

ANALYSIS
22 APRIL, 2020

Prepared by

Mark Zandi
Mark.Zandi@moodys.com
Chief Economist

Contact Us

Email
help@economy.com

U.S./Canada
+1.866.275.3266

EMEA
+44.20.7772.5454 (London)
+420.224.222.929 (Prague)

Asia/Pacific
+852.3551.3077

All Others
+1.610.235.5299

Web
www.economy.com
www.moodysanalytics.com

Businesses Batten Down the Hatches

INTRODUCTION

The COVID-19 crisis is scrambling the fortunes of companies. Some firms are selling more because of a surge in spending as the nation shelters in place and purchases more online. But most are under severe financial pressure, forced to either shut down or to struggle with much weaker demand for their goods and services. This stress is evident as most businesses are increasingly unable to pay their bills on time, and their sales to other businesses begin to flag.

Businesses Batten Down the Hatches

BY MARK ZANDI AND JIM SWIFT

The COVID-19 crisis is scrambling the fortunes of companies. Some firms are selling more because of a surge in spending as the nation shelters in place and purchases more online. But most are under severe financial pressure, forced to either shut down or to struggle with much weaker demand for their goods and services. This stress is evident as most businesses are increasingly unable to pay their bills on time, and their sales to other businesses begin to flag.

These observations are based on business-to-business spending data provided by Cortera, which collects the information from the accounts receivable systems of businesses responsible for approximately \$1.5 trillion of the \$8 trillion in annual B2B spending. Cortera uses the data to provide businesses with information about the credit of firms they are selling to, so they can assess the risks of not getting paid in a timely way.

Paying later

Businesses are having a difficult time paying their bills on time. During March, nearly one-third of B2B payments were late, up from closer to one-fourth of payments a year earlier (see Chart 1). There is some seasonality in late payments, particularly around Christmas, but by March, businesses are back making more timely payments. Not this year.

This is also evident in how many days behind businesses are in making their payments. The average days beyond terms—calculated based on late balances dollar-weighted across aging buckets of 1-30 days, 31-60 days, 61-90 days and 91+ days late—increased to nearly 16 days in March. This is up from closer to 11 days in March last year.

Businesses were not in particularly good financial shape even before the virus struck. From the second half of last year many firms were having increasing difficulty making timely payments. That timing is consistent with the slowing in overall economic growth related to the global trade war, which was

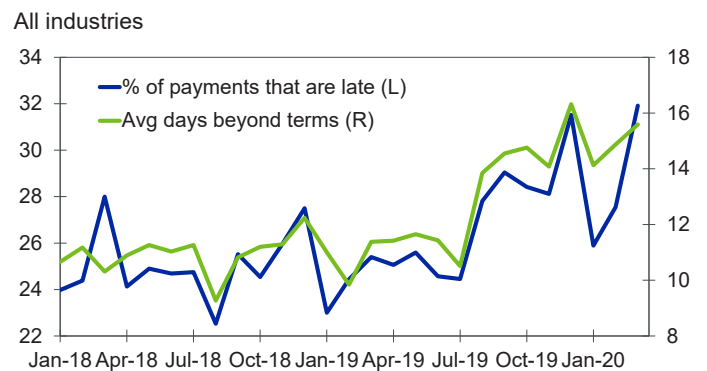
at its apex during that period.

The virus has hammered business in some industries extraordinarily hard. The motion picture (NAICS 512) and performing arts and spectator sports (NAICS 711) industries are reeling as they have been all but shut down. Close to 40% of their payments to other businesses were late in March, double what it was a year ago (see Table 1). Average days beyond terms have also ballooned in these industries, doubling to close to 20 days (see Table 2).

Businesses typically pay later in the accommodation (NAICS 721) and food services (NAICS 722) industries, but because of the virus many hotels and restaurants are having trouble paying their bills at all. About half of payments in these industries are late and the days beyond term are approaching one month.

