address the moral hazard problem with *ex post* punishment. Post-drawdown penalties could manifest themselves with various consequential activities, such as adjustments of price terms of loan spread and fees, and non-price contract terms for required collateral in a loan contract, etc. It is expected that *ex post* punishment may correspond to new loan facilities in the future, and borrowers have less incentive to invest in projects that could transact with a reverse outcome with poorly performed and negative NPV, and have to consider behaviors to serve the best interests. In this study, we are first motivated to examine whether a borrower is penalized with a higher rate and stringent contract terms on a new loan facility after its drawdown behavior.

However, banking market is competitive to attract the clients (Carletti, Hartmann, and Spagnolo 2007). Saunders and Song (2018) find that bank monitoring reduces borrowers' risk-taking incentives, in particular to banks with high reputation. Bushman and Wittenberg-Moerman (2012) report that bank reputation

provides quality certification, and associates with borrowers' higher earning persistence and credit quality due to superior screening and monitoring. Pichler and Wilhelm (2001) argue that lead arrangers' reputation serves as an effective monitoring mechanism. Therefore, bank monitoring is essential to mitigate the above moral hazard problem. Along with *ex-post* punishment in play, it prompts a subsequent question: whether borrowers may mitigate the post-drawdown penalties by obtaining new loans from high reputation banks. For banks maintain high reputation, they may not impose stringent penalties to potentially impair good reputation and business relationship, and jeopardize future negotiations (Griffin, Lowery and Saretto, 2014). Or banks may limit the penalties to a small extent to stay on good terms. As a result, the degree of post-drawdown penalty is tempered in association with bank reputation. By capturing the differential post-drawdown punishment to loans from high- and low- reputation banks, we also study the moderating effect of high reputation bank on post-drawdown penalties.

As reported in Figure 1, companies adjust financing behaviors in the crisis. The crisis period, such as the occurrence of financial crisis in late 2000s, or a recent economic impact from COVID-19 global pandemic of 2020s, is considered an unexpected major shock against over the borrowers and banks, due to uncontrollable changes in the business operating circumstance. But will borrowers reduce the post-drawdown penalties if the loan is issued during the crisis? With regards to the potential impact of crisis, we employ the global financial crisis period to examine the differential post-drawdown punishment to borrowers obtaining new loans in the crisis period and those in non-crisis period. We argue, on the one hand, that banks can limit their post-drawdown penalties imposed to borrowers when businesses negotiate terms for new loans due to an unexpected circumstance. On the other hand, however, banks can increase the post-drawdown penalties imposed to borrowers because of the default and market risk is apparently high in a crisis period. Thus, we present its moderating effect with no directional expectation.

In this study, we report 824 firms that have drawn down lines of credit at least once during the period of 1996-2010 from *Dealscan*. By matching *Compustat* and examining their 10-Ks, we detail contract information of all the loans issued by 220 sample firms between 1996 and 2010, and compare various contract terms on loans issued 5-year before and 5-year after each drawdown event. We examine both the loan price and non-price terms in (1) all-in drawn spread and all-in undrawn spread, (2) time to maturity, (3) collateral of loans, and (4) annual fee and upfront fee before and after a drawdown. Our results demonstrate that a firm drawing down a line of credit leads to significantly (1) higher loan spreads, fees, and (2) shorter maturity on new loans; we find, however, (3) limited in the likelihood that collateral will be included in subsequent lines of credit. These results suggest that firms are punished by various contract dimensions after draw downs.

For the moderating effect, borrowers of high reputation banks face less post-drawdown increases in loan spread and annual fee than those of low reputation banks. Our findings indicate that the post-drawdown penalty is tempered by borrowers' financing from high reputation banks. That resonates with Griffin, Lowery and Saretto (2014) to support a balance of post-drawdown penalty for banks in high reputation, maintaining good relationship, and not imposing stringent punishment. Moreover, the new loans obtained after drawdown have higher all-in drawn spread and shorter maturity length during the financial crisis period. However, no significant difference in post-drawdown penalties to all-in undrawn spread, annual fee and collateral requirement between new loans issued during the crisis- and non-crisis period. This offers managerial implications when borrowers have to draw down credit lines facing the circumstance of a similar crisis.

