

Insight Investment Research LLP

DEDICATED SPECIALIST GLOBAL INFRASTRUCTURE RESEARCH

INITIATION: CANADIAN NATIONAL RAILWAY

RELIABLE DEMAND, STRONG UNREGULATED PRICING, HIGH CAPITAL BARRIERS
& EXCELLENT RETURNS



18 JANUARY 2022*

* CN train in Durand, Michigan.

Canadian National Railway (CNR CN): Flagship Initiation Report

Reliable demand, strong unregulated pricing, high capital barriers & excellent returns

Dedicated Global
Infrastructure Research

INSIGHT
Investment Research

18 January 2023

Summary

We initiate on CN with a BUY and TP of C\$360, +116% upside. CN owns into perpetuity a unique 3 coast rail network, connecting major trade routes from both Canadian coasts and Gulf of Mexico. CN's volumes, mostly commodities, are cyclical in given years but exhibit consistent low growth over time and have outperformed many railroad peers. Recently, almost entirely unregulated prices, have contributed more than volumes to revenue growth, which we expect to continue given a substantial cost advantage over trucks.

Profile

- Asset Quality Strong:** Very high capital barriers to entry. Railroads are mostly monopolies or duopolies within regions, with little competition. Unregulated except price limits on grain in Canada. Pricing above inflation due to substantial cost advantage vs. trucks. Individual products transported cyclical but often on different cycles so less overall cyclicity.
- FCF profile:** FCF pre-dividends of C\$4.35bn in 2022E (Op. FCF of C\$6.85bn – capex C\$2.5bn) to rise 8.8% CAGR to C\$6.6bn in 2027E and 5.1% CAGR in 2027-49E, driven by additional volumes, CPI+ pricing and high fixed costs enabling good incremental accretion to FCF. Reasonably high ongoing capex but returns on capital post tax mid teens.
- Credit Quality Strong:** Low leverage of 1.1x ND/EBITDA in 2024E, average Kd of 5.0% in 2023E. Resilient FCF. Our basket of CN's longer dated bond yields average 4.60% (p16).
- Capital allocation:** We expect shareholder remuneration to continue to be c.60% from share buybacks and 40% from dividends. We assume all equity FCF distributed after 2027E. CN was outbid by Canadian Pacific (CP) for Kansas City Southern. CN focused on high return new investment, not dilutive to mid-teens return on capital post-tax.

Investment Case

1. Cyclical products but consistent LT volume growth & pricing power

Class I railroads are one of the most efficient global transport networks and critical to moving heavy goods around N. America to enable trade, carrying c.30% of freight by ton miles and 35-40% of freight that travels 1,000-2,000 miles. **a) Cyclical products but LT volume growth:** CN's revenues are reasonably well diversified over 7 commodity groups, individually cyclical but often on different cycles, with total volumes 2.5x less cyclical as measured by standard deviation. Yet still CN's total volumes (fluctuated from -10% to +10%), twice as cyclical as blended Canadian and US GDP growth (fluctuated from -5% to +5%) in 2010-22E. CN's total volumes fell 4x in 16 years in 2006-22E but recovered within 1-2 years, except during the Great Financial Crisis (GFC) in 2008-10. CN's total volumes grew 1.5% CAGR, at 0.70x average GDP growth in 2006-22E and we estimate a similar 1.4% CAGR in 2022-50E. **b) Unregulated pricing power:** In 2010-22E, EBITDA on average grew 8.3% pa (attributable to volumes 2.7pp, prices 4.2pp, EBITDA margin 1.4pp), specifically to revenue growth volumes contributed 40% but prices 60% in 2010-22E. Pricing averaged 3.1% pa, 120bps above blended Canadian and US CPI of 1.9% in 2010-21. Pricing to continue to benefit from cost advantage over trucks, which over 900 miles, we estimate at c.-40% and ability to enable customers achieve emission targets. Railroads are 3-4x more fuel efficient and reduce greenhouse gas emissions by -75% versus trucks. Price regulation is limited to grain in Canada (6% of revenues) based on revenue caps that still allow good returns. We expect continued strong pricing, averaging 3.6% pa, 120bps pa above blended CPI of 2.4% pa in 2022-40E, then at CPI in 2040-50E. **c) Limited cyclicity of EBITDA:** CN's EBITDA grew 7.4% CAGR in 2000-22E, having fallen 4x in last 22 years but recovering rapidly within 1-2 years, except 3 years in 2007-10 (GFC).

2. Scope to continue raising efficiency, impressive returns on capital

CN's EBITDA margin increased by 13.3pp to 46.5% in 2000-10 (contributing to 55% of EBITDA growth) due to efficiency from Precision Scheduled Railroad but a lesser 4.9pp to 51.4% in 2010-22E (16% of EBITDA growth) in 2010-22E. EBITDA margin to rise from 51.0% in 2022E to 63.8% in 2050E (27% of EBITDA growth), driven by operating leverage from volume growth, pricing and Digital Scheduled Railroad, with opex/GTM limited to +1.6% CAGR in 2022-50E. CN screens slightly less efficient than CP and UP, potentially with slightly more efficiency upside. CN's adjusted ROIC post-tax averaged 15.7% in 2015-19 and we estimate an increased to 19.8% in 2025E, substantially above our WACC of 7.0%.

3. Continued strong growth in FCF & shareholder remuneration

We expect continued strong FCF generation and shareholder remuneration. **a) Robust FCF growth:** We expect good conversion of 60-65% of EBITDA into Recurring FCF, post maintenance capex at 0.8-1.0x of depreciation and 8.1% of revenues in 2022-35E. Our Recurring FCF of C\$6.0bn in 2023E (Op. FCF post interest & tax of C\$7.6bn, minus maintenance capex of C\$1.6bn), rises by 5.4% CAGR to C\$10.2bn in 2030E, with our Recurring FCF yield rising from 5.4% in 2023E to 8.7% in 2030E. **b) High shareholder remuneration:** Shareholder remuneration was derived 55% from share buybacks (averaging C\$1.9bn pa, share count reducing -11%) and 45% from dividends (averaging C\$1.6bn pa) in 2017-22E. Our payout ratio rises from 40% to 55% and DPS 18% CAGR, supplemented by share buybacks, averaging C\$2.2bn pa in 2022-26E. All our equity FCF is distributed post 2027E. We estimate total remuneration growth (dividend + share buyback) at 6.5% CAGR in 2023-50E, with a total remuneration yield of 5.2% in 2022E, rising to 5.8% in 2026E and 11.2% in 2030E. Our IRR of 11.6% is our preferred shareholder return metric and 400bps above our Ke of 7.6%, albeit it slightly below average for our Global Infrastructure sector of 440bps.

Financials (C\$m)	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E
Revenue	14,917	13,819	14,477	17,110	17,881	18,786	19,754	20,776	21,874
Adj. EBITDA	7,357	6,995	7,351	8,730	9,494	10,285	10,965	11,708	12,503
Net income	4,216	3,562	4,892	5,176	5,771	6,299	6,802	7,350	7,929
Adj. diluted EPS	5.80	5.31	5.94	7.51	8.59	9.55	10.41	11.25	12.14
Payout ratio	37%	46%	36%	39%	45%	50%	50%	55%	72%
DPS	2.15	2.30	2.46	2.93	3.87	4.78	5.21	6.19	16.83
Recurring FCF	4,361	4,576	5,373	5,257	5,921	6,399	6,553	7,101	7,681
Net debt/ EBITDA	1.9	1.9	1.6	1.5	1.3	1.2	1.1	1.1	1.3
Valuation									
EV/ EBITDA	10.8	12.3	13.3	12.1	11.7	10.6	9.9	9.3	8.7
Recurring FCF yield	5.5%	5.3%	5.5%	5.0%	5.4%	5.9%	6.0%	6.5%	7.1%
Dividend yield	1.9%	1.9%	1.8%	1.9%	2.3%	2.9%	3.1%	3.7%	10.1%

Valuation summary

- New CN DDM based TP of C\$360** (116% upside, p11). CN enters at 4th of 24 on Insight Stock Ranking System, after Ferrovial, Cellnex and Getlink.
- IRR of 11.6%**, 404bps above our Ke of 7.6%. **Rising Recurring FCF yield** from 5.0% in 2022E to 7.7% in 2028E.
- Rising DPS** from C\$2.93 in 2022E to C\$5.21 in 2025E, with **rising dividend yield** from 1.9% in 2022E to 3.1% in 2025E. **More relevant is Remuneration yield (DPS & share buybacks per share)** to rise from 5.2% in 2022E to 5.8% in 2026E, then we assume all equity FCF distributed with a dividend yield of 10.1% in 2027E.
- High sensitivity to bond yields**, first +100bps rise reduces TP by -C\$64 (-18%), via a higher COC/discount rate. Most exposed in our Infrastructure sector to N. American bond yields.

