CORNERSTONE RESEARCH

Economic and Financial Consulting and Expert Testimony

Trends in Large Corporate Bankruptcy and Financial Distress

2005–Q3 2020

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Executive Summary

The COVID-19 pandemic has disrupted the global economy and triggered a wave of large corporate bankruptcies. In particular, the number of mega bankruptcies (over \$1 billion in reported assets) increased dramatically in the second and third quarters of 2020.

This report examines trends in Chapter 7 and Chapter 11 bankruptcy filings between January 2005 and September 2020 by companies with over \$100 million in assets.¹

- In the first three quarters of 2020, 34, 55, and 49 companies with over \$100 million in assets filed for bankruptcy, respectively, compared to the quarterly average of 19 for the 2005–2019 period. The 55 bankruptcy filings in Q2 2020 was the second-highest total for any quarter since 2005, only behind the 65 bankruptcies in Q1 2009.
- A total of 138 companies with over \$100 million in assets filed for bankruptcy in the first three quarters of 2020. This number is 84 percent higher than the number of bankruptcies (75) filed during the same period last year.
- There was a substantial increase in the number of "mega bankruptcies" (i.e., those filed by companies with over \$1 billion in reported assets) in Q2 2020. In Q2 and Q3 2020, there were 31 and 15 mega bankruptcies or roughly six and three times the quarterly average (five) during the 2005–2019 period, respectively.
- Mega bankruptcies were concentrated in two industries: Mining, Oil, and Gas; and Retail Trade. These two industries accounted for 58 percent of the mega bankruptcies in Q1-Q3 2020.
- The largest bankruptcy in the first three quarters of 2020 was filed by The Hertz Corporation, which had an estimated \$25.84 billion in assets at the time of filing.

Figure 1: Key Trends in Bankruptcy Filings 2005-03 2020

	2005–2019 Quarterly Average	Q1 2020	Q2 2020	Q3 2020
Chapter 11 Bankruptcy Filings	18	33	54	49
Chapter 11 Mega Bankruptcies	5	6	31	15
Chapter 11 Bankruptcy Filings by Public Companies	11	8	34	26
Chapter 11 Bankruptcy Filings by Private Companies	7	25	20	23
Chapter 7 Bankruptcy Filings	1	1	1	0
Average Asset Value at Time of Filing (Billions)	\$2.21	\$0.66	\$3.01	\$1.52

Source: BankruptcyData

Note: Only Chapter 11 and Chapter 7 bankruptcy filings by companies (both public and private) with over \$100 million in reported assets are included. For companies where exact assets are not known, the lower bound of the estimated range is used. Asset values are not adjusted for inflation. Mega bankruptcies are defined as those for companies with over \$1 billion in reported assets at the time of their bankruptcy filings.

Bankruptcy Filings

Number of Bankruptcies

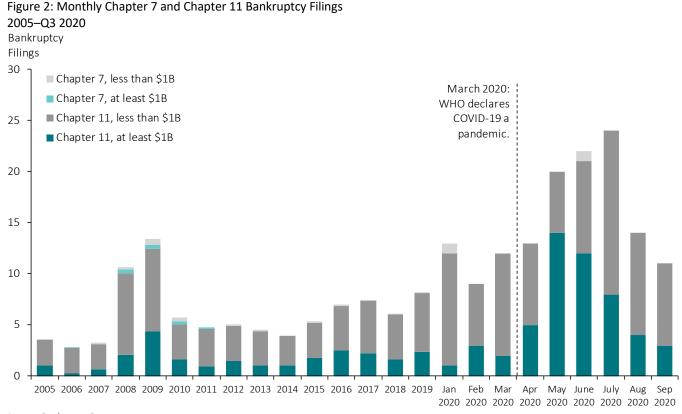
- As of September 30, 2020, 138 companies with over \$100 million in assets have filed for Chapter 7 or Chapter 11 bankruptcy in 2020.
- The number of bankruptcy filings increased sharply following the start of the COVID-19 pandemic in March 2020.

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Number of bankruptcy filings in Q1–Q3 2020.