Some financial institutions are also paying their bills much more slowly. Well over one-fourth of payments by institutions in the credit intermediation (NAICS 522) industry were late in March, double a year ago. Days beyond term have also doubled to near 20 days. This industry includes both banks and other depository institutions that likely are having little problem pay-

Chart 1: Businesses Struggle to Pay Bills on Time



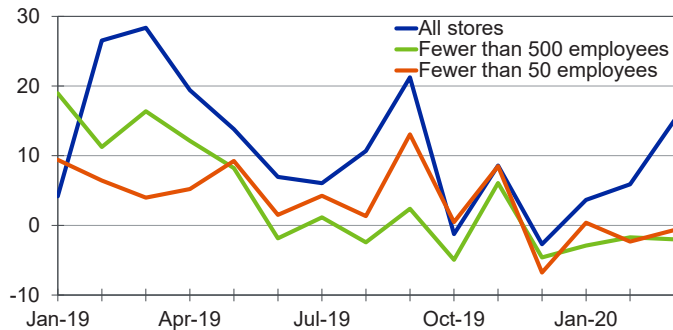
Sources: Cortera, Moody's Analytics

ing their bills, and nonbank financial intermediaries that are having lots of problems. Good examples of this are the nonbank mortgage servicers that are being burdened by the various mortgage forbearance programs implemented in response to the crisis.

Businesses in only a handful of industries are paying their bills in a timelier way. The truck transportation (NAICS 484) industry stands out as paying more quickly in March compared with a year ago, although this may reflect slow payment behavior last year when the industry was grappling with the fallout from the trade war. Building material and supply retailers (NAICS 444) are also paying in a timely way; their sales were solid leading up to the virus, and shelter-in-place orders have lifted sales as people stuck at home are working on the house.

Chart 2: Smaller Retailers Struggle

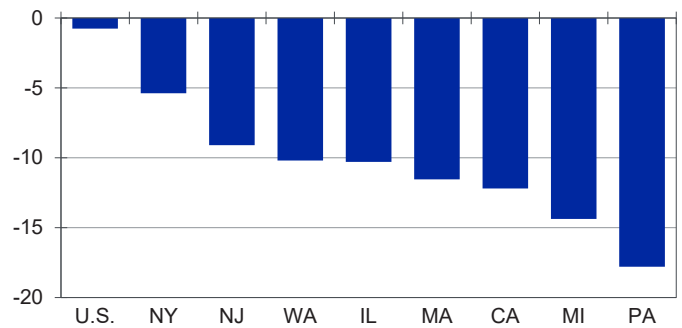
General merchandise stores B2B spending, % change yr ago



Sources: Cortera, Moody's Analytics

Chart 3: B2B Spending Suffers in Hot Spots

Median spend per business, % change yr ago through Mar 2020



Source: Moody's Analytics

Agricultural (NAICS 11) industries are also enjoying better conditions and are thus able to pay their bills somewhat more quickly—at least compared with last year. Easing of the trade war allowed the industry to ship more farm products globally, and demand for food products has temporarily surged as people shelter in place.

Fragile B2B spending

Overall B2B spending held up reasonably well in March, when it grew by more than 4% from a year before, but this masks wide differences in sales growth across industries due to the impact of the virus. Not surprisingly nonstore retailers (NAICS 454) saw sales soar by more than one-third over the past year as more Americans scrambled to figure how to purchase anything they could online (see Table 3). With dining out no longer an option, food and beverage store (NAICS 445) and food manufacturing (NAICS 311) sales also jumped by nearly one-third.

Spending by various service industries also increased significantly in March due to the fallout from the virus. Ambulatory health care services (NAICS 621) and nursing care facilities (NAICS 623) significantly ramped up their spending given the surging demand on their services. Demands on all types of government services have also increased sharply, as evidenced by a more than 10% increase in purchases by public administration (NAICS 82).

The virus has also undermined sales in a range of industries. The airline (NAICS 481) and cruise line (NAICS 483) industries significantly pulled back on spending, with their purchases off by more than one-fourth

from a year ago. The collapse in oil prices due to the slide in global oil demand and brinkmanship between Saudi Arabia and Russia over necessary oil production cuts has crushed the oil and gas extraction (NAICS 211), gasoline station (NAICS 447) and pipeline transportation (NAICS 486) industries.

Museums (NAICS 712), amusement parks (NAICS 713) and the performing arts and spectator sports (NAICS 711) industries are suffering double-digit declines in their year-over-year spending. These industries will likely be among the last to reopen, which may not happen until there is a COVID-19 vaccine, which appears more than a year off, according to healthcare professionals.

The fragility of B2B spending is more apparent in the decline in the median spending of businesses across all of their suppliers over the past year (see Table 4). That overall B2B spending was still increasing in March while median spending declined indicates that businesses were concentrating their spending on a smaller number of their bigger suppliers. This may reflect supply chain concerns that would likely hamper smaller suppliers more than larger ones. The apparel manufacturing (NAICS 315) and clothing store (NAICS 448) industries would be good examples of this. Median spending was also off sharply in March in the publishing (NAICS 511), data processing (NAICS 518) and vehicle dealership (NAICS 441) industries.

