This document has been prepared to present selected financial information for each of the years ended December 31, 2021, 2020, 2019, 2018 and 2017 and for each of the quarters of 2021 and 2020 as restated for the impact of the change in methodology for calculating market-related values of pension assets for its defined benefit plans. See the section entitled *Change in accounting policy for determining net periodic pension cost (income)* for additional information.

In this schedule, the "Company" or "CN" refers to Canadian National Railway Company, together with its wholly-owned subsidiaries. Financial information included in this schedule is expressed in Canadian dollars, unless otherwise noted.

CN reports its financial results in accordance with United States generally accepted accounting principles (GAAP). The Company also uses non-GAAP measures that do not have any standardized meaning prescribed by GAAP, including adjusted performance measures, free cash flow, adjusted debt-to-adjusted EBITDA multiple and return on invested capital (ROIC) and adjusted ROIC. These non-GAAP measures may not be comparable to similar measures presented by other companies. From management's perspective, these non-GAAP measures are useful measures of performance and provide investors with supplementary information to assess the Company's results of operations and liquidity. These non-GAAP measures should not be considered in isolation or as a substitute for financial measures prepared in accordance with GAAP.

Change in accounting policy for determining net periodic pension cost (income)

In the first quarter of 2022, the Company changed its method of calculating market-related values of pension assets for its defined benefit plans using a retrospective approach. The new accounting method changes the calculation of market-related value of pension plan assets used to determine net periodic benefit cost but has no impact on the annual funded status of the plans. The Company's previous methodology calculated market-related value for pensions whereby realized and unrealized gains/losses and appreciation/depreciation in the value of the investments were recognized over a period of five years. The Company's new methodology will apply a corridor approach so that the market-related value does not result in a value that deviates excessively from its fair value. Specifically, the market-related value will not exceed 110% or be less than 90% of the fair value. This change establishes a corridor approach whereby the amount causing the market-related value to be outside of the 10% corridor will be recognized immediately in the market-related value of assets and will not be subject to the five year period of recognition. There is no change in the recognition approach for investment income. Figures have been restated to conform to the change in methodology. See Note 2 - Change in accounting policy to the Company's unaudited Interim Consolidated Financial Statements in the Company's Q1 2022 Quarterly Review filed on April 26, 2022 which may be found online on SEDAR at <u>www.sedar.com</u>, on the SEC's website at <u>www.sec.gov</u> through EDGAR, and on the Company's website at <u>www.cn.ca</u> in the Investors section, for additional information.

The election of this change impacted previously reported amounts included herein as at or for the years ended December 31, 2021, 2020, 2019, 2018 and 2017 as indicated in the table below:

In millions, except per share data and percentages D	ecember 31,	20	21		2020		2019		2018		2017
Consolidated Statements of Income											
Other components of net periodic benefit income	\$	5 4	07	\$	292	\$	297	\$	280	\$	296
Other components of net periodic benefit income as previo	ously										
reported	\$	3 3	98	\$	315	\$	321	\$	302	\$	31
Income before income taxes	Ş	6,3	42	\$	4,521	\$	5,405	\$	5,660	\$	5,07
Income before income taxes as previously reported	Ş	6,3	33	\$	4,544	\$	5,429	\$	5,682	\$	5,08
Income tax recovery (expense)	\$	6 (1,4	13)	\$	(976)	\$	(1,207)	\$	(1,348)	\$	40
Income tax recovery (expense) as previously reported	Ş	6 (1,4	41)	\$	(982)	\$	(1,213)	\$	(1,354)	\$	39
Net income	Ş	6 4,8	99	\$	3,545	\$	4,198	\$	4,312	\$	5,47
Net income as previously reported	\$	5 4,8	92	\$	3,562	\$	4,216	\$	4,328	\$	5,48
Adjusted net income ⁽¹⁾	\$	6 4,2	25	\$	3,767	\$	4,171	\$	4,040	\$	3,76
Adjusted net income as previously reported ⁽¹⁾	Ş	6 4,2	18	\$	3,784	\$	4,189	\$	4,056	\$	3,77
Basic earnings per share	\$	6	91	\$	4.98	\$	5.83	\$	5.87	\$	7.2
Basic earnings per share as previously reported	\$	6	90	\$	5.01	\$	5.85	\$	5.89	\$	7.2
Diluted earnings per share	\$	6	90	\$	4.97	\$	5.81	\$	5.85	\$	7.2
Diluted earnings per share as previously reported	Ş	6	89	\$	5.00	\$	5.83	\$	5.87	\$	7.2
Adjusted diluted earnings per share ⁽¹⁾	Ş	5 5	95	\$	5.28	\$	5.78	\$	5.48	\$	4.9
Adjusted diluted earnings per share as previously reported	(1) \$	5 5	94	\$	5.31	\$	5.80	\$	5.50	\$	4.9
onsolidated Balance Sheets											
Accumulated other comprehensive loss	Ś	6 (2,2	41)	\$	(3,711)	\$	(3,739)	\$	(3,123)	\$	(3,074
Accumulated other comprehensive loss as previously repo		•		Ś	(3,472)	\$	(3,483)	\$	(2,849)	Ś	(2,78
Retained earnings	<u> </u>		<u> </u>	\$	19,400	\$	17,890	\$	16,897	\$	15,85
Retained earnings as previously reported	Ś			\$	19,161	\$	17,634	\$	16,623	\$	15,56
onsolidated Statements of Cash Flows											
Pension income and funding	\$: (3	14)	\$	(211)	\$	(264)	\$	(187)	\$	(26
Pension income and funding as previously reported	Ś	-)5)	\$	(234)	\$	(288)	\$	(209)	\$	(28
Deferred income taxes	\$		13	\$	481	\$	563	\$	521	\$	(1,20
Deferred income taxes as previously reported	Ś		11	\$	487	Ş	569	Ş	527	\$	(1,19
OIC and adjusted ROIC ⁽¹⁾				•		•		•		•	(1)11
•	<u>م</u>		70	Ś	3,979	Å	1616	ć	1605	\$	5,82
Return	ę					\$ \$	4,616	\$ \$	4,685		
Return as previously reported	\$	- / -		\$	3,996	\$	4,634	\$	4,701	\$	5,84
ROIC		16.			12.7%		15.2%		16.6%		22.4
ROIC as previously reported		16.		~	12.7%		15.3%	~	16.7%		22.4
Adjusted return	Ş			\$	4,184	\$	4,578	\$	4,409	\$	4,12
Adjusted return as previously reported	\$			\$	4,201	\$	4,596	\$	4,425	\$	4,13
Adjusted ROIC		14.			13.3%		15.1%		15.6%		15.8
Adjusted ROIC as previously reported		14.	1%		13.4%		15.1%		15.7%		15.9

