

Bank Lending During the Financial Crisis of 2008

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Abstract

This paper documents that new loans to large borrowers fell by 36% during the peak period of the financial crisis (August-October 2008) relative to the prior three-month period and by 60% relative to the peak of the credit boom (May-July 2007). New lending for real investment (such as capital expenditures) fell to the same extent as new lending for restructuring (LBOs, M&A, share repurchases). There appears to have been an increase in drawdowns of revolving credit facilities. Many of these drawdowns are undertaken by low credit quality firms concerned about their access to funding. While helpful to borrowers, these drawdowns may limit the ability of banks to make other loans. There is a large overhang of unused revolving credit facilities, which if drawn down in a recession, would expose banks to funding difficulties and greater credit risk.

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Introduction

Global financial markets are in turmoil. Concerns about the health of the banking sector a year ago became a full-blown banking panic in September 2008 until governments around the world intervened in the first half of October. Share prices have fallen drastically, the cost of corporate and bank borrowing has risen substantially, and financial market volatility is at levels that have rarely, if ever, been seen.

While the havoc in financial markets is in full view, its effect on the real economy is less clear. Of key concern is whether under-capitalized banks will scale back lending, thereby reducing corporate investment and output. Recent press accounts¹ suggest that banks are indeed scaling back on new loans, while a recent working paper by V.V. Chari, Lawrence Christiano and Patrick Kehoe (CCK, 2008) suggests just the opposite.²

In this paper, we describe bank lending during the financial crisis through October 31, 2008. We show that there has been a steep decline in new loans to large corporations. The decline started a year ago as the credit bubble deflated, and has accelerated in the last three months, during the peak period of the financial crisis. From August – October 2008 new loans were 36% less than they were in the prior three-month period. The drop was particularly large in October, 2008. Lending for productive investment such as physical and working capital has fallen as much as lending for leveraged buyouts (LBOs) and mergers and acquisitions (M&A). Revolving credit facilities have fallen more than term loans, and non-investment grade lending has fallen more than investment grade lending.

¹ See, for example, “So When Will Banks Give Loans?,” *New York Times*, October 24, 2008.

² “Facts and Myths about the Financial Crisis of 2008,” by V.V. Chari, Lawrence Christiano and Patrick Kehoe, working paper 266, Federal Reserve Bank of Minneapolis.

Although new lending has fallen, since September 2008, there has been a sharp increase in commercial and industrial (C&I) loans reported on the balance sheets of U.S. banks. CKK (2008) interpret this as new bank lending; however, our evidence is inconsistent with this view. Instead, we suggest that the rise in C&I loans on bank balance sheets comes in good measure from an increase in drawdowns on pre-existing revolving credit facilities (“revolvers”). These drawdowns are not just from high quality borrowers who are shifting from the commercial paper market because of disruptions in that market. Many of them are very large, low credit-quality borrowers, who are now borrowing on the generous terms that were offered during the credit boom, though they are now much riskier. While this may help these firms, it may also crowd out new lending to other firms. The amount of outstanding revolvers is very large, and banks may be holding back on new loans to protect against flood of draw-downs if the economy continues to deteriorate.

Analysis

The data for our analysis come from Reuters’ DealScan database of large bank loans. Almost all these loans are syndicated, i.e., originated by one or more banks and sold to a syndicate of banks and other investors, notably to those structuring collateralized debt obligations (CDOs), as well as insurance companies, pension funds, mutual funds, and hedge funds. The mean size of the loans in 2008 was \$425 million, the median was \$125 million, and 90% were larger than \$21 million. The average borrower had sales of \$5.9 billion. While we do not have data on small loans, the loans in our sample account for a large share of outstanding

bank loans. In fact, the value of the outstanding loans in our sample *exceeds* the value of C&I loans on commercial bank balance sheets.³

A difficulty with using DealScan to analyze such a recent period is that there are lags in reporting. Some loans are reported within a day of origination, while others may not be reported for several months. These reporting lags will lead to significant underestimation of loan volume for recent months. Using information on reporting dates in the DealScan database, we calculate that for the period November 1, 2006 through October 31, 2007, 21% of loans are reported within a day, 36% within 7 days, 49% within 14 days, 57% within 21 days, and 95% within a year.

We use this information to scale up the data for more recent months, which was collected on November 3, 2008. For example, we identified \$0.54 billion of loans originated in the week ending October 31, 2008. However, we conservatively estimate that only 28.5% of loans made during this week would have been reported by November 3, 2008. This is the average of the one-day and seven day reporting rate.⁴ Thus, we scale up the \$0.54 billion of loans to \$1.89 billion (i.e., \$0.54 billion divided by 28.5%). We do this for all weeks prior to November 3, 2008 up to 76 weeks using the relevant reporting rates for each week.