The contributions of this study are multifold. We first shed some light on how such *ex post* punishment for controlling moral hazard problem arises, and our result is consistent with an *ex post* punishment for mitigating moral hazard concern and suggests that it is indeed with some extent of costs to draw on a credit line. Second, we explore a linkage of high bank reputation that mitigates borrowers' post-drawdown penalty, an implication of financing decision and monitoring mechanism between borrowers and lenders, in the condition that string punishments do not hold for banks with high reputation. Third, this study further provides insights to the consequence borrowers need to face with the interplay of post-drawdown penalty when combating with an adverse circumstance of crisis period. We also learn the lesson to drawdown penalty question by prior global financial crisis incident, and it is an expectation to may apply it to similar

crisis that little to no significant lower post-drawdown penalties is reported for that issued in the crisis period. We hope to gain a better understanding of financial market, with cautious and careful interpretation, before another crisis hits unexpectedly.

The rest of this paper is organized as follows: The next section reviews prior research and develops research questions. Section 3 describes research methodology. Section 4 discusses empirical results. The final section summarizes the paper.

DATA AND METHODOLOGY

Sample Selection

Our sample of bank loans is obtained from the Dealscan database offered by Loan Pricing Corporation (LPC). *Dealscan* contains detailed information on bank loans worldwide, such as borrower and lender identity, loan amount, LIBOR spread, issuing and maturity date, whether the loan is secured, covenants, performance pricing provision, etc. According to Carey and Hrycay (1999), the *Dealscan* database covers a greater fraction of commercial loans over the years.

LPC reports loan data at the ‘deal’ level as well as ‘facility level’. The basic unit of observation in *Dealscan* is a ‘facility’ or ‘tranche’. Several facilities are often grouped into a deal. The facilities within a deal may differ in loan amounts, maturities, and other terms. We perform our analyses at the facility level in this study, considering that multiple facilities in a deal may have different loan terms.

We conduct sampling in the following procedure. First, we randomly selected 1,000 borrowers from *Dealscan* and manually match them to firms of *Compustat*. For each company, we examine 10-K filings and manually check the following terms and conditions at each fiscal year end during the period of 1996-2010: (a) whether the firm has lines of credit; (b) whether the firm draws down lines of credit if the firm has one; (c) whether the firm is out of compliance with financial or general covenants. This process provides 931 companies having at least one line of credit during the sample period. 824 firms have drawn down lines of credit at least once. 107 companies have never used any line of credit in the entire period. To examine the effect of drawdown of lines of credit on the loan contracts, we remove those mentioned 107 firms.

Following Graham, Li and Qiu (2008), we exclude companies that only have pre-drawdown loans or post-drawdown loans to permit pair comparison of loan contracts. For firms draw down more than once, we only include the first draw down to avoid the complication in a loan facility obtained between two drawdown events. To ensure the loans obtained before and after drawdown do not have a long gap, we only include the loans issued 5-year before and 5-year after the first drawdown event. After exclusion of firms with missing accounting information in *Compustat*, we find the procedure resulting in the main sample of 1,412 loan facilities borrowed by 220 companies.

Firm Characteristic Variables

Melnik and Plaut (1986) find respective client firm has different preferences over contract terms after exploring the tradeoffs between a firm and a bank on terms in a line of credit, such as fee levels and interest rate spreads. To examine the effect for a use of lines of credit on loan contract terms, we need to control firm characteristics.

Firm size matters in the use of line of credit. We measure firm size using the natural logarithm of total assets. *Market-to-book ratio* is used to proxy for firm’s growth opportunities (Chen and Zhao, 2006). It is defined as the ratio of market value of assets (book value of debt plus market value of equity) and book value of total assets. *Leverage* is measured as total debt divided by total assets. We also control for firm performance that is proxied by *ROA* (operating income divided by total assets). *Tangibility* equals to net properties, plants, and equipments (net PPEs) divided by total assets.