Small versus large companies

Through March, differences in B2B spending and payment behavior did not vary sig-

nificantly across companies of different sizes. COVID-19 does not appear to have had a substantially more negative impact on smaller businesses than larger ones, at least not through March.

An exception to this is at general merchandise stores (NAICS 452) where large retailers had strong purchases during the month, while smaller retailers, those with fewer than 500 employees, were pulling back on their spending (see Chart 2). However, spending by smaller retailers has consistently lagged for more than a year and has been declining since Christmas.

Payment behavior has also been similar across companies of different sizes. The one notable exception is that smaller financial institutions are paying their bills more slowly than larger ones. Banks and nonbanks with fewer than 50 employees are 22 days late on their bills compared with 18 days for all financial institutions. The severe disruption in credit markets in recent weeks is having a more serious impact on the funding costs and lending of smaller nonbank institutions and thus their ability to pay their bills in a timely way.

Hot spots struggle

The virus has hit some areas of the country harder than others, and this is evident in B2B spending. Businesses located in states where infections have been most serious have reined in their spending more aggressively. Median spending by businesses across all their suppliers is down a bit nationwide in March, but it is down by more than 5% in New York, 10% in California, Illinois, Massachusetts, New Jersey, and the State of Washington, and closer to 15% in Mich-

igan and Pennsylvania (see Chart 3). Late payments by businesses do not stand out as much in these hot spots, but this is likely to change.

COVID-19 is hitting the economy hard and businesses are struggling to manage through increasingly difficult times. Like

households with financial difficulties, businesses are paying their bills substantially more slowly as they work to shepherd their cash and other financial resources. The federal government is trying to help by providing loans and grants to hard-pressed businesses via the Paycheck Protection Program

for small businesses and the Main Street Lending facility for midsize and larger companies, but it is unclear whether the help will be large and targeted enough. If not, payments on B2B transactions will continue to weaken and ultimately presage business failures and bankruptcies.

Table 1: Change in the Percent of B2B Payments That Are Late

Mar 2020 - Mar 2019

NAICS	Industry	Change yr ago
512	Motion Picture and Sound Recording Industries	20.5
711	Performing Arts; Spectator Sports; and Related Industries	20.2
721	Accommodation	18.2
722	Food Services and Drinking Places	18.1
511	Publishing Industries (except Internet)	16.2
424	Merchant Wholesalers; Nondurable Goods	15.4
525	Funds; Trusts; and Other Financial Vehicles	14.7
492	Couriers and Messengers	14.2
611	Educational Services	13.8
518	Data Processing; Hosting; and Related Services	13.6
523	Securities; Commodity Contracts; and Other Financial Investments and Related Activities	13.5
524	Insurance Carriers and Related Activities	13.4
522	Credit Intermediation and Related Activities	12.9
517	Telecommunications	12.4
312	Beverage and Tobacco Product Manufacturing	12.3
561	Administrative and Support Services	12.1
448	Clothing and Clothing Accessories Stores	12.0
339	Miscellaneous Manufacturing	11.1
712	Museums; Historical Sites; and Similar Institutions	11.0
315	Apparel Manufacturing	11.0
541	Professional; Scientific; and Technical Services	10.9
211	Oil and Gas Extraction	10.6
453	Miscellaneous Store Retailers	10.6
624	Social Assistance	10.1
531	Real Estate	9.8
445	Food and Beverage Stores	9.6
813	Religious; Grantmaking; Civic; Professional; and Similar Organizations	9.6
812	Personal and Laundry Services	9.5
481	Air Transportation	8.5
443	Electronics and Appliance Stores	8.4
485	Transit and Ground Passenger Transportation	8.4
316	Leather and Allied Product Manufacturing	8.3
515	Broadcasting (except Internet)	8.0
483	Water Transportation	7.8
713	Amusement; Gambling; and Recreation Industries	7.5
213	Support Activities for Mining	7.5
327	Nonmetallic Mineral Product Manufacturing	7.3
446	Health and Personal Care Stores	7.2
451	Sporting Goods; Hobby; Musical Instrument; and Book Stores	7.2
236	Construction of Buildings	7.0
323	Printing and Related Support Activities	7.0
621	Ambulatory Health Care Services	7.0
	All Industries	6.5
454	Nonstore Retailers	6.4
551	Management of Companies and Enterprises	6.4
447	Gasoline Stations	6.2
314	Textile Product Mills	5.9
313	Textile Mills	5.8
334	Computer and Electronic Product Manufacturing	5.7
237	Heavy and Civil Engineering Construction	5.3
622	Hospitals	5.0
442	Furniture and Home Furnishings Stores	4.7