(1) These Non-GAAP measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. See the section of this document entitled Non-GAAP measures for an explanation of these non-GAAP measures.

The election of this change impacted previously reported amounts included herein as at or for the quarters ended in 2021 and 2020 as indicated in the tables below:

				021 arters	;		
In millions, except per share data		Fourth	Third		Second		First
Consolidated Statements of Income							
Other components of net periodic benefit income	\$	112	\$ 98	\$	98	\$	99
Other components of net periodic benefit income as previously reported	\$	110	\$ 96	\$	96	\$	96
Income before income taxes	\$	1,574	\$ 2,101	\$	1,373	\$	1,294
Income before income taxes as previously reported	\$	1,572	\$ 2,099	\$	1,371	\$	1,291
Income tax expense	\$	(373)	\$ (415)	\$	(337)	\$	(318)
Income tax expense as previously reported	\$	(373)	\$ (414)	\$	(337)	\$	(317)
Net income	\$	1,201	\$ 1,686	\$	1,036	\$	976
Net income as previously reported	\$	1,199	\$ 1,685	\$	1,034	\$	974
Adjusted net income ⁽¹⁾	\$	1,211	\$ 1,080	\$	1,060	\$	874
Adjusted net income as previously reported ⁽¹⁾	\$	1,209	\$ 1,079	\$	1,058	\$	872
Basic earnings per share	\$	1.70	\$ 2.38	\$	1.46	\$	1.37
Basic earnings per share as previously reported	\$	1.70	\$ 2.38	\$	1.46	\$	1.37
Diluted earnings per share	\$	1.70	\$ 2.37	\$	1.46	\$	1.37
Diluted earnings per share as previously reported	\$	1.69	\$ 2.37	\$	1.46	\$	1.37
Adjusted diluted earnings per share ⁽¹⁾	\$	1.71	\$ 1.52	\$	1.49	\$	1.23
Adjusted diluted earnings per share as previously reported ⁽¹⁾	\$	1.71	\$ 1.52	\$	1.49	\$	1.23
Consolidated Balance Sheets Pension asset	\$	3,050	\$ 1,209	\$	1,085	\$	959
Pension asset as previously reported	\$	3,050	\$ 1,197	\$	1,077	\$	955
Total assets	\$	48,538	\$ 47,774	\$	46,264	\$	44,968
Total assets as previously reported	\$	48,538	\$ 47,762	\$	46,256	\$	44,964
Deferred income taxes	\$	9,303	\$ 8,698	\$	8,486	\$	8,407
Deferred income taxes as previously reported	\$	9,303	\$ 8,695	\$	8,484	\$	8,406
Accumulated other comprehensive loss	\$	(2,241)	\$ (3,581)	\$	(3,766)	\$	(3,728)
Accumulated other comprehensive loss as previously reported	\$	(1,995)	\$ (3,346)	\$	(3,529)	\$	(3,490)
Retained earnings	\$	20,987	\$ 21,246	\$	20,119	\$	19,640
Retained earnings as previously reported	\$	20,741	\$ 21,002	\$	19,876	\$	19,399
Total shareholders' equity	\$	22,744	\$ 21,669	\$	20,344	\$	19,894
Total shareholders' equity as previously reported	\$	22,744	\$ 21,660	\$	20,338	\$	19,891
Total liabilities and shareholders' equity	\$	48,538	\$ 47,774	\$	46,264	\$	44,968
Total liabilities and shareholders' equity as previously reported	\$	48,538	\$ 47,762	\$	46,256	\$	44,964
Consolidated Statements of Cash Flows							
Pension income and funding	\$	(99)	\$ (51)	\$	(52)	\$	(112)
			(49)	\$	(50)	\$	(109)
Pension income and funding as previously reported	\$	(97)	\$ (49)	Ş	(30)	Ŷ	(,
Pension income and funding as previously reported Deferred income taxes	\$ \$	(97) 154	\$ 109	\$	98	\$	152