- From April 2020 to September 2020, the average number of monthly bankruptcy filings was 17. This is considerably higher than the monthly averages following the onset of the 2008 financial crisis (11 in 2008 and 13 in 2009).
- In July 2020, 24 companies with over \$100 million in assets filed for bankruptcy, nearly four times the average rate of 6 filings per month in 2005–2019. This is the second-highest number of bankruptcy filings in a single month since 2005, behind only the 25 bankruptcy filings in March 2009.
- The number of bankruptcy filings by companies with over \$100 million in assets appears to have returned to lower levels after peaking in July 2020. There were 14 and 11 such bankruptcies in August 2020 and September 2020, respectively.



Source: BankruptcyData

Note: Only Chapter 7 and Chapter 11 bankruptcy filings by companies (both public and private) with over \$100 million in assets are included. For 2005–2019, values are monthly averages. For companies where exact assets are not known, the lower bound of the estimated range is used. Asset values are not adjusted for inflation. The World Health Organization (WHO) declared COVID-19 a pandemic on March 11, 2020.

Mega Bankruptcies

 There were 52 mega bankruptcies (over \$1 billion in assets) in the first three quarters of 2020. This was more than the number of mega bankruptcies in any full year during 2005–2019 except for 2009, which had 57 mega bankruptcies.

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Number of mega bankruptcies in Q1–Q3 2020, more than any full year since 2005 except for 2009.

- The Mining, Oil, and Gas industry experienced 20 mega bankruptcies in the first three quarters of 2020. Oil prices collapsed in March and April and still remain depressed, posing substantial challenges to the oil and gas industry.
- The Retail Trade industry experienced 10 mega bankruptcies in the first three quarters of 2020. The pandemic has created an increasingly difficult environment for traditional retailers.
- The top two industries—Mining, Oil, and Gas; and Retail Trade—accounted for 30 mega bankruptcies or 58 percent of all mega bankruptcies in the first three quarters in 2020. The number of mega bankruptcies in the Mining, Oil, and Gas industry has remained high since the 2014–2016 collapse in oil prices, and the industry experienced an increase in mega bankruptcies starting in 2019, prior to the COVID-19 pandemic. In contrast, there were few mega bankruptcies in the Retail Trade industry before the pandemic.

SIC Industry Division	Average 2005–2019	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mining, Oil, and Gas	4.0	1	0	0	0	1	0	1	2	0	3	13	17	8	3	11	20
Retail Trade	1.3	1	0	0	2	0	1	1	0	0		2	1	3	6	2	10
Transportation, Communications, and Utilities	3.3	4	1		5	4	3	4	4	3	4	0			3		8
	2.3	1	0	1	2	10	4		0	3	1	4	2		2	2	6
	3.7	3	2		5	21	2	2	5	3	2	1	2	4		4	5
	0.2		0		0	0	0		0	1		0			2		2
Finance, Insurance, and Real Estate	5.3	2	1	7	11	20	12		7	2	1	1	1		1	3	1
					3	1					1						
Agriculture, Forestry, and Fishing	0.1		0	0	0	0	0	0	0	0	0	0	1				0
Number of Bankruptcies	19	12	4	8	28	57	22	13	18	12	12	21	30	26	17	28	52
						Legend	0	1-4	5–9	10-14	15 and above						

Figure 3: Heat Map of Mega Bankruptcies by Industry 2005–Q3 2020

Source: BankruptcyData

Note: Only Chapter 11 and Chapter 7 bankruptcy filings by companies with over \$1 billion in assets are included. The SIC Industry Division "Mining" is labeled as "Mining, Oil, and Gas" to reflect the specific industries under the Industry Division. The SIC Industry Division "Transportation, Communications, Electric, Gas, and Sanitary Services" is labeled as "Transportation, Communications, and Utilities." There are no bankruptcies in two SIC Industry Divisions—"Public Administration" and "Nonclassifiable." These two SIC Industry Divisions are therefore not shown. For companies where exact assets are not known, the lower bound of the estimated range is used. Asset values are not adjusted for inflation. 2020 includes January 1, 2020, through September 30, 2020.

