

Note on Operating Lease Accounting Post 2019

Yueran Ma*

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Preliminary. Please find the latest version [here](#).

The Accounting Rule Change. Starting in 2019, public firms are required to adopt a new accounting rule with respect to operating leases (Accounting Standards Update No. 2016-02, Leases (Topic 842)). Prior to this rule, operating leases were not recorded as assets or liabilities on firms' balance sheets. After the adoption of this rule, firms are required to include on their balance sheets the estimated present value of operating leases as operating lease assets and operating lease liabilities. **This accounting rule change therefore leads to an increase in total assets and total liabilities reported on firms' balance sheet statements.**

The exact adoption rule is for "fiscal years and interim periods within fiscal years beginning after December 15, 2018." Therefore, for companies where fiscal 2019 started after December 2018, the implementation starts for quarterly and annual results in fiscal 2019; for companies where fiscal 2019 started before December 2018, the implementation starts for quarterly and annual results in fiscal 2020 (see Starbucks, Adobe as examples). Compustat records the adoption date in ACCTCHG with entry "ASU16-02" or "IFRS16."

Changes to Firms' Financial Statements. Firms now report "Lease right-of-use asset" on the asset side, and both short-term and long-term lease liabilities on the liability side. These items were absent before the adoption of the new operating lease accounting rule. Figure 1 below shows the example from McDonald's financial statement in 2019Q3, and Figure 2 shows the example from 3M's financial statement in 2019Q3. From these examples, we see the new rule has a major impact on McDonald's and a small impact on 3M. As we discuss more below, the impact is particularly pronounced for retail industries which use operating leases more extensively.

Changes to Compustat Data. Compustat has added operating lease assets to PPENT (Plant, Property, and Equipment-Net) and operating lease liabilities to DCL

*University of Chicago Booth School of Business. Email: Yueran.Ma@chicagobooth.edu

(Debt in Current Liabilities) and DLTT (Long-Term Debt). Table 1 shows the examples of McDonald's and 3M in Compustat. We can see that total assets (AT), PPENT, DLC, and DLTT in Compustat all had a major increase for McDonald's starting in 2019. **In sum, research using Compustat data from 2019 and afterwards would be affected by this change, for variables and outcomes related to total assets, fixed assets (PPENT), and debt/leverage.**

Calculate Operating Leases using Compustat Data. Compustat Snapshot on WRDS or Compustat table cscs_afnd now includes new variables "ROUANT – Lease Right of Use Assets, Net," "LLC – Current Portion of Lease Liabilities," and "LLLT – Long Term Portion of Lease Liabilities." These variables record the balance sheet value of operating leases discussed above. The last three columns of Table 1 show these variables for the two example firms. *To reconstruct balance sheets that are largely consistent with prior data, one can subtract ROUANT from AT and PPENT, subtract LLC from DLC, and subtract LLLT from DLTT after firms adopted the new rule.*

Calculate Operating Leases using CapitalIQ Data. It is also possible to calculate the amount of operating lease using CapitalIQ debt detail data (available on WRDS). An example do-file is [here](#). To combine CapitalIQ data with Compustat data, one needs to map the CapitalIQ ID into gvkey, and an example do-file to construct the mapping is [here](#). Since operating lease assets and operating lease liabilities are roughly the same (by construction), the CapitalIQ data reflecting operating lease liabilities is sufficient. The imperfection of CapitalIQ data is its availability has longer lags. In addition, it only has annual data (fiscal year end) for some firms, instead of quarterly data.

Preliminary Assessment of the Impact of New Lease Accounting. Based on Compustat data (supplemented with CapitalIQ data), we can get a reasonable sense of the amount of operating lease on firms' balance sheets as of 2019Q3. Figure 3 shows a histogram of operating leases relative to total non-operating lease assets (i.e., what would be the total book assets prior to the rule change). Table 2 tabulates the mean and median ratio by two-digit SIC industries. It shows that the new operating lease accounting change has the most impact on retailers, while the impact is modest for other industries.

Operating Lease vs Capital Lease. Finally, this new rule affects the accounting of *operating leases*. Another type of lease is capital leases (also called finance leases), which was already recorded on balance sheets before. In a capital lease, the lessee is likely to have ultimate ownership of the leased asset (e.g., buy the asset at the end of the lease), and therefore assumes the risks associated with ownership (e.g.,

price fluctuations of the asset) and also enjoys some benefits of ownership (e.g., more control over the asset).

Additional Information. Another discussion about the impact of the operating lease accounting change is provided in this [note](#) by researchers at the Federal Reserve. They use the Extensible Business Reporting Language database to extract operating leases reported by firms.

Figure 1: Financial Statement Example: McDonald's

This figure shows excerpts from McDonald's balance sheet in its 2019Q3 financial statement. Panel A shows the asset side and Panel B shows the liability side.

