Lenders' Response to Peer and Customer Restatements*

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ABSTRACT

We investigate whether restatements announced by economically related firms influence the contract terms a borrower receives from lenders. A restatement by a major customer firm increases the loan spread of a borrower by 11 basis points, on average. The contagion effects of customer restatements are higher (45 basis points) when a borrower's switching costs are high. Restatements by peer firms in the same industry also increase a borrower's loan spread, and this increase occurs regardless of restatement severity. Moreover, the sensitivity of loan spread to peer restatements is significantly greater when the restating peer firms are also in the bank's lending portfolio, suggesting that a lender's personal experience with restatements in an industry makes it more attuned to the potential implications of these restatements for the borrowing firm. Finally, our results suggest that lenders utilize information from peer restatements to anticipate future restatements by the borrowing firm.

Réaction des prêteurs aux retraitements des états financiers de sociétés comparables et de sociétés clientes

RÉSUMÉ

Les auteurs se demandent si les retraitements des états financiers annoncés par des sociétés ayant un lien économique avec une société emprunteuse influent sur les conditions contractuelles que cette dernière obtient des prêteurs. Un retraitement des états financiers d'une importante société cliente accroît le différentiel de taux d'une société emprunteuse de 11 points de base, en moyenne. Les effets de contagion des retraitements des états financiers de sociétés clientes sont plus importants (45 points de base) lorsque les coûts d'un changement de client sont élevés pour la société emprunteuse. Les retraitements des états financiers de sociétés comparables exerçant leurs activités dans le même secteur entraînent également une hausse du différentiel de taux d'une société emprunteuse, et cela peu importe la gravité des problèmes que visent à corriger les retraitements. De plus, la sensibilité du différentiel de taux aux retraitements des états financiers de sociétés comparables est beaucoup plus grande lorsque les sociétés comparables procédant à ces retraitements figurent aussi dans le portefeuille de prêts de la banque, ce qui laisse croire que l'expérience du prêteur en matière de retraitements dans un secteur d'activité accroît l'attention qu'il porte aux conséquences potentielles de ces retraitements pour la société emprunteuse. Enfin, les résultats de l'étude semblent indiquer que les prêteurs utilisent l'information relative aux retraitements des états financiers des sociétés comparables pour anticiper les retraitements ultérieurs des états financiers de la société emprunteuse.

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1. Introduction

Given that bank loans represent a sizable majority of the external financing operations of public firms, it is critical to understand the factors that lenders consider when setting contract terms.[1] In this study, we investigate whether and how banks respond to accounting restatements issued by economically related firms when creating debt contracts. Specifically, we explore how restatements announced by peers (within the same 4-digit SIC industry) and major customers (that represent more than 10 percent of a borrowers' total reported sales) impact the loan spread of a borrower. While a vast literature exists on the firm- and market-specific risk factors that impact debt contracts, little is known about the industry-specific risk factors that lenders consider when setting loan contract terms.[2]

Restatements correct material inaccuracies in previously reported financial statements. They are significant information events that raise serious doubts about the restating firm's corporate accounting practices and internal controls (Kinney and McDaniel 1989). Moreover, some (but not all) restatements lead to negative adjustments to past earnings and meaningful declines in firm value and expected future cash flows (Palmrose et al. 2004). Given the important economic links between a borrowing firm and both (i) its peers within the same industry, and (ii) its major customers, we hypothesize that restatements by these economically related firms will prompt lenders to reassess the risk profile of a borrower, leading to higher interest rate spreads.

We suggest two primary channels through which this may occur. First, restatements by related firms may convey unfavorable information about the economic prospects of a borrower and, therefore, their ability to repay the loan. Peer restatements, for instance, are often indicative of deteriorating industry conditions (Dechow et al. 2010). Likewise, customer restatements reduce the ability of the firm to satisfy its existing commitments to stakeholders (Chakravarthy et al. 2014) and may signal declines in the customer's payment ability or the magnitude of future orders placed with the borrowing firm. Following both peer and customer restatements, then, we posit that lenders will update their estimates of future cash flows from which debt repayments will be made, resulting in higher loan spread for the borrowing firm.

Second, peer and customer restatements may affect loan spread through an increase in uncertainty about the borrower's financial information. Peer firms are engaged in similar business transactions, face similar performance expectations, and use similar accounting practices as other firms in their industry. Consequently, as the incidence of misreporting in an industry rises, lenders will likely reassess the accounting quality of all firms in that industry. Customer restatements may also be informative about the quality of a firm's financial information. For instance, customer restatements related to vendor allowances or purchase returns and discounts may increase uncertainty regarding a borrower's accounts receivable or revenue balances, respectively. Perceived declines in financial statement credibility increase the information asymmetry between borrowers and lenders, therefore requiring the bank to monitor the firm more closely (Graham et al. 2008). These costly monitoring efforts should be passed along to the borrower in the form of higher interest rate spreads (Lambert et al. 2007).

The arguments above suggest that peer and customer restatements may revise lenders' expectations regarding the expected future cash flows of a borrower, the expected

1. According to the Securities Industry and Financial Markets Association (SIFMA), between 1996 and 2015 total corporate debt issuances amounted to $16,433 billion. Meanwhile, proceeds from IPOs during the same period totaled only 6.45 percent of this amount (see http://www.sifma.org/research/statistics.aspx).
2. Firm-specific factors include the liquidation value of a borrower's assets (Benmelech et al. 2005), borrower characteristics (Strahan 1999), accounting quality (Bharath et al. 2008), and shareholder rights (Chava and Roberts 2008). Market-wide factors include the country-level creditor protection environment (Qian and Strahan 2007).

monitoring costs of the lender, or both. Disentangling these two channels is difficult, primarily because many restatements affect both simultaneously (Graham et al. 2008). As such, our study focuses on the overall effect of peer and customer restatements on loan contracting.

We test our hypothesis using a sample of 29,519 bank loan initiations and 10,922 restatement announcements between 1998 and 2012. We find that more than half of the borrowers in our sample initiate a loan after one or more of their industry peers has announced a restatement, with an average of seven restatements per industry. For these firms, lenders significantly increase loan spread. Notably, this spread increase occurs regardless of peer restatement severity. That is, even peer firm restatements that are considered less severe in nature increase the cost of debt for a borrower.[3] We further find that the sensitivity of loan spread to peer restatements is significantly greater when the restating peer firms are also in the bank's lending portfolio. This suggests that a lender's personal experience with restatements in an industry makes it more attuned to the potential implications of these restatements for the borrowing firm.

We also find economically significant increases in loan spreads following customer restatements, but only when the restatements are relatively severe. To illustrate, banks adjust a borrower's loan spread upward by an average of 17.6 basis points for each additional customer irregularity announced in the year prior to loan initiation. Moreover, we predict and find that the contagion effects of customer restatements are heightened when borrower switching costs are high, with loan spreads increasing up to 45 basis points, on average. When borrower switching costs are low, however, the contagion effect of customer restatements on loan pricing is minimal.[4]

Lastly, we find some evidence that peer and customer restatements precede declines in a borrower's future (two years after loan initiation date) performance, default risk, and financial statement quality. Lenders appear to anticipate these changes. Most notably, we find that lenders anticipate future restatements by increasing loan spread for borrowers that *will restate* in the future, and their ability to anticipate these events is enhanced when the loan initiation is preceded by one or more peer firm restatements.

Our findings contribute to three streams of literature. The first examines whether lenders utilize industry information when setting contract terms. Most relevant to our study is Hertzel and Officer (2012), who find that lenders tighten contract terms in response to bankruptcies in an industry. Our paper complements theirs in several ways. Most importantly, restatements are distinct information events that are only tangentially related to bankruptcy filings. Not only are restatements *not* synonymous with financial distress,[5] they can also lead to uncertainty about both the expected future cash flows

3. We consider more severe peer and customer restatements to be those that (i) are considered irregularities, rather than errors in reporting (Hennes et al. 2008), or (ii) result in downward adjustments to previously recorded income.

4. We include the number of borrower (e.g., own-firm) restatements announced in the 12 months prior to a loan initiation in all of our regressions. Using a significantly expanded sample period, we corroborate the finding in Graham et al. (2008) that past restatements lead to significantly higher loan spreads. We find this to be true in all years of our sample, although the magnitude of the spread increase is significantly smaller after the 2008 financial crisis.

5. The relation between a firm's financial condition and its likelihood of engaging in a misstatement is unclear. Although some research has found restating firms to be less profitable than others (e.g., Scholz 2008), Dechow et al. (2010) find that cash sales are actually increasing during the misstatement period for fraud firms. In addition, they find misstating firms have unusually strong stock return performance in the years prior to the misstatement and conjecture that managers engage in aggressive accounting to avoid disappointing investors and losing their high valuations. Thus, it is not clear that restating firms are financially distressed. In fact, only 1.4 percent of the restating firms in our sample experience bankruptcy within 24 months of their restatement announcement.

and financial statement credibility of a borrower. Bankruptcies arguably convey information about only the former. Our study also examines the joint impact of both peer and customer restatements on loan contracts (whereas Hertzel and Officer (2012) examine only industry peers) and uses a significantly expanded sample period to assess the impact of restatement events on banks. Future research should benefit from a better understanding of the industry risk factors used by lenders when setting contract terms.