NAICS	Industry	Change yr ago
482	Rail Transportation	4.5
335	Electrical Equipment; Appliance; and Component Manufacturing	4.2
493	Warehousing and Storage	4.2
623	Nursing and Residential Care Facilities	3.4
238	Specialty Trade Contractors	3.3
332	Fabricated Metal Product Manufacturing	3.3
311	Food Manufacturing	3.2
221	Utilities	3.0
322	Paper Manufacturing	3.0
333	Machinery Manufacturing	3.0
423	Merchant Wholesalers; Durable Goods	2.9
532	Rental and Leasing Services	2.9
441	Motor Vehicle and Parts Dealers	2.8
331	Primary Metal Manufacturing	2.8
325	Chemical Manufacturing	2.8
326	Plastics and Rubber Products Manufacturing	2.6
562	Waste Management and Remediation Services	2.6
486	Pipeline Transportation	2.5
336	Transportation Equipment Manufacturing	2.5
111	Crop Production	2.4
337	Furniture and Related Product Manufacturing	2.4
212	Mining (except Oil and Gas)	2.2
811	Repair and Maintenance	2.0
321	Wood Product Manufacturing	1.5
82	Public Administration	1.5
114	Fishing; Hunting and Trapping	1.0
324	Petroleum and Coal Products Manufacturing	0.8
452	General Merchandise Stores	0.5
488	Support Activities for Transportation	0.0
113	Forestry and Logging	-0.1
112	Animal Production and Aquaculture	-1.2
444	Building Material and Garden Equipment and Supplies Dealers	-1.2
484	Truck Transportation	-2.0

Sources: Cortera, Moody's Analytics

Table 2: Change in Average Days B2B Payment Beyond Term

Mar 2020 - Mar 2019

NAICS	Industry	Change yr ago
722	Food Services and Drinking Places	13.2
711	Performing Arts; Spectator Sports; and Related Industries	11.8
522	Credit Intermediation and Related Activities	9.9
511	Publishing Industries (except Internet)	9.8
512	Motion Picture and Sound Recording Industries	8.8
812	Personal and Laundry Services	8.4
518	Data Processing; Hosting; and Related Services	8.4
525	Funds; Trusts; and Other Financial Vehicles	8.2
448	Clothing and Clothing Accessories Stores	8.0
523	Securities; Commodity Contracts; and Other Financial Investments and Related Activities	7.8
453	Miscellaneous Store Retailers	7.5
517	Telecommunications	7.5
561	Administrative and Support Services	7.0
551	Management of Companies and Enterprises	6.9
721	Accommodation	6.7
492	Couriers and Messengers	6.3
624	Social Assistance	6.2
481	Air Transportation	6.2
541	Professional; Scientific; and Technical Services	6.1
312	Beverage and Tobacco Product Manufacturing	6.0
445	Food and Beverage Stores	6.0
524	Insurance Carriers and Related Activities	5.8
443	Electronics and Appliance Stores	5.8
211	Oil and Gas Extraction	5.5
611	Educational Services	5.5
515	Broadcasting (except Internet)	5.3
315	Apparel Manufacturing	5.3
813	Religious; Grantmaking; Civic; Professional; and Similar Organizations	5.2
451	Sporting Goods; Hobby; Musical Instrument; and Book Stores	4.9
486	Pipeline Transportation	4.8
323	Printing and Related Support Activities	4.6
531	Real Estate	4.5
712	Museums; Historical Sites; and Similar Institutions	4.2
	All Industries	4.2
621	Ambulatory Health Care Services	4.2
339	Miscellaneous Manufacturing	3.9
316	Leather and Allied Product Manufacturing	3.8
713	Amusement; Gambling; and Recreation Industries	3.6
485	Transit and Ground Passenger Transportation	3.5
313	Textile Mills	3.5
623	Nursing and Residential Care Facilities	3.3
532	Rental and Leasing Services	3.2
314	Textile Product Mills	3.1
447	Gasoline Stations	3.1
446	Health and Personal Care Stores	3.0
322	Paper Manufacturing	2.9
335	Electrical Equipment; Appliance; and Component Manufacturing	2.9
493	Warehousing and Storage	2.7
213	Support Activities for Mining	2.7
622	Hospitals	2.6
562	Waste Management and Remediation Services	2.5