Panel A.

In millions, except per share data	September 30, 2019	December 31, 2018
Assets		
Current assets		
Cash and equivalents	\$ 1,177.3	\$ 866.0
Accounts and notes receivable	2,005.3	2,441.5
Inventories, at cost, not in excess of market	42.6	51.1
Prepaid expenses and other current assets	379.7	694.6
Total current assets	3,604.9	4,053.2
Other assets		
Investments in and advances to affiliates	1,245.4	1,202.8
Goodwill	2,541.8	2,331.5
Miscellaneous	2,622.0	2,381.0
Total other assets	6,409.2	5,915.3
Lease right-of-use asset, net	12,465.6	—
Property and equipment		
Property and equipment, at cost	37,748.0	37,193.6
Accumulated depreciation and amortization	(14,422.7)	(14,350.9)
Net property and equipment	23,325.3	22,842.7

Panel B.

Liabilities and shareholders' equity		
Current liabilities		
Accounts payable	\$ 849.5	\$ 1,207.9
Dividends payable	934.0	—
Lease liability	703.3	—
Income taxes	277.9	228.3
Other taxes	248.1	253.7
Accrued interest	314.0	297.0
Accrued payroll and other liabilities	948.8	986.6
Total current liabilities	4,275.6	2,973.5
Long-term debt	32,850.1	31,075.3
Long-term lease liability	11,881.8	—

Figure 2: Financial Statement Example: 3M

This figure shows excerpts from 3M’s balance sheet in its 2019Q3 financial statement. Panel A shows the asset side and Panel B shows the liability side.

Panel A.

(Dollars in millions, except per share amount)	September 30, 2019	December 31, 2018
Assets		
Current assets		
Cash and cash equivalents	\$ 7,731	\$ 2,853
Marketable securities — current	30	380
Accounts receivable — net	5,020	5,020
Inventories		
Finished goods	1,890	2,120
Work in process	1,231	1,292
Raw materials and supplies	886	954
Total inventories	4,007	4,366
Prepays	717	741
Other current assets	515	349
Total current assets	18,020	13,709
Property, plant and equipment	25,508	24,873
Less: Accumulated depreciation	(16,617)	(16,135)
Property, plant and equipment — net	8,891	8,738
Operating lease right of use assets	834	—

Panel B.

Current liabilities		
Short-term borrowings and current portion of long-term debt	\$ 1,960	\$ 1,211
Accounts payable	2,079	2,266
Accrued payroll	669	749
Accrued income taxes	137	243
Operating lease liabilities — current	241	—
Other current liabilities	2,735	2,775
Total current liabilities	7,821	7,244
Long-term debt	17,479	13,411
Pension and postretirement benefits	2,667	2,987
Operating lease liabilities	584	—

Figure 3: Operating Lease/Non-Lease Asset

This figure shows a histogram of operating lease relative to total non-lease book assets. Operating lease is calculated using Compustat and CapitalIQ data in 2019Q3.

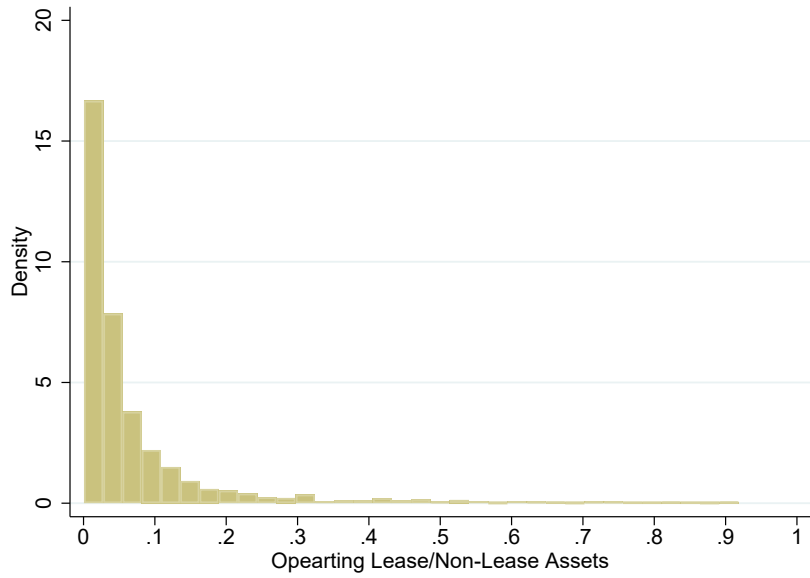


Table 1: Compustat Examples: McDonald's and 3M

This table shows two examples from Compustat. AT is total book assets. PPENT is net plant, property, and equipment. DLC is debt in current liabilities. DLTT is long-term debt. ROUANT is operating lease (right-of-use) assets. LLC is operating lease in current liabilities. LLLT is operating lease in long-term liabilities. Unit is million dollars.