Second, our results extend previous literature on the contagion effects of accounting restatements in the equity market (see, e.g., Gleason et al. 2008). We show that the consequences of peer and customer restatements are not isolated to the equity market alone, but also increase the cost of debt for economically related firms. Additionally, a unique feature of examining restatement contagion in the context of bank loans, rather than equity prices, is our ability to focus on the characteristics of a specific lender. To that end, we study how a lender's personal experience with restatements at other firms in its lending portfolio impacts its response to peer and customer restatements.

Third, our study complements prior literature that examines how sophisticated market participants process restatement news. Prior research has found that investors, short sellers, and analysts are unable to anticipate restatement announcements, even when other firms in the same industry announce a restatement first (Drake et al. 2015; Gleason et al. 2008). Chen (2016) finds that banks, on the other hand, are able to identify risk factors correlated with misreporting well before such misconduct is publicly revealed. Our evidence suggests that peer restatements are one such risk factor that banks use to anticipate future restatements by the borrowing firm.

Our results are subject to potential endogeneity concerns. Unlike previous studies that examine the contagion effects of restatements using narrow event-time windows (e.g., Gleason et al. 2008), our research design uses a one-year window prior to a borrower's loan initiation date to capture peer and customer restatement announcements.[6] As with any long-window study, we are unable to establish causality between the event (peer and customer restatement announcements) and the outcome (loan spreads) because other omitted factors may drive both constructs of interest. In particular, it is possible that restatements occur more frequently in risky industries that naturally borrow at higher rates; this explanation is consistent with our finding that past restatements affect loan spreads and also that loan spreads appear to predict future restatements. In our tests, we include industry fixed effects to capture time invariant industry riskiness. Moreover, we include numerous variables in our model to capture the general riskiness and/or financial health of the borrowing firm at the time of loan initiation. While these tests are designed to ensure the robustness of our results, we cannot completely rule out the possibility of an omitted factor that could affect both borrowing rates and restatement incidents at the same time. Using natural experiments or other techniques, future studies can further examine whether the association we document is causal.

2. Background

Lender's use of industry information

Two fundamental arguments are put forth to explain variation in debt contract terms: adverse selection and moral hazard. The adverse selection argument suggests that if a manager cannot reveal the firm's future prospects in a credible way, lenders should invest

6. Previous studies examining the contagion effects of restatements in the equity market have examined price changes over a narrow event-time window (typically three days) centered on the restatement announcement date (e.g., Gleason et al. 2008). The advantage of this research design is an increased ability to establish causality between the event (restatement announcement) and outcome (stock price reaction). It is difficult to observe changes in bank contract terms using a similar restatement-event window, however, because the number of loan initiations made during this period would be few.

in costly information production and due diligence to determine the creditworthiness of potential borrowers. The moral hazard argument suggests that even if the firm has an acceptable credit risk profile, the lender should still expend resources to monitor the borrower after the loan has been granted, given the borrower's incentives to invest suboptimally. Both adverse selection and moral hazard stories imply that changes (e.g., accounting restatements) in the firm's environment (e.g., peer and customer firms) will affect a borrowing firm's repayment ability, as well as the extent of monitoring undertaken by the lending bank, and should therefore explain variation in debt contract terms.

During the lending process, banks can use information from both public and private sources to assess the creditworthiness of a borrower. Through these information channels, banks can also identify firms that are economically linked to a borrower, such as rivals in the same industry or customers for which there is an implicit or explicit relationship. There is limited empirical research, however, on how lenders use information from linked firms when setting contract terms. Hertzel and Officer (2012) show that one firm's bankruptcy announcement affects the bank loan contracts of its rivals in the same industry, through both increases in loan spread and collateral requirements. De Franco et al. (2012) examine the loan pricing implications of rival firms sharing a common lender. Their evidence is consistent with lenders using inside knowledge about firms in the same product market to lower the cost of borrowing, especially for firms with high financial reporting opacity. Finally, Fang et al. (2014) and Kim et al. (2013) find that accounting comparability between firms in the same industry helps lenders decipher critical information more easily, which reduces uncertainty and results in a lower cost of borrowing.

Restatements as an information source

A restatement represents a formal admission that previously filed financial statements were inaccurate. In the past two decades, the number of restatement announcements has increased substantially, from only 41 restatement announcements in 1997 to over 800 in 2014 (see Table 1). Owing in large part to the frequency of these events, the Securities and Exchange Commission (SEC) has listed restatements as a major factor in undermining investor confidence in financial reporting (SEC 2002). Prior research, however, has highlighted the dissimilarities that exist among restatement observations, with significant variation in severity and consequences (Hennes et al. 2008; Scholz 2008). For instance, Hennes et al. (2008) categorize restatements into two groups, errors and irregularities. Accounting errors are relatively mundane mistakes that tend to have minimal effects on equity values and cash flows. Irregularities, on the other hand, are deliberate misrepresentations of fact that, when discovered, result in large stock price declines, managerial turnover, and class action lawsuits, among other consequences.

Depending on restatement severity, abnormal returns can fall anywhere between 1 percent and 11 percent, on average, when the restatement news is first made public.[7] In addition to a loss of market value, restating firms also have reduced access to public debt or equity financing in the three years following a restatement announcement (Chen et al. 2013). An increased reliance on private debt financing comes at a cost, however, as Graham et al. (2008) find that bank loans initiated in the 12 months after a restatement announcement have higher spreads, shorter maturities, more covenant restrictions, and a higher likelihood of being secured than loans initiated before a restatement. The documented increases in debt and equity financing costs reflect market participants' reevaluation of both the credibility of managerial disclosures and expected future earnings. Collectively, these studies support the argument that restatements are important information events that market participants use to update their beliefs about the credit risk of the

7. See, e.g., Palmrose et al. (2004), Scholz (2008), and Myers et al. (2013).

TABLE 1
Loan and restatement characteristics

Panel A: Distribution of loan initiations and restatements by year

	(1) No. of loan initiations	(2) Percent of loan sample	(3) No. of restatement announcements	(4) Percent of restatement sample	(5) No. of irregularity announcements	(6) Percent of irregularity sample
1997	n/a	n/a	41	0.4	9	0.3
1998	2,618	8.9	40	0.4	18	0.5
1999	2,476	8.4	93	0.8	16	0.5
2000	2,488	8.4	110	1.0	36	1.0
2001	2,346	7.9	144	1.3	21	0.6
2002	2,280	7.7	216	2.0	75	2.1
2003	2,304	7.8	222	2.0	62	1.8
2004	2,543	8.6	251	2.3	57	1.7
2005	2,470	8.4	534	4.9	102	3.0
2006	2,323	7.9	1,897	17.4	788	22.9
2007	2,204	7.5	1,360	12.4	523	15.2
2008	1,132	3.8	948	8.7	350	10.1
2009	784	2.6	766	7.0	272	7.9
2010	1,177	4.0	859	7.9	270	7.8
2011	1,649	5.6	855	7.8	262	7.6
2012	725	2.5	865	7.9	220	6.4
2013	n/a	n/a	874	8.0	215	6.2
2014	n/a	n/a	847	7.8	153	4.4
	29,519	100.0	10,922	100.0	3,449	100.0

(The table is continued on the next page.)

TABLE 1 (continued)

Panel B: Distribution of loan initiations and restatements by industry

2-digit SIC	Industry description	(1) No. of loan initiations	(2) Percent of loan sample	(3) No. of restatement announcements	(4) Percent of restatement sample	(5) No. of irregularity announcements	(6) Percent of irregularity sample	(7) Percent of irregularities relative to total restatements
01–09	Agriculture, Forestry, and Fishing	120	0.4	80	0.7	21	0.6	26.3
10–14	Mining (including oil & gas)	1,829	6.2	1,137	10.4	288	8.4	25.3
15–17	Construction	506	1.7	105	1.0	36	1.0	34.3
20–33	Non-durable goods manufacturing	5,925	20.1	1,591	14.6	543	15.7	34.1
34–39	Durable goods manufacturing	5,565	18.9	2,007	18.4	696	20.2	34.7
40–49	Transportation, Communications, Electric Gas, and Sanitary Services	2,574	8.7	1,028	9.4	292	8.5	28.4
50–51	Wholesale Trade	1,200	4.1	342	3.1	120	3.5	35.1
52–59	Retail Trade	2,399	8.1	633	5.8	164	4.8	25.9
60–67	Finance, Insurance, and Real Estate	4,405	14.9	1,736	15.9	525	15.2	30.2
70–89	Services	4,994	16.9	2,228	20.4	753	21.8	33.8
91–99	Public Administration	2	0.0	35	0.3	11	0.3	31.4
		29,519	100.0	10,922	100.0	3,449	100.0	

(The table is continued on the next page.)

TABLE 1 (continued)

Panel C: Major customers and major customer restatements by industry

2-digit SIC	Industry description	(1) Number of borrowers in industry that announce a major customer	(2) Percent of borrowers in industry that announce a major customer	(3) Number of restatements by major customers in the year prior to initiation
01–09	Agriculture, Forestry, and Fishing	17	14.2	1
10–14	Mining (including oil & gas)	546	29.9	55
15–17	Construction	66	13.0	6
20–33	Non-durable goods manufacturing	1,424	24.0	109
34–39	Durable goods manufacturing	1,714	30.8	197
40–49	Transportation, Communications, Electric Gas, and Sanitary Services	323	12.6	29
50–51	Wholesale Trade	261	21.8	25
52–59	Retail Trade	41	1.7	2
60–67	Finance, Insurance, and Real Estate	366	8.3	113
70–89	Services	663	13.3	62
91–99	Public Administration	0	0.0	0
		5,421	18.4%	599

(The table is continued on the next page.)