Figure 1 graphs loan issuance in three-month periods from November, 2006 through October, 2008. Because we wanted the last period to encompass the peak period of the financial crisis, we defined it as August to October 2008, and defined the other three-month periods

³ This is possible because Federal Reserve Board's C&I figure corresponds to U.S. commercial banks while our sample includes all banks and financial companies. In addition, approximately 48 percent of the loans in our sample are estimated to be held outside the banking sector (<http://www.federalreserve.gov/newsevents/press/bcreg/20081008a.htm>).

⁴ This is conservative for two reasons. November 3, 2008 is actually 3 days after Oct. 3, not one day. Also, the average is a linear approximation of the reporting hazard function which approximately logarithmic in shape.

accordingly. The dotted line is the actual reported loan originations during the period. The solid line above the dashed line is our estimate of loan originations taking into account reporting lags.

There are a few key facts that emerge from our analysis.

Fact 1: New lending in 2008 was significantly below new lending in 2007, even before the peak period of the financial crisis (August-October 2008).

As can easily be seen from Figure 1, new lending to large corporate borrowers peaked in the period, May-July 2007. In September 2007, concerns about the credit risk of all types of collateralized debt obligations (CDOs), led to a drop in institutional demand for syndicated loans, many of which were put in CDOs. By May-July 2008, lending was 38% lower than the peak of the credit boom.⁵

Fact 2: The decline in new loans accelerated during the financial crisis, falling by 36% in the August-October 2008 period relative to the prior three-month period.

Thus, bank loans fell from \$667.4 billion in May-July 2007, the peak of the credit boom, to \$414.8 a year later, and then to \$264.7 billion three months later in the August-October 2008 period. The drop in October, 2008 was particularly steep. Lending during the peak financial crisis period was just 40% of peak lending little over a year earlier.

Fact 3: Real investment loans (working capital or general corporate purposes) and restructuring loans (those for M&A, LBOs, and stock repurchases) have decreased to a similar extent.

⁵ The drop in lending was not just to financial services firms, which were in significant trouble, but was equally to non-financial borrowers.

Exhibit 1 breaks out the loan data by the stated use of the funds. One can see that a large portion of the loans are used for various types of restructuring: leveraged buyouts (LBOs); mergers and acquisitions (M&A); and stock repurchases. These loans have the effect of increasing leverage or changing ownership, but do not fund real investments in physical or working capital. Thus, a reduction in lending for restructuring purposes might be less troubling than a reduction in loans for real investment.

Figure 2 graphs restructuring and real investment loans through time. We define “real investment loans” as those where funds are to be used for general corporate purposes (e.g. capital expenditures) or working capital, while “restructuring loans” are those used to fund LBOs, M&A, or stock repurchases.

It is apparent that restructuring loans and real investment loans track each other quite closely, and that both dropped in roughly equal percentages in the August-October 2008 period. Thus, bank loans have fallen not just because LBO and M&A activity has dried up. In fact, M&A lending has fallen by somewhat less than real investment lending (19% vs. 38%).

Fact 4: During the peak period of the financial crisis (August-October 2008), non-investment-grade loans fell by 50% relative to the prior period, while investment grade loans fell by 19%.

Figure 3 graphs lending activity for investment grade and non-investment grade borrowers. This figure is based on the 33% of the sample for which ratings are available.

Fact 5: During the peak period of the financial crisis (August-October 2008), revolving credit facilities and term loans both declined, but the decline in revolving credit facilities (39%) was somewhat larger than the decline in term loans (26%).

Figure 4 breaks out the sample into term loans and revolving credit facilities. These facilities allow firms to borrow up to a certain amount at a pre-set interest rate (usually a spread over LIBOR). For this right, the firm pays an additional annual fee on all unused portions of the loan. Here too, terms loans and revolving credit facilities track each other. One can see a big drop in 2008 relative to 2007 and an even steeper decline in the August-October 2008 period relative to the prior three-month period. The decline in revolving credit facilities with a maturity greater than one year is even larger. These facilities, which comprise a large portion of originations, require banks to allocate more regulatory capital than do facilities with a maturity of less than one year. Thus, it is not surprising that there has been a bigger drop in the longer term facilities.

As noted above, it is important to reconcile our findings with those of CCK (2008), who have documented that C&I loans on bank balance sheets were trending slightly upward for much of 2008, until they rose substantially in early September 2008. Figure 5 shows this graphically.

To reconcile our findings with theirs, it is useful to note the following identity:

$$\begin{aligned} \text{OutstandingLoans}_t = \\ \text{OutstandingLoans}_{t-1} + \text{NewLoans}_t + \text{Drawdowns}_t - \text{LoanRetirements}_t \end{aligned}$$

Thus, outstanding loans will increase more if there are more new loans, more drawdowns, or fewer loan retirements. Since new loans appear to be decreasing, this means that there are either more draw-downs or fewer loan retirements.

