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Juli Collins-Thompson, Brendan Collins, and John Maher

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Juli Collins-Thompson, Brendan Collins, and John Maher[1]

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1. Introduction

On March 13, 2020, the then President, Donald J. Trump, proclaimed the COVID-19 pandemic in the United States a national emergency.[2] This was followed by state-implemented measures to slow the spread of the disease, including stay-at-home orders and mandatory closures for non-essential businesses. As these actions unfolded, there were some expectations for a spike in business bankruptcies. For example, in a June 2020 New York Times article, titled "A Tidal Wave of Bankruptcies is Coming," Edward Altman estimated that 2020 would be a record year for "mega-bankruptcies" and large corporate bankruptcies would meet the record set during the 2008 crisis. David Skeel noted, "[t]he current crisis could bring a much greater surge in business bankruptcy filings than either of the two most recent recessions...At the very least, regulators need to assume a bankruptcy wave is coming" (Skeel, 2020).

In this note, we review trends in U.S. business bankruptcy filings between 2019 and the third quarter of 2021.[3] We find that, thus far, the anticipated surge in bankruptcies has not materialized, including in sectors hardest hit by the COVID-19 pandemic, such as hotels, retail, and restaurants.[4] We also examine the financial characteristics of bankrupt companies in the aforementioned sectors and find that bankruptcies were generally skewed towards very small companies, which had higher leverage, on average.

The rest of the note is structured as follows. Sections 2 and 3, respectively, provide background information on business bankruptcies and review trends in bankruptcy filings of U.S. public and private companies from 2019 through the third quarter of 2021. Section 4 examines bankruptcy filings

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[2] https://trumpwhitehouse.archives.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/

[3] In this note, "business bankruptcies" includes Chapter 7 and Chapter 11 bankruptcy filings.

[4] We focus on hotels, retailers, and restaurants as these industries were amongst the hardest hit by the pandemic, particularly given actions such as "stay-at-home" orders.

by industry, including reviewing characteristics of industries most impacted by the pandemic. Section 5 provides our conclusions, and an overview of our methodology follows in Section 6 (Appendix).

2. Background

There are several potential negative outcomes for businesses experiencing severe financial stress, including bankruptcy. A business is often recognized as "bankrupt" when the total value of its liabilities exceeds the total value of its assets, and it declares bankruptcy (voluntarily or involuntarily) in the federal court (Altman et al., 2020).

Bankruptcy fulfills a specific role for businesses facing financial distress: Chapter 11 of the U.S. Bankruptcy Code involves a reorganization of the debtor's assets and liabilities, whereas Chapter 7 is the liquidation of the debtor's assets, with the proceeds distributed to its creditors.[5] Historically, larger firms have tended to utilize Chapter 11, while smaller firms leaned towards Chapter 7 (Wang et al., 2021), as the cost of reorganization is high (White, 2016). Moreover, smaller firms tend to delay bankruptcy until it is "too late" and liquidation is the only viable path (Bradley et al., 2004, Wang et al., 2021).[6]

Only a small percentage of companies that go out of business file for bankruptcy – less than 9%, on average, between 2000 and 2016 (Wang et al., 2021).[7] Rather, many use state-level, non-bankruptcy procedures, such as voluntary debtor-creditor agreements, foreclosures, or bulk sales, to accomplish a similar outcome as invoking federal bankruptcy laws (Morrison, 2007).

3. U.S. Business Bankruptcy Trends During COVID-19

Historically, U.S. business bankruptcies have tended to follow economic cycles (see, for example, Iverson et al., 2020, Wang et al., 2021, and Banerjee et al., 2020). As shown in Chart 1, the number of Chapter 11 bankruptcy filings tends to rise in periods when the U.S. unemployment rate rises and, conversely, decline when the unemployment rate declines, albeit with different leads and lags.[8]

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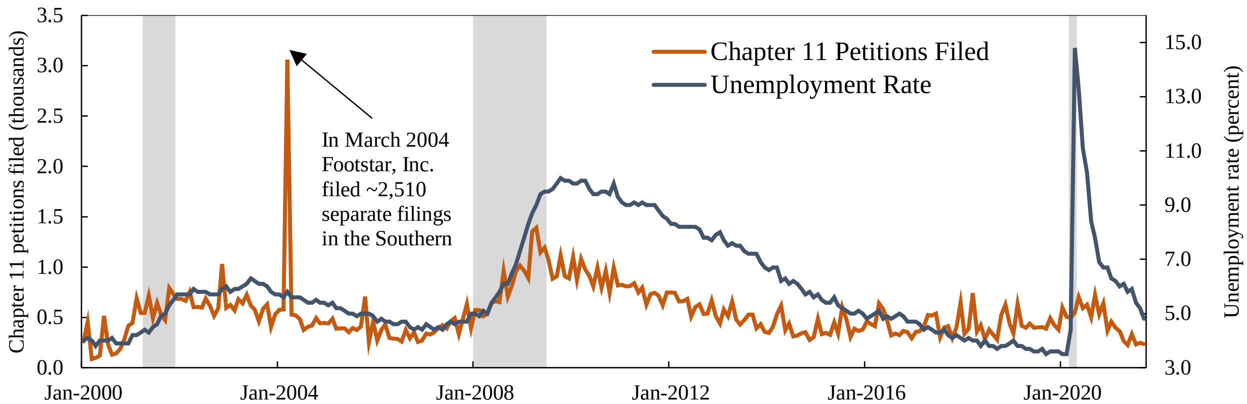
[5] https://www.uscourts.gov/services-forms/bankruptcy/bankruptcy-basics/chapter-11-bankruptcy-basics; https://www.uscourts.gov/services-forms/bankruptcy/bankruptcy-basics/chapter-7-bankruptcy-basics
[6] Up until 2019, Chapter 11 was not as common for small businesses given its high associated cost. Since the Small Business Reorganization Act of 2019, Chapter 11 is more available to a broader range of businesses. https://www.lydalawfirm.com/blog/restaurant-bankruptcy
[7] This is one limitation of using bankruptcy filings as a measure of distress in the business sector.
[8] We are unable to adjust the number of bankruptcies by asset size due to data limitations. This caveat is important to interpreting our results, as count alone does not tell us about the relative size of filers, etc.