TABLE 1 (continued)

Panel D: Frequency of borrower, peer, and customer restatements among sample firms

	Borrower restatement(s)	Peer restatement(s)	Customer restatement(s)
Borrowers (out of 29,519) with at least one:	1,342 (4.6%)	15,860 (53.7%)	482 (1.6%)
If at least one, then:			
Average count	1.09	7.27	1.24
Median count	1.00	3.00	1.00
Maximum count	3.00	88.00	11.00
Total no. of restatements	1,470	115,259	599

Notes: This table presents the distribution of loan initiations and restatement announcements across years and industries (panels A, B, and C), as well as the frequency of borrower, peer, and customer restatements among our sample firms (panel D). In panels A and B, we use the classification scheme developed in Hennes et al. (2008) to categorize each restatement as an irregularity or an error. We begin and end our sample of loan initiations in 1998 and 2012, respectively, to ensure that restatement announcements are available for at least one year prior to and two years after the loan initiation date. Panel C reports the number and percentage of borrowers in each industry group that announce the identity of a major customer, defined as any customer that accounts for more than 10 percent of the borrower's total reported sales, as disclosed in a firm's SFAS No. 131 disclosures. The last column documents the number of restatement announcements made by these customer firms in the 12 months prior to loan initiation. Panel D reports the number and percent of borrowers in our sample that experience at least one borrower (e.g., own-firm) restatement, peer restatement, or customer restatement in the 12 months prior to loan initiation.

restating firm; they do not, however, examine whether this increase in risk spreads to other non-restating firms—namely, peer and customer firms.

Restatement contagion effects

Restatement-induced contagion effects are typically identified by analyzing the stock price movements of competitors, suppliers, or customers following restatement announcements.[8] For instance, Gleason et al. (2008) find that the market consequences of restatements are not isolated to the restating firm alone, as peer firms in the same industry experience share price declines of up to 1.5 percent. This finding suggests that investors reassess the financial statement credibility of other firms in the industry, as well as their expectations for future industry prospects. However, not all prior studies report meaningful decreases in equity prices. Xu et al. (2006) report stock price declines of less than 1 percent for peers of a restating firm, and these contagion effects are present for only certain subsets of the population. Hirschey et al. (2013) find that the average price response to peer firm restatements is not significantly different from zero in the post-SOX era, and the median price response is significantly negative only when the restatement detection period is relatively long. In a similar vein, Chen and Lai (2008) find that suppliers and customers experience negative abnormal returns surrounding restatement announcements, although the magnitude of these returns does not appear to be economically meaningful (abnormal returns ranging between −0.17 percent and −0.54 percent).

Despite some evidence of restatement-induced contagion in the equity market, there are fundamental differences between banks and equity holders that may result in lenders reacting differently to these industry signals of misreporting. Specifically, banks possess superior information access and processing skills relative to equity investors that allow them to reduce information asymmetries and, as a consequence, reduce their exposure to borrower information risks (e.g., Diamond 1991; Dhaliwal et al. 2011). During contractual negotiations, for instance, banks meet regularly with management and often receive confidential information about the firm, such as profit breakdowns by product, financial projections, and new product plans. This information is costly to disclose publicly, but is revealed to lenders in order to receive more favorable contract terms. If banks have sufficient private information with which to determine the borrowing firm's risk profile, they may not find peer or customer restatements to be particularly useful in their decision model. On the other hand, any increase in the cost of monitoring may be passed along to the borrower in the form of higher interest rate spreads.

Our analysis of bank loans also allows us to examine two important issues related to the contagion effects of restatements that would not be possible in the equity market. First, we can focus on individual lenders and examine how their personal experience with restatements at other firms impacts their response. Second, we can speak to the relatively long-term implications of peer and customer restatements on the cost of capital. Equity market studies capture price changes over a narrow event-time window (typically three days), leaving some uncertainty as to whether these effects are permanent or transitory. Changes in lending interest rates, however, affect the borrower for the life of the loan or until contract renegotiation.[9]

8. The contagion effects of restatements have also been studied in the context of investment decisions (Durnev and Mangen 2009), analyst forecasts (Chen and Lai 2008), and earnings management (Kedia et al. 2015).

9. A third benefit of this setting is our ability to examine the trade-off between monitoring mechanisms used by lenders. Bank loan contracts are a package of multiple contract terms, which include both price (i.e., interest rate) and non-price terms such as maturity, collateral, and covenants. In an untabulated analysis, we find that lenders impose more financial covenant restrictions on borrowers as the number of peer restatements in an industry increase. In contrast, we do not observe a relation between customer restatements and financial covenant intensity.

3. Sample selection and description

Corporate loan data

Our initial sample consists of 49,686 unique corporate loans initiated between 1998 and 2012. Loan data are taken from Loan Pricing Corporation's (LPC) DealScan database, which contains detailed information about commercial loans made to U.S. and foreign corporations, including the loan type, purpose, amount, maturity, and spread.[10] We delete 10,884 observations lacking information on loan spread, maturity, or amount, and another 9,823 firm-loan observations missing COMPUSTAT and/or CRSP data. Our final sample consists of 29,519 loans representing 5,871 unique borrowing firms. As shown in Table 1, panel A, the number of loans taken out in a given year ranges from a low of 725 in 2012 to a high of 2,618 in 1998. Not surprisingly, loan frequency is markedly lower in the years during and after the 2008 financial crisis.[11] Table 1, panel B, documents the distribution of our loan sample by major 2-digit SIC industry categories. The loans are most highly concentrated in the Non-Durable (SIC 20-33) and Durable (SIC 34-9) goods manufacturing industries, which represent 20.1 percent and 18.9 percent of the sample, respectively, followed by Services (SIC 70-89, 16.9 percent of sample) and Finance, Insurance, and Real Estate (SIC 60-7, 14.9 percent of sample) industries.

Identifying major customers using segment disclosures

Regulation SFAS No. 131 requires firms to disclose the identity of any customer representing more than 10 percent of its total reported yearly sales. The 10 percent threshold is designed to facilitate the identification of economically significant customers to the registrant. For each firm in our sample, we use the COMPUSTAT Business Segment Files to identify the names of its major customers in the year prior to loan initiation. We match customer firm names to CRSP firm identifiers following the procedure described in Cohen and Frazzini (2008). First, we eliminate listed customers that are regions, governments, or industries (e.g., United Kingdom, U.S. Government, or Retail). We then compare the remaining customer names to firm names listed in the CRSP/COMPUSTAT tapes. Perfect matches are assigned the appropriate CRSP permno number. For all other observations, we use a phonetic string-matching algorithm to generate a list of potential matches for each customer name and then hand-match customers to their corresponding permno numbers by inspecting the firm's name and industry information. The hand-matching procedure is intentionally conservative to ensure only definite matches are included.

10. Our main unit of observation is a loan (also called a facility tranche in DealScan). Loans are grouped into deals when multiple loans are initiated on the same day. These individual loans may not be independent from one another if loan pricing and terms are set at the deal level rather than the loan level. In untabulated robustness tests, we use only the largest loan in each deal as our unit of observation, and our results are unchanged.

11. In untabulated analyses, we separately examine the impact of peer, customer, and borrower (e.g., own-firm) restatements on loan spread during the pre-financial crisis period (1998–2007), financial crisis period (2008–2009), and post-financial crisis period (2010–2012), respectively. In the pre-crisis period, we find a positive association between restatement announcements and borrower loan spread, consistent with the results outlined in section 5. We find two noteworthy changes during the crisis and post-crisis periods, however. First, we find that lenders are significantly less sensitive to peer restatements during the financial crisis period relative to other years. Second, we find that the magnitude of the loan spread increase in response to one additional borrower (e.g., own-firm) restatement is significantly smaller after the financial crisis (8.6 basis point increase) relative to before the crisis (46.9 basis point increase). The differing impact of peer and borrower restatements on loan spread during and after the financial crisis could be attributable to a tightening of lending standards (or reduction in demand for loans) during this period such that only those borrowers for which the contagion effects of restatements are expected to be weakest are given (or demand) new loans. It could also imply that restatement-related risk factors are more pertinent in determining loan spread before the financial crisis than after. The latter explanation is consistent with the relative decline in restatement severity over time (Scholz 2008).

We find that 18.4 percent (5,421 out of 29,519) of the borrowers in our sample disclose the existence of one or more major customers in the year prior to loan initiation. Table 1, panel C, clearly shows that the customer-supplier relationship is more important in some industries, such as Durable and Non-Durable Goods Manufacturing, Mining, and Wholesale Trade, where 20 to 30 percent of the borrowers announce one or more major customers, than in other industries such as Public Administration and Retail Trade, where < 2 percent of firms announce a major customer. This is not surprising since the relevant customers for retail firms, for instance, are individuals, rather than corporations.

Restatement data

Our data on earnings restatements span 18 years, 1997–2014, and are a compilation of data from two sources: the Government Accountability Office (GAO) and Audit Analytics (AA) restatement databases. The GAO restatement database identifies 2,443 restatements announced between January 1, 1997, and December 31, 2005 (GAO 2003 2006a,b). We supplement this data with an additional 9,300 restatement observations from the AA restatement database between January 1, 2006, and December 31, 2014. We manually check all restatement observations near the intersection point of these two data sets, July 2005 through July 2006, to ensure that our restatement sample does not include duplicate observations that may have been in both samples, just with different announcement dates. We identify nine duplicate observations and keep the observation with the earliest announcement date in our sample. The union of these two sources results in an initial sample of 11,734 restatement observations. To determine the frequency of restatements within an industry, we require each restatement firm to have an SIC code available on either COMPUSTAT or AA, which eliminates 812 observations and brings our final sample to 10,922 restatement announcements.