Largest Bankruptcies by Assets

- The largest bankruptcy filing by assets in the first three quarters of 2020 was The Hertz Corporation, followed by LATAM Airlines Group S.A.
- Only one of the largest 20 bankruptcies in Q1–Q3 2020 was filed before the COVID-19 pandemic.²
- Twelve of the 20 largest bankruptcies by assets were filed by companies in the Mining, Oil, and Gas industry.
- Three large retailers, Ascena (parent company of Ann Taylor and Lane Bryant), J.C. Penney, and Neiman Marcus, filed for bankruptcy in the first three quarters of 2020.
- Three of the 20 largest bankruptcies (Hertz, LATAM Airlines, and Avianca Holdings) could have been associated with the decline in travel due to the COVID-19 pandemic.

Figure 4: Largest 20 Bankruptcies in 2020 Q1–Q3 2020

 Four of the largest 20 bankruptcy filings in 2020 were prepackaged arrangements according to BankruptcyData (McDermott International, Oasis Petroleum, Denbury Resources, and Hornbeck Offshore Services).³



Percentage of the 20 largest bankruptcies in Q1–Q3 2020 that were filed after the start of the COVID-19 pandemic.

1.5/22/20The Hertz Corporation\$25.84\$24.36Services2.5/25/20LATAM Airlines Group S.A.\$21.09\$17.96Transportation, communications, and Utilities\$13.4/14/20Frontier Communications Corporation\$17.43\$21.86Transportation, communications, and Utilities\$14.6/28/20Chesapeake Energy Corporation\$16.19\$11.79Mining, Oil, and Gas\$15.7/23/20Ascena Retail Group Inc.\$13.69\$12.52Retail Trade\$16.8/19/20Valaris plc\$13.04\$7.85Mining, Oil, and Gas\$17.\$714/20Intelsat S.A.\$11.65\$16.81Transportation, communications, and Utilities\$18.1/11/20McDernott International Inc.\$8.75\$9.86Mining, Oil, and Gas\$19.5/15/20J.C. Penney Company Inc.\$7.99\$7.16Retail Trade\$110.4/1/20Whiting Petroleum Corporation\$7.64\$3.61Mining, Oil, and Gas\$111.5/7/20Neiman Marcus Group LTD LLC\$7.55\$6.79Retail Trade\$112.9/30/20Oasis Petroleum Inc.\$7.50\$3.66Mining, Oil, and Gas\$113.\$1/120Nobe Corporation plc\$7.26\$4.66Mining, Oil, and Gas\$114.7/31/20Nobe Corporation plc\$7.26\$4.66Mining, Oil, and Gas\$115.4/26/20Diamond Offshore Drilling	Rank	Date of Filing	Company	Assets (In billions)	Liabilities (In billions)	Industry	Prepackaged	After Onset of COVID-19
2.\$725/20LATAM Arrines Group S.A.\$21.09\$17.43Communications, and Utilities✓3.4/14/20Frontier Communications Corporation\$17.43\$21.86Transportation, Communications, and Utilities✓4.6/28/20Chesapeake Energy Corporation\$16.19\$11.79Mining, Oil, and Gas✓5.7/23/20Ascena Retail Group Inc.\$13.69\$12.52Retail Trade✓6.8/19/20Valaris plc\$13.04\$7.85Mining, Oil, and Gas✓7.\$/14/20Intelsat S.A.\$11.65\$16.81Transportation, Communications, and Utilities✓8.1/21/20McDermott International Inc.\$8.75\$9.86Mining, Oil, and Gas✓9.5/15/20J.C. Penney Company Inc.\$7.99\$7.16Retail Trade✓10.4/1/20Whiting Petroleum Corporation\$7.64\$3.61Mining, Oil, and Gas✓11.5/7/20Neiman Marcus Group LTD LLC\$7.55\$6.79Retail Trade✓12.9/30/20Oasis Petroleum Inc.\$7.27\$7.27Transportation, Communications, and Utilities✓13.\$/10/20Noble Corporation plc\$7.26\$4.66Mining, Oil, and Gas✓14.7/31/20Noble Corporation plc\$7.26\$4.66Mining, Oil, and Gas✓15.4/26/20Diamond Offshore Drilling Inc.\$5.83\$2.60Mining, Oil, and Gas✓16.7/30/20Denbury	1.	5/22/20	The Hertz Corporation	\$25.84	\$24.36	Services		\checkmark
3. 4/14/20 Corporation \$17.43 \$21.86 Communications, and Utilities ✓ 4. 6/28/20 Chesapeake Energy Corporation \$16.19 \$11.79 Mining, Oil, and Gas ✓ 5. 7/23/20 Ascena Retail Group Inc. \$13.69 \$12.52 Retail Trade ✓ 6. 8/19/20 Valaris plc \$13.04 \$7.85 Mining, Oil, and Gas ✓ 7. \$/14/20 Intelsat S.A. \$11.65 \$16.81 Transportation, Communications, and Utilities ✓ 8. 1/21/20 McDermott International Inc. \$8.75 \$9.86 Mining, Oil, and Gas ✓ 9. \$/15/20 J.C. Penney Company Inc. \$7.99 \$7.16 Retail Trade ✓ 10. 4/1/20 Whiting Petroleum Corporation \$7.64 \$3.61 Mining, Oil, and Gas ✓ ✓ 11. 5/7/20 Neiman Marcus Group LTD LLC \$7.55 \$6.79 Retail Trade ✓ 12. 9/30/20 Oasis Petroleum Inc. \$7.57 \$7.27 Communications, and Utilities ✓ 13. \$/10/20 A	2.	5/25/20	LATAM Airlines Group S.A.	\$21.09	\$17.96	,		\checkmark
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17.7/15/20California Resources Corporation\$4.07\$6.12Mining, Oil, and Gas✓18.6/14/20Extraction Oil & Gas Inc.\$2.93\$2.24Mining, Oil, and Gas✓19.5/19/20Hornbeck Offshore Services Inc.\$2.69\$1.49Mining, Oil, and Gas✓	15.	4/26/20	Diamond Offshore Drilling Inc.	\$5.83	\$2.60	Mining, Oil, and Gas		\checkmark
17. 7/15/20 \$4.07 \$6.12 Mining, Oil, and Gas ✓ 18. 6/14/20 Extraction Oil & Gas Inc. \$2.93 \$2.24 Mining, Oil, and Gas ✓ 19. 5/19/20 Hornbeck Offshore Services Inc. \$2.69 \$1.49 Mining, Oil, and Gas ✓	16.	7/30/20	Denbury Resources Inc.	\$4.61	\$3.12	Mining, Oil, and Gas	\checkmark	\checkmark
19. 5/19/20 Hornbeck Offshore Services Inc. \$2.69 \$1.49 Mining, Oil, and Gas ✓ ✓	17.	7/15/20		\$4.07	\$6.12	Mining, Oil, and Gas		\checkmark
	18.	6/14/20	Extraction Oil & Gas Inc.	\$2.93	\$2.24	Mining, Oil, and Gas		\checkmark
20. 6/29/20 Covia Holdings Corporation \$2.50 \$1.90 Mining, Oil, and Gas 🗸	19.	5/19/20	Hornbeck Offshore Services Inc.	\$2.69	\$1.49	Mining, Oil, and Gas	\checkmark	\checkmark
	20.	6/29/20	Covia Holdings Corporation	\$2.50	\$1.90	Mining, Oil, and Gas		\checkmark