We use cash flow volatility and Z-score to proxy for borrower’s default risk. Cash flow volatility is measured as the standard deviation of net cash flow over the past 16 quarters divided by the average book assets over the same period, and Z-score is computed based on Altman (1968). It is noted higher Z-score indicates a firm has larger default risk.

Loan Characteristic Variables

Since contract terms of a bank loan are likely to be jointly determined, we are interested in studying how an event of drawdown would affect the cost of loan and the use of other contract terms.

The cost of loans is measured by the all-in-drawn from *Dealscan*, which is initial loan price. Loan size is the natural logarithm of the amount of a loan by *Log (loan size)*. *Maturity* is the number of months to maturity. Performance pricing is an indicator variable which equals one if the loan is a performance pricing loan, and zero otherwise. It is used to control for the possibility that lenders price loans differently if a loan contains performance pricing provision. There are another five dummy variables used for loan purposes, including corporate purposes, debt repayment, working capital, takeover and all other purposes, which are all taken into control.

Measure of Post-Drawdown Penalties

Post-drawdown penalties could manifest in various dimensions, including price terms (loan spread and fees) and non-price contract terms. We measure post-drawdown penalties as (1) the increase in all-in drawn spread and all-in undrawn spread, (2) the reduction in maturity length, (3) the increase in annual fee and upfront fee, and (4) the increase in the probability of pledging a collateral in credit lines after controlling for many firm- and loan-characteristics that are determinants of these loan contract terms (Graham, Li and Qiu, 2008).

Sample Statistics

To avoid a complication in distortion of test results, we only include the first draw down if a firm draws down more than once, as well as only include loans issued 5-year before and 5-year after the year of drawdown to shorten the concern of time gap. This screening procedure leaves us 1,412 credit facilities issued by 220 firms. Sample statistics are reported in Table 1. The mean all-in-drawn spread is 163.89 basis points, and the mean all-in-undrawn spread is 27.35 basis points. Upfront fee and Annual fee are 15.9 and 46.64 basis points, respectively. Mean maturity is 47.50 months and mean loan size is \$275.71m. The mean of secured dummy is 0.45, which means that 45% of credit lines are secured. About 44% of facilities contain a performance pricing provision. The mean value of covenant violation dummy indicates that 7% observations are associated with a covenant violation. Average leverage is 0.32, average market-to-book ratio is 1.76, and average ROA is 0.13.

TABLE 1
SUMMARY STATISTICS OF LOAN FACILITY

Variable	N	Mean	Median	STD
Loan Characteristics				
All-in drawn spread (basis points)	1135	163.89	150.00	117.72
All-in undrawn spread (basis points)	706	27.35	25.00	16.47
Loan Maturity (months)	1306	47.50	48.00	29.64
Secured dummy	1412	0.45	0.00	0.50
Upfront fee (basis points)	309	15.90	12.50	15.73
Annual fee (basis points)	279	46.64	25.00	63.38
Loan size (\$ million)	1412	275.71	100.00	475.99
Performance pricing dummy	1412	0.44	0.00	0.50

Firm Characteristics				
Assets size	1412	2621.57	580.77	6178.77
Market-to-book	1412	1.76	1.47	0.93
Leverage	1412	0.32	0.31	0.22
ROA	1412	0.13	0.13	0.10
Tangibility	1412	0.37	0.31	0.24
Cash flow volatility	1412	0.05	0.05	0.03
Z-score	1412	3.39	2.62	3.30
Covenant Violation				
Covenant violation dummy	1412	0.07	0.00	0.26

EMPIRICAL RESULTS

Post-drawdown penalties could manifest themselves in various dimensions, including price terms (loan spread and fees) and non-price contract terms (secured loan). In this section, we test the first research question by examining post-drawdown penalties in various contract dimensions after controlling for potential differences in borrowers' financial condition and loan characteristics before versus after the drawdown.