We determine the severity of each restatement announcement using two measures commonly used in prior research (Hennes et al. 2008; Files 2012). First, each restatement is classified as an error or irregularity using the classification scheme developed by Hennes et al. (2008). This partition is publicly available for the GAO sample of restatements.[12] For the remainder of our restatement sample, we use a combination of data from AA and data hand-collected from the SEC's website to categorize the restatement as an error or irregularity.[13] Thirty-two percent of our observations are considered accounting irregularities ($n = 3{,}449$), and the remaining 68 percent ($n = 7{,}473$) are considered errors. Our second severity measure is the cumulative dollar change in net income due to the misstatement, scaled by total assets. Restatement magnitude is not readily available for the GAO sample of restatements, so we hand-collect this information from press release announcements or SEC filings. For the restatements from AA, we use the field "cumulative_change_ni." To the extent possible, we fill in missing values using the COMPUSTAT variable "rea" (retained earnings restatement). If restatement magnitude could not be determined from any of the above sources, this variable is set equal to zero. In our regression analysis, we differentiate between income-increasing and income-decreasing restatements.

12. A restatement is considered an irregularity if any one of the following occurs: (i) variants of the words "fraud" or "irregularity" are used to describe the misstatement, (ii) the restating firm initiates an independent investigation into the accounting misstatement, or (iii) the restatement leads to an SEC enforcement action. Restatements in which none of the above occur are classified as errors. This classification is available on Andy Leone's website (http://sbaleone.bus.miami.edu) for the GAO sample of restatements.

13. Specifically, we use the AA variables denoting "fraud" and "board involvement" to initially characterize a restatement as an irregularity. Then, for each restatement observation still coded as an error, we search the SEC's website (www.sec.gov/) to determine if that particular restatement announcement led to an SEC enforcement action. If so, the observation is recoded as an irregularity. We note that the "SEC investigation" field provided by AA includes both restatements being investigated by the SEC and those triggered by SEC comment letters, the latter of which are often very trivial restatements. It is for this reason that we hand-collect SEC enforcement data ourselves.

Table 1, panel A, reports a steady increase in restatements during the first half of our sample period, moving from a low of 41 in 1997 to a high of 1,897 in 2006.[14] Restatement frequency is relatively stable in the latter half of our sample, ranging between 847 and 874 in each of the last five years (2010–2014). A similar time trend emerges when we examine only the subsample of accounting irregularities (columns 5 and 6). Table 1, panel B, shows the distribution of both restatements and irregularities across major 2-digit SIC industry categories. Restatement firms are widely distributed across industries with the highest frequency of restatements occurring in the Services industry (n = 2,228; 20.4 percent). Durable Goods Manufacturing and Finance, Insurance, and Real Estate represent 18.4 percent and 15.9 percent of the restatement sample, respectively. No other industries represent more than 15 percent of our sample firms. The proportion of irregularities to total restatements in a given industry is relatively consistent across all industry groups, ranging from a high of 35.1 percent in Wholesale Trade to a low of 25.3 percent in Mining (see Table 1, panel B, column 7).

Identifying borrower, peer, and customer restatements

We merge the restatement and loan samples in order to identify the number of restatements that are announced in the 12 months prior to each loan initiation date by (i) the borrowing firm, (ii) peer firms (excluding the borrowing firm) in the same 4-digit SIC industry as the borrowing firm, and (iii) major customer firms. For example, our loan sample includes Solectron Corporation (SLR), which initiated a $350 million loan in August 2006. However, Solectron also announced an earnings restatement four months earlier (April 2006), establishing it as one of the 1,342 borrowing firms in our sample to announce an earnings restatement in the 12 months before its loan initiation. Next, we determine the number of restatements announced by peer firms in Solectron's 4-digit SIC industry. Of the 22 firms in SIC industry 3672 (Printed Circuit Boards), two of them also announced a restatement in the 12 months prior to Solectron's loan initiation date. Finally, Solectron disclosed the names of two customers that accounted for 10 percent or more of its net sales for fiscal year 2005 (Nortel Networks and Cisco Systems). Nortel Networks (NT) announced an earnings restatement in March 2006. Given these events, Solectron Corp. is coded as having one borrower (e.g., own) restatement, two peer restatements, and one customer restatement in the year prior to its loan initiation.

Table 1, panel D, provides details on the frequency of restatements announced in the 12 months before each loan initiation for our full sample. Nearly 16,000 borrowing firms in our sample (53.7 percent) initiate a loan after one or more of their peer firms have announced a restatement, with a mean (median) of 7.27 (3.00) restatements announced per industry. The maximum number of peer restatements occurs in SIC industry 7372 (Prepackaged Software), where 88 firms announced restatements between February 2006 and February 2007. We also find that 482 of the borrowers in our sample initiate a loan after one or more of their major customers announce a restatement (1.6 percent of full sample or 8.9 percent of subsample disclosing a major customer). The mean (median) number of customer restatements equals 1.24 (1.00), with a maximum of 11.

These summary statistics suggest that restatement announcements by peer and customer firms are not infrequent events. However, the impact these restatements have (if

14. As shown in Table 1, panel A, column (3), restatement frequency more than tripled in 2006 relative to 2005. This increase is partially attributable to the different restatement collection methods of the GAO and AA. Whereas the GAO identifies restatements from press release announcements only, AA extracts restatement information from SEC Form 8-Ks, required periodic reports (e.g., 10-K, 10-Q), and press releases, thereby identifying a greater number of restatements. Nevertheless, even when using a consistent data source, restatements are relatively higher in 2006 than other years, in part because of restatements related to stock option backdating (Scholz 2008).

any) on the loan contract of a borrower is an empirical question that we address in the following sections.

4. Research design

The principal dependent variable in our analyses is bank loan spread (*lnSPREAD*), calculated as the natural logarithm of the difference in basis points between the borrowed interest rate and LIBOR. To determine the influence of peer and customer firm restatements on a borrowers' loan spread, we run the following OLS regression where the unit of observation is firm-loan years:

$$\begin{aligned} lnSPREAD = {} & \alpha + \beta_1 COUNT\ PEER\ RESTATE + \beta_2 COUNT\ CUSTOMER\ RESTATE \\ & + \beta_3 COUNT\ BORROWER\ RESTATE + \beta_{4-20}[Controls] \\ & + \sum \beta_T LOAN\ TYPE + \sum \beta_P LOAN\ PURPOSE + \sum \beta_Y YEAR + \varepsilon. \end{aligned} \quad (1)$$

Our variables of interest are β_1 and β_2, where *COUNT PEER RESTATE* (β_1) captures the number of restatements announced by any firm (excluding the borrower) in the borrower's 4-digit SIC industry in the 12 months prior to the loan initiation date. The variable *COUNT CUSTOMER RESTATE* (β_2) captures the number of restatements announced by any of the borrowing firm's major customers in the 12 months prior to the loan initiation date. We predict positive coefficients for both β_1 and β_2.[15]

A key control variable in our model is *COUNT BORROWER RESTATE*, which captures the number of restatements announced by the borrowing firm itself in the year before its loan initiation. As Graham et al. (2008) find that loan spreads are higher for restating firms, we expect *COUNT BORROWER RESTATE* to have a positive coefficient. We also include firm-specific variables that influence the spread charged by banks, such as the borrower's *lnSIZE*, *MKT-TO-BOOK* ratio, and asset *TANGIBILITY*. We expect larger firms and those with a higher proportion of tangible assets to total assets to have lower interest rate spreads.

We include seven different measures intended to capture the financial health of a borrower. The inclusion of these variables is important for two reasons. First, prior research has shown that less profitable, more highly leveraged, and more risky firms face a higher cost of bank borrowing (see, e.g., Graham et al. 2008; Hertzel and Officer 2012). Second, it is possible that the number of peer restatements in an industry (*COUNT PEER RESTATE*) is correlated with a borrower's past performance or financial health. This may be the case if (i) restatements are precipitated by poor performance at the restating peer firm, and (ii) the performance of firms in an industry move together.[16] To clarify, our

15. An alternative specification would be to scale the number of peer firm restatements by the total number of firms in that industry. We elect not to do this for two reasons. First, we hypothesize that lenders will engage in additional monitoring activities for each additional peer restatement, regardless of whether the restatement(s) represent a large or small proportion of the industry. Second, there is not a similarly intuitive scalar for the count of customer restatements since over half of the borrowers in our sample disclose only one major customer. To ensure that our peer restatement results are not driven by industry size, however, we (a) include industry fixed effects to control for time-invariant industry characteristics that may drive loan spreads; (b) cluster standard errors by industry-year to correct for any correlation in loan rates within an industry in a given year; and (c) include the number of firms in the borrower's industry in the year of loan initiation as an additional control variable in our model (the coefficient on this variable is positive but insignificant with a *p*-value of 0.199). Our results are consistent with those presented in Table 4, although the coefficient on *COUNT PEER RESTATE* is significant at the $p < 0.10$ level in the last test.