Rating		BUY
Price		C\$167
Date of price	18-Jan-2023,	16,37
Target price		C\$360
Upside/ (downside)		116%
Av. Infrastructure sector up (down) side		73%
Stock ranking (1-24)		4
Asset Quality Ranking		Strong
Credit Quality Score		Strong
Consensus TP		C\$172
Infrastructure IRR		11.6%
Infrastructure Ke		7.6%
IRR-Ke		4.04%
2024E EV/ EBITDA at TP		24.0
	€	C\$
Market cap	75,142	108,555
Net debt (2024E)	8,603	12,429
EV (2024E)	83,745	120,984
Freefloat		86.5%
Number of shares (m)		651.40
Daily traded value	171	247
Performance		
	Absolute	Relative*
-1M	0%	-5%
-6M	14%	4%
-12M	10%	14%
-5Y	67%	33%
YTD	4%	-2%

*Relative to S&P/ TSX Composite Index

Research analysts:

Robert Crimes

+44 (0) 203 397 9182

robert.crimes@insightir.com

Max Dolbey

+44 (0) 203 397 9996

max.dolbey@insightir.com

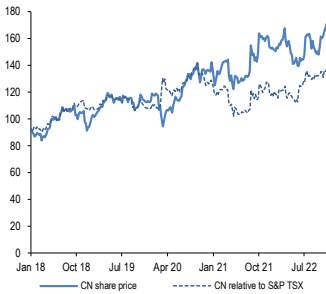
Charlie Kenworthy

+44 (0) 203 951 0043

charlie.kenworthy@insightir.com

www.insightir.com

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1. Cyclical products but consistent LT volume growth & pricing power

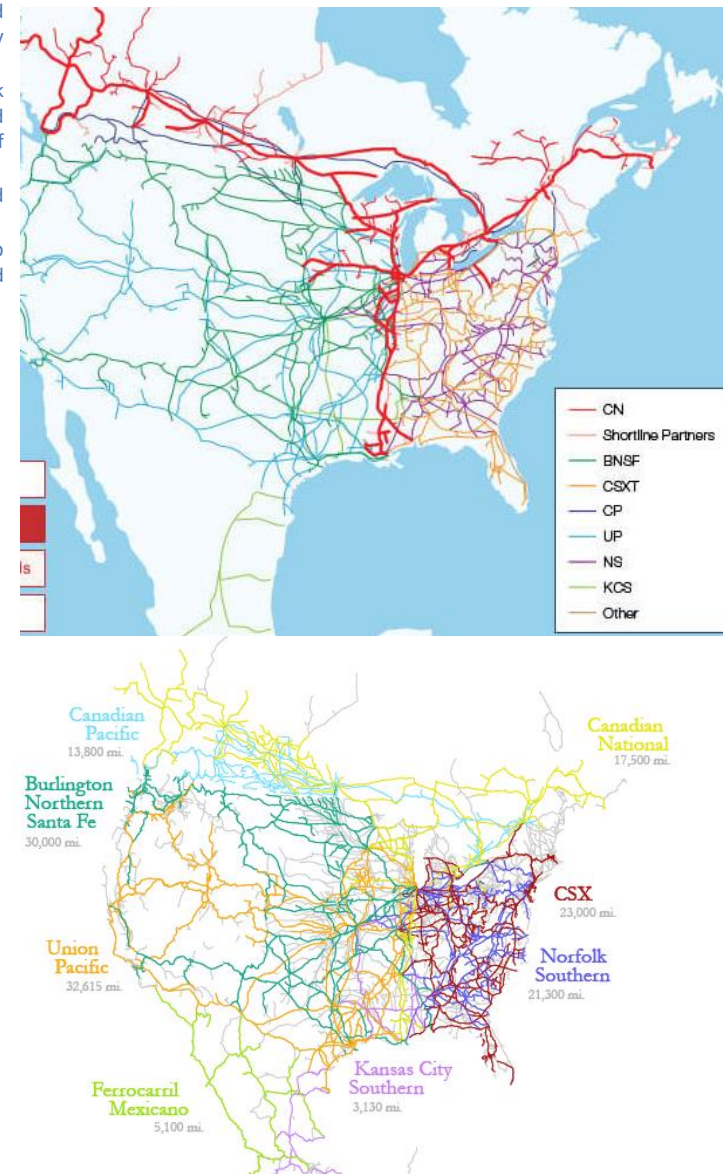
a) Large strategic 3 coast network, connecting Canadian east-west coasts to Gulf of Mexico

- **Expanded from Canadian east-west network to 3 coast network down to Gulf of Mexico in 1999:** CN privatised in 1995 via IPO. CN's network initially linked Canada from Prince Rupert on northwest Pacific coast of Colombia to Halifax on northeast Atlantic coast, then CN acquired Illinois Central in 1999, expanding via US industrial heartland of Chicago down to Gulf coast. Canadian railroads a duopoly, competition limited to Canadian Pacific, highly focused in western Canada and few routes in eastern Canada.
- **Further acquisitions strengthened network in 2001-09:** CN acquired Wisconsin Central in 2001, filling in a gap linking Pacific and Atlantic coasts. CN acquired BC Rail extended its network into resource rich BC in 2004. CN acquired Elgin, Joliet & Eastern Railway in 2009, adding a small but strategic railway with fastest routing around Chicago.
- **Full ownership of track, rolling stock, intermodal terminals & transload facilities:** CN owns and operates 20,000 miles of rail track (Fig. 1), with 2,302 locomotives and 56,730 freight cars at end 2021. To facilitate freight movement CN has 23 strategically located intermodal terminals, 31 transload facilities, 5 logistics parks, 6 supply chain agreements with ports and operates CNTL, one of Canada's largest trucking companies.
- **PSR transformed profitability in 2000.s:** CN pioneered Precision Scheduled Railroading with simplified routing networks, fixed timetables and longer but mixed product trains, raising asset intensity of locomotives and freight cars, with less employees.
- **Extensive & efficient N. America Class I railroad network:** Class I railroads own and operate 145,000 miles track in a dense web across N. America (Fig. 2). Five railroads are listed, Kansas City Southern is subject to a take over process by Canadian Pacific and BNSF is unlisted since becoming a subsidiary of Berkshire Hathaway in 2010.

Fig. 1: CN's N. American 3 coast rail network



Fig. 2: Class 1 N. American rail networks

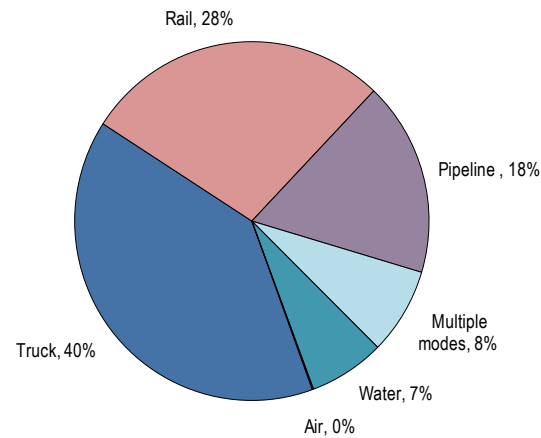


1. Cyclical products but consistent LT volume growth & pricing power

b) Annual volatility but consistent, robust LT volume growth for railroads, including CN

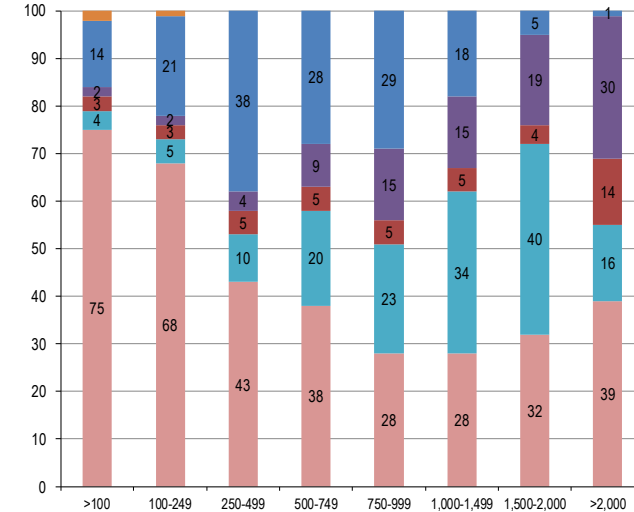
- US freight transport dominated by trucks & rail:** Most important US transportation mode is trucks (40%), then rail (28%) and pipeline (18%, Fig. 3). Rail increased market share of freight from 22% in 1990 to 36% in 2014 but fell back to 30% in 2019 & 27% in 2020. Rail more important for longer distances, carrying 34-40% of freight trips over 1,000-2,000 miles (Fig. 4).
- US rail volumes consistently risen but annual volatility in 1990-2019:** Over 29 years, US rail ton km of rail freight grew at +1.0% CAGR in 1990-2000 and 1% CAGR in 2000-19 (Fig. 5) but fell in 10 years, including >5% in 5 years, notably -12% in 1982, -14% in 2009, -6% in 2015 & -8.8% in 2016. However, volumes recovered rapidly, with no years of consecutive decline, moreover volumes recovered strongly in all years following declines.
- CN outperformed US rail total volume growth in 2006-20:** CN RTM* (captures weight and distance travelled) grew at 1.5% CAGR, 50bps pa above US rail total volumes at 1.0% CAGR in 2006-20 (Fig. 6).
- CN volumes more cyclical than GDP but recovered rapidly:** CN volumes of freight broadly twice as cyclical, within band of -10% to +10%, than blended Canada and US GDP growth, within band of -5% to +5% in 2010-22E (Fig. 7). CN's volumes grew at 1.5% CAGR, moderately below average GDP growth, thus an average GDP multiplier of 0.69x in 2006-22E. However, CN volumes fell 4x over 16 years in 2006-22E: -0.8% in 2007, -3.4% in 2008 & -10.2% in 2009, then fully recovered by 2011. RTM fell -3% in 2015 & -4.5% in 2016, recovering fully +10.6% in 2017. RTM fell -5% in 2020 recovering fully +7% in 2022E.