NAICS	Industry	Change yr ago
238	Specialty Trade Contractors	2.4
334	Computer and Electronic Product Manufacturing	2.4
452	General Merchandise Stores	2.3
236	Construction of Buildings	2.2
423	Merchant Wholesalers; Durable Goods	2.1
444	Building Material and Garden Equipment and Supplies Dealers	2.0
327	Nonmetallic Mineral Product Manufacturing	2.0
482	Rail Transportation	2.0
811	Repair and Maintenance	2.0
424	Merchant Wholesalers; Nondurable Goods	1.9
324	Petroleum and Coal Products Manufacturing	1.9
325	Chemical Manufacturing	1.9
337	Furniture and Related Product Manufacturing	1.8
442	Furniture and Home Furnishings Stores	1.8
237	Heavy and Civil Engineering Construction	1.8
311	Food Manufacturing	1.8
326	Plastics and Rubber Products Manufacturing	1.8
441	Motor Vehicle and Parts Dealers	1.7
331	Primary Metal Manufacturing	1.7
333	Machinery Manufacturing	1.7
336	Transportation Equipment Manufacturing	1.6
332	Fabricated Metal Product Manufacturing	1.6
221	Utilities	1.6
321	Wood Product Manufacturing	1.5
112	Animal Production and Aquaculture	1.4
454	Nonstore Retailers	1.1
82	Public Administration	1.1
483	Water Transportation	1.0
212	Mining (except Oil and Gas)	0.8
111	Crop Production	-0.2
114	Fishing; Hunting and Trapping	-1.1
113	Forestry and Logging	-1.7
488	Support Activities for Transportation	-2.6
484	Truck Transportation	-3.3

Sources: Cortera, Moody's Analytics

Table 3: Total B2B Spending by Industry

Mar 2020 - Mar 2019

NAICS	Industry	% change yr ago
517	Telecommunications	-56.3
481	Air Transportation	-40.3
336	Transportation Equipment Manufacturing	-30.8
213	Support Activities for Mining	-30.5
483	Water Transportation	-26.7
447	Gasoline Stations	-24.6
522	Credit Intermediation and Related Activities	-24.0
721	Accommodation	-22.8
211	Oil and Gas Extraction	-20.9
712	Museums; Historical Sites; and Similar Institutions	-20.7
448	Clothing and Clothing Accessories Stores	-20.6
315	Apparel Manufacturing	-19.5
486	Pipeline Transportation	-19.4
212	Mining (except Oil and Gas)	-19.1
316	Leather and Allied Product Manufacturing	-15.5
518	Data Processing; Hosting; and Related Services	-15.5
713	Amusement; Gambling; and Recreation Industries	-15.0
515	Broadcasting (except Internet)	-12.5
711	Performing Arts; Spectator Sports; and Related Industries	-12.3
332	Fabricated Metal Product Manufacturing	-12.0
313	Textile Mills	-11.9
236	Construction of Buildings	-11.4
453	Miscellaneous Store Retailers	-10.2
484	Truck Transportation	-9.9
532	Rental and Leasing Services	-9.2
551	Management of Companies and Enterprises	-9.2
326	Plastics and Rubber Products Manufacturing	-8.9
323	Printing and Related Support Activities	-8.6
331	Primary Metal Manufacturing	-8.0
442	Furniture and Home Furnishings Stores	-7.8
451	Sporting Goods; Hobby; Musical Instrument; and Book Stores	-7.7
114	Fishing; Hunting and Trapping	-7.4
611	Educational Services	-7.2
622	Hospitals	-7.1
333	Machinery Manufacturing	-6.9
485	Transit and Ground Passenger Transportation	-6.8
334	Computer and Electronic Product Manufacturing	-6.5
531	Real Estate	-4.8
443	Electronics and Appliance Stores	-3.5
813	Religious; Grantmaking; Civic; Professional; and Similar Organizations	-3.4
441	Motor Vehicle and Parts Dealers	-3.1
337	Furniture and Related Product Manufacturing	-2.2
322	Paper Manufacturing	-1.4
482	Rail Transportation	-1.2
324	Petroleum and Coal Products Manufacturing	-1.2
335	Electrical Equipment; Appliance; and Component Manufacturing	-0.1
327	Nonmetallic Mineral Product Manufacturing	0.1
811	Repair and Maintenance	0.4
722	Food Services and Drinking Places	0.9
325	Chemical Manufacturing	1.3
541	Professional; Scientific; and Technical Services	1.8