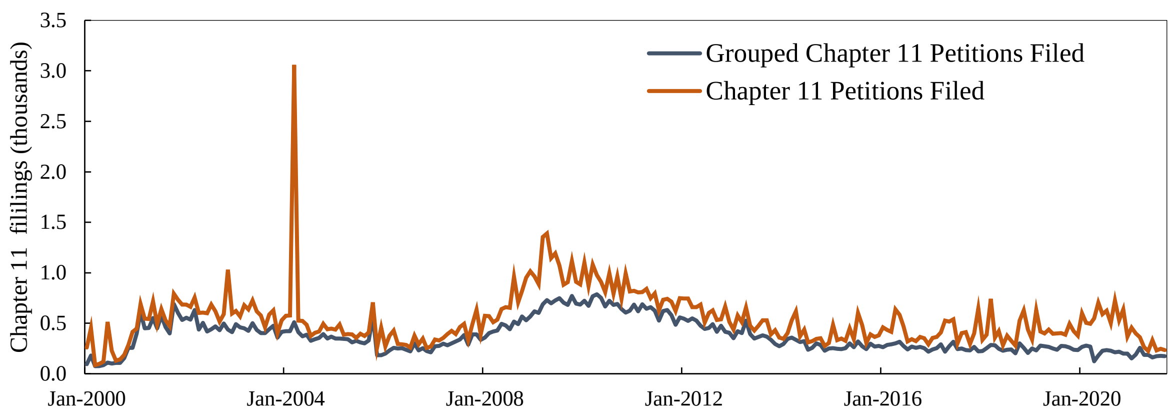
Chart 1: Number of Chapter 11 Bankruptcy Filings Versus Unemployment Rate (Monthly)



Sources: New Generation Research (NGR), Staff Calculations, BLS, NBER; *Shaded areas represent recession periods*

This somewhat procyclical trend in bankruptcies and unemployment was not obvious in 2020, a period in which the unemployment rate spiked, without a corresponding increase in bankruptcy filings.[9] This "divergence" between the unemployment rate and bankruptcy filings is even more pronounced when bankruptcy filers are aggregated to the ultimate parent level (grouped), as shown in Chart 2.[10]

Chart 2: Chapter 11 Bankruptcy Filings Versus Grouped Chapter 11 Company-Level Filings



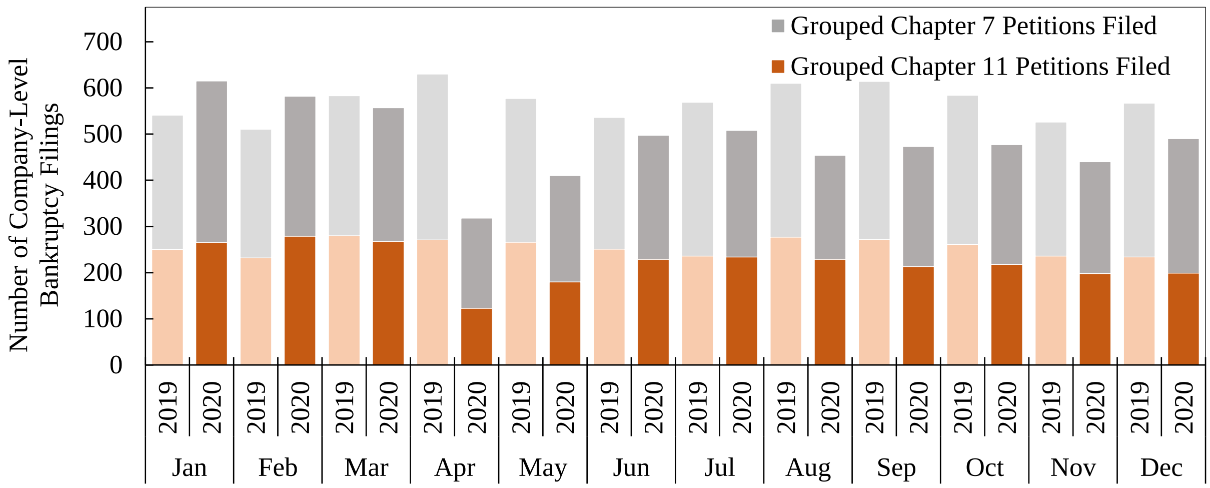
Sources: NGR, Staff Calculations, NBER

As shown in Chart 3, company-level bankruptcy filings had already increased from 2019 levels in the first two months of 2020. Then, beginning in March 2020, bankruptcy filings declined year-over-year every month through the end of 2020. The sharpest decline in monthly filings was in April,

[9] This decoupling between unemployment and bankruptcies is not just a U.S. trend, as noted in the 2021 FSB Report.
[10] Each legal entity within a company usually files for bankruptcy separately. (See, for example, Brasher, 2006). As such, companies with many subsidiaries can skew the bankruptcy filing count, as seen in 2004. We address this by grouping individual, affiliated filings together to the company level. See Section 6 for our methodology. Chapter 11 filings (based on the number of entities filing) increased by about 34% from 2019 to 2020. However, this is due to larger companies with multiple bankrupt subsidiaries filing. Based on our grouped Chapter 11 filings, the number of companies that filed declined by about 15% between 2019 and 2020.

which was likely the result of disruptions to the bankruptcy filing process, as the courts and legal system had to quickly shift to an online model amid COVID-19-related restrictions.[11] In the year-to-date ended September 2021, business bankruptcies have again declined.

Chart 3: Company-Level Chapter 11 and Chapter 7 Bankruptcy Filings by Month and Type



Source: NGR, Staff Calculations

In addition to disruptions to the bankruptcy filing process, there are other potential reasons the expected surge in business bankruptcies did not materialize. First, significant fiscal and monetary policy actions, including emergency lending facilities, were undertaken to counteract the effects of the COVID-19 pandemic.[12] Second, in response to some of these actions, capital markets rebounded quickly after the March 2020 disruption, providing liquidity to the corporate sector. Finally, barriers to accessing the bankruptcy system, such as lack of internet access, other technology and/or issues with retaining legal representation, likely impacted the number of filings, particularly Chapter 7 filings (Skiba et al., 2020). Having reviewed the aggregated business bankruptcy data, we next turn to industry-specific observations.