Fig. 3: US freight transport mode by ton miles



Source: Pocket Guide to Transportation, US Bureau of Transport Statistics, 2019

Fig. 4: US freight by mode by distance, ton miles



US Transportation Statistics AR, 2021, p99 PDF

Fig. 5: US ton km of freight by rail (bn)

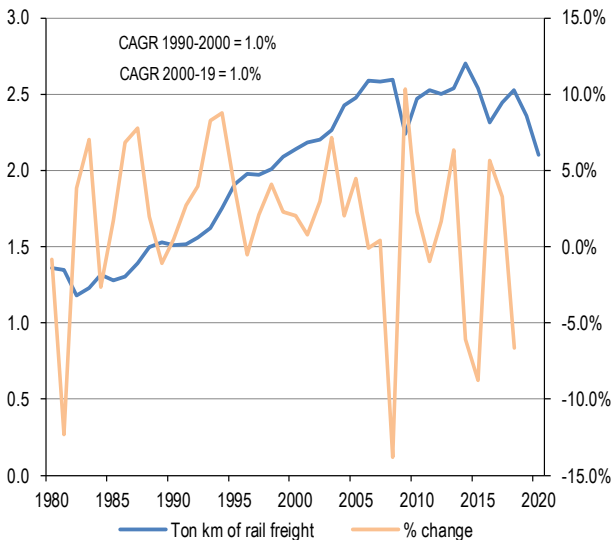


Fig. 6: CN change in RTM.s 2006-30E

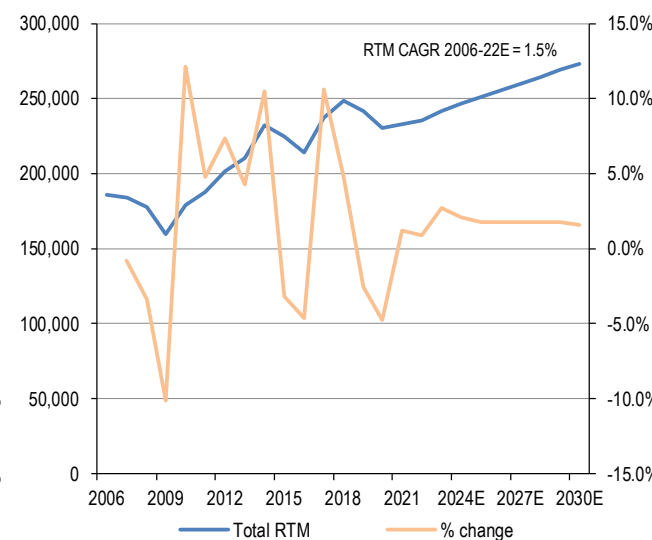
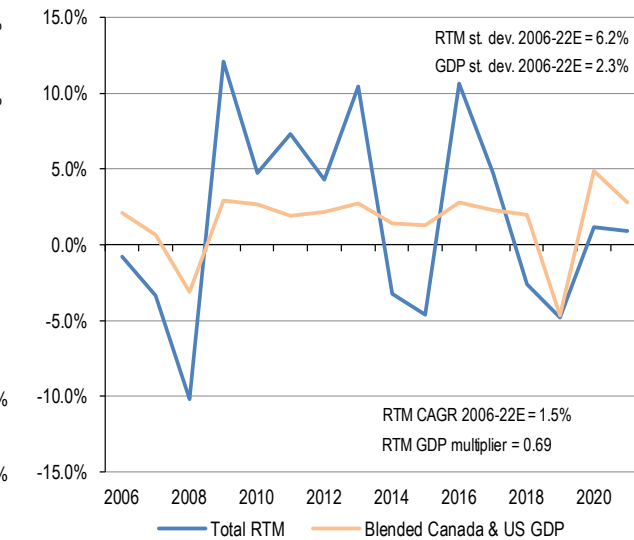


Fig. 7: CN change in RTM & blended GDP growth



Source: Bureau of Transport Statistics (US).

* RTM = Revenue Ton Miles, weight of commercial freight transported x distance traveled. Determines revenues.

1. Cyclical products but consistent LT volume growth & pricing power

c) Individual products cyclical but often on different cycles, so total volumes less cyclical

- **Revenues from 7 commodity groups:** CN's revenues diversified over 7 different commodity groups, focused on 5 groups (Fig. 8), including Intermodal (different products moved by >2 modes), Petroleum & Chemicals (20%), Grain & Fertilizers (16%), Forest products (10%), Metals & minerals (11%) but less in Coal (6%) and Automotive (5%).
- **Proportion of revenue from commodity groups to remain relatively stable to 2050E:** Moderately lower growth and declining contribution from Forest products, Coal and Automotive in 2022-50E but these 3 product groups much smaller (Fig. 9).
- **Historically diverse volume growth across products:** Volumes, measured by RTM, for Forest products fell -3.1% CAGR & Automotive fell -0.6% CAGR but other 5 product groups grew 1.8-4.3% CAGR in 2006-22E (Fig. 10, Fig. 11).
- **Intermodal highest & most sustainable growth:** Intermodal volumes grew 4.3% CAGR in 2006-22E, with growth all years, except -5% in 2009, -3% in 2019 & -1% in 2021 but to grow impressive +10% in 2022E.
- **Continued overall low volume growth:** Total volumes to grow at 1.4% CAGR in 2022-50E, similar to 1.5% CAGR in 2006-22E.
- **Cyclicity in individual product groups but less overall:** Standard deviations of changes in volumes in 2006-22E vary from Coal (18%) and Metals & minerals (16%) to Intermodal (5%) but total revenues lower (6%) as different commodities often on different cycles (Fig. 12).
- **Volumes typically recover rapidly from falls:** Product volumes tend to recover within 1-2 years from falls but longer after 2009 and 2020.