(1) These Non-GAAP measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. See the section of this document entitled Non-GAAP measures for an explanation of these non-GAAP measures.

		_	020 arters		
In millions, except per share data	Fourth	Third		Second	First
Consolidated Statements of Income					
Other components of net periodic benefit income	\$ 72	\$ 74	\$	74	\$ 72
Other components of net periodic benefit income as previously reported	\$ 78	\$ 79	\$	80	\$ 78
Income before income taxes	\$ 1,349	\$ 1,302	\$	711	\$ 1,159
Income before income taxes as previously reported	\$ 1,355	\$ 1,307	\$	717	\$ 1,165
Income tax expense	\$ (333)	\$ (320)	\$	(171)	\$ (152)
Income tax expense as previously reported	\$ (334)	\$ (322)	\$	(172)	\$ (154)
Net income	\$ 1,016	\$ 982	\$	540	\$ 1,007
Net income as previously reported	\$ 1,021	\$ 985	\$	545	\$ 1,011
Adjusted net income ⁽¹⁾	\$ 1,016	\$ 982	\$	903	\$ 866
Adjusted net income as previously reported ⁽¹⁾	\$ 1,021	\$ 985	\$	908	\$ 870
Basic earnings per share	\$ 1.43	\$ 1.38	\$	0.76	\$ 1.41
Basic earnings per share as previously reported	\$ 1.44	\$ 1.39	\$	0.77	\$ 1.42
Diluted earnings per share	\$ 1.42	\$ 1.38	\$	0.76	\$ 1.41
Diluted earnings per share as previously reported	\$ 1.43	\$ 1.38	\$	0.77	\$ 1.42
Adjusted diluted earnings per share ⁽¹⁾	\$ 1.42	\$ 1.38	\$	1.27	\$ 1.21
Adjusted diluted earnings per share as previously reported ⁽¹⁾	\$ 1.43	\$ 1.38	\$	1.28	\$ 1.22
onsolidated Balance Sheets					
Accumulated other comprehensive loss	\$ (3,711)	\$ (3,424)	\$	(3,348)	\$ (3,153)
Accumulated other comprehensive loss as previously reported	\$ (3,472)	\$ (3,180)	\$	(3,101)	\$ (2,901)
Retained earnings	\$ 19,400	\$ 18,793	\$	18,223	\$ 18,092
Retained earnings as previously reported	\$ 19,161	\$ 18,549	\$	17,976	\$ 17,840
onsolidated Statements of Cash Flows					
Pension income and funding	\$ (50)	\$ (35)	\$	(40)	\$ (86)
Pension income and funding as previously reported	\$ (56)	\$ (40)	\$	(46)	\$ (92)
Deferred income taxes	\$ 114	\$ 91	\$	(16)	\$ 292
Deferred income taxes as previously reported	\$ 115	\$ 93	\$	(15)	\$ 294

(1) These Non-GAAP measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. See the section of this document entitled Non-GAAP measures for an explanation of these non-GAAP measures.

Non-GAAP Measures

The following non-GAAP measures have been restated, where applicable, for the impact of the change in methodology for calculating marketrelated values of pension assets for its defined benefit plans.