[11] As of March 2020, the U.S. Supreme Court asked employees to work remotely, and attorney filings were moved online. As of April 2020, the bankruptcy court had fully shifted to teleconferencing. https://www.supremecourt.gov/publicinfo/year-end/2020year-endreport.pdf

[12] Summaries of the Federal Reserve Board's and Government's pandemic-related actions are, respectively, available here: https://www.federalreserve.gov/supervisory-regulatory-action-response-covid-19.htm; https://www.congress.gov/bill/116th-congress/house-bill/748; https://www.crfb.org/blogs/bking-down-3-4-trillion-covid-relief

4. Industry Analysis (Including Hotels, Restaurants and Retail)

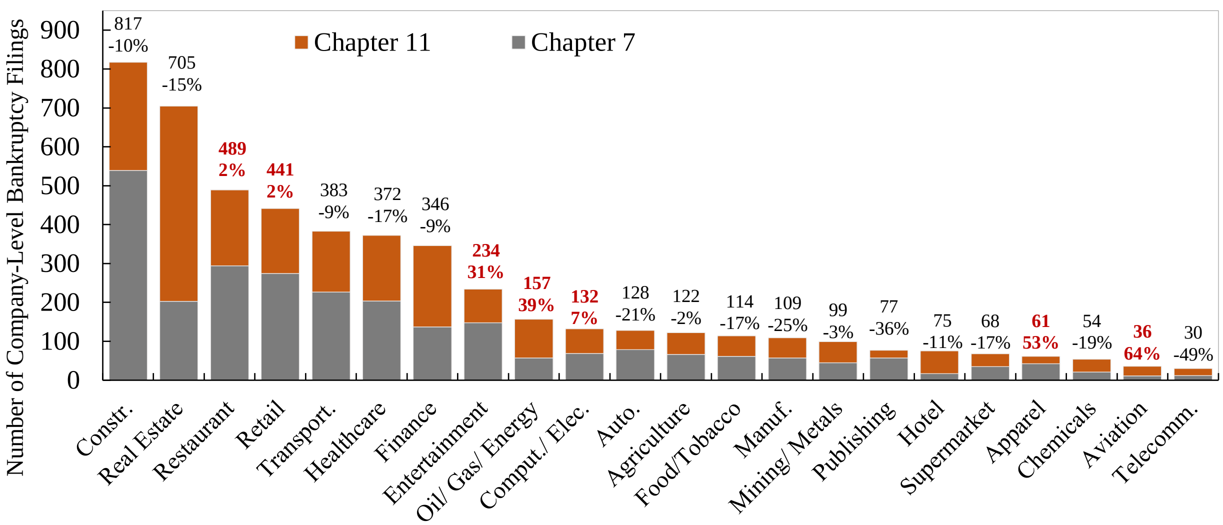
Table 1 reports 2020 grouped business bankruptcy filings by industry.[13] We see that the top five industries accounted for almost 56% of total bankruptcy filings by count.[14] Of these five industries, restaurants and retail also experienced moderate annual increases in filings from 2019 to 2020 (see Chart 4).

Table 1: Bankruptcies by Select Industries Relative to Total Filings

Industry	% of 2020 Bankruptcies
1. Construction	16.2%
2. Real Estate	14.0%
3. Restaurant	9.7%
4. Retail	8.7%
5. Transportation	7.6%
6. Healthcare	7.4%
7. Finance	6.9%
8. Entertainment	4.6%
9. Oil, Gas, and Energy	3.1%
10. Computer and Electronics	2.6%
TOTAL	80.7%

Source: NGR; *Industries as defined by NGR; Includes grouped (company-level) chapter 7 and 11 filings for 2020*

Chart 4: Company-Level Chapter 7 and Chapter 11 Bankruptcy Filings by Industry for 2020



Sources: NGR, Staff Calculations*; Data labels represent total count (top) and year-over-year change (bottom). Those that experienced positive changes over this period are highlighted in red.*

[13] That is, individual filers are aggregated up to the ultimate parent level.

[14] These ten industries accounted for over 80% of the 22 industry groupings that we reviewed, which are primarily based on the NGR industry classification.

To better understand the relative size of bankruptcy filings, we computed a "bankruptcy filing ratio" for each industry: the ratio of the number of company-level bankruptcies to number of firms in each industry, for both 2020 and their respective 5-year historical averages, as shown in Table 2. While this changes the rankings of the industries with the highest number of bankruptcies in 2020, most of the same industries feature in both Tables 1 and 2.[15] Also, we noted the 2020 bankruptcy filing ratios for many of these industries were not significantly different from their 5-year historical averages. This suggests that bankruptcies tend to be higher in these industries, even absent a shock, although more empirical work is needed to draw stronger conclusions.

Table 2: Ratio of the Number of Bankruptcies to the Number of Companies Per Industry

Industry	U.S. Firm Count	No. of 2020 Bankruptcy Filings/ No. of Industry Firms (%)	Historical Avg. No. of Bankruptcies/ No. of Industry Firms (%)
1. **Oil, Gas, and Energy**	29,833	0.53%	0.52%
2. **Real Estate**	325,709	0.21%	0.27%
3. **Chemicals**	29,540	0.18%	0.28%
4. **Retail**	245,020	0.18%	0.20%
5. **Transportation**	245,952	0.16%	0.15%
6. **Entertainment**	152,649	0.15%	0.13%
7. **Finance**	257,886	0.13%	0.19%
8. **Hotel**	56,712	0.13%	0.15%
9. **Manufacturing**	87,233	0.12%	0.23%
10. **Restaurants**	438,721	0.11%	0.11%

Sources: New Generation Research (NGR), Statistics of U.S. Businesses (SUSB); Industries as defined by NGR; Includes grouped (company-level) chapter 7, 11 filings for 2020 as well as 2015-2019 for historical avg. (far right column); SUSB firm count data from 2015-2018; Most recent year (2018) used as denominator for 2019-20; SUSB sectors (NAICS) converted to NGR industry classification (SIC-based) using NAICS Associations' SIC to NAICS crosswalk.