Fig. 8: Revenues by product group, 2023E

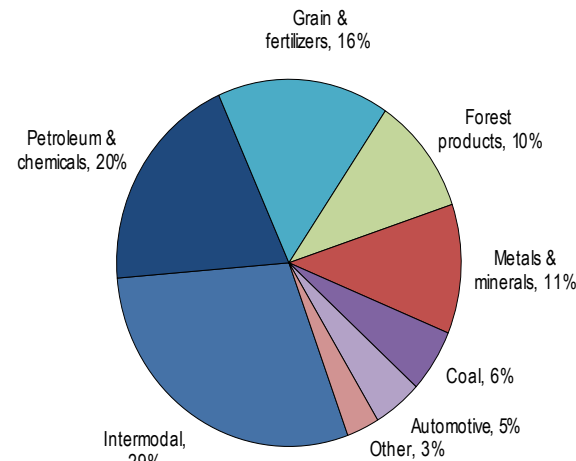


Fig. 9: Revenues by product group 2017-50E

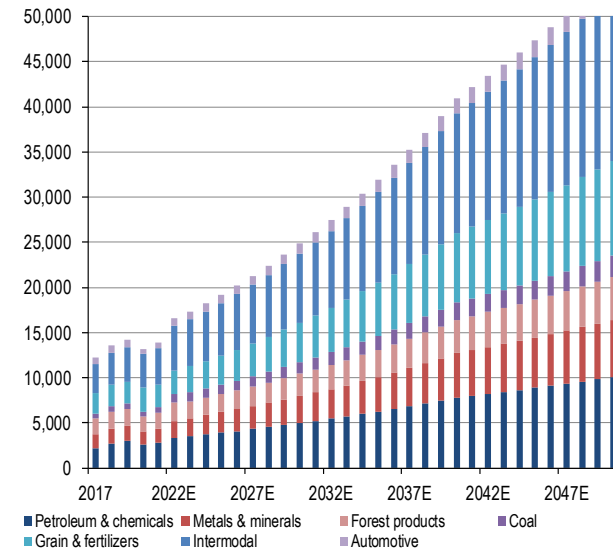


Fig. 10: RTM by product group indexed to 100 in 2006

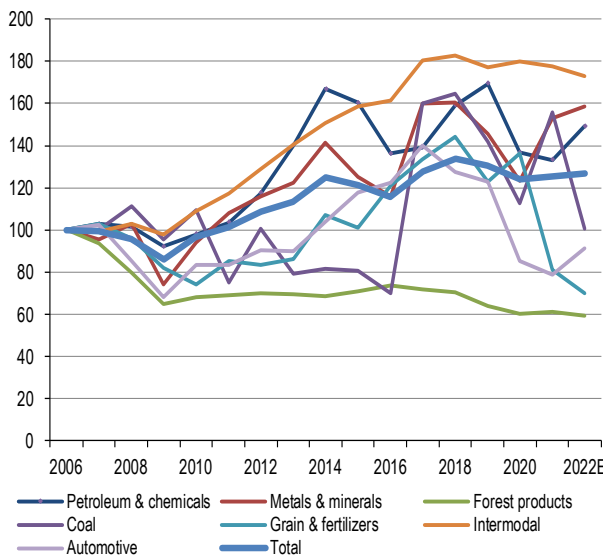


Fig. 11: RTM CAGR.s by product group

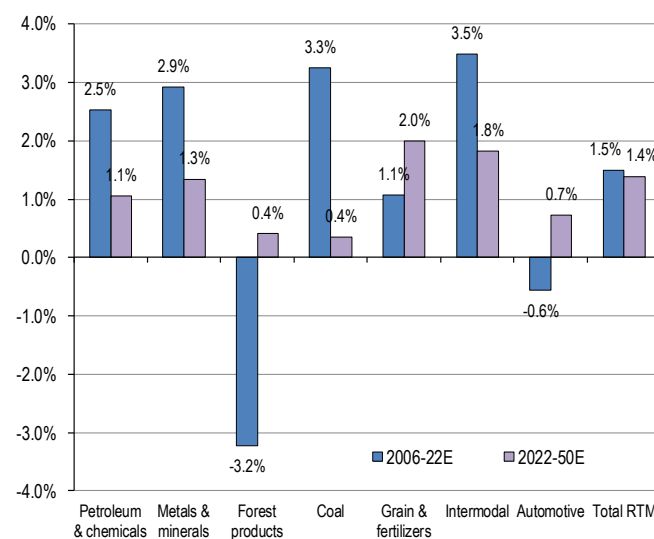
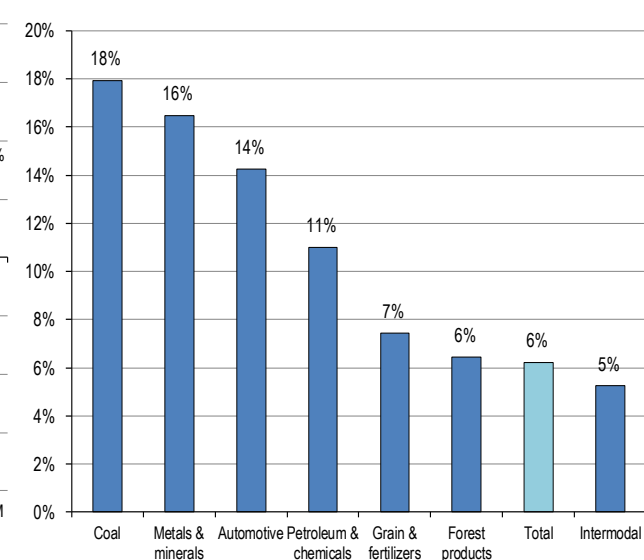


Fig. 12: Standard deviation of change in revenues, 2006-22E



1. Cyclical products but consistent LT volume growth & pricing power

d) Resilient EBITDA driven more by revenues, mostly prices but less from margins in 2010-22E

- High EBITDA growth in 2000-22E:** CN's EBITDA grew 7.4% CAGR in 2000-22E, with similar growth of 7.0% CAGR in 2010-22E (Fig. 13).
- EBITDA fell in 4 years in 2000-22E:** CN's EBITDA fell 4x in last 22 years: including -16% in 2002, -4% in 2007, -12% in 2009 (Great Financial Crisis, GFC) & -11% in 2020 (pandemic).
- EBITDA rapidly recovered from falls, except 2007-10:** CN's EBITDA recovered rapidly +14% in 2003 (in 2 years) & +13% in 2021 but EBITDA of C\$3.55bn in 2007 was not recovered until 3 years later due to the GFC in 2009 but then grew strongly +31% to C\$3.86bn in 2010.
- Further down P&L stronger growth in EPS & DPS:** In 2010-22E, we estimate a CAGR in revenues of 6.2% (volumes & prices), EBITDA of 7.0% (benefit from EBITDA margin enhancement), EPS of 10.6% & DPS of 15.1% (benefit from share buybacks, reducing share count), with more financial leverage further down the P&L (Fig. 14).
- EBITDA driven mostly by revenues (notably prices):** In 2010-22E, EBITDA on average grew 8.3% pa (Fig. 15), we estimate average annual contributions from volumes 2.7pp, prices 4.2pp and EBITDA margin expansion 1.4pp. **Revenues were driven 60% by prices and 40% by volumes.** EBITDA fell only once -11% in 2020 in 2010-22E (pandemic). Volumes fell -7% in 2016 but price and EBITDA margin growth led to EBITDA resilience (+2%).
- CN volumes outperformed US peers but in line with Canadian peers in 2010-20:** CN's volumes (RTM) grew 22%, similar to Canadian Railroads but US Railroad volumes fell -15% in 2010-20 (Fig. 16).