Loan Retirements. Firms may choose to retire debt early with excess cash flow or by issuing stock. In fact, in many LBOs, there are explicit plans to pay down debt early with excess cash flow. Though we have no direct evidence of a reduction in loan retirements, it would not be surprising if firms increasingly chose not to repay debt early. This would be the case for LBOs that are running into trouble, firms that want the security of having more cash on their balance sheets, or those that are reluctant to repay debt by issuing equity in a down market..⁶

Revolver Drawdowns. Firms could be increasing the extent to which they are drawing from existing revolvers. These would not count as new loans in our data, but would count as new loans in the Federal Reserve data.

Figure 6 plots the total outstanding amount of revolving credit facilities. It rose dramatically through 2006 and 2007, peaking in early 2008 and falling slightly during 2008 to the current level of \$3,373 billion. While only a fraction of the total has been drawn, there may have been a recent increase in drawdowns. The only way to know for sure is to look at firms' quarterly filings, but these have not yet been released for the relevant quarter. Nevertheless, we have some indication from news reports, that firms may have increased their revolver drawdowns.

Exhibit 2 lists 18 revolver drawdowns reported on Reuters since mid-August 2008. There were no equivalent announcements in the prior three-month period, which suggests that there has been an increase in drawdowns. The drawdowns total \$12.6 billion. Thirteen of the companies are currently below investment grade. At the time of the drawdowns, their average

⁶ The flip side of a reduction in loan retirements is an increase in loan roll-overs. Some bank debt used to finance LBOs had "PIK toggles" which allowed firms to opt out of paying cash interest, but instead to increase the principal outstanding on the loan (i.e. interest was "payment-in-kind"). Harrah's recently opted for the toggle on its \$1.4 billion bank loan, as have a number of other firms. This would show up as increase in loans outstanding.

credit default swap rate was over 1500 basis points.⁷ Nevertheless, nine of the twelve firms were able to draw down and pay interest rates that were below current rates for non-investment-grade debt (LIBOR + 275 basis points). Although violation of the financial covenants could prevent companies from drawing down the lines, most of the loans originated in the past two years were “covenant-lite;” they had loose covenants, which would not prevent them from drawing down their revolvers as their financial condition worsened.

The reasons given for the drawdowns are also instructive. In 11 cases, the revolver is being used to enhance liquidity and financial flexibility during the credit crisis according to company statements. For example, in an 8-K filing with the SEC, the Tribune Company notes that it “is borrowing under the revolving credit facility to increase its cash position to preserve its financial flexibility in light of the current uncertainty in the credit markets.”

Firms may be insuring themselves both against an economy-wide credit drought and a bank-specific credit drought. They may also be concerned that if other firms draw down their revolvers, banks will not be able to meet their revolver commitments. Just as depositors and lenders may rush to pull their money out of a troubled bank, borrowers may be doing the same with their revolver drawdowns.

The effects of revolver drawdowns on the economy are mixed. The main benefit is that they provide a measure of protection to vulnerable firms, helping them forestall financial distress. There are several costs of these drawdowns, however. First, extending loans to low credit-quality firms on terms that do not adequately compensate banks for risk is costly to the banking sector, which is itself under-capitalized. Second, because banks are under-capitalized, revolver drawdowns may crowd out loans to other firms that need funding. To the extent that there are excessive drawdowns because of concerns about bank solvency, this effect could be

⁷ Data were available for eight of the twelve companies.

severe. Even if firms have not drawn down their revolvers, the large quantity of outstanding revolvers could put a damper on new lending. This “revolver overhang” may lead banks to restrict lending out of concern that firms will begin drawing down their revolvers in large numbers if the credit conditions remain difficult or if there is a severe recession. In this instance, the portfolios of banks will be full of loans to firms in financial trouble on terms that are unfavorable to the banks.