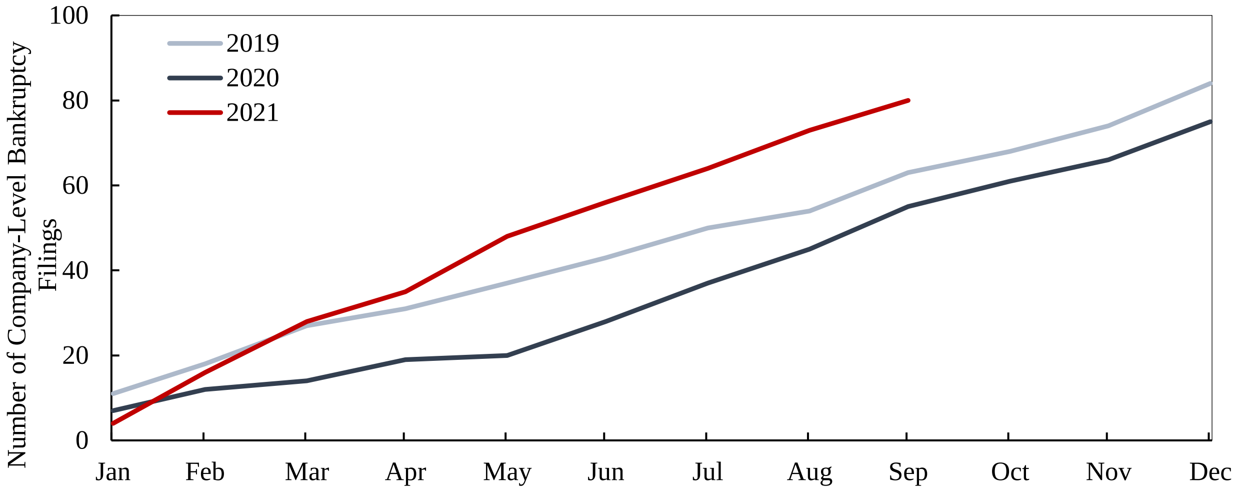
Next, we delve into some of the sectors most impacted by the COVID-19 pandemic: hotels, retail, and restaurants.

[15] When ranking industries on the 2020 bankruptcy ratio, construction, healthcare, and computers (as included in Table 1) drops from the top ten table while chemicals, hotels, and manufacturing move into the top ten industries with the highest 2020 bankruptcy ratios.

4a. Hotels

As a result of actions taken to stem the effects of the pandemic, including stay-at-home orders and limits on international travel, the hotel sector occupancy rate and revenue per available room declined significantly in April 2020.[16] Yet, despite the severe shock from COVID-19-related restrictions, the number of hotel bankruptcy filings in 2020 was around 11% below 2019's levels, as shown in Chart 5.[17] Moreover, as reflected in Table 2, the 2020 bankruptcy filing ratio for hotels was nominally less than its 5-year historical average.

Chart 5: Hotel Company Bankruptcy Filings by Month (Cumulative)



Source: NGR, Staff Calculations; *Includes chapter 7 and chapter 11 filings*

One would have expected more bankruptcy filings in the hotel sector given pandemic-related restrictions; however, hotels likely benefitted from official sector actions taken to stem the impact of the pandemic, including, for example, the Federal Reserve's Main Street Lending Program and the Small Business Administration's (SBA) Paycheck Protection Program (PPP).[18] In addition, some received support from their franchisor and management companies.[19] Finally, certain hotels had the

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[16] As of April 2020, the overall hotel sector occupancy rate dropped to 21% from 62% in early March 2020 and RevPAR (revenue per available room) fell by 80% to $15.60 (based on STR data). Luxury and upper scale hotels fared worse than economy hotels.

[17] To account for the COVID period, the year-over-year percent change from March to December 2020 was -5%.

[18] As part of the CARES Act, Section 1102 permitted the SBA to guarantee loans under the PPP. As of May 2021, food and accommodation received the highest percentage of PPP funding by sector, at 15%. https://www.sba.gov/document/report-paycheck-protection-program-weekly-reports-2021; See, also, Eric Rosengren's January 12th, 2021 speech, titled "The Economic Outlook – Optimism Despite the Challenges Ahead."

[19] Many U.S. hotels are franchised, and, during the COVID-19 event, certain hotel owners were able to obtain support from their franchisor, management companies in the form of services support, fee relief, ability to delay required capital expenditures, waived funding of Furniture, Fixture and Equipment reserves and suspension of brand standards and audits. See, for example, Marriott International's 10-K 2020 filings.

support of private investors, which temporarily funded negative hotel operations from cash reserves or capital market financing.[20]

However, for year-to-date ended September 2021, hotel bankruptcies are about 45% and 27% higher than 2020 and 2019 levels by count, respectively (Chart 5). This could reflect a delayed impact from COVID, especially as international travel restrictions continue, and business travel remains subdued.[21] It could also be that initial lender support for hotels is waning.[22]

Next, we examine key characteristics of firms that filed for bankruptcy in 2020, based on financial data submitted around the time of filing.

As shown in Table 3, in 2020, the median bankrupt hotel had total assets of about $3 million, and leverage, measured as the ratio of total claims to total assets, of 163%.[23] The median proportion of secured claims to total claims for hotels was high, at 81%, as was the percentage of assets held in real property (about 88%).[24] This financial profile reflects the risks of the business model: hotel operators face uneven revenue streams given the typical short-term nature of hotel stays but are liable for long-term debt payments on their properties.