Fig. 13: EBITDA profile & growth

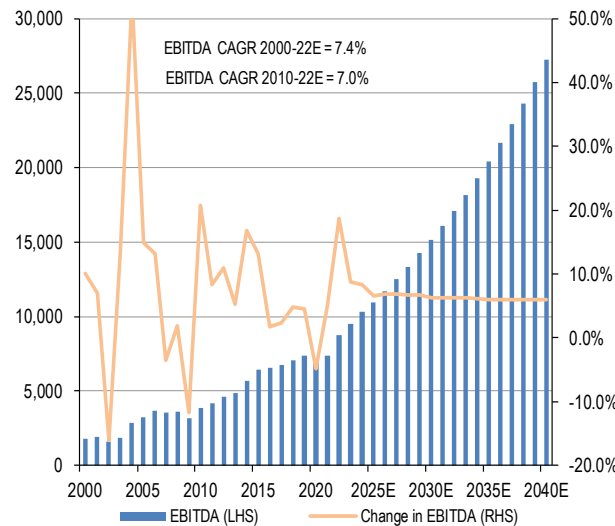


Fig. 14: Revenue to DPS growth indexed from 2010

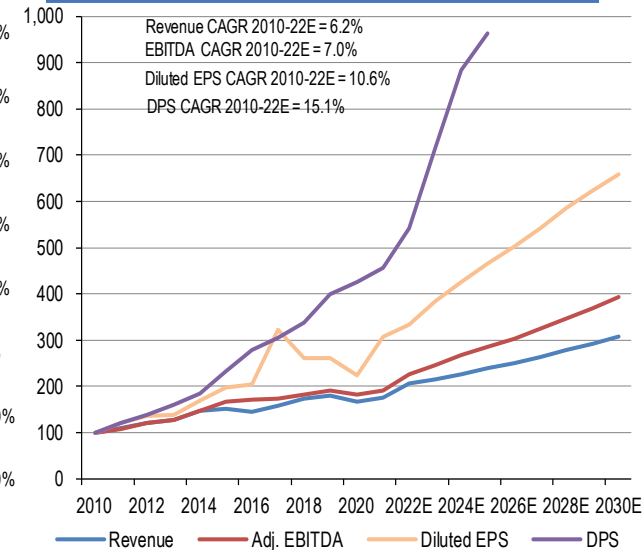


Fig. 15: Attribution of EBITDA growth in 2010-22E*

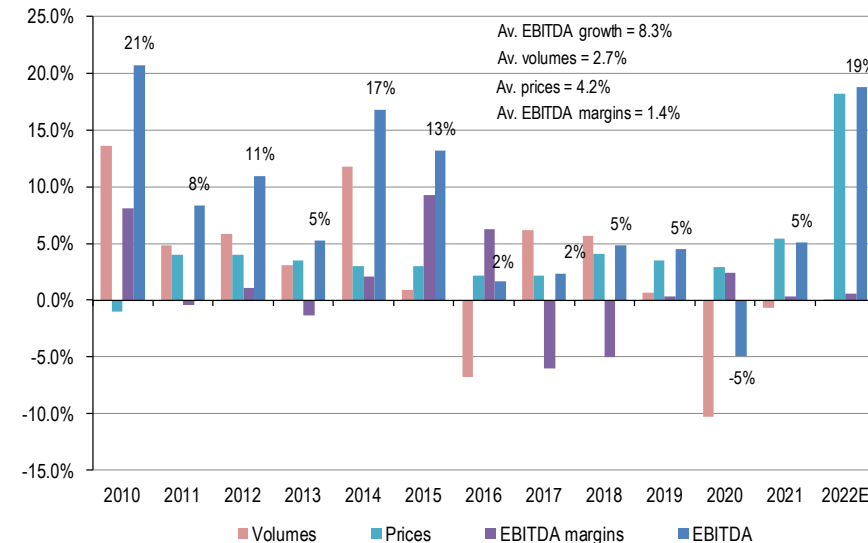
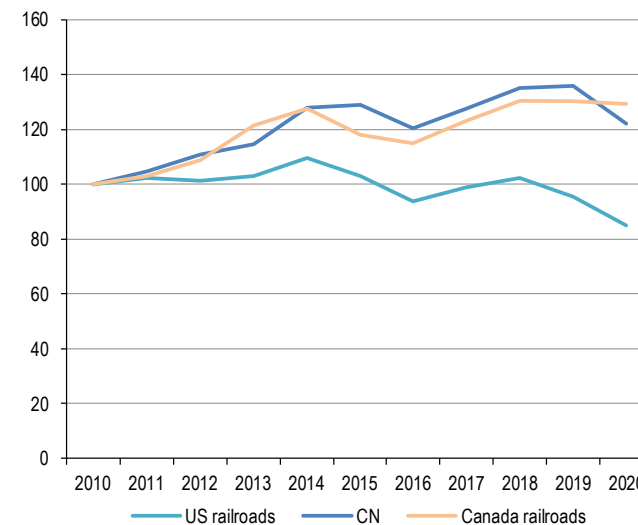


Fig. 16: Volume growth CN vs. US & Canadian railroads



Pricing pre 2022E from CN Q4 2021 results presentation, remainder of change in revenues attributed to volumes. Not adjusted for currency. Price rise estimated as revenue/RTM in 2022E, +19% at 9M (impact of fuel surcharge).

Source: US Railroads data from Railroads Bureau of Transport Statistics. Canadian data from Railway Association of Canada.

1. Cyclical products but consistent LT volume growth & pricing power

e) GDP & IP growth supportive to volumes, pricing to continue at CPI+ due to rail cost advantage & sustainability

- **Main drivers of most CN product groups GDP & IP**, in Canada, USA and globally.
- **GDP growth to slow in 2023-24E then recover to LT levels:** Bloomberg consensus for GDP in Canada +1.5% in 2023E, +1.6% in 2024E and in US +1.6% in 2023E & +1.0% in 2024E (Fig. 17). IMF forecasts GDP in Canada +2.3% in 2025E and US +1.8% in 2025E. We assume LT GDP in Canada +2.0% and US +2.5%. Global GDP growth, that drives exports, has a similar profile to N. America but higher growth due to EM.
- **IP supportive, PMI decent:** IP running at 3.0% YoY in Canada & 3.0% YoY in USA and PMI at both at 50 in Q3 2022 (Fig. 18).
- **Rail cost advantage vs. trucks of c.40%:** CN average revenues per rail grain hopper trip of C\$4,200 or US\$2,905 in 2023E, traveling on average 900 miles with grain capacity of 100 tons, thus revenue/RTM of C\$0.0467 or US\$0.0323 (US\$2,905/900/100, Fig. 19). Some destinations require last part of trip by truck, we assume 50 miles at \$1.44/mile, thus total cost of US\$3,193/trip. We use ATRI data for trucking costs/mile of US\$1.44, with 4 trucks (25 tons capacity each), equating to US\$5,184. Thus, rail costs -44% less than truck costs or if last part of rail trip required by truck -39% less than truck only costs.
- **Climate change credentials to support pricing power:** Freight railroads 3-4x more fuel efficient than trucks and reduce greenhouse gas emissions by -75%. Freight customers under pressure to reduce emissions increasingly likely to switch to rail, particularly as often costly to reduce emissions but rail is typically more economic.
- **Pricing to continue above inflation in 2022-35E, driven by cost advantage vs. trucks & climate change:** Pricing averaged 3.1% pa, 120bps above blended Canadian & US CPI of 1.9% in 2010-21 (Fig. 20). Pricing to continue above CPI at average 3.6% pa, 140bps pa above blended Canadian & US CPI of 2.2% pa in 2022-40E, then at CPI of 2.2% in 2040-50E. Pricing unregulated except for Canadian grain (c.41% of Grain & fertilizers revenues and 6% of group revenues in 2023E), with revenue caps set by the CTA** based on tons and distance, then inflated. Revenue/RTM for Grain & fertilizers C\$4.21, were below other groups except coal at C\$3.35 in 2021.
- **Improvements in locomotive efficiency:** Most railroad emissions from diesel locomotives (c.85% for CN). **Deploying current technologies** including anti-idling systems, energy management systems (cruise control with efficient braking and acceleration) and biodiesel/renewable fuels. CN have ordered 50 remanufactured locomotives by Wabtec with 17% better fuel efficiency and 55% better haulage ability. Railroads have **started initial testing** of battery electricity and hydrogen fuel locomotives but in our view need substantial performance improvements before entering service. CN is testing a purchased Wabtec battery electric locomotive, with regenerative braking (uses braking energy to turn into electricity). However, Wabtec has said it realistically expects future recharging of batteries needs to be on the move, mostly from overhead cables.

Fig. 17: Canada, US & global GDP growth

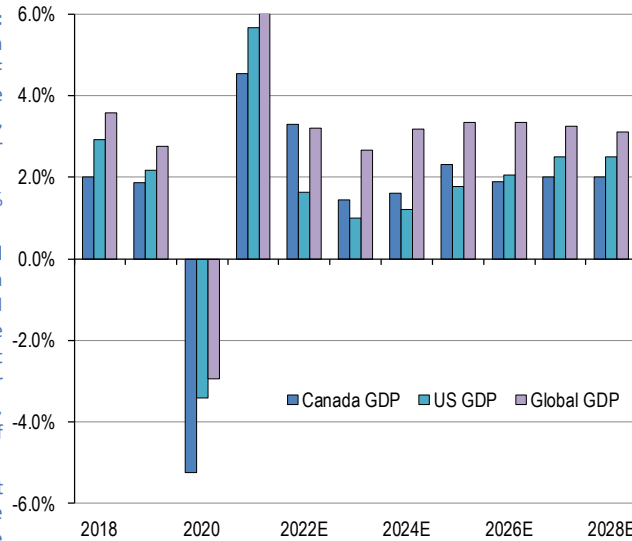


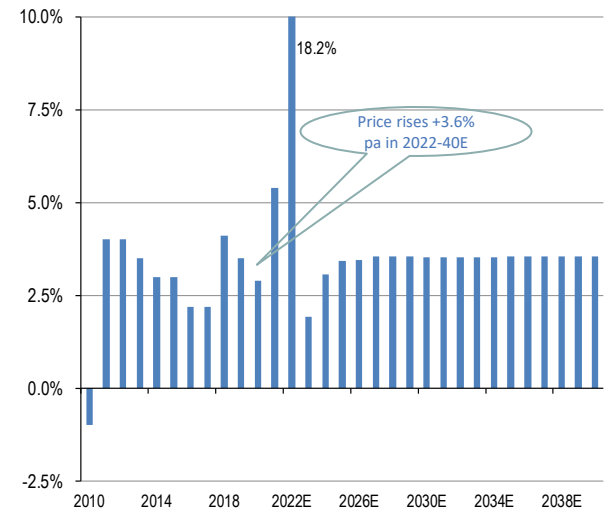
Fig. 18: Canada & US Industrial Production



Fig. 19: Transport costs rail vs. truck for grain

	C\$	US\$
1) Rail only & rail last part by truck		
a) Rail		
Freight revenue/ carload (a)	4,200	2,899
Distance (miles)	900	900
Capacity grain hopper (tons)	100	100
Revenue/ RTM (cents)	4.67	3.22
b) Last part by truck		
Distance to reach end point (miles)		50
Cost per truck		72
Trucks required/ hopper		4
Cost last part by truck (b)		288
Total cost (a+b)		3,187
Total cost/ mile/ ton (cents)		3.54
2) Truck only		
Truck cost/ mile (ATRI)		1.44
Cost/ mile/ ton (cents)		5.76
Cost/ truckload		1,296
Capacity of truck (tons)		25
Trucks required/ hopper		4
Cost		5,184
Difference		
Rail only vs. truck only		-44%
Rail & last part by truck vs. truck only		-39%

Fig. 20: CN price rises^



** Pricing pre 2022E from CN Q4 2021 results presentation. Price rises estimated as revenue/RTM in 2022E, +19% at 9M (fuel surcharge) to 2040E.