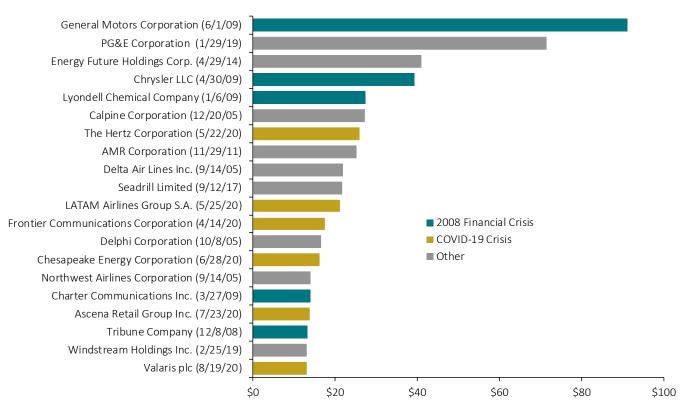
Source: BankruptcyData

Note: All bankruptcies filed on or after March 11, 2020, are considered to have occurred during the COVID-19 pandemic. All companies in this table filed for Chapter 11 bankruptcy. The SIC Industry Division "Mining" is labeled as "Mining, Oil, and Gas" to reflect the specific industries under the Industry Division. The SIC Industry Division "Transportation, Communications, Electric, Gas, and Sanitary Services" is labeled as "Transportation, Communications, and Utilities." Asset and liability values are not adjusted for inflation.