Post-Drawdown Penalties: Price and Non-Price Contract Terms

Table 2 presents univariate analysis of drawdown sample. There are 518 loans issued five years before drawdown and 894 issued five years after drawdown. For loans obtained before (after) drawdown, the mean loan spread specified in these contracts, i.e. all-in drawn spread is 143.30 (174.63) basis points over LIBOR. Before drawdown (after drawdown), the mean all-in undrawn spread (total fees and interest) for each dollar available under a loan facility is 25.41 (28.51) basis points, respectively. The mean secured dummy indicates that about 44% of facilities include at least one collateral before drawdown and about 46% of facilities include at least one collateral after drawdown. Average time to maturity of these loans is 49.85 months before drawdown and 46.19 after drawdown. Our t-test results in Table 2 indicate that difference in mean values of above-mentioned variables, except loan secured variable, is significantly different from zero, when they are compared before and after the drawdown.

TABLE 2
PRICE AND NON-PRICE CONTRACT TERMS OF LOANS ISSUED BEFORE VERSUS AFTER THE DRAWDOWN

Variable	Mean Value		Difference	t-statistic
	Loan facilities obtained before drawdown	Loan facilities obtained after drawdown		
All-in drawn spread (basis points)	143.30	174.63	-31.33	-4.46***
All-in undrawn spread (basis points)	25.41	28.51	-3.10	-2.46**
Loan maturity (months)	49.85	46.19	3.66	2.14**
Annual fee (basis points)	13.72	17.19	-3.47	-2.16**
Upfront fee (basis points)	38.75	52.10	-13.35	-1.93**
Secured dummy	0.44	0.46	-0.02	-0.79

***, ** and * denotes significance at the 1%, 5% and 10% levels respectively.

To further examine the effect of a drawdown event on contract terms of new lines of credit, we estimate the following regression model:

$$\text{Loan contract term} = \alpha_1 + \beta_1 \text{Post-drawdown} + \sum_i \gamma_i \text{Control variables}_{t-1} + \varepsilon_t, \quad (1)$$

where *Post-drawdown* is an indicator variable which equals one if a loan is initiated after the firm draws down its line of credit for the first time during our sample period, and zero otherwise. This key variable reflects the change in contract terms due to a drawdown event after we control for the change in firm and contract characteristics. Since penalty could take many forms, we examine both loan price and non-price terms in (1) all-in drawn spread and all-in undrawn spread, (2) time to maturity, (3) collateral of loans, and (4) annual fee and upfront fee before and after a drawdown.

Table 3 presents results of multiple regressions. The coefficient estimate on *Post-drawdown* in model (1) is positive and statistically significant. This result is also economically significant. Based on the magnitude of the coefficient estimate in model 1, a drawdown increases the all-in drawn spread by 13.88%, holding all variables at their median values. A drawdown also significantly increases total fees and interests charged on total loans (all-in undrawn spread) in model (2) on a coefficient estimate of 0.081 in a positive and significant level. Model (3) is an OLS regression to explain the loan's logarithm of the time to maturity. We find that time to maturity decreases after the drawdown (coefficient estimate is -0.107), and its result is statistically significant. It indicates that loans obtained after drawdown have shorter maturity compared loans before drawdown. The coefficient estimate on *Post-drawdown* in Model (4) (in Model (5)) is positive but not statistically significant with 0.110 (positive and significant with 0.208) to annual fee (to upfront fee), respectively. Model (6) is a Probit model with the secured dummy as a dependent variable, and the coefficient estimate on *Post-drawdown* is positive but not significant. These results indicate that it offers a limited support for an increased likelihood of including collateral in the new loans, merely be likely to pledge collateral to the increase of upfront fee, after a firm draws down a facility. However, borrowers have made no difference to the increase of annual fee, nor a strict secured requirement to pledge collateral on new loans issued after a drawdown.