Adjusted performance measures

Adjusted net income, adjusted earnings per share, adjusted operating income, adjusted operating expenses and adjusted operating ratio are non-GAAP measures that are used to set performance goals and to measure CN's performance. Management believes that these adjusted performance measures provide additional insight to management and investors into the Company's operations and underlying business trends as well as facilitate period-to-period comparisons, as they exclude certain significant items that are not reflective of CN's underlying business operations and could distort the analysis of trends in business performance. These items may include:

- i. operating expense adjustments: workforce reduction program, depreciation expense on the deployment of replacement system, advisory fees related to shareholder matters, losses and recoveries from assets held for sale, business acquisition-related costs;
- ii. non-operating expense adjustments: business acquisition-related financing fees, merger termination income, gains and losses on disposal of property; and
- iii. the effect of tax law changes and rate enactments.

These non-GAAP measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

For the year ended December 31, 2021, the Company reported adjusted net income of \$4,225 million ^(*), or \$5.95 per diluted share ^(*), which excludes:

- employee termination benefits and severance costs related to a workforce reduction program of \$39 million, or \$29 million after-tax (\$0.04 per diluted share) recorded in the third quarter in Labor and fringe benefits within the Consolidated Statements of Income;
- advisory fees related to shareholder matters of \$20 million, or \$15 million after-tax (\$0.02 per diluted share) of which \$13 million, or \$10 million after-tax (\$0.01 per diluted share) was recorded in the fourth quarter and \$7 million, or \$5 million after-tax (\$0.01 per diluted share) was recorded in the third quarter in Casualty and other within the Consolidated Statements of Income;
- the recovery of \$137 million, or \$102 million after-tax (\$0.14 per diluted share) recorded in the first quarter related to the loss on assets held for sale in the second quarter of 2020, to reflect an agreement for the sale for on-going rail operations, certain non-core rail lines in Wisconsin, Michigan and Ontario to a short line operator;
- transaction-related costs, consisting of an advance to Kansas City Southern (KCS) and a related refund, net of transaction costs, of \$84 million, or \$70 million after-tax (\$0.10 per diluted share), recorded in the third quarter resulting from the terminated CN Merger Agreement with KCS;
- amortization of bridge financing and other fees of \$65 million, or \$60 million after-tax (\$0.08 per diluted share) recorded in the third quarter and \$32 million, or \$24 million after-tax (\$0.03 per diluted share) recorded in the second quarter, resulting from the KCS transaction, recorded in Interest expense within the Consolidated Statements of Income; and
- merger termination fee paid by KCS to CN of \$886 million, or \$770 million after-tax (\$1.08 per diluted share), recorded in the third quarter resulting from KCS' notice of termination of the CN Merger Agreement with KCS.

For the year ended December 31, 2020, the Company reported adjusted net income of \$3,767 million ^(*), or \$5.28 per diluted share ^(*), which excludes a loss of \$486 million, or \$363 million after-tax (\$0.51 per diluted share) in the second quarter, resulting from the Company's decision to market for sale for on-going rail operations, certain non-core lines in Wisconsin, Michigan and Ontario, and a current income tax recovery of \$141 million (\$0.20 per diluted share) in the first quarter resulting from the enactment of the *Coronavirus Aid, Relief, and Economic Security* (CARES) *Act*, a U.S. tax-and-spending package aimed at providing additional stimulus to address the economic impact of the COVID-19 pandemic.

For the year ended December 31, 2019, the Company reported adjusted net income of \$4,171 million ^(*), or \$5.78 per diluted share ^(*), which excludes employee termination benefits and severance costs related to a workforce reduction program of \$31 million, or \$23 million after-tax (\$0.03 per diluted share) in the fourth quarter; a deferred income tax recovery of \$112 million (\$0.15 per diluted share) in the second quarter, resulting from the enactment of a lower provincial corporate income tax rate; and a depreciation expense of \$84 million, or \$62 million after-tax (\$0.09 per diluted share) in the first quarter, related to costs previously capitalized for a PTC back office system following the deployment of a replacement system.

For the year ended December 31, 2018, the Company reported adjusted net income of \$4,040 million ^(*), or \$5.48 per diluted share ^(*), which excludes employee termination benefits and severance costs related to a workforce reduction program of \$27 million, or \$20 million after-tax (\$0.03 per diluted share) in the fourth quarter and gains on disposal of property of \$338 million, or \$292 million after-tax (\$0.40 per diluted share), consisting of the following:

- in the fourth quarter, a gain previously deferred on the 2014 disposal of a segment of the Guelph subdivision located between Georgetown and Kitchener, Ontario, together with the rail fixtures and certain passenger agreements (the "Guelph"), of \$79 million, or \$70 million aftertax (\$0.10 per diluted share);
- in the third quarter, a gain on disposal of property located in Montreal, Quebec (the "Doney and St-Francois Spurs") of \$36 million, or \$32 million after-tax (\$0.04 per diluted share); and
- in the second quarter, a gain on transfer of the Company's finance lease in the passenger rail facilities in Montreal, Quebec, together with
 its interests in related railway operating agreements (the "Central Station Railway Lease"), of \$184 million, or \$156 million after-tax (\$0.21
 per diluted share), and a gain on disposal of land located in Calgary, Alberta, excluding the rail fixtures (the "Calgary Industrial Lead"), of
 \$39 million, or \$34 million after-tax (\$0.05 per diluted share).