Table 3: Summary of Bankrupt Hotels' Selected Financial Data and Ratios (2020)

2020 (Company Level)	25th Perc.	Median	75th Perc.
A. Total Assets	$868,465	$3,114,761	$8,110,001
B. Real Property / Total Assets	32%	88%	96%
C. Accounts Receivable / Total Assets	0%	0%	1%
D. Total Claims/ Total Assets	81%	163%	586%
E. Net Claims / Total Assets	80%	164%	597%
F. Total Secured Claims / Total Claims	42%	81%	94%
G. Total Unsecured Claims / Total Claims	7%	19%	57%

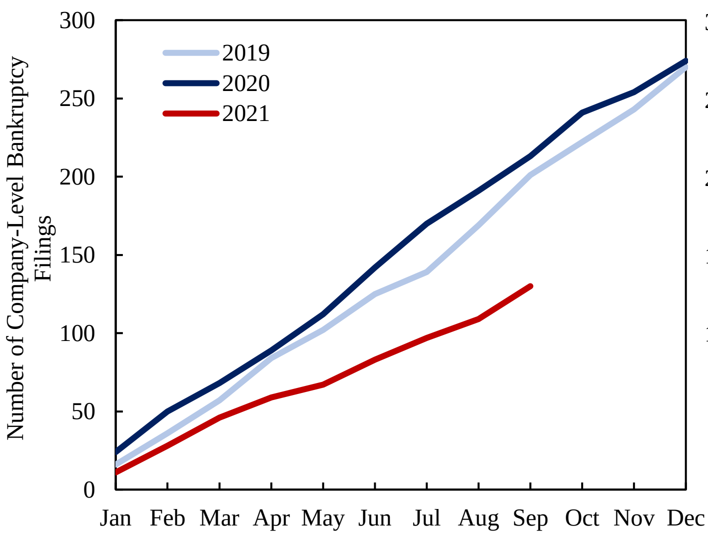
Source: NGR, FJC IDB, PACER, Staff Calculations; *Incl. all observations where financial data exists, and aggregate total assets are > $0; Financial data are latest available as of the date of filing*

[20] An example of this is Host Hotels (hotel REIT), as noted in their 2020 10-K.
[21] Despite an improvement in 2021, business travel revenue (for hotels) is not expected to return to 2019 levels until 2024. (American Hotel & Lodging Association – State of the Hotel Industry, 2021)
[22] As an example, in its 2020 10-K filing, Marriott International noted that its hotel owners and franchisees were having a more challenging time with obtaining financing, including financing on favorable terms, given the prolonged impact of the pandemic.
[23] Claims are defined as "a creditor's assertion of a right to payment from a debtor or the debtor's property." (U.S. Courts Bankruptcy Basics Glossary)
[24] For larger hotel filers, the high proportion of secured claims was primarily mortgage debt on hotel properties and/or liens due to unpaid taxes as well as SBA or other secured debt.

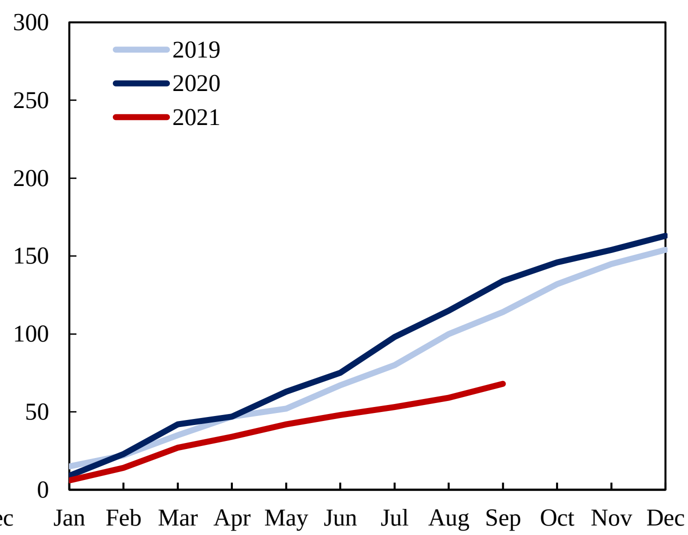
4b. Retail

Several sub-sectors within the retail industry, including older department stores and apparel companies, were already in financial decline before the COVID-19 pandemic, reflected by rising retail defaults and elevated store closures in the U.S.[25] Also, in the five years prior to the COVID-19 outbreak, the retail bankruptcy filing ratio was high relative to most other sectors (Table 2).[26] However, between March 2020, the onset of the pandemic, and December 2020, overall retail bankruptcies were relatively unchanged, year-over-year (Charts 6 and 7), and declined in the year-to-date ended September 2021.[27] The subdued trend in retail bankruptcies, especially in the latter half of 2020 and into 2021, likely reflects the aforementioned official sector actions to stem the impact of pandemic, as well as pent up demand, as states re-opened and reduced some restrictions amid the vaccine roll out.

Charts 6 and 7: Chapter 7 (Left) and 11 (Right) Cumulative Retail Company Bankruptcy Filings



*Source: NGR, Staff Calculations, *Chapter 7 Filings*



*Source: NGR, Staff Calculations, *Chapter 11 Filings*

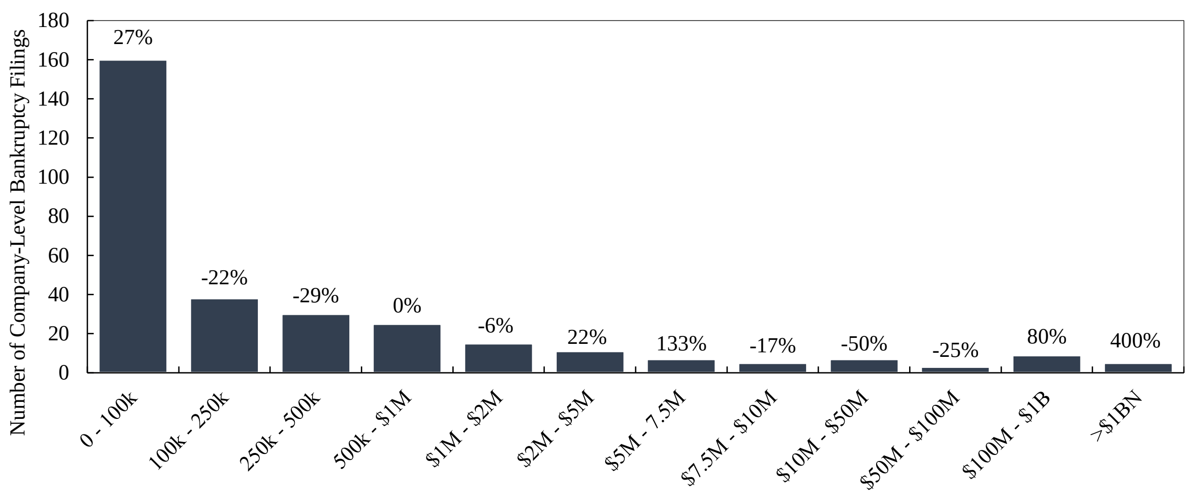
The modest change in retail bankruptcy filings from 2019 to 2020 also masks differences in the composition of filings, as reported in Charts 6 and 7. More specifically, the number of retailers that filed from March to December 2020 under Chapter 7 declined moderately year-over-year, while those filing under Chapter 11 rose by about 6% – primarily driven by larger apparel, department stores.