- Six bankruptcies in the first three quarters of 2020 are among the top 20 bankruptcies filed by non-financial companies (non-financial bankruptcies) since 2005.
- Five bankruptcies from the 2008 financial crisis are on the list of the top 20 non-financial bankruptcies since 2005.⁴
- The Hertz Corporation bankruptcy filing ranks as the seventh-largest bankruptcy by assets since 2005.

Figure 5: Largest 20 Non-Financial Bankruptcies by Assets 2005–Q3 2020

(Dollars in billions)



Source: BankruptcyData

Note: All bankruptcies on or after March 11, 2020, are considered to be part of the COVID-19 pandemic. All bankruptcies during the prior recession from January 2008 to June 2009 (recession period defined by the National Bureau of Economic Research) are considered part of the 2008 Financial Crisis. All companies in this table filed for Chapter 11 bankruptcy. Asset values are not adjusted for inflation. Two financial companies, Lehman Brothers (\$691 billion) and Washington Mutual (\$328 billion), had more assets than General Motors at the time of their bankruptcy filings.

6

Number of bankruptcies in the first three quarters of 2020 that are among the largest 20 non-financial bankruptcies since 2005.

Bankruptcy Venues

- Consistent with prior years, the most common venue for bankruptcy filings was Delaware with 49 of the 138 bankruptcy filings by companies with over \$100 million in assets in the first three quarters of 2020.
- For the first time since 2005, the Southern District of Texas accounted for more than 25 percent of bankruptcies filed by companies with over \$100 million in assets so far this year. Of the 41 bankruptcies filed in the Southern District of Texas in Q1–Q3 2020, 28 were by companies in the Mining, Oil, and Gas industry.
- The third most common venue for bankruptcy filings by companies with over \$100 million in assets in Q1–Q3 2020 was the Southern District of New York with 21 filings. Unlike Delaware and the Southern District of Texas, filings in the Southern District of New York were roughly in line with prior years.

- These top three courts (Delaware, Southern District of Texas, and Southern District of New York) account for 111 of the 138 bankruptcies (80 percent) of companies with over \$100 million in assets in the first three quarters of 2020.
- The Bankruptcy & COVID-19 Working Group, formed by a group of bankruptcy scholars, warned in May 2020 that the flood of bankruptcies triggered by COVID-19 may overwhelm the court system.⁵

80%

Percentage of bankruptcies filed in the top three courts in Q1–Q3 2020.

Court	Average 2005–2019	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
	32				54	67	25	33	21			33		30	37	39	
			0				0		1			5			9	14	41
New York - Southern	14	10	11	4	20	28	22	10	22	9	10	5	14	18	11	18	21
			1				2		1							1	5
Georgia - Northern	1	2	0	1	6	2	0	1	1	0	0	0	0	1	0	2	
Texas - Northern			1			5	0		2			2				3	
California - Central	2	0	0	3	5	8	3	0	2	0	0	1	0	0	1	2	0
Other	17	20	7	9	34	47	17	11	11	10	8	15	14	21	11	19	20
Number of Bankruptcies	73	43	34	39	128	161	69	57	61	54	47	64	84	89	73	98	138
						Legend	< 5	5–10	11–20	21–50	Over 50						

Figure 6: Heat Map of Bankruptcies by Venue 2005–Q3 2020

Source: BankruptcyData

Note: Only Chapter 11 and Chapter 7 bankruptcy filings by companies (both public and private) with over \$100 million in reported assets are included. "Other" includes courts with fewer than five bankruptcies in all years during the time period. 2020 includes January 1, 2020, through September 30, 2020.