TABLE 3
EFFECT OF DRAWDOWN EVENTS ON PRICE AND NON-PRICE CONTRACT TERMS OF LOAN FACILITIES

	Log (All-in drawn spread)	Log (All-in undrawn spread)	Log(maturity)	Log (Annual fee)	Log (Upfront fee)	Secured dummy
Variable	(1)	(2)	(3)	(4)	(5)	(6)
<i>Post-drawdown</i>	0.130 (0.001)	0.081 (0.054)	-0.107 (0.013)	0.110 (0.140)	0.218 (0.076)	0.021 (0.807)
Covenant violation	0.391 (0.000)	0.202 (0.018)	-0.193 (0.008)	-0.080 (0.766)	-0.143 (0.443)	0.553 (0.000)
Log(assets)	-0.163 (0.000)	-0.152 (0.000)	-0.134 (0.000)	-0.132 (0.006)	-0.062 (0.297)	-0.182 (0.000)
Market-to-book	-0.019 (0.512)	-0.047 (0.145)	-0.142 (0.000)	-0.151 (0.011)	-0.060 (0.396)	0.137 (0.020)
Leverage	0.798 (0.000)	0.831 (0.000)	0.298 (0.007)	1.061 (0.002)	0.854 (0.007)	0.773 (0.000)
ROA	-1.467 (0.000)	-1.176 (0.000)	1.081 (0.000)	-1.587 (0.012)	-1.149 (0.051)	-2.660 (0.000)
Tangibility	-0.117 (0.139)	0.017 (0.838)	0.018 (0.830)	-0.090 (0.577)	0.216 (0.367)	-0.097 (0.558)

Cash flow volatility	1.485 (0.019)	-0.157 (0.829)	0.146 (0.823)	-0.265 (0.861)	-0.645 (0.710)	0.956 (0.473)
Zscore	-0.025 (0.025)	-0.009 (0.442)	0.002 (0.817)	0.058 (0.045)	0.014 (0.442)	-0.053 (0.003)
Log(loan size)	-0.044 (0.047)	-0.040 (0.147)	0.192 (0.000)	0.060 (0.289)	0.055 (0.333)	-0.201 (0.000)
Performance pricing	-0.062 (0.102)	0.146 (0.001)	0.046 (0.270)	0.006 (0.932)	-0.450 (0.000)	0.513 (0.000)
Credit spread	0.202 (0.000)	0.081 (0.001)	-0.098 (0.000)	0.136 (0.001)	0.206 (0.006)	0.249 (0.000)
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes
NOBS	1,134	706	1,306	309	279	1,412
Adj R ² or Pseudo R ²	0.483	0.473	0.248	0.286	0.290	0.262

P-values are reported in parentheses below each coefficient estimate.

In general, our results in Table 3 show that drawing down a line of credit leads to significantly higher loan spreads and fees, and shorter maturity on new loans. These results suggest that firms are punished by various contract dimensions after they draw down their lines of credit, which lends further support to our first research question.

Post-Drawdown Penalties: The Moderating Effect of High Bank Reputation

Hu and Mao (2016) state that more reputable banks have a stronger incentive (to preserve their reputation) and better skills (due to greater experience) to monitor their borrowers effectively. In a long term, well-maintained bank reputation and business relation keep borrowers from switching banks. Banks may limit the post-drawdown penalties to a small extent and maintain good reputation and keep good business relationship. To investigate the possibility, we study the moderating effect of bank reputation on post-drawdown penalties. We measure bank reputation as bank's market share in lending in the previous five years, and we then create a *High Bank Reputation* dummy that is equal to one, if a lead bank's market share in lending in the previous five years is above the sample median, and zero otherwise.