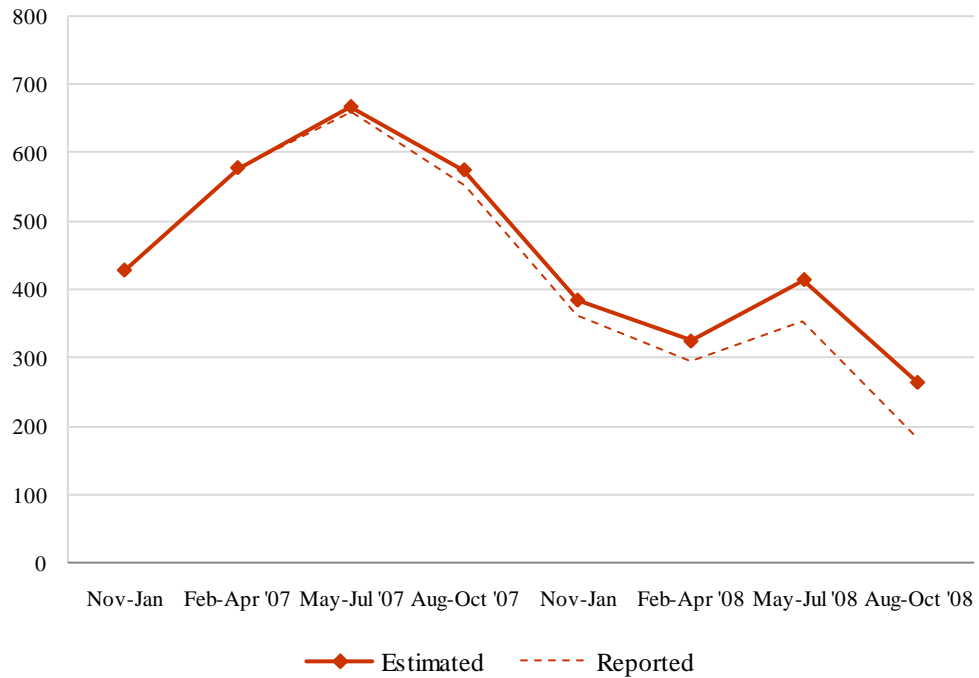
Conclusion

New lending has declined during the financial crisis. However, it remains unclear whether this decline is supply or demand driven. Are banks withholding funding from creditworthy borrowers who need financing? Or are firms cutting investment in response to concerns about the economy, and thus choosing not to borrow?

To address this issue, we are investigating the differences in the way banks have responded to the financial crisis. Have banks with more impaired loan portfolios scaled back their lending more? Likewise, have banks with a larger revolver overhang cut their lending more to protect themselves against the risk of large revolver drawdowns? And, how have banks responded to the credit guarantees and equity infusions that the U.S. government has recently provided?

Figure 1: Total Loan Issuance, US Corporate Loans (Billion USD)

Compiled from DealScan database of loan originations. Reported corresponds to loans reported in DealScan as of November 3, 2008.



Month	Reported	Estimated
Nov-Jan	428.75	428.75
Feb-Apr '07	578.22	578.22
May-Jul '07	659.20	667.43
Aug-Oct '07	551.97	575.07
Nov-Jan	360.32	384.88
Feb-Apr '08	293.14	325.06
May-Jul '08	352.53	414.82
Aug-Oct '08	182.77	264.74

Figure 2: Real Investment Loans vs. Restructuring Loans (Billion USD)

Compiled from DealScan database of loan originations. Real Investment Loans are defined as those that are intended for general corporate purposes, capital expenditure or working capital. Restructuring Loans are defined as those that are intended for leveraged buyouts, mergers and acquisitions, or share repurchases. The numbers correspond to pro-rated figures.