For the year ended December 31, 2017, the Company reported adjusted net income of \$3,764 million ^(*), or \$4.97 per diluted share ^(*), which excludes a net deferred income tax recovery of \$1,706 million (\$2.25 per diluted share) consisting of the following:

- in the fourth quarter, a deferred income tax recovery of \$1,764 million (\$2.33 per diluted share) resulting from the enactment of a lower U.S. federal corporate income tax rate due to the Tax Cuts and Jobs Act ("U.S. Tax Reform") and a deferred income tax expense of \$50 million (\$0.07 per diluted share) resulting from the enactment of higher provincial corporate income tax rates;
- in the third quarter, a deferred income tax expense of \$31 million (\$0.04 per diluted share) resulting from the enactment of a higher state corporate income tax rate;
- in the second quarter, a deferred income tax recovery of \$18 million (\$0.02 per diluted share) resulting from the enactment of a lower provincial corporate income tax rate; and
- in the first quarter, a deferred income tax recovery of \$5 million (\$0.01 per diluted share) resulting from the enactment of a lower provincial corporate income tax rate.
- (*) In the first quarter of 2022, the Company changed its method of calculating market-related values of pension assets for its defined benefit plans using a retrospective approach. See the section of this document entitled Change in accounting policy for determining net periodic pension cost (income) for additional information.

Adjusted net income is defined as Net income in accordance with GAAP adjusted for certain significant items. Adjusted diluted earnings per share is defined as adjusted net income divided by the weighted-average diluted shares outstanding. The following tables provides a reconciliation of Net income and Earnings per share in accordance with GAAP, as reported for the periods specified, to the non-GAAP adjusted performance measures presented herein:

In millions, except per share data Y	ear ended December 31,	2021	2020	2019	2018	2017
Net income ^(*)		\$ 4,899	\$ 3,545	\$ 4,198	\$ 4,312	\$ 5,470
Adjustments:						
Operating expense adjustments:						
Workforce reduction program		39	_	31	27	_
Depreciation expense on the deployment of re	placement system	_	_	84	_	_
Advisory fees related to shareholder matters		20	-	-	-	_
Loss (recovery) on assets held for sale		(137)	486	-	-	_
Transaction-related costs		84	-	-	-	-
Non-operating expense adjustments:						
Amortization of bridge financing and other fee	6	97	_	_	_	_
Merger termination fee		(886)	_	_	_	_
Gains on disposal of property		-	-	-	(338)	_
Tax adjustments:						
Tax effect of adjustments ⁽¹⁾		109	(123)	(30)	39	_
Tax law changes and rate enactments		_	(141)	(112)	_	(1,706)
Total adjustments		(674)	222	(27)	(272)	(1,706)
Adjusted net income ^(*)		\$ 4,225	\$ 3,767	\$ 4,171	\$ 4,040	\$ 3,764
Diluted earnings per share ^(*)		\$ 6.90	\$ 4.97	\$ 5.81	\$ 5.85	\$ 7.22
Impact of adjustments, per share		(0.95)	0.31	(0.03)	(0.37)	(2.25)
Adjusted diluted earnings per share ^(*)		\$ 5.95	\$ 5.28	\$ 5.78	\$ 5.48	\$ 4.97

		20)21				20	20		
		Qua	rter	s			Qua	rters		
In millions, except per share data	Fourth	Third		Second	First	Fourth	Third		Second	First
Net income ^(*)	\$ 1,201	\$ 1,686	\$	1,036	\$ 976	\$ 1,016	\$ 982	\$	540	\$ 1,007
Adjustments:										
Operating expense adjustments:										
Workforce reduction program	_	39		-	_	_	_		_	_
Advisory fees related to shareholder matters	13	7		_	_	_	_		_	_
Loss (recovery) on assets held for sale	_	_		_	(137)	_	_		486	_
Transaction-related costs	_	84		_	_	_	_		_	_
Non-operating expense adjustments:										
Amortization of bridge financing and other fees	_	65		32	_	_	_		_	_
Merger termination fee	_	(886)		_	_	_	_		_	_
Tax adjustments:										
Tax effect of adjustments ⁽¹⁾	(3)	85		(8)	35	_	_		(123)	_
Tax law changes and rate enactments	_	-		—	_	_	—		_	(141)
Total adjustments	10	(606)		24	(102)	_	—		363	(141)
Adjusted net income ^(*)	\$ 1,211	\$ 1,080	\$	1,060	\$ 874	\$ 1,016	\$ 982	\$	903	\$ 866
Diluted earnings per share ^(*)	\$ 1.70	\$ 2.37	\$	1.46	\$ 1.37	\$ 1.42	\$ 1.38	\$	0.76	\$ 1.41
Impact of adjustments, per share	0.01	(0.85)		0.03	(0.14)	_	-		0.51	(0.20)
Adjusted diluted earnings per share ^(*)	\$ 1.71	\$ 1.52	\$	1.49	\$ 1.23	\$ 1.42	\$ 1.38	\$	1.27	\$ 1.21