TABLE 4
EFFECT OF DRAWDOWN EVENTS ON PRICE AND NON-PRICE CONTRACT TERMS OF LOAN FACILITIES: THE MODERATE EFFECT OF HIGH REPUTATION BANKS

Variable	Log (All-in drawn spread) (1)	Log (All-in undrawn spread) (2)	Log(maturity) (3)	Log (Annual fee) (4)	Log (Upfront fee) (5)	Secured dummy (6)
<i>Post-drawdown</i>	0.203 (0.000)	0.137 (0.016)	-0.046 (0.414)	0.232 (0.028)	0.352 (0.027)	0.064 (0.565)
High bank reputation	0.173 (0.006)	0.236 (0.000)	0.044 (0.518)	0.402 (0.000)	0.085 (0.644)	0.052 (0.700)
High bank reputation × <i>Post-drawdown</i>	-0.170 (0.025)	-0.157 (0.053)	-0.127 (0.128)	-0.296 (0.039)	-0.299 (0.194)	-0.097 (0.560)
Covenant violation	0.387 (0.000)	0.207 (0.014)	-0.198 (0.007)	-0.044 (0.869)	-0.114 (0.545)	0.565 (0.000)

Log(assets)	-0.167 (0.000)	-0.155 (0.000)	-0.128 (0.000)	-0.138 (0.003)	-0.051 (0.400)	-0.186 (0.000)
Market-to-book	-0.019 (0.507)	-0.047 (0.145)	-0.141 (0.000)	-0.141 (0.015)	-0.043 (0.561)	0.133 (0.025)
Leverage	0.797 (0.000)	0.807 (0.000)	0.312 (0.005)	1.003 (0.003)	0.846 (0.008)	0.794 (0.000)
ROA	-1.473 (0.000)	-1.157 (0.000)	1.030 (0.000)	-1.418 (0.023)	-1.083 (0.066)	-2.554 (0.000)
Tangibility	-0.121 (0.124)	0.011 (0.898)	0.007 (0.934)	-0.144 (0.365)	0.220 (0.358)	-0.086 (0.606)
Cash flow volatility	1.448 (0.022)	-0.197 (0.785)	0.218 (0.739)	-0.227 (0.879)	-0.576 (0.740)	0.901 (0.499)
Zscore	-0.026 (0.021)	-0.012 (0.333)	0.002 (0.795)	0.052 (0.068)	0.013 (0.487)	-0.052 (0.004)
Log(loan size)	-0.045 (0.040)	-0.049 (0.077)	0.192 (0.000)	0.041 (0.469)	0.059 (0.310)	-0.198 (0.000)
Performance pricing	-0.059 (0.120)	0.144 (0.001)	0.058 (0.166)	-0.018 (0.803)	-0.472 (0.000)	0.509 (0.000)
Credit spread	0.201 (0.000)	0.087 (0.000)	-0.100 (0.000)	0.142 (0.001)	0.190 (0.012)	0.235 (0.000)
Loan purpose	Yes	Yes	Yes	Yes	Yes	Yes
NOBS	1,132	706	1,293	309	279	1,399
Adj R ² or Pseudo R ²	0.487	0.484	0.250	0.318	0.296	0.262

P-values are reported in parentheses below each coefficient estimate.

The interaction term *Post-drawdown*High Bank Reputation* captures the differential punishment to the borrowers of high reputation banks and borrowers of low reputation banks. The results are reported in Table 4. The interaction term in model (1) is negative and significant, suggesting that borrowers of high reputation banks face less post-drawdown increase in all-in drawn spread than borrowers of low reputation banks. The interaction terms in model (2) and model (4) are also negative and significant, which indicates borrowers of high reputation banks has less post-drawdown increase in all-in undrawn spread and annual fee than those of low reputation banks. The interaction terms in models (3), (5) and (6) are all insignificant, suggesting no significant difference in post-drawdown penalties in terms of maturity length, upfront fee and collateral requirement between borrowers of high reputation banks and borrowers of low reputation banks. In general, those findings indicate that the post-drawdown punishment is tempered by the borrowers' option to borrow from banks with high reputation.