2. Scope to continue raising efficiency, impressive returns on capital

a) CN screens slightly less efficient than CP & UP but still high returns on capital

- EBITDA to continue to benefit from margin improvement:** CN's EBITDA margin increased substantially by 13.3pp from 33.2% in 2000 to 46.5% in 2010 (contributing to 54% of EBITDA growth) due to efficiency from PSR (Precision Scheduled Railroading) but a lesser 4.9pp to 51.4% in 2010-22E (16% of EBITDA growth) in 2010-22E (Fig. 21). EBITDA margin to rise from 51.0% in 2022E to 63.8% in 2050E (27% of EBITDA growth).
- PSR raised efficiency in early 2000s:** PSR involves point-to-point freight car movements on simplified routing networks, with fixed schedules and longer mixed product trains. PSR raises asset intensity of locomotives and freight cars kept on the move, with less employees. Pioneered by Hunter Harrison from 1993, including when CEO of CN in 2003-09.
- CN screens slightly less efficient than CP & UP:** CN earned EBITDA margins of 50.8%, 240-300bps below CP at 53.8% & UP at 53.2% but in line with NS at 50.5% in 2021 (Fig. 22). CN's operating ratio of 60.3% slightly above CP at 56.3% & UP at 56.9% in 2021 but in line with NS at 60.1% (Fig. 23). CN's opex/GTM (US\$ cents) was 1.52 moderately above CP at 1.32, in line with UP at 1.52 but below NS at 1.97 in 2021 (Fig. 24). Thus, CN may have slightly higher scope for efficiency improvement than CP (not yet covered by Insight).
- High ROIC:** CN's adjusted ROIC post-tax averaged 15.7% in 2015-19, then dipped during Covid to a still resilient 13.4% in 2020 but we estimate an increase to 16.5% in 2022E and reaching 19.8% in 2025E, substantially above our WACC of 7.0% (Fig. 25). CN's Recurring FCF return[^] to follow a similar profile, reaching 17.4% in 2023E.

Fig. 21: EBITDA growth from revenue & margins

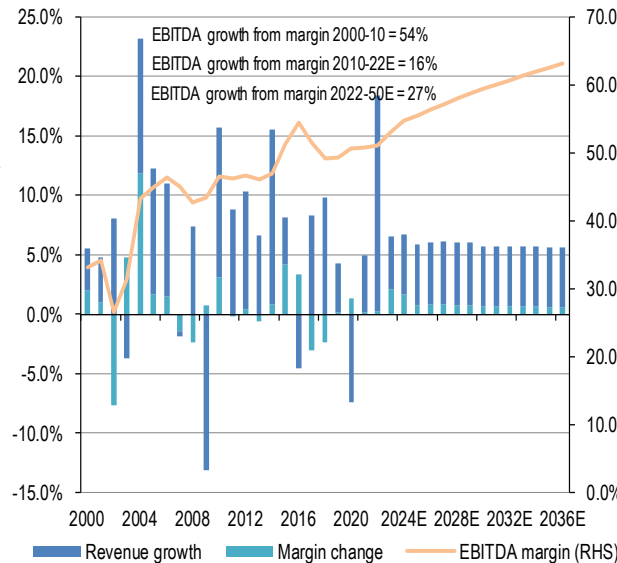


Fig. 22: EBITDA margin vs. peers*

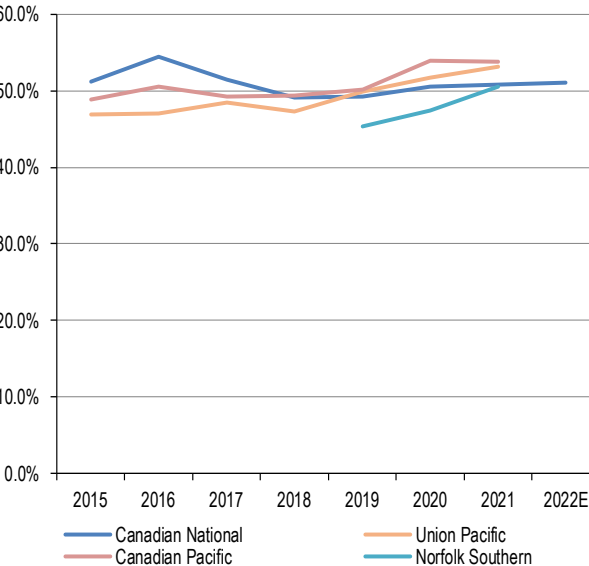


Fig. 23: Operating ratio vs. peers**

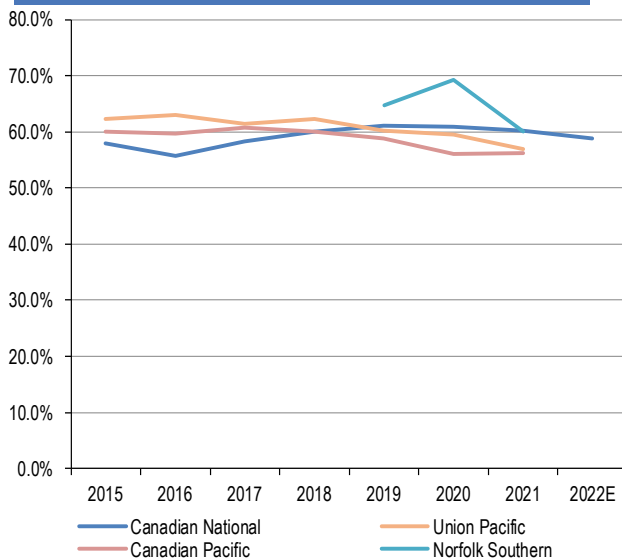


Fig. 24: Opex per GTM vs. peers (US\$)

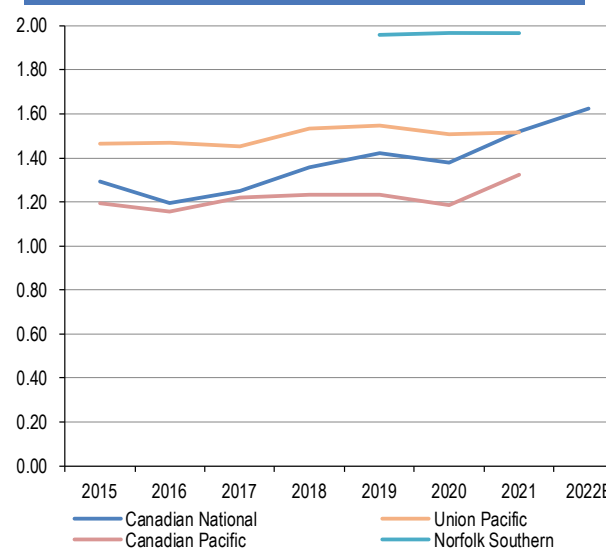
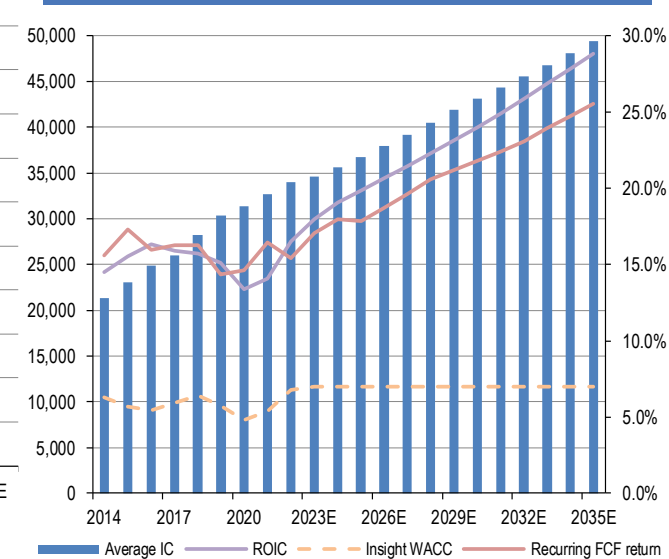


Fig. 25: Adjusted ROIC post tax & Recurring FCF return[^]



* Adjusted EBITDA for CN ex. one off items, notably in 2020-21. ** Operating ratio = Total opex (incl. depreciation)/ revenues. GTM = Gross ton miles. ^ Recurring FCF return = Recurring FCF/ average capital employed.

UP = Union Pacific. CP = Canadian Pacific. NS = Norfolk Southern.