16. As discussed in footnote 5, the relation between a firm's financial condition and its likelihood of engaging in a misstatement is unclear. Nevertheless, there are certainly cases in which restatements signal poor performance or financial distress, so we include seven different measures of firm and industry performance in our regressions to control for this possibility.

concern is not that peer or customer restatements are correlated with *future* distress or declining performance at the borrowing firm. Rather, we would like to examine the incremental costs borne by borrowing firms following peer and customer restatements, after controlling for firm and industry indicators of financial health available at the time of loan initiation. To the extent that these controls are imperfect proxies for a borrower's financial health, however, our interpretation of *COUNT PEER RESTATE* and *COUNT CUSTOMER RESTATE* may be incorrect.

Our first variable, *STOCK VOLATILITY*, is used in prior research as a measure of idiosyncratic risk (Fu 2009), and we expect more volatile stock returns to be positively correlated with borrowing costs. Our second variable is Altman *Z-SCORE*, where a higher *Z*-score indicates better financial health and therefore lower default risk. We also include stock *LIQUIDITY* ((ask−bid)/price) in the month prior to loan initiation as an additional measure of borrower default risk.[17] Return on assets (*ROA*) and stock returns in the year before loan initiation (*PRIOR RETURN*) are included to capture the accounting and stock performance of a borrower, respectively. Our sixth measure captures a borrower's *LEVERAGE* because firms with higher leverage ratios are expected to have higher default risk. Finally, *INDUSTRY ROA* is the mean return on assets for each firm (excluding the borrower) in the borrower's 4-digit SIC industry as of the fiscal year prior to the loan initiation. We anticipate that lenders will use information on industry profitability levels when setting contract terms.

Our regression model also includes controls for loan-specific characteristics that previous research has shown to be related to the interest rate charged by banks (see, e.g., Bharath et al. 2008). These include the log of deal maturity (*lnMATURITY*), log of deal amount (*lnDEAL AMOUNT*), the *NO. OF LENDERS* contributing to the loan, and indicator variables denoting whether the loan contract includes *PERFORMANCE PRICING* options or the loan contract is syndicated (*SYNDICATE*). We further control for macroeconomic conditions by including *TERM SPREAD* (the difference between the yields of ten-year and one-year Treasury bonds) and *CREDIT SPREAD* (the difference between BAA- and AAA-rated corporate bond yields). We also include *YEAR* fixed effects, as well as *LOAN TYPE* (e.g., term loan, 364-day facilities) and *LOAN PURPOSE* (e.g., working capital needs, debt repayment) fixed effects because loans of varying types and purposes may be priced differently. All regressions are reported with Roger's robust standard errors clustered by firm.

Table 2 presents the pairwise correlations between variables. The correlation coefficients are generally consistent with our expectations and of a reasonable magnitude. However, we find that three variables, *lnSIZE*, *STOCK VOLATILITY*, and *lnDEAL AMOUNT*, are highly correlated with one another (correlation coefficients > 0.50). In addition, the correlation between *ROA* and *Z-SCORE* is 0.53, and the correlation between *STOCK VOLATILITY* and *LIQUIDITY* is 0.71. Despite the large correlations, the variance inflation factors (VIFs) in our regression models remain under the standard cutoff of 10.

Peer and customer restatement severity

Variations in restatement severity are captured using *COUNT PEER [X]*, *COUNT CUSTOMER [X]*, and *COUNT BORROWER [X]*, which identify the number of peer,

17. Prior research presents conflicting arguments as to whether bid-ask spread is positively or negatively related to default risk. Agrawal et al. (2015) and Huang et al. (2015) find that reduced stock liquidity is a leading indicator of financial distress, suggesting a positive association between bid-ask spread and bank loan spread. On the other hand, Goldstein and Guembel (2008) argue that high liquidity in a stock creates incentives for uninformed investors to manipulate stock price through sell orders, thus driving the price of a firm's stock downward. If managers interpret the artificially depressed stock price as investor disapproval, they may respond by canceling good investment opportunities, which results in lower cash flows and higher default risk.

TABLE 2
Pearson correlation coefficients

	Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	*SPREAD*																		
2	*COUNT PEER RESTATE*	**0.03**																	
3	*COUNT CUSTOMER RESTATE*	0.01	**0.06**																
4	*COUNT BORROWER RESTATE*	**0.02**	**0.08**	0.01															
5	*lnSIZE*	**–0.37**	**0.05**	–0.00	**0.04**														
6	*LEVERAGE*	**0.21**	**–0.02**	0.00	–0.00	**0.01**													
7	*ROA*	**–0.18**	–0.00	–0.01	**–0.01**	**0.14**	**–0.01**												
8	*MKT-TO-BOOK*	**–0.09**	**0.05**	–0.00	**–0.02**	**–0.13**	**–0.03**	–0.01											
9	*TANGIBILITY*	**0.03**	**0.11**	–0.00	0.01	**0.02**	**0.16**	**0.09**	**–0.04**										
10	*STOCK VOLATILITY*	**0.31**	**–0.17**	**–0.03**	**–0.05**	**–0.55**	**0.07**	**–0.23**	**–0.03**	**0.02**									
11	*Z-SCORE*	**–0.32**	**–0.13**	**–0.02**	**–0.03**	**0.14**	**–0.31**	**0.53**	–0.01	**–0.12**	**–0.19**								
12	*LIQUIDITY*	**0.20**	**–0.15**	**–0.02**	**–0.06**	**–0.38**	**0.08**	**–0.19**	**–0.09**	**0.02**	**0.71**	**–0.12**							
13	*PRIOR RETURN*	**–0.04**	**0.02**	**0.02**	**–0.02**	**–0.02**	**0.03**	**0.11**	**0.08**	**0.02**	**–0.14**	**0.03**	**–0.21**						
14	*INDUSTRY ROA*	**–0.05**	**–0.09**	**0.00**	**0.02**	**0.06**	**0.06**	**0.21**	**–0.10**	**0.16**	**–0.09**	**0.19**	**–0.05**	**0.02**					
15	*lnMATURITY*	**0.10**	**0.06**	0.00	**0.01**	**–0.06**	**0.07**	**0.12**	**–0.01**	**0.07**	**–0.11**	**0.05**	**–0.12**	**0.12**	**0.10**				

(The table is continued on the next page.)

TABLE 2 (continued)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
16 *lnDEAL AMOUNT*	**–0.27**	**0.09**	0.01	**0.03**	**0.74**	**0.11**	**0.23**	**–0.03**	**0.08**	**–0.51**	**0.16**	**–0.38**	**0.06**	**0.14**	**0.20**			
17 *NO. OF LENDERS*	**–0.25**	–0.00	**0.02**	**–0.01**	**0.45**	**0.04**	**0.10**	–0.01	**0.03**	**–0.28**	**0.08**	**–0.18**	**0.03**	**0.05**	**0.08**	**0.55**		
18 *PERFORMANCE PRICING*	**0.02**	**–0.04**	**–0.02**	**–0.03**	**0.03**	**0.08**	**0.08**	0.00	0.01	**0.07**	**0.05**	**0.07**	**0.02**	**0.03**	**0.12**	**0.10**	–0.00	
19 *SYNDICATE*	**–0.10**	**0.04**	0.01	**0.03**	**0.27**	**0.07**	**0.18**	**–0.03**	**0.04**	**–0.23**	**0.13**	**–0.20**	**0.02**	**0.09**	**0.15**	**0.38**	**0.19**	**0.08**

Notes: *SPREAD* = annual coupon spread on the loan, measured as equivalent basis points over LIBOR at initiation plus any annual or upfront fees paid to the bank group; *COUNT PEER RESTATE* = number of restatements announced by firms in the borrower's 4-digit SIC industry (excluding the borrower) in the 12 months prior to the loan initiation date; *COUNT CUSTOMER RESTATE* = number of restatements announced by any of the borrowing firm's major customers in the 12 months prior to the loan initiation date; *COUNT BORROWER RESTATE* = number of restatements announced by the borrowing firm in the 12 months prior to the loan initiation date; *lnSIZE* = natural logarithm of total assets of the borrowing firm; *LEVERAGE* = total liabilities/total assets; *ROA* = operating income before depreciation/total assets; *MKT-TO-BOOK* = ratio of the market value of assets (market value of equity plus market value of debt) to the book value of assets; *TANGIBILITY* = ratio of net tangible assets to total assets; *STOCK VOLATILITY* = sum of residual squares in monthly regressions of daily excess returns on the monthly Fama and French four factors; *Z-SCORE* = modified Altman *Z*-score computed as (1.2 × working capital + 1.4 × retained earnings + 3.3 × EBIT + 0.999 × sales)/total assets; *LIQUIDITY* = liquidity of the borrower's stock in the month prior to loan initiation, computed as ((ask−bid)/price); *PRIOR RETURN* = buy-and-hold return for the borrowing firm over one year, starting 12 months prior to loan initiation and ending the month of loan initiation; *lnMATURITY* = natural logarithm of the loan maturity period in months, not winsorized; *lnDEAL AMOUNT* = natural logarithm of the sum of face values of the facilities in each deal, not winsorized; *NO. OF LENDERS* = number of lending banks for each loan facility; *PERFORMANCE PRICING* = indicator variable equal to one if the loan contract includes performance pricing options and zero otherwise; and *SYNDICATE* = indicator variable equal to one if the loan is syndicated and zero otherwise. Bold values indicate that the correlation coefficient is significantly different from zero at the $p < 0.05$ level (two-tailed). Continuous variables are winsorized at 1 percent and 99 percent, and firm characteristics are measured as of the fiscal year prior to the loan initiation.

customer, and borrower restatements, respectively, in a given severity category [X] in the 12 months prior to loan initiation. The severity categories are as follows: (i) *IRREG* or *ERROR*: the number of restatements defined as accounting irregularities or accounting errors, respectively; and (ii) *NEGATIVE* or *POSITIVE*: the number of restatements that have a negative or positive impact on previously reported net income, respectively (restatements with no effect on prior earnings are included in the "positive" category). We estimate four iterations of model (1), replacing our primary restatement variables with each of the above measures in turn, and statistically compare coefficient magnitudes across regressions (e.g., compare the coefficient on *COUNT PEER IRREG* and *COUNT PEER ERROR*).