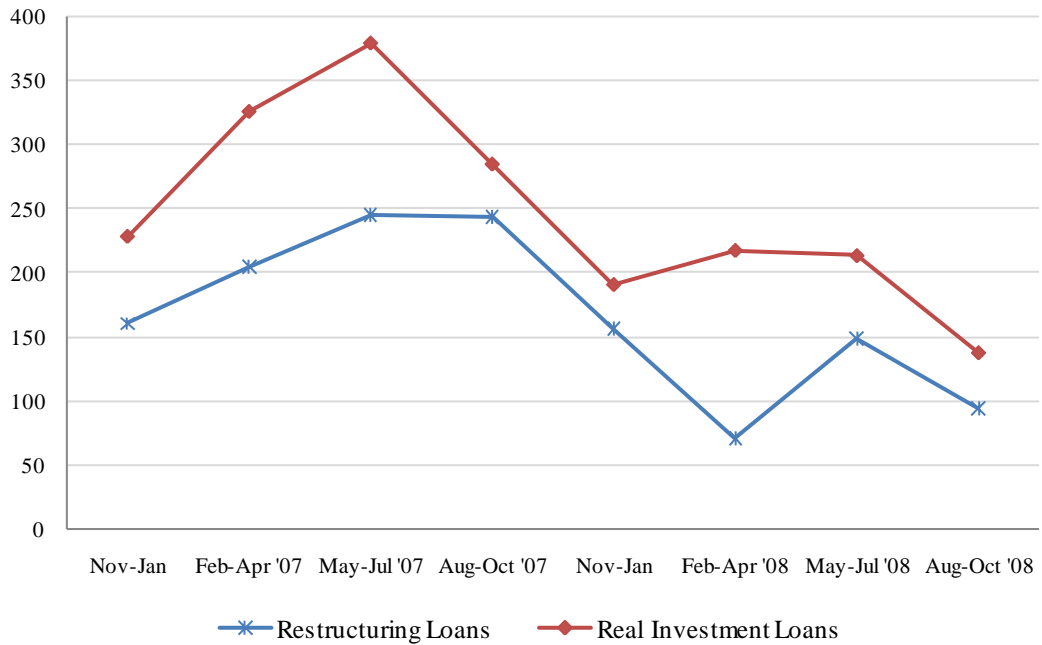
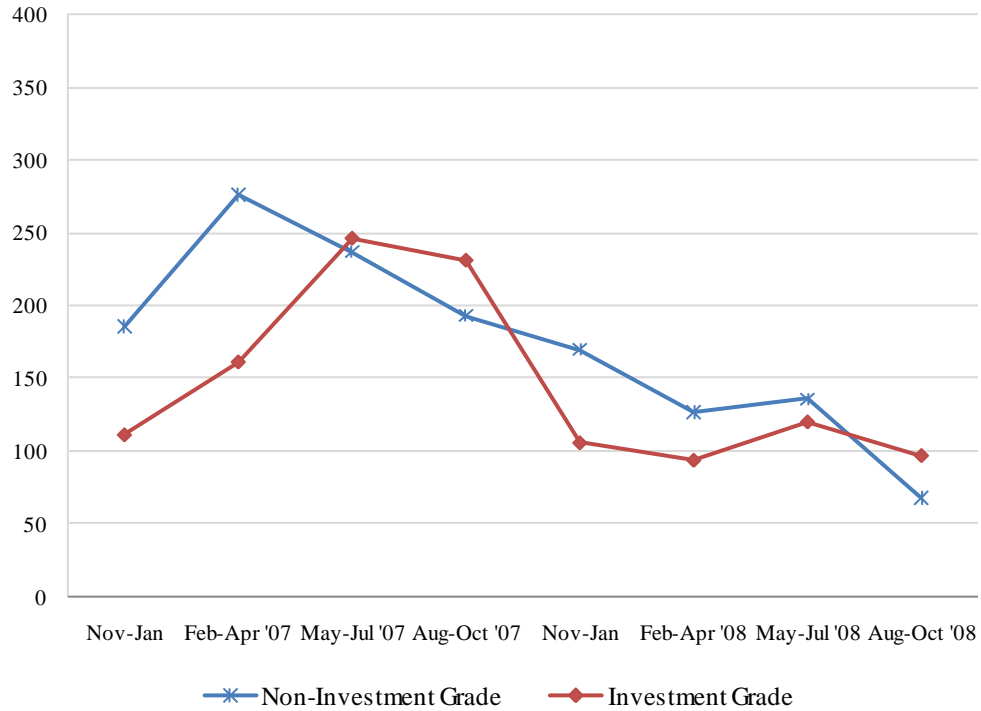


Figure 3: Total Loan Issuance, by Corporate Rating (Billion USD)

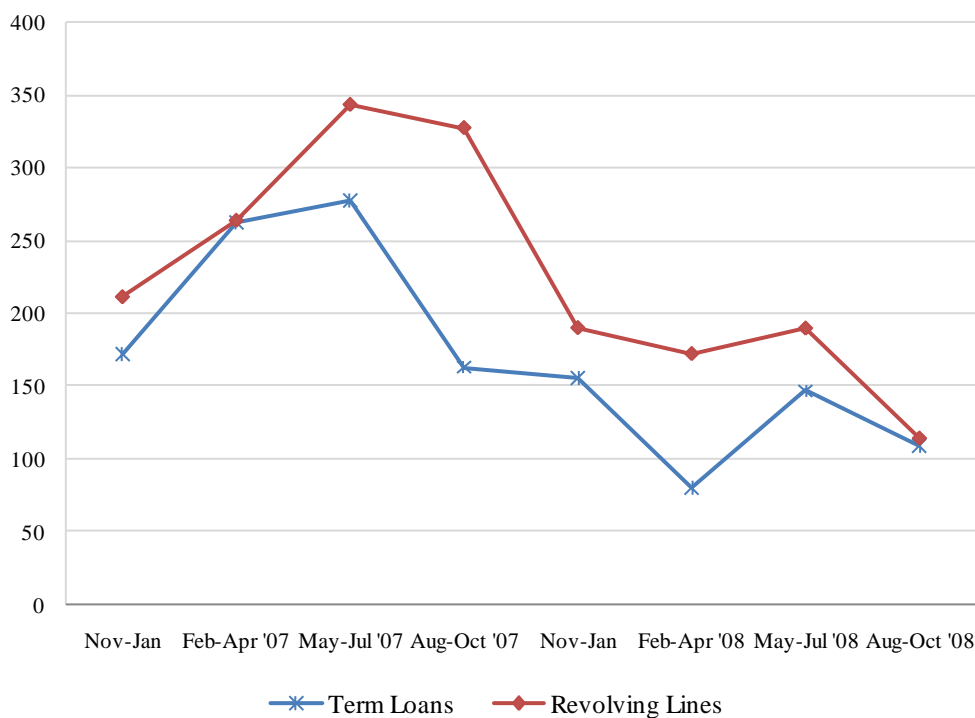
Compiled from DealScan database of loan originations. This figure is based on a sub-sample of loans for which credit ratings are available.