Panel A. McDonald's

Year	Quarter	AT	PPENT	DLC	DLTT	ROUANT	LLC	LLLT
2018	1	33,723	22,704	0	30,870			
2018	2	32,708	22,361	292	30,688			
2018	3	34,054	22,614	0	31,895			
2018	4	32,811	22,843	0	31,075			
2019	1	46,467	35,609	768	44,522	12,325	768	11,630
2019	2	46,200	36,027	743	44,550	12,523	743	11,895
2019	3	45,805	35,791	703	44,732	12,466	703	11,882
2019	4	47,511	37,421	680	46,876	13,261	621	12,758

Panel B. 3M

Year	Quarter	AT	PPENT	DLC	DLTT	ROUANT	LLC	LLLT
2018	1	38,575	8,864	3,449	12,211			
2018	2	36,778	8,645	3,225	11,294			
2018	3	37,275	8,630	1,307	13,539			
2018	4	36,500	8,738	1,211	13,486			
2019	1	39,140	9,626	1,061	16,195	797	255	531
2019	2	38,969	9,877	1,155	15,654	879	247	619
2019	3	42,550	9,725	2,219	18,179	834	241	584
2019	4	44,659	10,191	3,063	18,236	858	247	607

Table 2: Operating Lease/Non-Lease Assets by Industry

This table shows the mean and median of operating lease/non-lease total assets for each two-digit SIC industry. Operating lease use Compustat and CapitalIQ data for 2019Q3, and assets use Compustat data for 2019Q3.

SIC code	SIC name	Mean	Median
1	Agricultural Production - Crops	.015	.015
2	Agricultural Production - Livestock and Animal Specialties	.05	.05
7	Agricultural Services	.124	.124
10	Metal Mining	.068	.021
12	Coal Mining	.022	.013
13	Oil and Gas Extraction	.026	.011
14	Mining and Quarrying of Nonmetallic Minerals, Except Fuels	.038	.029
15	Construction - General Contractors & Operative Builders	.009	.008
16	Heavy Construction, Except Building Construction, Contractor	.05	.036
17	Construction - Special Trade Contractors	.045	.042
20	Food and Kindred Products	.047	.026
21	Tobacco Products	.022	.022
22	Textile Mill Products	.041	.028
23	Apparel, Finished Products from Fabrics & Similar Materials	.2	.141
24	Lumber and Wood Products, Except Furniture	.04	.036
25	Furniture and Fixtures	.142	.079
26	Paper and Allied Products	.04	.018
27	Printing, Publishing and Allied Industries	.073	.059
28	Chemicals and Allied Products	.057	.029
29	Petroleum Refining and Related Industries	.036	.027
30	Rubber and Miscellaneous Plastic Products	.067	.026
31	Leather and Leather Products	.205	.215
32	Stone, Clay, Glass, and Concrete Products	.059	.027
33	Primary Metal Industries	.025	.016
34	Fabricated Metal Products	.029	.019
35	Industrial and Commercial Machinery and Computer Equipment	.039	.024
36	Electronic & Other Electrical Equipment & Components	.054	.033
37	Transportation Equipment	.041	.024
38	Measuring, Photographic, Medical, & Optical Goods, & Clocks	.067	.036
39	Miscellaneous Manufacturing Industries	.078	.053
40	Railroad Transportation	.028	.028
41	Local & Suburban Transit & Interurban Highway Transportation	.054	.05
42	Motor Freight Transportation	.092	.046
44	Water Transportation	.083	.052
45	Transportation by Air	.101	.098
46	Pipelines, Except Natural Gas	.052	.01
47	Transportation Services	.097	.039
48	Communications	.055	.032
49	Electric, Gas and Sanitary Services	.02	.006
50	Wholesale Trade - Durable Goods	.054	.041
51	Wholesale Trade - Nondurable Goods	.071	.027
52	Building Materials, Hardware, Garden Supplies & Mobile Homes	.264	.126
53	General Merchandise Stores	.371	.263
54	Food Stores	.231	.16
55	Automotive Dealers and Gasoline Service Stations	.127	.067
56	Apparel and Accessory Stores	.593	.543
57	Home Furniture, Furnishings and Equipment Stores	.321	.341
58	Eating and Drinking Places	.448	.468
59	Miscellaneous Retail	.237	.135
70	Hotels, Rooming Houses, Camps, and Other Lodging Places	.036	.015
72	Personal Services	.067	.041
73	Business Services	.069	.042
75	Automotive Repair, Services and Parking	.102	.048
78	Motion Pictures	.231	.192
79	Amusement and Recreation Services	.124	.068
80	Health Services	.103	.06
81	Legal Services	.281	.281
82	Educational Services	.101	.087
83	Social Services	.238	.238
87	Engineering, Accounting, Research, and Management Services	.066	.055