2. Scope to continue raising efficiency, impressive returns on capital

b) Efficiency gains from new Digital Scheduled Railroading

- CN developing Digital Scheduled Railroading:** CN pioneered Precision Scheduled Railroading in the early 2000.s. In December 2021 CN signed a 7 year strategic partnership with Google to deploy Digital Scheduled Railroading, focusing on better connectivity with customers and supply chain partners to improve planning, shipping, tracking, payments, move applications from on premises to the cloud, raise efficiency and enhance predictive maintenance capabilities.
- Limited increase in opex/GTM:** Opex/GTM increased 2.3% CAGR, 50bps above blended average Canadian and US CPI at 1.8% in 2014-21. Opex/GTM fell in 2021 as volumes recovered post Covid but then increased sharply as CPI accelerated to +6.9% in Canada and +8.0% in US in 2022E (Fig. 26). Given operating leverage from continued volume growth, further efficiencies and some fall in diesel prices, opex/GTM to increase only 1.3% CAGR in 2022-50E.
- Car velocity & through dwell time improving in 2020-22E:** Car velocity risen from 149 miles/day in 2000, to 185 miles/day in 2020, to 199 miles/day in 2022E and through dwell time reduced from 8.2 hours in 2020 to 7.8 hours in 2022E (Fig. 27).
- Fuel efficiency rising but higher recent fuel price:** Fuel consumption fell from 0.94 in 2017 to 0.86 gallons of fuel/1,000 GTM in 2022E (Fig. 28). However, CN's average fuel price of C\$2.74 in 2017, increased to C\$5.41 at 9M 2022 (Fig. 28, Fig. 30). CN's in-house-built Horsepower Tonnage Analyzer leverages big data to optimise a locomotive's horsepower to tonnage ratio.

Fig. 26: Opex/GTM & labour cost/GTM*

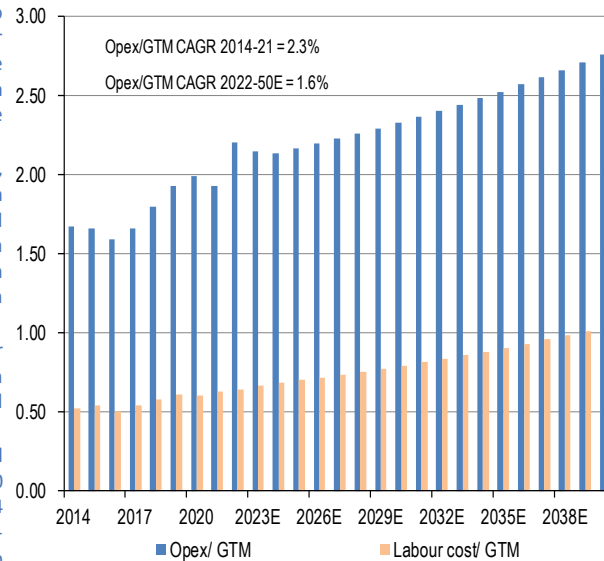


Fig. 27: Car velocity & through dwell time

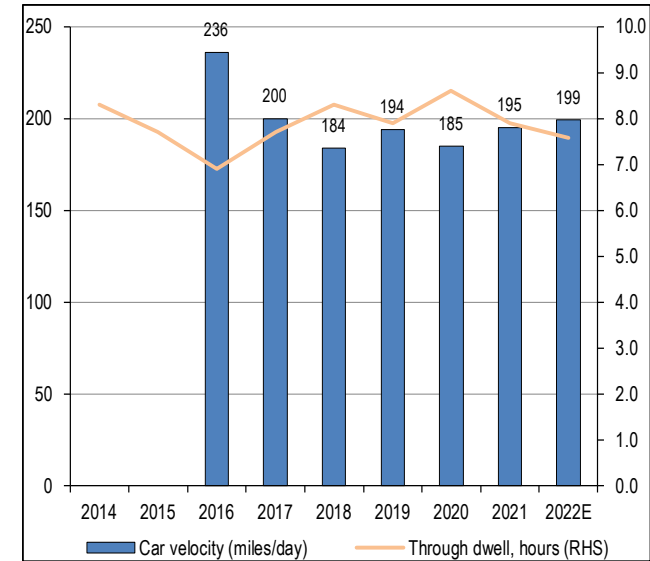


Fig. 28: Fuel efficiency & average fuel price (gallons, C\$)**

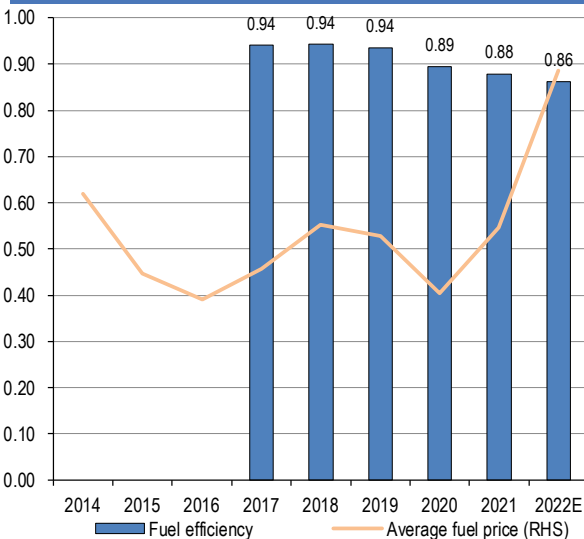


Fig. 29: Weekly velocity & through dwell time

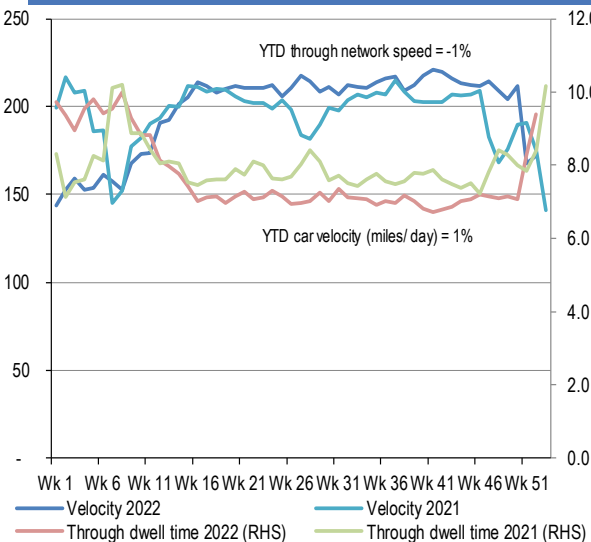
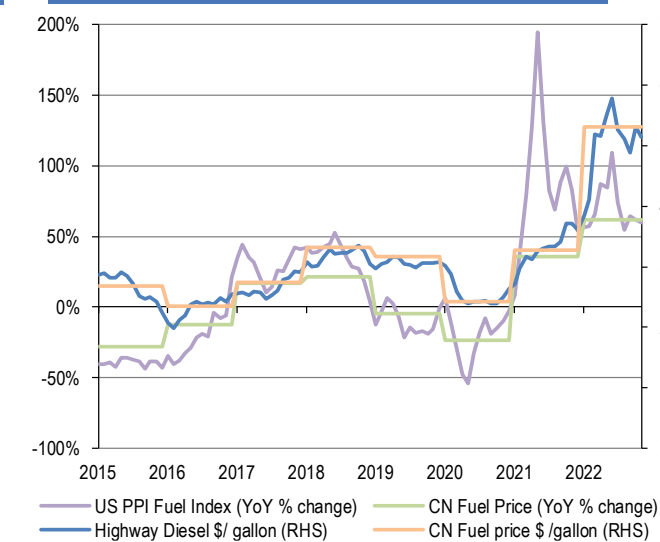


Fig. 30: CN, US PPI & highway diesel prices



3. Continued strong growth in FCF & shareholder remuneration

Decent EBITDA growth, high FCF conversion to lead to DPS growth & continued share buybacks

- Strong Op. FCF growth:** Op FCF growth to be driven by EBITDA growth from decent revenue growth (volumes, pricing) and some further EBITDA margin enhancement. Interest costs relatively low given low leverage and relatively fixed rates (Fig. 31).
- High EBITDA conversion to Recurring FCF*:** Some 60-65% of EBITDA to be converted to Recurring FCF, post maintenance capex at 0.8-1.0x depreciation and average 8.1% of revenues in 2022-35E (Fig. 32).
- Rising Recurring FCF:** Reasonable base Recurring FCF of C\$6.0bn in 2023E, derived from Op FCF post interest & tax of C\$7.6bn minus maintenance capex of C\$1.6bn. Recurring FCF to rise 5.3% CAGR from C\$5.9bn in 2022E to C\$10.4bn in 2030E, to lead to Recurring FCF yield rising from 5.0% in 2023E to 7.7% in 2030E (Fig. 33).
- Share buybacks accelerated in 2022E:** Share buybacks averaged C\$1.9bn pa in 2017-21, then increased to a record C\$3.6bn in 9M 2022E (Fig. 34). Share buybacks broadly 55% and dividends 45% of shareholder remuneration in 2017-22E. Buybacks have been highly value accretive as share price risen 172% from C\$60.2 on average in 2014 to C\$167 and number of shares reduced -11% in 2017-22E.
- DPS growth & continued buybacks to lead to rising remuneration yield:** Our payout ratio rises from 40% to 55%, with DPS 18% CAGR and share buybacks to average C\$2.2bn pa in 2023-26E. Remuneration (DPS + buybacks) to grow 6.5% CAGR in 2023-50E (Fig. 35). Remuneration yield to rise from 5.2% in 2022E to 5.8% in 2025E & 11.2% in 2030E. We assume all equity FCF distributed as dividends with no more buybacks after 2026E.