Bankruptcy Resolutions

- Over 99 percent of Chapter 11 bankruptcy filings filed by companies with over \$100 million in assets in the 2005–2016 period have been resolved as of September 30, 2020.⁶
- Of the bankruptcies filed during the 2005–2016 period, approximately 53 percent of companies emerged (i.e., reorganization plans were confirmed), 31 percent of companies were liquidated or acquired, and the remaining 15 percent resulted in conversion, dismissal, or termination.
- For Chapter 11 filings in the 2005–2010 period, the average bankruptcy durations were substantially longer for cases that resulted in acquisition or liquidation (643 days) than for cases where reorganization plans were confirmed (439 days).
- This difference, however, has largely disappeared since 2011, due to a decline in the duration of bankruptcies resulting in acquisition or liquidation. While many cases filed since 2017 have not been resolved, no noticeable difference between the resolution durations of the two groups has emerged yet.

- Out of the 136 Chapter 11 filings of companies with over \$100 million in assets so far in 2020, 11 (8 percent) have already been resolved as of Q3 2020. Nine of the 11 companies emerged from bankruptcy with confirmed reorganization plans, and two bankruptcy cases have been dismissed.⁷
- Notably, Sheridan Holding Company I LLC filed for Chapter 11 in March 2020 and secured approval of its reorganization plan within 28 hours. According to the Wall Street Journal, "an increasing number of firms have sought to emerge from bankruptcy on an expedited basis to shorten their stay in chapter 11 and reduce costs."⁸

8%

Percentage of Chapter 11 bankruptcy filings in 2020 that have been resolved as of Q3.

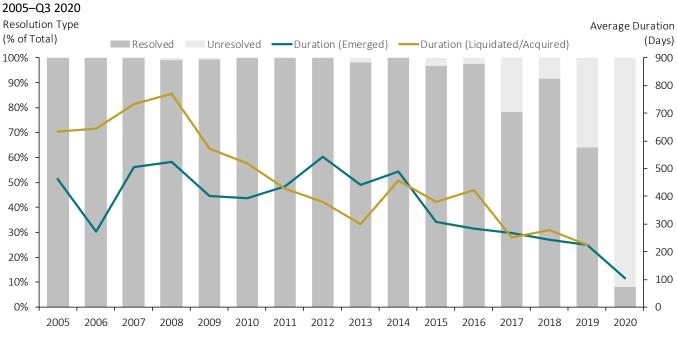


Figure 7: Chapter 11 Bankruptcy Resolution Duration by Year of Filing

Source: BankruptcyData

Note: Only Chapter 11 bankruptcy filings by companies (both public and private) with over \$100 million in assets are included. Bankruptcies are marked as unresolved where the data do not indicate an outcome. Resolved bankruptcies include those that ended in acquisition, emergence, conversion, dismissal, liquidation, or termination. Duration is the average number of days between the bankruptcy filing date and the effective date of the outcome for companies that have emerged as of September 30, 2020. Prepackaged bankruptcies are excluded from the calculation of bankruptcy resolution duration. The year reflects the bankruptcy filing date, not the resolution date.

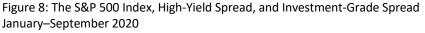
Market Indicators

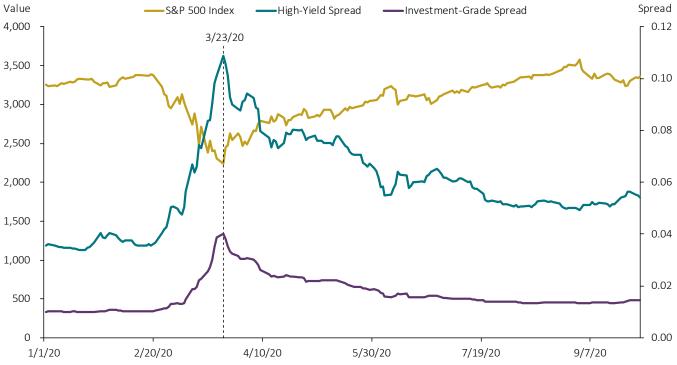
- The S&P 500 index experienced a 34 percent decline from its pre-pandemic high (3,380) on February 19, 2020, to its post-pandemic low (2,237) on March 23, 2020.
- The stock market rallied on March 24, 2020, according to market commentaries, on the hope that Congress would pass the economic rescue package,⁹ and the CARES Act was signed by President Trump on March 27, 2020.¹⁰ The S&P 500 surpassed its pre-pandemic high for the first time on August 18, 2020, and reached its peak (3,581) of the first three quarters in 2020 on September 2, 2020.
- In debt markets, both high-yield and investment-grade spreads relative to Treasury yields increased sharply in March 2020, and peaked on March 23, 2020, at levels that were 200 percent and 300 percent higher than their respective levels at the beginning of the year.¹¹

 Like the stock market, debt markets have also subsequently recovered, although to a lesser extent.
As of September 30, 2020, high-yield and investmentgrade spreads were 43 percent and 52 percent higher than their respective levels at the beginning of the year.