Month	Investment Grade	Non-Investment Grade
Nov-Jan	110.96	185.79
Feb-Apr '07	161.16	276.12
May-Jul '07	246.40	236.94
Aug-Oct '07	231.23	193.07
Nov-Jan	105.44	169.80
Feb-Apr '08	93.44	126.38
May-Jul '08	119.87	135.77
Aug-Oct '08	96.68	67.71

Figure 4: Total Issuance of Revolving Credit Facilities vs. Term loans (Billion USD)

Compiled from DealScan database of loan originations. The numbers correspond to pro-rated figures.



Month	Revolving Lines	Term Loans
Nov-Jan	211.28	172.67
Feb-Apr '07	263.57	262.60
May-Jul '07	342.88	277.99
Aug-Oct '07	327.01	163.15
Nov-Jan	190.14	156.01
Feb-Apr '08	172.42	80.18
May-Jul '08	189.82	146.92
Aug-Oct '08	114.56	109.05

Figure 5: Commercial and Industrial Bank Credit (Billion USD)

Compiled from Federal Reserve Statistical Release, includes commercial banks in United States.

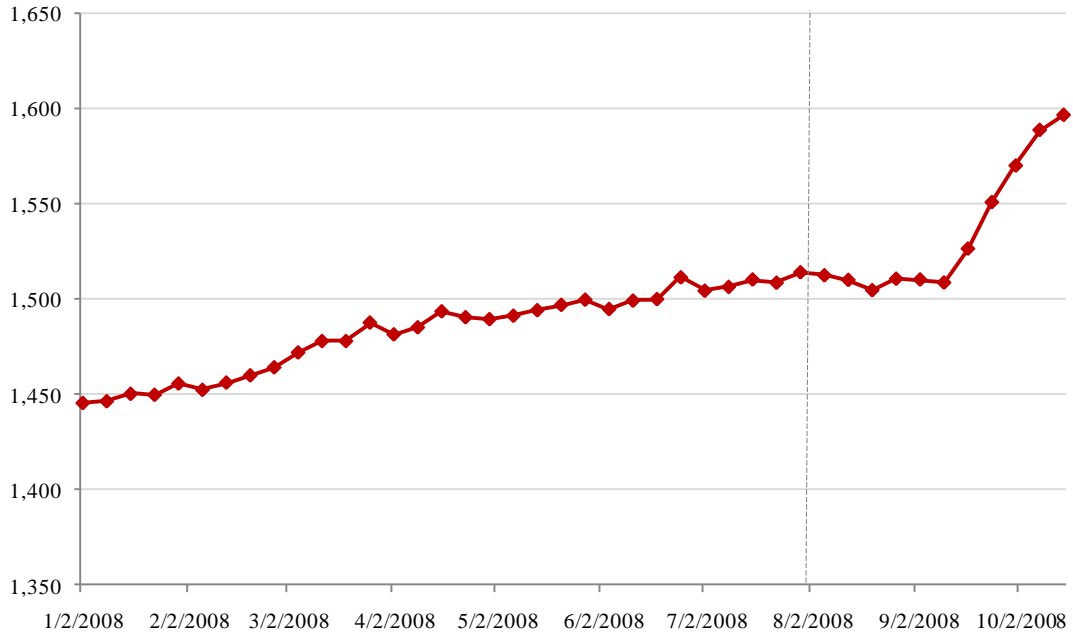
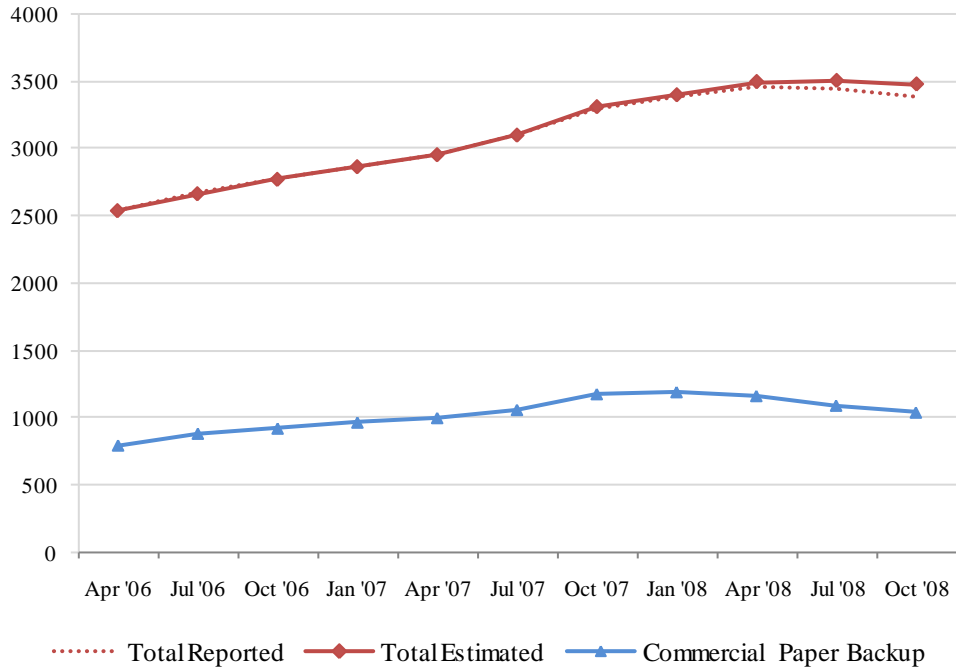