Post-Drawdown Penalties: The Effect of Financial Crisis

But can borrowers reduce the post-drawdown penalties if the loan is issued during the crisis period? The crisis period, such as the occurrence of financial crisis in late 2000s, or the recent economic impacts from COVID-19 global pandemic of 2020s, is considered an unexpected major event both toward the borrowers and banks, due to uncontrollable changes in the business operating circumstance. During the subprime crisis in late 2000s, we learned that credit agencies were much criticized for their “issuer pays” model and a pivotal role before the fallouts, leading to the passage of Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (Dodd-Frank Act). If they could, banks can limit the post-drawdown penalties imposed to borrowers when businesses negotiate terms for new loans due to an unexpected business circumstance. However, banks can increase the post-drawdown penalties imposed to borrowers because of the default and market risk is apparently high in financial crisis period. To investigate the possibility, we study the moderating effect of financial crisis period to post-drawdown penalties with no directional expectation. Following upon the credit agencies involvement, we define that *financial crisis*

dummy is equal to one if the loan is obtained during the financial crisis from July 2007 to June 2009, and zero otherwise.

The interaction term *Post-drawdown*Financial crisis* captures the differential post-drawdown punishment to borrowers obtaining new loans in the crisis period and borrowers obtaining new loans in non-crisis period. The results are reported in Table 5. The interaction term in model (1) is positive and significant, suggesting that the new loans obtained during the crisis have larger post-drawdown increase in all-in drawn spread than those obtained in non-crisis period. The interaction term in model (3) is negative and significant, suggesting the post-drawdown punishment of maturity length is greater if the new loans are obtained during the financial crisis. During the crisis, the new loans obtained after drawdown have shorter maturity length. However, we also find that the interaction terms in models (2), (4), and (5) in Table 5 are not significant, suggesting no significant difference in post-drawdown penalties in terms of all-in undrawn spread, annual fee and collateral requirement between loans issued during crisis and non-crisis period. We don't report the results of upfront fee, because of limited observations of Upfront fee, *Post-drawdown*Financial crisis* is equal to *Financial crisis dummy*.

In general, our finding indicates that the post-drawdown punishment is strengthened during the financial crisis of late 2000s. We expect the above results offer managerial implications referring to similar financial event for recent impacts in global pandemic crisis.

TABLE 5
EFFECT OF DRAWDOWN EVENTS ON PRICE AND NON-PRICE CONTRACT TERMS OF LOAN FACILITIES: THE EFFECT OF THE FINANCIAL CRISIS

	Log (All-in drawn spread)	Log (All-in undrawn spread)	Log(maturity)	Log (Annual fee)	Secured dummy
Variable	(1)	(2)	(3)	(4)	(5)
<i>Post-drawdown</i>	0.105 (0.008)	0.079 (0.064)	-0.082 (0.056)	0.109 (0.149)	-0.017 (0.841)
Financial crisis	-0.167 (0.574)	0.141 (0.639)	0.406 (0.244)	-0.029 (0.947)	-0.234 (0.799)
Financial crisis × <i>Post-drawdown</i>	0.741 (0.018)	0.033 (0.922)	-0.960 (0.009)	0.144 (0.791)	1.117 (0.237)
Covenant violation	0.382 (0.000)	0.191 (0.026)	-0.190 (0.009)	-0.078 (0.773)	0.556 (0.000)
Log(assets)	-0.165 (0.000)	-0.151 (0.000)	-0.130 (0.000)	-0.133 (0.006)	-0.192 (0.000)
Market-to-book	-0.045 (0.118)	-0.050 (0.123)	-0.124 (0.000)	-0.150 (0.012)	0.094 (0.121)
Leverage	0.859 (0.000)	0.827 (0.000)	0.246 (0.027)	1.054 (0.002)	0.887 (0.000)
ROA	-1.246 (0.000)	-1.117 (0.000)	0.939 (0.000)	-1.593 (0.013)	-2.296 (0.000)
Tangibility	-0.097 (0.214)	0.019 (0.828)	0.008 (0.927)	-0.089 (0.582)	-0.071 (0.673)
Cash flow volatility	1.566 (0.013)	-0.215 (0.768)	-0.021 (0.974)	-0.279 (0.856)	1.081 (0.417)
Zscore	-0.021 (0.058)	-0.010 (0.404)	0.000 (0.961)	0.057 (0.047)	-0.048 (0.008)
Log(loan size)	-0.052 (0.016)	-0.043 (0.124)	0.197 (0.000)	0.061 (0.288)	-0.213 (0.000)