[25] According to Moody's, the default rate for U.S. retail and apparel companies exceeded 15% as of 2018. In 2019, there were about 9,300 store closures, a 59% increase from 2018 (Coresight Research).
[26] Bankruptcy filing ratio is the ratio of number of grouped bankruptcy filings to number of firms in the industry.
[27] Overall retail business bankruptcies declined by -0.5% year-over-year from March to December 2020. Year-to-date (Sept.) 2021 retail bankruptcies have fallen by about 43% year-over-year versus the same period in 2020.

The pandemic likely accelerated Chapter 11 filings of larger retailers that were heading for bankruptcy anyway.[28]

Our review of the financial characteristics of 2020 retail bankruptcy filers shows that most were very small retailers, with the median filer having total assets of only $95,000. Although only about 4% of retail bankruptcy filings were from companies with total assets greater than $100 million, these size categories accounted for an outsized fraction of increases in bankruptcy filings between 2020 and 2019 (Chart 8). Also, the median retail filer had a leverage ratio of about 419%, notably higher than the 163% reported for hotels (Table 3), and retail leverage was primarily comprised of unsecured claims, based on the median ratio of unsecured claims to total claims at around 88%.[29]

Chart 8: Number of Retail Companies Filing by Total Asset Size



Sources: NGR, FJC IDB, PACER, Staff Calculations; *Excludes firms that do not have financial data (e.g., Guitar Center, Inc., Le Tote, Inc. (Lord & Taylor), The Paper Store, LLC, Chinos Holdings, Inc. (J. Crew), Pier 1 Imports, Inc., Art Van Furniture, LLC, RTW Retailwinds, Inc., Stage Stores, Inc.); Inclusive of Chapter 7 and 11 filings*

4c. Restaurants

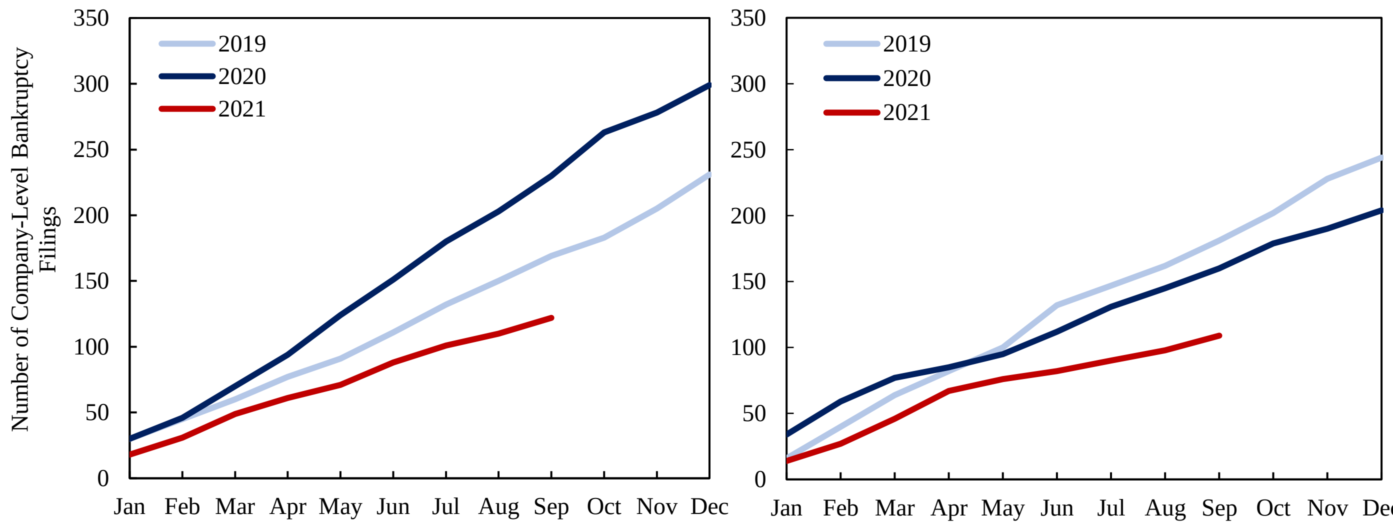
Despite COVID-19-related closures and dining restrictions, the increase in restaurant bankruptcy filings from March to December 2020 was modest year-over-year, and the restaurant bankruptcy

[28] In contrast, certain types of retailers benefited from actions taken to reduce the spread of the pandemic, including online retailers, grocery stores, and home improvement stores.

[29] In reviewing the bankruptcy petitions, recurring examples of unsecured claims for retailers ranged from taxes, unpaid wages, vendor services to credit cards and equipment leases. This high proportion of unsecured claims is consistent with the asset side of the balance sheet, where the median ratio of tangible assets to total assets, specifically real property and accounts receivable, was negligible. In reviewing filings of the 25 largest retail filers with an A/R to assets ratio of 5% or below, if the companies did not have a high proportion of assets in property, most of their assets were held in inventory, with the median inventory to total assets ratio of 41%.

filing ratio for 2020 was also in line with its historical average (Table 2).[30] In addition, similar to retail, restaurant bankruptcy filings have notably dropped year-to-date 2021 (Charts 9 and 10).[31] While the restaurant sector also benefited from pandemic-related official sector actions, it also likely benefited from pent-up demand owing from gradual re-openings.[32] Yet, considering the restaurant industry is known for having one of the highest business failure rates (Parsa et al., 2015), it is also likely that many restaurants failed during the pandemic without filing for bankruptcy, which would have also suppressed filings.[33]

Charts 9 and 10: Chapter 7 (Left) and 11 (Right) Cumulative Restaurant Bankruptcy Filings