(*) In the first quarter of 2022, the Company changed its method of calculating market-related values of pension assets for its defined benefit plans using a retrospective approach. See the section of this document entitled Change in accounting policy for determining net periodic pension cost (income) for additional information.

(1) The tax impact of adjustments is based on the nature of the item for tax purposes and related tax rates in the applicable jurisdiction.

Adjusted operating income is defined as Operating income in accordance with GAAP adjusted for certain significant operating expense items. Adjusted operating expenses is defined as Operating expenses in accordance with GAAP adjusted for certain significant operating expense items. Adjusted operating ratio is defined as adjusted operating expenses as a percentage of revenues. The following table provides a reconciliation of Operating income, Operating expenses and operating ratio, as reported for the periods specified, to the non-GAAP adjusted performance measures presented herein:

In millions, except percentages	Year ended December 31,	2021	2020	2019	2018	2017
Operating income		\$ 5,616	\$ 4,777	\$ 5,593	\$ 5,493	\$ 5,243
Operating expense adjustments:						
Workforce reduction program		39	_	31	27	_
Depreciation expense on the deployment of r	eplacement system	_	_	84	_	-
Advisory fees related to shareholder matters		20	_	_	_	_
Loss (recovery) on assets held for sale		(137)	486	_	_	_
Transaction-related costs		84	_	_	_	_
Total operating expense adjustments		6	486	115	27	
Adjusted operating income		\$ 5,622	\$ 5,263	\$ 5,708	\$ 5,520	\$ 5,243
Operating expenses		\$ 8,861	\$ 9,042	\$ 9,324	\$ 8,828	\$ 7,798
Total operating expense adjustments		(6)	(486)	(115)	(27)	_
Adjusted operating expenses		\$ 8,855	\$ 8,556	\$ 9,209	\$ 8,801	\$ 7,798
Operating ratio ⁽¹⁾		61.2 %	65.4 %	62.5 %	61.6 %	59.8 %
Impact of adjustments		- %	(3.5)%	(0.8)%	(0.1)%	- %
Adjusted operating ratio		61.2 %	61.9 %	61.7 %	61.5 %	59.8 %

(1) Operating ratio is defined as operating expenses as a percentage of revenues.

Free cash flow

Free cash flow is a useful measure of liquidity as it demonstrates the Company's ability to generate cash for debt obligations and for discretionary uses such as payment of dividends, share repurchases and strategic opportunities. The Company defines its free cash flow measure as the difference between net cash provided by operating activities and net cash used in investing activities, adjusted for the impact of (i) business acquisitions and (ii) merger transaction-related payments, cash receipts and cash income taxes, which are items that are not indicative of operating trends. Free cash flow does not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of Net cash provided by operating activities in accordance with GAAP, as reported for the periods specified, to the non-GAAP free cash flow presented herein:

In millions	Year ended December 31,	2021	2020	2019	2018	2017
Net cash provided by operating activities Net cash used in investing activities		\$ 6,971 (2,873)	\$ 6,165 (2,946)	\$ 5,923 (4,190)	\$ 5,918 (3,404)	\$ 5,516 (2,738)
Net cash provided before financing activities	3	4,098	3,219	1,733	2,514	2,778
Adjustments:						
Transaction-related costs ⁽¹⁾		125	_	_	_	_
Advance for acquisition ⁽¹⁾		845	_	_	_	_
Refund of advance for acquisition $^{(1)}$		(886)	_	_	_	_
Merger termination fee $^{(1)}$		(886)	_	_	_	_
Acquisition, net of cash acquired $^{(2)}$		_	8	259	_	_
Total adjustments		\$ (802)	\$ 8	\$ 259	\$ _	\$ _
Free cash flow		\$ 3,296	\$ 3,227	\$ 1,992	\$ 2,514	\$ 2,778

(1) Relates to the terminated CN KCS merger agreement. See Note 3 – Acquisitions, Terminated CN KCS merger agreement, to the Company's 2021 Annual Consolidated Financial Statements and the section entitled Adjusted performance measures to the Company's 2021 Annual MD&A filed on February 1, 2022 which may be found online on SEDAR at <u>www.sedar.com</u>, on the SEC's website at <u>www.sec.gov</u> through EDGAR, and on the Company's website at <u>www.cn.ca</u> in the Investors section for additional information.