34%

Percentage decline in the S&P 500 from its pre-pandemic high to its post-pandemic low on March 23, 2020.





Source: FRED Economic Data; Refinitiv Eikon

Note: ICE BofA US High Yield Index Option-Adjusted Spread is used as the high-yield spread, and ICE BofA US Corporate Index Option-Adjusted Spread is used as the investment-grade spread.

Research Sample

The research sample in this report uses BankruptcyData to identify Chapter 7 and Chapter 11 bankruptcies filed by companies with over \$100 million in assets.

The sample contains 1,239 such bankruptcies from January 1, 2005, through September 30, 2020. The data were downloaded from BankruptcyData on October 2, 2020.

Mega bankruptcies are defined as Chapter 7 or Chapter 11 bankruptcies filed by companies with over \$1 billion in reported assets. The sample contains 360 mega bankruptcies from January 1, 2005, through September 30, 2020.

Asset values at the time of bankruptcy filings are used to measure bankruptcy size, due to the higher prevalence of missing information on liabilities in BankruptcyData. For companies with subsidiaries, separate bankruptcy filings by subsidiaries do not count toward the total number of bankruptcies.

Endnotes

- ¹ This report relies on data obtained from BankruptcyData. It focuses on asset values at the time of bankruptcy filings due to the higher prevalence of missing information on liabilities in BankruptcyData. Some other publications have focused on liabilities due to potential concerns over whether book values of assets overstate valuations for bankrupt firms (see, e.g., Edward Altman, "COVID-19 and the Credit Cycle," *Journal of Credit Risk* 16, no. 2 (2020): 1–28 at 13–14). Using available data on liabilities in this report would not meaningfully change any of the findings.
- ² The World Health Organization (WHO) declared COVID-19 a pandemic on March 11, 2020. See "WHO Director-General's Opening Remarks at the Media Briefing on COVID-19," World Health Organization, March 11, 2020, https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--- 11-march-2020.
- ³ "A prepackaged bankruptcy (a 'prepack') is a reorganization of firm's debt contracts that has been negotiated or accepted by creditors prior to the beginning of a bankruptcy proceeding." Sris Chatterjee, Upinder S. Dhillon, and Gabriel G. Ramirez, "Resolution of Financial Distress: Debt Restructurings via Chapter 11, Prepackaged Bankruptcies, and Workouts," *Financial Management* 25, no. 1 (1996): 5–18 at 5.
- ⁴ All bankruptcies filed during the period from January 2008 to June 2009 (recession period defined by the National Bureau of Economic Research) are considered part of the 2008 financial crisis.
- ⁵ Letter to Congress by the Bankruptcy & COVID-19 Working Group, May 7, 2020.
- ⁶ All but seven Chapter 11 bankruptcies filed during this period have been resolved as of Q3 2020.
- ⁷ XS Ranch Fund VI L.P. and Affiliated Creditors Inc. were dismissed.
- ⁸ "Sheridan Speeds through Bankruptcy in Under 28 Hours," *Wall Street Journal*, March 24, 2020, https://www.wsj.com/articles/sheridan-speeds-through-bankruptcy-in-under-28-hours-11585089843.
- ⁹ "Wall Street Stages Massive Rally as Coronavirus Stimulus Hopes Grow," *Washington Post*, March 24, 2020, https://www.washingtonpost.com/business/2020/03/24/stocks-economy-senate-stimulus-fed.
- ¹⁰ "Trump Signs Historic \$2 Trillion Stimulus after Congress Passes It Friday," *CNN*, March 27, 2020 https://www.cnn.com/2020/03/27/politics/coronavirus-stimulus-house-vote/index.html.
- ¹¹ Spreads are relative to Treasury rates. The beginning of the year refers to January 2, 2020, the first trading day in 2020.

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