Figure 6: Total Exposure to Revolving Credit Facilities (Billion USD)

Compiled from DealScan database of loan originations.



Month	Total Reported	Total Estimated	Commercial Paper Backup
Apr '06	2,545.99	2,545.99	792.13
Jul '06	2,671.29	2,671.29	881.24
Oct '06	2,777.79	2,777.79	919.84
Jan '07	2,871.35	2,871.35	965.24
Apr '07	2,960.30	2,960.30	999.32
Jul '07	3,101.87	3,105.49	1,060.53
Oct '07	3,300.00	3,316.14	1,179.83
Jan '08	3,377.01	3,404.34	1,194.93
Apr '08	3,455.04	3,502.33	1,165.60
Jul '08	3,436.86	3,510.52	1,092.91
Oct '08	3,379.30	3,484.54	1,040.65

Exhibit 1: Total Loan Issuance by Loan Purpose, US Corporate Loans (Billion USD)

Compiled from DealScan database of loan originations. The numbers correspond to pro-rated figures.

Year	Month	Corp. purposes	Work. cap.	CP backup	LBO/MBO	Takeover	Recap.	Debtor-in-poss.	Exit financing	Proj. finance	Real estate	Other	Total
2005	Feb-Apr	186.80	43.12	32.57	17.23	32.66	25.77	5.88	6.90	0.08	10.39	1.55	362.95
2005	May-Jul	239.39	59.23	35.79	16.12	42.71	59.81	2.20	11.31	1.63	13.03	1.70	482.91
2005	Aug-Oct	172.35	55.76	24.60	23.20	43.10	14.26	0.90	2.45	1.01	13.63	5.85	357.13
2005-06	Nov-Jan	197.69	57.99	20.87	32.64	101.21	24.78	1.75	21.38	0.47	15.63	1.20	475.62
2006	Feb-Apr	239.28	56.61	25.14	30.18	100.45	18.19	3.97	4.03	0.58	12.02	0.32	490.77
2006	May-Jul	303.55	61.54	25.03	21.98	105.64	44.78	0.25	9.63	1.15	14.22	1.65	589.42
2006	Aug-Oct	199.40	45.07	14.47	37.73	79.31	14.95	1.46	8.11	12.73	15.51	0.74	429.48
2006-07	Nov-Jan	195.86	32.82	12.02	66.68	70.14	23.70	1.27	9.64	1.54	14.60	0.50	428.75
2007	Feb-Apr	286.76	39.37	8.15	88.58	88.31	27.31	1.65	19.07	3.16	15.87	0.00	578.22
2007	May-Jul	335.42	42.74	9.96	106.88	99.37	38.04	0.00	4.50	10.22	17.87	0.00	665.00
2007	Aug-Oct	248.87	35.25	27.88	125.29	96.46	21.23	1.09	1.39	1.59	11.76	2.27	573.08
2007-08	Nov-Jan	154.72	36.12	4.57	71.13	79.63	5.16	0.57	20.61	1.68	9.83	0.21	384.23
2008	Feb-Apr	195.52	21.93	2.37	9.29	57.77	3.35	0.88	12.53	7.77	12.29	0.68	324.39
2008	May-Jul	180.45	32.91	3.75	48.32	91.69	7.45	3.39	16.20	15.50	12.67	1.46	413.78
2008	Aug-Oct	120.95	10.46	1.95	18.21	74.12	1.35	2.41	0.13	16.73	8.94	1.09	256.34

Exhibit 2: Revolving Lines Drawdowns, US Corporate Loans (Billion USD)

Compiled from SEC filings and Reuters.