(2) Relates to the acquisitions of H&R Transport Limited ("H&R") and the TransX Group of Companies ("TransX"). See Note 3 – Acquisitions, Acquisition of intermodal division of H&R Transport Limited and Acquisition of the TransX Group of Companies, to the Company's 2021 Annual Consolidated Financial Statements and the section entitled Liquidity and capital resources - Investing activities to the Company's 2021 Annual MD&A filed on February 1, 2022 which may be found online on SEDAR at www.sedar.com, on the SEC's website at www.sec.gov through EDGAR, and on the Company's website at www.cn.ca in the Investors section for additional information.

Adjusted debt-to-adjusted EBITDA multiple

Management believes that the adjusted debt-to-adjusted EBITDA multiple is a useful credit measure because it reflects the Company's ability to service its debt and other long-term obligations. The Company calculates the adjusted debt-to-adjusted EBITDA multiple as adjusted debt divided by the last twelve months of adjusted EBITDA. Adjusted debt is defined as the sum of Long-term debt and Current portion of long-term debt as reported on the Company's Consolidated Balance Sheets as well as Operating lease liabilities, including current portion and pension plans in deficiency recognized on the Company's Consolidated Balance Sheets due to the debt-like nature of their contractual and financial obligations. Adjusted EBITDA is calculated as Net income excluding Interest expense, Income tax expense, Depreciation and amortization, operating lease cost, Other components of net periodic benefit income, Other income (loss), and other significant items that are not reflective of CN's underlying business operations and which could distort the analysis of trends in business performance. Adjusted debt and adjusted EBITDA are non-GAAP measures used to compute the Adjusted debt-to-adjusted EBITDA multiple. These measures do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of debt and Net income in accordance with GAAP, as reported for the periods specified, to the adjusted measures presented herein, which have been used to calculate the non-GAAP adjusted debt-to-adjusted EBITDA multiple:

In millions, unless otherwise indicated As at and for the year ended December 31,	2021	2020	2019	2018	2017
Debt	\$ 12,485	\$ 12,906	\$ 13,796	\$ 12,569	\$ 10,828
Adjustments:					
Operating lease liabilities, including current portion ⁽¹⁾	430	418	501	579	478
Pension plans in deficiency ⁽²⁾	447	553	521	477	455
Adjusted debt	\$ 13,362	\$ 13,877	\$ 14,818	\$ 13,625	\$ 11,761
Net income ^(*)	\$ 4,899	\$ 3,545	\$ 4,198	\$ 4,312	\$ 5,470
Interest expense	610	554	538	489	481
Income tax expense (recovery) $^{(*)}$	1,443	976	1,207	1,348	(400)
Depreciation and amortization	1,598	1,589	1,562	1,329	1,281
Operating lease cost ⁽³⁾	131	143	171	218	191
Other components of net periodic benefit income (*)	(407)	(292)	(297)	(280)	(296)
Other income	(43)	(6)	(53)	(376)	(12)
Adjustments:					
Workforce reduction program ⁽⁴⁾	39	_	31	27	_
Advisory fees related to shareholder matters ⁽⁵⁾	20	_	_	_	_
Loss (recovery) on assets held for sale $^{(6)}$	(137)	486	_	_	_
Transaction-related costs ⁽⁷⁾	84	_	_	_	_
Merger termination fee ⁽⁷⁾	(886)	_	_	_	_
Adjusted EBITDA ⁽⁸⁾	\$ 7,351	\$ 6,995	\$ 7,357	\$ 7,067	\$ 6,715
Adjusted debt-to-adjusted EBITDA multiple (times)	1.82	1.98	2.01	1.93	1.75

(*) In the first quarter of 2022, the Company changed its method of calculating market-related values of pension assets for its defined benefit plans using a retrospective approach. See the section of this document entitled Change in accounting policy for determining net periodic pension cost (income) for additional information.

(1) Represents the present value of operating lease payments.

(2) Represents the total funded deficit of all defined benefit pension plans with a projected benefit obligation in excess of plan assets.

(3) Represents the operating lease costs recorded in Purchased services and material and Equipment rents within the Consolidated Statements of Income.

(4) Relates to employee termination benefits and severance costs for a workforce reduction program, recorded in Labor and fringe benefits within the Consolidated Statements of Income.

(5) Relates to advisory fees related to shareholder matters recorded in Casualty and other within the Consolidated Statements of Income.