NAICS	Industry	% change yr ago
523	Securities; Commodity Contracts; and Other Financial Investments and Related Activities	2.0
113	Forestry and Logging	2.2
111	Crop Production	2.6
424	Merchant Wholesalers; Nondurable Goods	2.7
493	Warehousing and Storage	3.3
444	Building Material and Garden Equipment and Supplies Dealers	3.5
339	Miscellaneous Manufacturing	4.2
	All Industries	4.4
812	Personal and Laundry Services	4.8
321	Wood Product Manufacturing	4.9
492	Couriers and Messengers	5.1
525	Funds; Trusts; and Other Financial Vehicles	5.4
221	Utilities	5.5
446	Health and Personal Care Stores	6.2
238	Specialty Trade Contractors	7.7
512	Motion Picture and Sound Recording Industries	7.8
314	Textile Product Mills	7.8
488	Support Activities for Transportation	8.2
624	Social Assistance	9.2
562	Waste Management and Remediation Services	9.2
237	Heavy and Civil Engineering Construction	10.0
82	Public Administration	10.6
452	General Merchandise Stores	12.6
623	Nursing and Residential Care Facilities	13.6
561	Administrative and Support Services	15.2
524	Insurance Carriers and Related Activities	18.4
312	Beverage and Tobacco Product Manufacturing	21.5
423	Merchant Wholesalers; Durable Goods	23.2
621	Ambulatory Health Care Services	24.4
511	Publishing Industries (except Internet)	28.4
311	Food Manufacturing	31.5
445	Food and Beverage Stores	31.8
112	Animal Production and Aquaculture	34.3
454	Nonstore Retailers	36.5

Sources: Cortera, Moody's Analytics

Table 4: Median B2B Spending by Industry

Mar 2020 - Mar 2019

NAICS	Industry	% change yr ago
722	Food Services and Drinking Places	-33.1
711	Performing Arts; Spectator Sports; and Related Industries	-25.7
315	Apparel Manufacturing	-23.0
485	Transit and Ground Passenger Transportation	-22.1
721	Accommodation	-21.5
712	Museums; Historical Sites; and Similar Institutions	-21.5
114	Fishing; Hunting and Trapping	-20.9
213	Support Activities for Mining	-20.6
481	Air Transportation	-18.2
211	Oil and Gas Extraction	-17.5
611	Educational Services	-17.4
448	Clothing and Clothing Accessories Stores	-13.7
713	Amusement; Gambling; and Recreation Industries	-13.0
511	Publishing Industries (except Internet)	-12.5
484	Truck Transportation	-11.8
518	Data Processing; Hosting; and Related Services	-11.0
551	Management of Companies and Enterprises	-10.0
441	Motor Vehicle and Parts Dealers	-10.0
621	Ambulatory Health Care Services	-8.4
447	Gasoline Stations	-8.1
488	Support Activities for Transportation	-7.7
515	Broadcasting (except Internet)	-7.2
316	Leather and Allied Product Manufacturing	-7.0
561	Administrative and Support Services	-6.1
532	Rental and Leasing Services	-4.7
624	Social Assistance	-4.6
486	Pipeline Transportation	-4.5
113	Forestry and Logging	-3.9
451	Sporting Goods; Hobby; Musical Instrument; and Book Stores	-3.5
812	Personal and Laundry Services	-3.0
523	Securities; Commodity Contracts; and Other Financial Investments and Related Activities	-2.0
333	Machinery Manufacturing	-2.0
236	Construction of Buildings	-1.8
339	Miscellaneous Manufacturing	-1.6
332	Fabricated Metal Product Manufacturing	-1.5
811	Repair and Maintenance	-1.3
813	Religious; Grantmaking; Civic; Professional; and Similar Organizations	-1.2
531	Real Estate	-1.0
562	Waste Management and Remediation Services	-0.9
	All Industries	-0.8
453	Miscellaneous Store Retailers	-0.4
524	Insurance Carriers and Related Activities	-0.3
622	Hospitals	-0.1
492	Couriers and Messengers	0.1
336	Transportation Equipment Manufacturing	0.3
82	Public Administration	0.7
445	Food and Beverage Stores	1.5
541	Professional; Scientific; and Technical Services	2.4
313	Textile Mills	2.5
324	Petroleum and Coal Products Manufacturing	2.7
237	Heavy and Civil Engineering Construction	2.8
442	Furniture and Home Furnishings Stores	2.9