Date drawn	Company	Current credit rating	Amount drawn (\$MM)	Credit line (\$MM)	Maturity	Spread (Undrawn/ Drawn)	Lead bank	Comment (SEC filings)
08/25/2008	Delta Air Lines	BB-/Ba2	1,000	1,000	2012	50/ L+200	JPM	Simply put, we have taken this action to increase our cash balance as we approach the closing of the merger. We believe this will provide us with the utmost in flexibility – at minimal cost – as we prepare for this critical transition.
09/15/2008	FairPoint Communications	BB+/Ba3	200	200	2014	37.5/ L+275	Lehman Brothers	The Company believes that these actions were necessary to preserve its availability to capital due to Lehman Brothers' level of participation in the Company's debt facilities and the uncertainty surrounding both that firm and the financial markets in general.
9/19/2008	Michaels Stores	B	120	1,000	2011	25/ L+150	Bank of America	The Company took this proactive step to ensure that it had adequate liquidity to meet its cash needs while there are disruptions in the debt markets.
9/22/2008	General Motors	B-/Caa3	3,400	4,100	2011	30/ L+205	Citigroup, JPM	The company said it was drawing down the credit in order to maintain a high level of financial flexibility in the face of uncertain credit markets.
9/26/2008	Goodyear Rubber & Tire Co.	BB+/ Baa3	600	1,500	2013	37.5/ L+125	JPM	Temporary delay in the company's ability to access \$360 million currently invested with The Reserve Primary Fund, Goodyear said in a statement. The funds also will be used to support seasonal working capital needs and to enhance the company's liquidity position.
9/26/2008	AMR Corp	B-	255	225	2013	50/ L+425	GE Capital Corp.	Cash balance
9/30/2008	Duke Energy	A-/ Baa2	1,000	3,200	2012	9/ L+40	Wachovia, JPM	In light of the uncertain market environment, we made this proactive financial decision to increase our liquidity and cash position and to bridge our access to the debt capital markets. This improves our flexibility as we continue to execute our business plans.
10/1/2008	GameStop	BB+/Ba1	150	150	2012	25/ L+100	Bank of America	Acquisition
10/2/2008	Dana Corp	BB+/Ba3	200	650	2013	37.5/ L+200	Citibank	Drawing down these funds is a prudent liquidity measure. Ensuring access to our liquidity to the fullest extent possible at a time of ambiguity in the capital markets is in the best interest of our customers, suppliers, shareholders, and employees.
10/9/2008	CMS Energy	BB+/ Baa3	420	550	2012	20/ L+100	Citigroup	Cash balance

10/10/2008	American Electric Power	BBB/ Baa2	2,000	3,000	2012	9/ L+45	JPM, Barclays	AEP took this proactive step to increase its cash position while there are disruptions in the debt markets. The borrowings provide AEP flexibility and will act as a bridge until the capital markets improve.
10/15/2008	Lear Corp	BB/B1	400	1,000	2012	50/ L+200	Bank of America	Given the recent volatility in the financial markets, we believe it is also prudent to temporarily increase our cash on hand by borrowing under our revolving credit facility.
10/16/2008	Southwest Airlines	BBB+/ Baa1	400	1,200	2010	15/ L+75	JPM	Although our liquidity is healthy, we have made the prudent decision in today's unstable financial markets to access \$400 million in additional cash through our bank revolving credit facility.
10/16/2008	Chesapeake Energy	BB/Ba2	460	3,000	2012	20/ L+100	Union Bank of California	Cash balance
10/16/2008	Ebay		1,000	1,840	2012	4/ L+24	Bank of America	Acquisition
10/20/2008	Tribune Co.	B/Caa1	250	750	2013	75/ L+300	JPM	Tribune is borrowing under the revolving credit facility to increase its cash position to preserve its financial flexibility in light of the current uncertainty in the credit markets.
10/23/2008	FreeScale Semiconductor	BB/B-	460	750	2012	50/ L+200	Citibank	"We made this proactive financial decision to further enhance our liquidity and cash position," said Alan Campbell, Senior Vice President and Chief Financial Officer. "This improves the company's financial flexibility as we continue to execute our business plans."
10/24/2008	Idearc	BBB-/ Ba3	249	250	2011	37.5/ L+150	JPM	The company made this borrowing under the revolver to increase its cash position to preserve its financial flexibility in light of the current uncertainty in the credit markets.