(6) Relates to the loss (recovery) on assets held for sale resulting from the Company entering into an agreement for the sale of non-core lines.

(7) Relates to the terminated CN KCS merger agreement.

(8) Adjusted EBITDA for 2019 and 2018 has been restated to include the workforce reduction program adjustment in order to conform with the current definition and be comparable with adjustments made in 2021.

ROIC and adjusted ROIC

ROIC and adjusted ROIC are useful measures for management and investors to evaluate the efficiency of the Company's use of capital funds and allow investors to assess the operating and investment decisions made by management. The Company calculates ROIC as return divided by average invested capital, both of which are non-GAAP measures. Return is defined as Net income plus interest expense after-tax, calculated using the Company's effective tax rate. Average invested capital is defined as the sum of Total shareholders' equity, Long-term debt and Current portion of long-term debt less Cash and cash equivalents, and Restricted cash and cash equivalents, averaged between the beginning and ending balance over the last twelve-month period. The Company calculates adjusted ROIC as adjusted return divided by average invested capital, both of which are non-GAAP measures. Adjusted return is defined as adjusted net income plus interest expense after-tax, calculated using the Company's adjusted effective tax rate. Return, average invested capital, ROIC, adjusted return and adjusted ROIC do not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies.

The following table provides a reconciliation of Net income and adjusted net income to return and adjusted return, respectively, as well as the calculation of average invested capital, which have been used to calculate ROIC and adjusted ROIC:

In millions, except percentage As at and for the year ended December 31	,	2021	2020	2019	2018	2017
Net income ^(*)	\$	4,899	\$ 3,545	\$ 4,198	\$ 4,312	\$ 5,470
Interest expense		610	554	538	489	481
Tax on interest expense ⁽¹⁾		(139)	(120)	(120)	(116)	(124)
Return ^(*)	\$	5,370	\$ 3,979	\$ 4,616	\$ 4,685	\$ 5,827
Average total shareholders' equity	\$	21,198	\$ 18,846	\$ 17,841	\$ 17,149	\$ 15,749
Average long-term debt		11,987	11,931	11,626	10,067	9,098
Average current portion of long-term debt		709	1,420	1,557	1,632	1,785
Less: Average cash, cash equivalents, restricted cash and restricted cash equivalents		(1,221)	(844)	(674)	(656)	(613)
Average invested capital	\$	32,673	\$ 31,353	\$ 30,350	\$ 28,192	\$ 26,019
ROIC ^(*)		16.4%	12.7%	15.2%	16.6%	22.4%
Adjusted net income (*)(2)	\$	4,225	\$ 3,767	\$ 4,171	\$ 4,040	\$ 3,764
Interest expense		610	554	538	489	481
Less: Amortization of bridge financing and other fees $^{(3)}$		(97)	-	_	_	-
Tax on interest expense less amortization of bridge financing and other fees $^{\rm (4)}$		(123)	(137)	(131)	(120)	(124)
Adjusted return ^(*)	\$	4,615	\$ 4,184	\$ 4,578	\$ 4,409	\$ 4,121
Average invested capital	\$	32,673	\$ 31,353	\$ 30,350	\$ 28,192	\$ 26,019
Adjusted ROIC (*)		14.1%	13.3%	15.1%	15.6%	15.8%

(*) In the first quarter of 2022, the Company changed its method of calculating market-related values of pension assets for its defined benefit plans using a retrospective approach. See the section of this document entitled Change in accounting policy for determining net periodic pension cost (income) for additional information.

(1) The effective tax rate, defined as Income tax expense as a percentage of Income before income taxes, used to calculate the tax on Interest expense for 2021 was 22.8% (2020 - 21.6%, 2019 - 22.3%, 2018 - 23.8%, 2017 - 25.8%). Due to the negative effective tax rate reported by the Company in 2017, tax on interest expense for 2017 was calculated using an adjusted effective tax rate.

(2) This Non-GAAP measure does not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to similar measures presented by other companies. See the section of this document entitled Adjusted performance measures for an explanation of this non-GAAP measure.

(3) Relates to amortization of bridge financing and other fees resulting from the KCS transaction, recorded in Interest expense within the Consolidated Statements of Income.

(4) The adjusted effective tax rate is a Non-GAAP measure, defined as Income tax expense, net of tax adjustments as presented in Adjusted performance measures as a percentage of Income before taxes, net of pre-tax adjustments as presented in Adjusted performance measures. This measure does not have any standardized meaning prescribed by GAAP and therefore, may not be comparable to a similar measure presented by other companies. The adjusted effective tax rate used to calculate the adjusted tax on interest expense less amortization of bridge financing and other fees for 2021 was 24.0% (2020 - 24.8%, 2019 - 24.4%, 2018 - 24.5%, 2017 - 25.8%).