NAICS	Industry	% change yr ago
325	Chemical Manufacturing	3.0
423	Merchant Wholesalers; Durable Goods	3.5
331	Primary Metal Manufacturing	4.0
493	Warehousing and Storage	4.2
221	Utilities	4.6
212	Mining (except Oil and Gas)	4.7
334	Computer and Electronic Product Manufacturing	4.7
323	Printing and Related Support Activities	4.9
312	Beverage and Tobacco Product Manufacturing	5.0
314	Textile Product Mills	5.8
238	Specialty Trade Contractors	6.0
522	Credit Intermediation and Related Activities	6.2
327	Nonmetallic Mineral Product Manufacturing	6.5
444	Building Material and Garden Equipment and Supplies Dealers	6.9
326	Plastics and Rubber Products Manufacturing	7.4
452	General Merchandise Stores	7.4
335	Electrical Equipment; Appliance; and Component Manufacturing	8.6
443	Electronics and Appliance Stores	10.0
321	Wood Product Manufacturing	10.4
424	Merchant Wholesalers; Nondurable Goods	11.3
337	Furniture and Related Product Manufacturing	11.5
517	Telecommunications	11.7
111	Crop Production	12.0
311	Food Manufacturing	12.3
322	Paper Manufacturing	14.4
525	Funds; Trusts; and Other Financial Vehicles	17.3
483	Water Transportation	20.3
446	Health and Personal Care Stores	22.5
623	Nursing and Residential Care Facilities	23.0
112	Animal Production and Aquaculture	23.8
512	Motion Picture and Sound Recording Industries	27.1
482	Rail Transportation	28.0
454	Nonstore Retailers	33.5

Sources: Cortera, Moody's Analytics

About the Authors

Mark Zandi is chief economist of Moody's Analytics, where he directs economic research. Moody's Analytics, a subsidiary of Moody's Corp., is a leading provider of economic research, data and analytical tools. Dr. Zandi is a cofounder of Economy.com, which Moody's purchased in 2005.

Dr. Zandi's broad research interests encompass macroeconomics, financial markets and public policy. His recent research has focused on mortgage finance reform and the determinants of mortgage foreclosure and personal bankruptcy. He has analyzed the economic impact of various tax and government spending policies and assessed the appropriate monetary policy response to bubbles in asset markets.

A trusted adviser to policymakers and an influential source of economic analysis for businesses, journalists and the public, Dr. Zandi frequently testifies before Congress on topics including the economic outlook, the nation's daunting fiscal challenges, the merits of fiscal stimulus, financial regulatory reform, and foreclosure mitigation.

Dr. Zandi conducts regular briefings on the economy for corporate boards, trade associations and policymakers at all levels. He is on the board of directors of MGIC, the nation's largest private mortgage insurance company, and The Reinvestment Fund, a large CDFI that makes investments in disadvantaged neighborhoods. He is often quoted in national and global publications and interviewed by major news media outlets, and is a frequent guest on CNBC, NPR, Meet the Press, CNN, and various other national networks and news programs.

Dr. Zandi is the author of *Paying the Price: Ending the Great Recession and Beginning a New American Century*, which provides an assessment of the monetary and fiscal policy response to the Great Recession. His other book, *Financial Shock: A 360° Look at the Subprime Mortgage Implosion, and How to Avoid the Next Financial Crisis*, is described by The New York Times as the "clearest guide" to the financial crisis.

Dr. Zandi earned his BS from the Wharton School at the University of Pennsylvania and his PhD at the University of Pennsylvania. He lives with his wife and three children in the suburbs of Philadelphia.

Jim Swift is the president and chief executive officer of Cortera, a leading provider of data and analytics regarding the financial health of businesses that drive the North American economy.

Because the vitality of commercial credit is essential to economic health, Cortera's insights are invaluable to the entire credit ecosystem—lenders, borrowers, banks, insurance companies, financial analysts, economists and governments. Cortera's community-enabled information comprises more than \$1.5 trillion of annual economic interactions among businesses. Cortera's clients use the data to help them make up their minds about the financial health of businesses and markets, thus enabling a new era of Decisionomics™.