5. Results

Descriptive statistics

Table 3, panel A, presents descriptive statistics for the set of variables, *COUNT PEER [X]*, *COUNT CUSTOMER [X]*, and *COUNT BORROWER [X]*. We see that peer firm irregularities occur less frequently than peer firm errors (average count of 1.35 versus 2.56, respectively) and income-increasing peer restatements are less frequent than income-decreasing peer restatements. The same ordering holds for customer and borrower restatements as well.

Table 3, panel B, presents descriptive statistics for the dependent and control variables included in the regression models. On average, sample firms borrow $667 million per loan, with a loan spread of 216.77 basis points and a maturity of 45 months. Slightly over half of the loans (52.9 percent) incorporate some manner of performance pricing options, while 93 percent of them are syndicated, each using an average of eight different lenders. With respect to firm characteristics, our sample firms have an average of $13.2 billion in total assets and have market-to-book and leverage ratios of 1.42 and 0.35, respectively. Our sample firms generally have positive past stock performance, as both the mean and median values of *PRIOR RETURN* are positive (16.4 percent and 9 percent, respectively). Finally, the average borrower in our sample has been outperforming its industry peers, as the ROA of our borrowing firms is 0.11, while the average ROA of other firms in the same industry over the same time period is 0.09.

Table 3, panel C, presents a univariate analysis of average loan spreads for our sample of borrowers, dependent on the presence of one or more peer, customer, or borrower restatements announced in the 12 months prior to the loan initiation. The average loan spread for a borrower is 219.8 basis points when one or more peer restatements are announced, compared with a loan spread of 213.3 basis points when no restatement occurs. The difference of 6.5 basis points is significant at the $p < 0.01$ level. We also find that loan spreads are 11.2 basis points higher when a major customer announces a restatement (227.8 versus 216.6), but this difference is not statistically significant at conventional levels ($p = 0.112$). The largest increase in loan spread (231.9 versus 216.0 basis points, $p < 0.01$) occurs when the borrowing firm itself announces one or more restatements.

Multivariate analyses

Table 4 reports regression results testing the incremental impact of peer and customer restatements on loan spread. Because the dependent variable, *lnSPREAD,* is expressed in logarithmic form, each coefficient estimate represents the $(e^{\beta}-1) \times 100$ percentage change in loan spread due to a one-unit change in the independent variables. To discuss these changes in terms of basis points, we multiply the estimated percentage change by the average loan spread for our sample firms (216.772, see Table 3, panel B). We use this basis-point convention throughout the paper. Using our full sample of loan initiations (column

TABLE 3
Descriptive statistics for dependent and independent variables

Panel A: Independent variables of interest

	COUNT PEER [X] Full sample				*COUNT CUSTOMER [X]* Full sample	*COUNT CUSTOMER [X]* Where major customer = 1				*COUNT BORROWER [X]* Full sample			
	Mean	Median	75	Max	Mean	Mean	Median	75	Max	Mean	Median	75	Max
Where *X* equals:													
RESTATE	3.905	1	3	88	0.020	0.110	0	0	11	0.050	0	0	3
IRREG	1.348	0	1	54	0.009	0.048	0	0	3	0.020	0	0	3
ERROR	2.557	0	2	61	0.012	0.063	0	0	11	0.029	0	0	2
NEGATIVE	3.044	0	2	79	0.012	0.066	0	0	6	0.035	0	0	3
POSITIVE	0.860	0	1	16	0.008	0.045	0	0	5	0.015	0	0	2

Panel B: Dependent and control variables

Variable	Mean	25	Median	75	Std. dev.
SPREAD	216.772	100.000	200.0	300.000	153.379
SIZE ($MM)	$13,240.39	$268.478	$960.197	$3,736.371	$83,630.21
LEVERAGE	0.345	0.143	0.303	0.489	0.290
ROA	0.111	0.071	0.117	0.170	0.166
MKT-TO-BOOK	1.418	0.794	1.094	1.617	1.515
TANGIBILITY	0.293	0.093	0.226	0.443	0.245
STOCK VOLATILITY	0.209	0.167	0.201	0.244	0.058
Z-SCORE	1.505	0.783	1.592	2.398	1.584
LIQUIDITY	0.012	0.001	0.003	0.013	0.021
PRIOR RETURN	0.164	−0.171	0.090	0.384	0.571
INDUSTRY ROA	0.088	0.052	0.101	0.140	0.086
MATURITY (in months)	45.157	24.000	48.000	60.000	24.354
DEAL AMOUNT ($MM)	$666.789	$75.656	$240.000	$628.100	$1,651.938
NO. OF LENDERS	8.014	2.000	5.000	11.000	8.797
PERFORMANCE PRICING	0.529	0.000	1.000	1.000	0.499
SYNDICATE	0.934	1.000	1.000	1.000	0.247

(The table is continued on the next page.)

TABLE 3 (continued)

Panel C: Univariate comparison of loan spread

	Firm-loan obs. with ***at least one RESTATEMENT*** announced by the following groups in the prior year		Firm-loan obs. with ***NO RESTATEMENT*** announced in the prior year		
	No. of observations	Avg. loan spread	No. of observations	Avg. loan spread	*p*-value for difference in mean
Borrowing firm	1,342	231.9	28,177	216.0	<0.001
Peer firm(s) in same industry	15,860	219.8	13,659	213.3	<0.001
Major customer(s)	482	227.8	29,037	216.6	0.112

Notes: Panel A reports mean, median, 75th percentile, and maximum values for our primary variables of interest, *COUNT PEER [X]*, *COUNT CUSTOMER [X]*, and *COUNT BORROWER [X]*, where the value of *X* equals: *RESTATE* = number of restatements announced by firms in the borrower's 4-digit SIC industry (*PEER*), by major customer firms (*CUSTOMER*), or the borrowing firm (*BORROWER*), respectively; *IRREG* = number of restatements considered to be accounting irregularities, as defined by Hennes et al. (2008); *ERROR* = number of restatements considered to be accounting errors, as defined by Hennes et al. (2008); *NEGATIVE* = number of income-decreasing restatements; and *POSITIVE* = number of income-increasing or zero-impact restatements. All restatement counts are made in the 12 months prior to loan initiation. Panel B reports descriptive statistics for the dependent variables and control variables used in our regression models. Definitions of these variables are provided in Table 2. Panel C compares the average interest rate loan spread for firm-loan observations with at least one restatement in the 12 months prior to loan initiation versus those observations with no restatements in the 12 months prior to loan initiation. Two-tailed *t*-tests are used to determine differences in means.

TABLE 4
The impact of peer and customer restatements on a borrower's loan spread

	Pred.	(1) Full sample	(2) Major customer = 1
Intercept		5.712	5.491
		(<0.001)	(<0.001)
Restatement impact			
COUNT PEER RESTATE	(+)	0.002	0.003
		(0.007)	(0.009)
COUNT CUSTOMER RESTATE	(+)	0.051	0.044
		(0.055)	(0.092)
COUNT BORROWER RESTATE	(+)	0.154	0.296
		(< 0.001)	(< 0.001)
Borrower and industry characteristics			
lnSIZE	(–)	−0.172	−0.174
		(< 0.001)	(< 0.001)
LEVERAGE	(+)	0.608	0.390
		(< 0.001)	(< 0.001)
ROA	(–)	−0.672	−0.193
		(< 0.001)	(0.134)
MKT-TO-BOOK	?	−0.075	−0.110
		(< 0.001)	(< 0.001)
TANGIBILITY	(–)	−0.057	−0.193
		(0.044)	(0.001)
STOCK VOLATILITY	(+)	1.682	2.171
		(< 0.001)	(< 0.001)
Z-SCORE	(–)	−0.046	−0.080
		(< 0.001)	(< 0.001)
LIQUIDITY	?	−1.808	−2.623
		(< 0.001)	(< 0.001)
PRIOR RETURN	(–)	−0.023	−0.009
		(0.009)	(0.295)
INDUSTRY ROA	(–)	−0.086	−0.029
		(0.146)	(0.413)

(The table is continued on the next page.)