*Source: NGR, Staff Calculations, *Chapter 7 Filings*

*Source: NGR, Staff Calculations, *Chapter 11 Filings*

Moreover, the modest change in restaurant bankruptcy filings from 2019 to 2020 masks differences in the composition of filings (Charts 9 and 10). When restaurant bankruptcies are disaggregated by filing-type, Chapter 7 filings for restaurants increased by about 36% year-over-year in 2020, while Chapter 11 filings declined.[34] The increase in Chapter 7 filings was driven by smaller restaurants which, unlike larger restaurants, likely had less financing options or sponsor support.[35]

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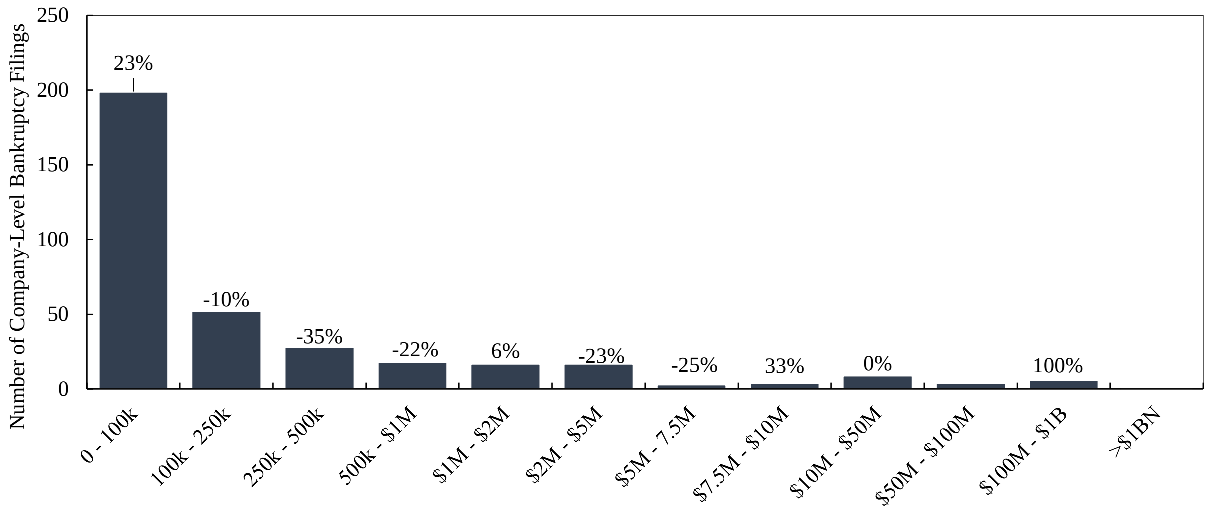
[30] Overall, restaurant filings increase by about 2% year-over-year from March to December 2020.
[31] In the year-to-date ended September 2021, grouped restaurant filings have declined around 41% versus 2020's levels.
[32] In addition to the other actions already noted, in 2021, the American Rescue Plan Act established the Restaurant Revitalization Fund to fund for eligible restaurants. https://www.sba.gov/funding-programs/loans/covid-19-relief-options/restaurant-revitalization-fund#section-header-1
[33] According to the National Restaurant Association's State of the Restaurant Industry Report (January 2021), more than 110,000 eating and drinking establishments closed in the U.S. as of December 2020. For comparison, our data reports approximately 500 restaurants filed for bankruptcy in 2020.
[34] Calculated from March to December 2020, to account for the impact of COVID.
[35] The median size restaurant that filed for Chapter 7 in 2020 held about $34,000 in total assets. Also of note, a relatively high percentage of restaurants that filed for bankruptcy reported PPP loans in their claims (~20% of restaurant filings, or ~84% of those with financial data) but these funds proved insufficient to keep these companies from filing.

Similar to retail, most restaurant bankruptcy filers in 2020 were skewed to very small companies. As shown in Chart 11, 56% of restaurant filings were from companies with total assets under $100k.[36] Only 6 restaurants, including Chuck E. Cheese, Ruby Tuesday, CraftWorks and Studio Movie Grill, had total assets greater than $100 million, although this category saw the largest year-over-year change in filings versus 2019.[37] The median leverage ratio for restaurants was 468%, not too dissimilar to retail, and most filers' claims were unsecured, with the median ratio of unsecured claims to total claims at about 91%.

Chart 11: Number of Restaurant Companies Filing by Asset Size



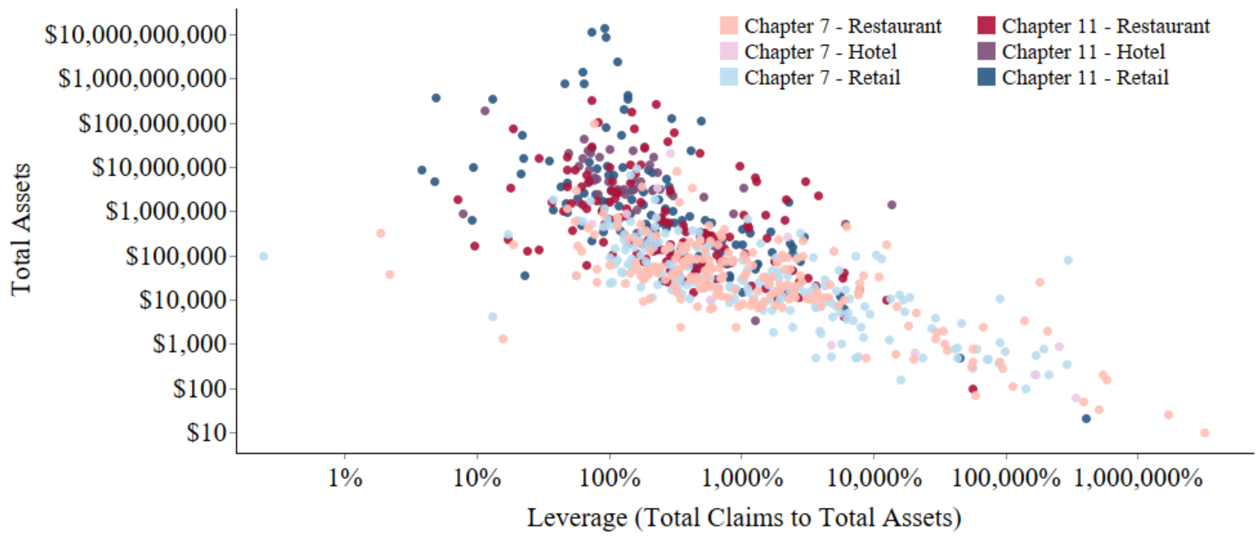
Sources: NGR, FJC IDB, PACER, Staff calculations; *Excludes firms without financial data (e.g., Star Chain, Inc., California Pizza Kitchen, Inc.); Inclusive of chapter 7 and 11 filings*