Jim has spent his career in a series of data and analytics endeavors. Prior to founding Cortera, Jim was the chief operating officer of LexisNexis Risk Management, a unit of RELX that provides data solutions for customers in banking, insurance, law enforcement and other markets.

He joined LexisNexis through its acquisition of Seisint, where Jim's role on the startup's senior leadership team encompassed data, product, revenue generation and other responsibilities. Seisint's innovations in massively parallel data processing enabled breakthrough analytics products for fraud detection, credit decisioning and other data-intensive applications.

Jim is a graduate of Rochester Institute of Technology with a Bachelor of Science in mechanical engineering and is a proud recipient of RIT's Distinguished Alumni Award.

About Moody's Analytics

Moody's Analytics provides financial intelligence and analytical tools supporting our clients' growth, efficiency and risk management objectives. The combination of our unparalleled expertise in risk, expansive information resources, and innovative application of technology helps today's business leaders confidently navigate an evolving marketplace. We are recognized for our industry-leading solutions, comprising research, data, software and professional services, assembled to deliver a seamless customer experience. Thousands of organizations worldwide have made us their trusted partner because of our uncompromising commitment to quality, client service, and integrity.

Concise and timely economic research by Moody's Analytics supports firms and policymakers in strategic planning, product and sales forecasting, credit risk and sensitivity management, and investment research. Our economic research publications provide in-depth analysis of the global economy, including the U.S. and all of its state and metropolitan areas, all European countries and their subnational areas, Asia, and the Americas. We track and forecast economic growth and cover specialized topics such as labor markets, housing, consumer spending and credit, output and income, mortgage activity, demographics, central bank behavior, and prices. We also provide real-time monitoring of macroeconomic indicators and analysis on timely topics such as monetary policy and sovereign risk. Our clients include multinational corporations, governments at all levels, central banks, financial regulators, retailers, mutual funds, financial institutions, utilities, residential and commercial real estate firms, insurance companies, and professional investors.

Moody's Analytics added the economic forecasting firm Economy.com to its portfolio in 2005. This unit is based in West Chester PA, a suburb of Philadelphia, with offices in London, Prague and Sydney. More information is available at www.economy.com.

Moody's Analytics is a subsidiary of Moody's Corporation (NYSE: MCO). Further information is available at www.moodyanalytics.com.

DISCLAIMER: Moody's Analytics, a unit of Moody's Corporation, provides economic analysis, credit risk data and insight, as well as risk management solutions. Research authored by Moody's Analytics does not reflect the opinions of Moody's Investors Service, the credit rating agency. To avoid confusion, please use the full company name "Moody's Analytics", when citing views from Moody's Analytics.

About Moody's Corporation

Moody's Analytics is a subsidiary of Moody's Corporation (NYSE: MCO). MCO reported revenue of \$4.8 billion in 2019, employs more than 11,000 people worldwide and maintains a presence in more than 40 countries. Further information about Moody's Analytics is available at www.moodyanalytics.com.

© 2020 Moody's Corporation, Moody's Investors Service, Inc., Moody's Analytics, Inc. and/or their licensors and affiliates (collectively, "MOODY'S"). All rights reserved.

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND ITS RATINGS AFFILIATES ("MIS") ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MOODY'S PUBLICATIONS MAY INCLUDE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES. MOODY'S DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL, FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS AND MOODY'S OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. CREDIT RATINGS AND MOODY'S PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. NEITHER CREDIT RATINGS NOR MOODY'S PUBLICATIONS COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS AND PUBLISHES MOODY'S PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS AND MOODY'S PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS OR MOODY'S PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing the Moody's publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any rating, agreed to pay to Moody's Investors Service, Inc. for appraisal and rating services rendered by it fees ranging from \$1,000 to approximately \$2,700,000. MCO and MIS also maintain policies and procedures to address the independence of MIS's ratings and rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold ratings from MIS and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moody's.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors. It would be reckless and inappropriate for retail investors to use MOODY'S credit ratings or publications when making an investment decision. If in doubt you should contact your financial or other professional adviser.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any rating, agreed to pay to MJKK or MSFJ (as applicable) for appraisal and rating services rendered by it fees ranging from JPY125,000 to approximately JPY250,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.