TABLE 4 (continued)

	Pred.	(1) Full sample	(2) Major customer = 1
Loan characteristics			
lnMATURITY	(+)	−0.023	0.012
		(0.079)	(0.306)
lnDEAL AMOUNT	(–)	0.010	0.023
		(0.287)	(0.166)
NO. OF LENDERS	(–)	−0.002	−0.002
		(0.013)	(0.153)
PERFORMANCE PRICING	(–)	−0.045	−0.052
		(0.001)	(0.040)
SYNDICATE	?	0.037	0.103
		(0.120)	(0.016)
Macroeconomic factors			
TERM SPREAD	?	0.064	0.074
		(< 0.001)	(0.010)
CREDIT SPREAD	(+)	0.104	0.083
		(< 0.001)	(0.038)
Fixed effects			
LOAN TYPE/LOAN PURPOSE/YEAR		Yes	Yes
Adjusted R^2		61.17%	57.65%
N		17,177	3,924

Notes: This table presents the results of OLS regressions predicting loan spread. Column (1) reports estimation results using the full sample of loan observations; column (2) reports estimation results based on the subsample of borrowers that disclose the identity of one or more major customers in the fiscal year prior to loan initiation. Definitions of all variables are provided in Table 2. *LOAN TYPE* = index of five dummy variables denoting term loans, revolvers greater than one year, revolvers less than one year, 364-day facility loans, and other; and *LOAN PURPOSE* = index of 37 different dummy variables denoting the purpose of the loan, including debt repayment, working capital needs, capital expenditures, and stock buybacks. The number of observations included in each regression (n = 17,177 and n = 3,924, respectively) is lower than the sample sizes discussed in the text due to missing values for *LEVERAGE*, *ROA*, *MKT-TO-BOOK*, *TANGIBILITY*, *STOCK VOLATILITY*, *Z-SCORE*, *LIQUIDITY*, and *PRIOR RETURN*. p-values are in parentheses beneath coefficient estimates. Two-tailed tests are shown for variables without a signed prediction; one-tailed tests are shown for variables with a signed prediction. t-statistics and p-values are based on robust standard errors clustered by firm.

1), we find that the estimated coefficient on *COUNT PEER RESTATE* is positive and statistically significant ($p = 0.007$) after controlling for borrower, industry, and loan characteristics. The coefficient of 0.002 indicates that one additional peer restatement increases a borrower's loan spread by approximately 0.2 percent, or 0.43 basis points, on average. Although this increase appears small, it represents an economically meaningful increase for firms in industries with many restatements.[18]

Customer restatements also impact the loan spread charged by lenders. The coefficient of 0.051 on *COUNT CUSTOMER RESTATE* is positive and statistically significant and implies that each additional customer restatement increases loan spread by 11.3 basis points, or 5.23 percent ($(e^{0.051}-1) \times 100 = 5.23$ percent $\times$ 216.772 mean spread = 11.3 basis points). The magnitude of this coefficient is about one-third the size of the coefficient on *COUNT BORROWER RESTATE* (0.154, $p < 0.001$), which is a strikingly large proportion given that borrower restatements are a clear indication of credit risk (Graham et al. 2008). The coefficient on customer restatements remains statistically significant, albeit slightly smaller in magnitude, when we limit the sample to only those firms that disclose the existence of at least one major customer (column 2). Our control variable results are generally consistent with prior research.

Restatement severity

In this section, we investigate whether the sensitivity of loan spread to peer and customer restatements is exacerbated when those restatements are more severe—in other words, those that are considered irregularities or that result in negative adjustments to previously recorded income. More severe restatements should lead to greater risk and information problems at the restating firm which, in turn, should impact lenders' assessment of borrower credit risk. As such, we posit that the contagion effects of peer and customer restatements are more pronounced following these types of restatements. Relatively *less* severe peer and customer restatements, however, should still affect borrower loan spread if they signal potential accounting malpractices that the lender needs to monitor going forward.

Table 5 reports the results of four OLS regressions predicting *lnSPREAD*, where *COUNT PEER [X]*, *COUNT CUSTOMER [X]*, and *COUNT BORROWER [X]* are defined differently depending on the severity category under examination ([X] is defined at the top of each column). Although not reported, all control variables from model (1) are included in each regression. We find that peer restatements of all severity levels impact loan spread as *COUNT PEER [X]* is positive and significantly different than zero in every regression, regardless of its definition. Notably, when comparing coefficient magnitudes across regressions, we find no difference in lenders' reaction to peer irregularities as opposed to peer errors (columns 1 and 2). Moreover, although the coefficients on *COUNT PEER NEGATIVE* and *COUNT PEER POSITIVE* are both significantly different from zero (see columns 3 and 4), it appears that lenders respond more strongly to industry restatements that have no impact or a positive impact on previously recorded earnings than those that have a negative impact on earnings. These findings imply that lenders react to more than just reductions in previously recorded industry profits, because even restatements that have a minimal impact on equity values or earnings increase the cost of debt.

Unlike peer restatements, we find that only the most severe customer restatements increase a borrower's loan spread. The coefficient of 0.078 on *COUNT CUSTOMER*

18. For instance, in industries with at least one peer restatement, the average number of peer restatements is 7.27 (see Table 1, panel D). This represents a 3.13 basis point spread increase for the average borrower.

IRREG in column (1) indicates that banks adjust a borrower's loan spread upward by an average of 17.59 basis points for each additional customer irregularity announced in the year prior to loan initiation. In contrast, the coefficient of 0.032 on *COUNT CUSTOMER ERROR* in column (2) is insignificantly different from zero. Despite the economically large difference in coefficient magnitudes, the Wald Chi-squared test indicates that the two coefficients are not significantly different from one another ($p = 0.488$). In the next set of regressions (columns 3 and 4), the coefficient of 0.064 on *COUNT CUSTOMER NEGATIVE* shows that a borrower's loan spread increases by 14.33 basis points for each additional income-decreasing customer restatement. The coefficient estimate on *COUNT CUSTOMER POSITIVE* is insignificantly different from zero. Finally, consistent with Graham et al. (2008), we find that own-firm restatements generally have a greater impact on loan spread when the restatements are more severe.[19]

TABLE 5
The impact of peer and customer restatement severity on borrower loan spread

		Independent variables of interest are as defined in column heading			
Variable	Pred.	(1) *X = IRREG*	(2) *X = ERROR*	(3) *X = NEGATIVE*	(4) *X = POSITIVE*
Intercept		5.730	5.714	5.708	5.707
		(<0.001)	(<0.001)	(<0.001)	(<0.001)
Restatement impact					
COUNT PEER [X]	(+)	0.003	0.003	0.002	0.012
		(0.062)	(0.001)	(0.012)	(< 0.001)
COUNT CUSTOMER [X]	(+)	0.078	0.032	0.064	0.046
		(0.054)	(0.243)	(0.096)	(0.179)
COUNT BORROWER [X]	(+)	0.309	0.021	0.182	0.115
		(< 0.001)	(0.220)	(< 0.001)	(0.015)
Control variables		Yes	Yes	Yes	Yes
Fixed effects					
LOAN TYPE		Yes	Yes	Yes	Yes
LOAN PURPOSE		Yes	Yes	Yes	Yes
YEAR		Yes	Yes	Yes	Yes
Adjusted R^2		61.16%	60.82%	60.99%	60.86%
N		17,177	17,177	17,177	17,177

(The table is continued on the next page.)

19. In untabulated analyses, we examine two additional measures of restatement severity: (i) cumulative abnormal returns (CAR) measured over the three-day window centered on each restatement announcement date; and (ii) restatement type (revenue recognition restatements versus other restatements). Consistent with the results in Table 5, we find that peer restatements impact loan spread regardless of severity or type. However, a lender's sensitivity to peer restatements is exacerbated when they result in extreme negative stock price reactions (less than or equal to −4 percent) for the restating peer firm or relate to revenue recognition issues. Finally, we find significant increases in a borrower's loan spread when customer restatements result in extreme negative stock price reactions or relate to issues other than revenue recognition.

TABLE 5 (continued)

	Independent variables of interest are as defined in column heading			
Variable	(1) $X = IRREG$	(2) $X = ERROR$	(3) $X = NEGATIVE$	(4) $X = POSITIVE$
Test of equal coefficients (*p*-value)	*IRREG* versus *ERROR*		*NEGATIVE* versus *POSITIVE*	
COUNT PEER [X]	0.669		< 0.001	
COUNT CUSTOMER [X]	0.488		0.783	
COUNT BORROWER [X]	< 0.001		0.206	

Notes: This table examines the impact of restatement severity on a borrower's loan spread. Each column presents the results of an OLS regression predicting loan spread. Our primary variables of interest are *COUNT PEER [X]*, *COUNT CUSTOMER [X]*, and *COUNT BORROWER [X]*, where the value of *X* changes in each column. The first two columns compare the impact of irregularities (*IRREG*) versus errors (*ERROR*); the independent variables capture the number of peer, customer, or borrower restatements that are considered irregularities (column 1) or errors (column 2). We use the classification scheme developed in Hennes et al. (2008) to categorize each restatement as an error or an irregularity. Columns (3) and (4) examine how income-decreasing (*NEGATIVE*) and income-increasing (*POSITIVE*) restatements impact a borrower's loan spreads. We define the magnitude of the earnings restatement as the cumulative dollar change in net income due to the misstatement, scaled by total assets; the independent variables capture the number of income-decreasing peer, customer, or borrower restatements (column 3) or income-increasing restatements (column 4), respectively. We include restatements that have no effect on earnings in the "income-increasing" category. *p*-values are in parentheses beneath coefficient estimates. Two-tailed tests are shown for variables without a signed prediction; one-tailed tests are shown for variables with a signed prediction. *t*-statistics and *p*-values are based on robust standard errors clustered by firm. A Wald Chi-squared test is used to test the equality of coefficients across different regression models; two-tailed *p*-values are presented. Additional control variables are included in the regression but are omitted from the table. Definitions of the dependent and control variables are provided in Tables 2 and 4. The number of observations is less than our full set of loan initiations (n = 29,519) due to missing values for *LEVERAGE*, *ROA*, *MKT-TO-BOOK*, *TANGIBILITY*, *STOCK VOLATILITY*, *Z-SCORE*, *LIQUIDITY*, and *PRIOR RETURN*.