Performance pricing	-0.064 (0.089)	0.145 (0.001)	0.046 (0.270)	0.004 (0.959)	0.522 (0.000)
Credit spread	0.198 (0.000)	0.081 (0.001)	-0.094 (0.000)	0.136 (0.001)	0.242 (0.000)
Loan purpose NOBS	Yes 1,134	Yes 706	Yes 1,306	Yes 309	Yes 1,412
Adj R ² or Pseudo R ²	0.496	0.474	0.261	0.286	0.270

P-values are reported in parentheses below each coefficient estimate.

This table reports regression results examining the effect of drawdown on various contract terms of loan facilities if the loan facilities issued during the financial crisis. *Financial crisis* dummy is equal to one if the loan facilities are obtained during the financial crisis period (July 2007 to June 2009), and zero otherwise.

CONCLUSION

We examine whether borrowers are penalized with higher rates and stringent contract terms on new bank loans after the drawdown event. Our results show that new loans have higher loan spreads, fees, shorter maturity, but limited to include collateral after the drawdown. Therefore, firms are punished by various contract dimensions after a drawdown of credit line. Moreover, the post-drawdown punishment is tempered to the borrowers from banks with high reputation, with a concern that banks may impair good reputation and business relationship to jeopardize future negotiations. The post-drawdown punishment is strengthened during the global financial crisis period. Our findings offer managerial implications referring to the impacts of similar global pandemic crisis.

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APPENDIX: VARIABLE DEFINITION

Variable	Definition
Loan Characteristics	
AI-in drawn spread (basis points)	the amount the borrower pays in basis points over LIBOR for each dollar drawn down.
AI-in undrawn spread (basis points)	the amount a borrower pays for each dollar available under a commitment.
Loan maturity, Log(loan maturity)	natural logarithm of time to maturity of a loan in months.
Secured	an indicator variable, which equals one if the loan is secured, and zero otherwise.
Upfront fee (basis points)	a fee paid by the borrower upon closing of a loan.
Annual fee (basis points)	annual charge against the entire loan amount.
Loan size, Log(loan size)	natural logarithm of loan amount in US dollars.
Performance pricing	an indicator variable, which equals one if a performance pricing provision is included in a loan contract, and zero otherwise.
Loan purpose dummies	five dummies for various loan purposes, including corporate purposes, debt repayment, working capital, takeover, and all other purposes.
Borrower Characteristics	
Post-drawdown	an indicator variable, which equals one if the loan facility is initiated after the first drawdown, and zero otherwise.
Covenant violation	an indicator variable, which equals one if a firm violates its debt covenant in a particular year, and zero otherwise.
Firm size, Log(assets)	natural logarithm of book value of total assets
Market-to-book	the sum of market value of equity and book value debt divided by the book value of total assets.
Leverage	total debts divided by total assets.
ROA	net income divided by total assets.
Tangibility	net PP&E divided by total assets.
Cash flow volatility	cash flow volatility that is computed as the standard deviation of net cash flow over the past 16 quarters divided by the average book assets over the same period.
Z-score	Altman (1968) Z-score that is computed based on <i>Compustat</i> data items according to the following formula: $1.2 * \text{data179}/\text{data6} + 1.4 * \text{data36}/\text{data6} + 3.3 * \text{data178}/\text{data6} + 0.6 * (\text{data199} * \text{data25}/\text{data181}) + \text{data12}/\text{data6}$

Other variables	
Credit spread	yield difference between AAA rated corporate bond and BAA rated corporate bond.
High bank reputation	an indicator variable, which equals to one if a lead arranger's market share in lending in the previous five years is above sample median, and zero otherwise.
Financial crisis	an indicator variable, which equals to one if a new loan is issued during the financial crisis period, and zero otherwise.