Finally, it is worth highlighting that smaller bankrupt firms tended to have higher leverage (measured as total claims to total assets), on average, at the time of bankruptcy as compared to larger firms (Chart 12). While this result was consistent across the reviewed industries, it was particularly prevalent for retail and restaurants.

[36] The median size of restaurant that filed in 2020 reported only about $75,000 in total assets.

[37] One data issue was 24 restaurant groups (the largest of which was California Pizza Kitchen, with total assets over $100 million) that filed in 2020 were missing financial data which prevented their inclusion in the dataset.

Chart 12: Leverage Ratio versus Total Assets for Hotel, Retail and Restaurant Filers



Source: New Generation Research, FJC IDB, PACER, CapitalIQ, SRA Calculations; *Logarithmic scale*

5. Conclusion

At the onset of the COVID-19 pandemic, some anticipated a rise in business bankruptcies resulting from the actions taken to reduce the spread of the pandemic. We find, thus far, this anticipated spike in business bankruptcies has largely not materialized. Official sector actions, including those by the Federal Reserve, played a key role in supporting businesses and households, offsetting the negative impact of other policies, including stay-at-home orders, enacted to reduce the spread of the virus.

In examining the financial characteristics of companies that declared bankruptcy in select industries hardest hit by the pandemic, we found that bankruptcies were generally skewed towards very small companies, particularly for retail and restaurants. In addition, at the time of bankruptcy filing, smaller filers tended to have higher leverage ratios, based on total claims to total assets, while larger company bankruptcies tended to have lower leverage ratios.

Although we can draw only limited conclusions from our bankruptcy review due, in part, to data limitations, the trends observed raise a few questions, including why smaller firms that filed for bankruptcy did not ex-ante access or sufficiently benefit from official sector actions. A possibility is the burden of applying for such programs might have been higher for smaller companies or that the smallest businesses had the least awareness of government assistance programs (Humphries et al., 2020). Also, it may be the case that official sector funding would have been insufficient to avoid bankruptcy, especially considering the severity of the COVID-19 shock. These are all questions that would benefit from additional research.

6. Appendix – Overview of Bankruptcy Filing Data Set

Data Sources

Our primary data sources are New Generation Research (NGR), Public Access to Court Electronic Records (PACER), and the Federal Court Cases Integrated Database (IDB). These sources provide a variety of information on filers, including bankruptcy filing dates and type of filing (i.e., Chapter 7 or Chapter 11), jurisdiction, company name, address, lawyer information etc. We collected balance sheet data, including total assets and claims, from NGR, supplemented with data from IDB and PACER.[38] These data sets are available from 2000 and 2007, respectively, through 2021.[39] [40]

Grouping Methodology

Each legal entity within a company usually files for bankruptcy separately such that companies filing with a multitude of subsidiaries can skew the filing count. We address this issue by grouping individual, affiliated filings together to the company level to obtain a more accurate count of company-level bankruptcies. We do this by using the Lead Case information from NGR or, for filings without a Lead Case, a code that groups business filings based on select identifying variables.[41] Grouping affiliated filings together is also necessary to analyze company-level financial data from the petitions.

More specifically, using data from January 2017 through May 2021, we first aggregate filings with a Lead Case into individually numbered groups. This assigned about 22% of filings to different groups. Then, for those filings without a Lead Case, we used carefully selected variables, such company address and lawyer, to match other affiliated filings into an existing Lead Case group that might have been missed.

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[38] Although companies are required to file their financial data and forms when filing their bankruptcy petitions, companies often filed the financial data separately - with a delay.

[39] NGR defines "business bankruptcy" as Chapter 7 and Chapter 11 filings, generally inclusive of entities that either a) filed a business filing (Forms 201 or 205) and have an Employer Identification Number ("EIN") or b) if the entity did not report an EIN, either filed a business filing or an individual filing (Forms 101, 105) with a company listed as the debtor.

[40] https://www.fjc.gov/research/idb/bankruptcy-cases-filed-terminated-and-pending-fy-2008-present

[41] NGR started definitively assigning Lead Cases as of 2017.

Next, we match affiliated filings that do not belong to a Lead Case by prioritizing company address first, then other variables, including filing date, filing type, company address and lawyer information. Using this methodology assigned an additional 16% of filings to a group. Each remaining filing not already assigned to a group was then assigned its own group number.

There are some limitations to our methodology. Since organizational charts are largely unavailable, given most companies that filed in our chosen industries were private, our data might over or underestimate grouping filings to the company level. For example, although each entity that files separately usually files its own financial data, there is the possibility that companies file consolidated data. Where possible, for larger, public companies, we compared grouped assets and claims from the aggregated bankruptcy forms to assets and liabilities reported in the respective companies' SEC filings using S and P Capital IQ. We did notice that certain companies, where debt was guaranteed by more than one subsidiary, each reported the full amount of the debt obligation under their claims. Therefore, to avoid double counting, the total amount of debt outstanding was equally divided between the relevant company subsidiaries.

In addition, there were instances in which we were not able to collect every petition and the associated financial data filed by all related entities within a company. To deal with this data issue, as well as maximize the data capture, we required that 75% of petition-level data within each group be non-blank, non-zero values to be consolidated to the company level. In applying this filter, only about 2% of observations were dropped from the financial analysis.

Finally, there is a lot of variability with the bankruptcy petition filings data, even using annual data, such that our research would benefit from additional analysis on whether the year-over-year changes noted in 2020 and 2021 were significant in relation to a longer time series of historical data.

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