Borrower switching costs

A firm that develops unique and specialized products is likely to have stronger contractual ties with its customers and, as a consequence, will face higher switching costs if that customer is unable to fulfill its commitments (Hertzel et al. 2008). As such, we predict that customer restatements will have the greatest impact on a borrower's contract terms when borrower switching costs are high. Following Kale and Shahrur (2007), we partition our sample according to the borrower's industry, where borrowers in Durable Goods Manufacturing industries (SIC 3400-999) are expected to face higher switching costs than those in other industries due to the uniqueness of their products and the importance of product guarantee. We also use the borrower's research and development (R&D) intensity to proxy for product specialization and the prevalence of relationship-specific investments between the borrower and its customers (Hertzel et al. 2008).

Our results are consistent with customer restatements increasing a borrower's loan spread only when borrower switching costs are high (untabulated). When we estimate model (1) on three subsets of our sample population (firms operating in Durable Goods

Manufacturing industries, Non-Durable Goods Manufacturing industries, and Non-Manufacturing industries), we find that the coefficient on *COUNT CUSTOMER RESTATE* is significantly different from zero only when the borrower operates in Durable Goods Manufacturing industries. Moreover, when we partition the sample into borrowers with above-median R&D intensity and below-median R&D intensity, the coefficient on *COUNT CUSTOMER RESTATE* is positive and significant only in the high R&D intensity group. The magnitude of the observed spread increase is quite striking: for borrowers with high R&D intensity, we find that one additional customer restatement in the year prior to loan initiation results in a 44.57 basis point increase (20.56 percent) in loan spread. Our analyses also reveal that *COUNT PEER RESTATE* is significantly associated with loan spread only in non-manufacturing industries or when borrowers have low R&D intensity. This suggests that lenders utilize information on peer restatements when products are more generic and competition in the industry is therefore higher.

Lender experience with restatements

Next, we examine the extent to which individual lenders are exposed to restatements by splitting the number of peer restatements announced in the year prior to loan initiation into two groups: (i) the number of restating peers that have loans outstanding with the same lead arranger (or any one of the lead arrangers, if more than one) as the borrowing firm, and (ii) the number of restating peers that either have no loans outstanding as of the borrower's loan initiation date, or have loans outstanding with different lenders. We also perform a similar categorization of customer restatements. Our results indicate that lender sensitivity to peer restatements is significantly heightened when the restating peer(s) is part of its loan portfolio. To illustrate, the average borrower's loan spread increases by 5.27 basis points (0.43 basis points) for every additional peer restatement that a lender is (is not) directly exposed to in the previous year (untabulated). The considerable difference in peer restatement impact implies that banks are particularly attuned to financial reporting failures in an industry when they are directly exposed to the consequences of these restatements. Lenders respond no differently to the frequency of customer restatements when the restating customers are part of their loan portfolio or not.

6. Ex post changes in borrower performance and risk

In this section, we explore whether lenders use peer and customer restatements to anticipate changes in a borrower's financial health. We employ four forward-looking proxies of a borrower's future performance and risk, the first of which is an indicator variable equal to one if the borrower announces one or more restatements in the two years after loan initiation, and zero otherwise (*FUTURE BORROWER RESTATE*). The remaining variables capture changes in a borrower's ROA, Altman *Z*-score, and total revenue, respectively, where the change is computed as the value two years after the loan initiation date less the value in the year prior to the loan initiation date (*CHANGE in ROA, CHANGE in Z-SCORE,* and *CHANGE in REVENUE*).

The examination of these variables serves several purposes. First, we can explicitly test whether peer and customer restatements signal declines in a borrower's future performance or financial statement credibility, respectively. We find evidence of both (untabulated). When one or more peer or customer irregularities precede a loan initiation, borrowers are significantly more likely to issue their own restatement in the upcoming 24 months compared to instances in which the loan initiation is not preceded by a peer or customer irregularity. Moreover, there is a significantly steeper decline in borrower performance (as measured by ROA) and a significantly greater increase in borrower default risk (as measured by Altman's *Z*-score) following peer irregularity announcements. Revenue is generally increasing over time for our sample firms, but this increase is attenuated when one or

TABLE 6
Mean loan spread for borrowers across ex post borrower restatement categories

Avg. loan spread (no. of observations)	(1) Full sample	(2)	(3)	(4)	(5)	(6)	(7)
		At least one *PEER IRREG* in 12 months *before* loan initiation			At least one *CUSTOMER IRREG* in 12 months *before* loan initiation		
		Yes	No	Row difference *p*-value	Yes	No	Row difference *p*-value
FUTURE BORROWER RESTATE	227.6 (n = 3,022)	237.9 (n = 1,178)	220.9 (n = 1,844)	17.0 p = 0.004	233.4 (n = 35)	227.5 (n = 2,987)	5.9 p = 0.828
No *FUTURE BORROWER RESTATE*	215.5 (n = 26,497)	220.2 (n = 8,306)	213.4 (n = 18,191)	6.8 p = 0.001	235.0 (n = 177)	215.4 (n = 26,320)	19.6 p = 0.135
Column difference	12.1	17.7	7.5		−1.6	12.1	
p-value	$p < 0.001$	$p < 0.001$	$p = 0.046$		$p = 0.951$	$p < 0.001$	

Notes: This table analyzes the mean loan spread for borrowers across different borrower, peer, and customer restatement categories. Each cell contains average loan spread and number of observations (in parentheses) for that subset of the sample. Two-tailed *t*-tests are used to determine differences in means. *FUTURE BORROWER RESTATE* denotes those borrowers that announce one or more earnings restatements in the 2 years following loan initiation. *PEER IRREG* and *CUSTOMER IRREG*, respectively, capture the incidence of peer and customer irregularities announced in the 12 months prior to loan initiation.

more major customers announce irregularities in the 12 months before a loan initiation. Second, we can observe whether lenders anticipate future restatements. Table 6 reports the univariate differences in loan spread between borrowers that announce a restatement in the future (227.6 basis points) compared to those borrowers that do not (215.5 basis points). The difference is significant at the $p < 0.001$ level. Moreover, when *FUTURE BORROWER RESTATE* is added to regression model (1) predicting *lnSPREAD*, the coefficient is positive and significant ($p < 0.001$, untabulated). We see that loans to firms that *will* restate in the future have interest rate spreads that are 27.64 basis points higher, on average, than comparable loans, after controlling for other predictors of loan spread. This supports the notion that banks have superior information access and processing skills relative to equity market participants because they can anticipate future restatements at the loan initiation date (Chen 2016).

Moreover, we find some evidence that lenders are better able to anticipate future restatements when the loan initiation is preceded by one or more peer irregularities. In particular, Table 6, row 1, shows that the spread increase for firms with future restatements is significantly higher (by 17 basis points) when banks also observe peer irregularities prior to the loan initiation. This is consistent with peer irregularities being an early signal of accounting problems within an industry. Even when peer irregularities do not occur, however, lenders still place a premium (albeit a smaller one, at 7.5 basis points) on borrowers that restate in the future (Table 6, column 3). We do not observe a similar pattern when a loan initiation is preceded by one or more customer restatements, which suggests that these restatements are less informative about the likelihood of future restatements by the borrower.

Lastly, we can observe whether the contagion effects of peer and customer restatements persist when ex post measures of financial health are included in regression model (1) predicting *lnSPREAD*. In untabulated analyses, we see that *FUTURE BORROWER RESTATE*, *CHANGE in ROA*, *CHANGE in Z-SCORE*, and *CHANGE in REVENUE* are each significantly associated with loan spread in the predicted direction. Most importantly, though, the coefficient on *COUNT PEER RESTATE* is virtually unchanged from that presented in Table 4. If lenders only use peer restatements as a signal of declining profitability, then adding the forward-looking proxies should have eliminated the contagion effect of peer restatements. The fact that it persists is consistent with lenders investing in costly monitoring activities to assess the impact of peer firm restatements on a borrower's default risk, and passing these additional costs on to the borrower in the form of higher interest rates. The coefficient on *COUNT CUSTOMER RESTATE* is also similar to that in Table 4, with one notable exception: when a borrower's change in revenue is included, the significance of *COUNT CUSTOMER RESTATE* is diminished ($p = 0.111$). This is consistent with banks understanding that customer restatements lead to future declines in a borrower's revenue and increasing loan spreads accordingly.

7. Conclusion

In the past two decades, the number of restatement announcements has increased significantly, from only 41 restatement announcements in 1997 to over 800 in 2014. Some of these restatements have severe ex post consequences for the restating firm, resulting in a substantial loss of market value and investor confidence. In this paper, we examine whether banks use restatements announced by economically related firms (peers and customers) to reassess the risk profile of a borrower.

We find that peer firm restatements are associated with an increase in loan spread regardless of restatement severity. Moreover, the sensitivity of loan spread to peer restatements is exacerbated when the restating peer firm(s) is part of the banks' lending portfolio. Restatements announced by major customer firms are also associated with loan spread

increases of up to 45 basis points, but only when the customer restatements are relatively severe or borrower switching costs are high. Although the documented increase in loan spread rates is incremental to other known sources of credit risk, we cannot completely rule out the possibility of an omitted factor that could affect both borrowing rates and restatement incidents at the same time. Subject to that caveat, our study provides unique evidence on how financial restatements influence the design of bank loan contracts and affect the cost of debt.

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