Fig. 31: FCF & uses

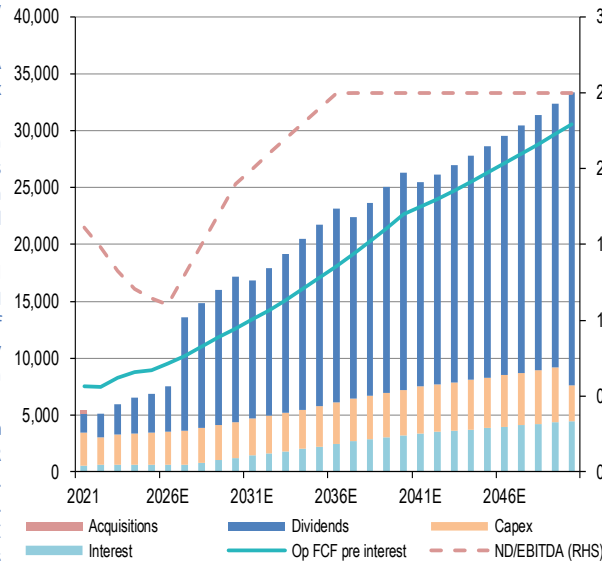


Fig. 32: EBITDA to Recurring FCF conversion

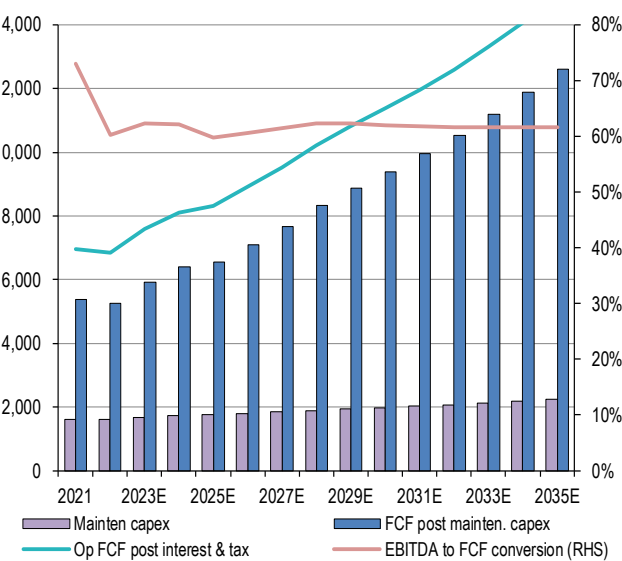


Fig. 33: Recurring FCF & yield*

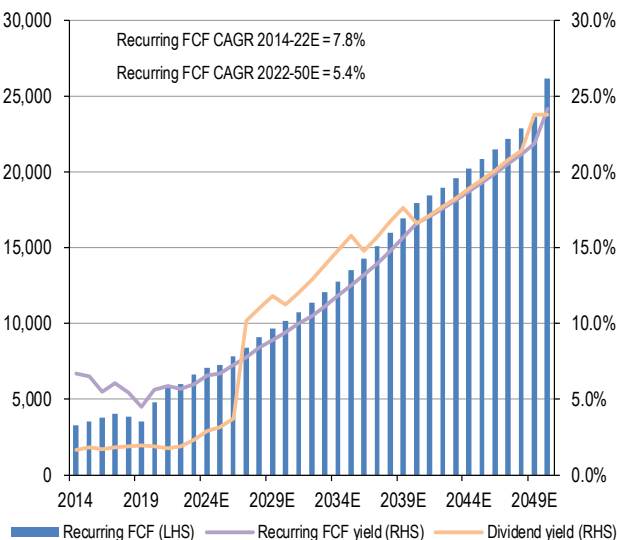


Fig. 34: Dividends & share buybacks

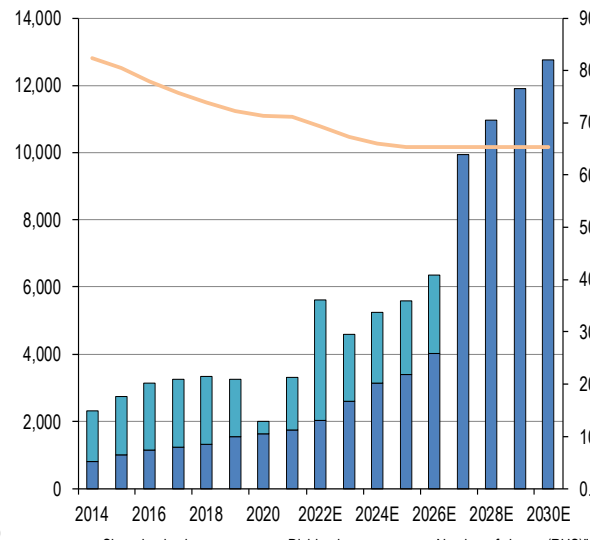
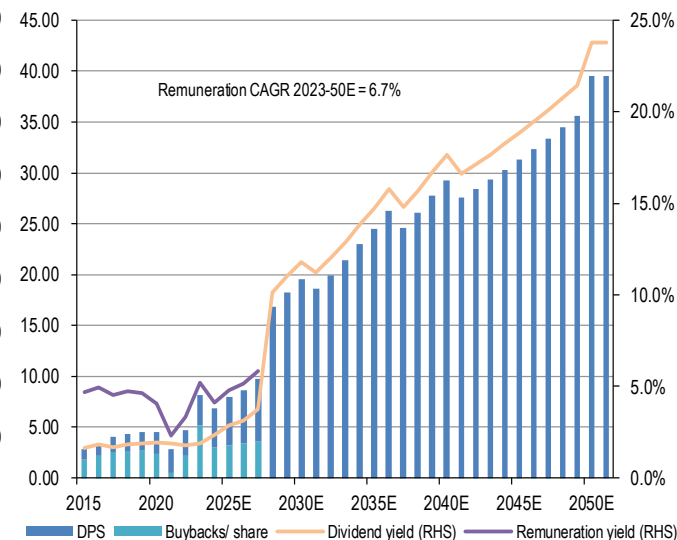


Fig. 35: DPS, buybacks & dividend yield/ remuneration yield**



* Recurring FCF post interest, tax & maintenance capex.

** Remuneration yield = DPS + share buybacks per share/ market cap

- EBITDA
- Revenue growth from volumes & prices:** Revenues +4.3% CAGR, driven by volumes (RTM) +1.4% CAGR (0.69x GDP growth) in 2022-50E and prices (freight revenue/RTM) averaging +3.4% pa in 2023-40E (blended Canadian & US CPI +1.5%), then 2.4% in 2040-50E (CPI +0%).
 - EBITDA growth:** Adj. EBITDA +5.2% pa in 2023-50E, driven by revenues +4.3% pa (volumes +1.4% pa, prices +2.9% pa) and EBITDA margins +12.8pp from 51.0% in 2022E to 63.8% in 2050E (enhancement +46bps pa over 28 years).
 - Opex growth below volumes + CPI due to efficiencies:** Opex +3.0% CAGR in 2022-50E due to inflation and higher volumes, part offset by efficiencies. Opex/GTM +1.6% CAGR, below blended average Canadian & US CPI at 2.3% pa due to efficiencies in 2022-50E.
 - Interest rate:** Interest rate on net debt to rise slightly from 4.5% in 2021 to 5.0% in 2022-50E.
 - Tax rate maintained:** We assume tax rate of 23% in 2021, that continues in 2022-50E.
- FCF & COC
- Relatively high capex:** We forecast total capex individually by item (track, rolling stock etc.), which in total increases 2.4% CAGR, averaging 1.55x depreciation and 10% of revenues in 2022-49E. Capex a higher 13-15% of revenues in 2022-27E. We assume maintenance capex at 1.0x depreciation and the balance is expansion capex in 2022-50E.
 - Rising shareholder remuneration:** We assume share buybacks of C\$2.0-2.3bn pa in 2022-26E and payout ratio to rise from 40% in 2022E to 55% in 2026E, then all equity FCF distributed, with some additional distributions from ND/EBITDA rising moderately from 1.1x in 2026E to 2.5x in 2036E.
 - WACC of 7.0%** (Fig. 37): Cost of equity (Ke) of 7.6% and pre-tax cost of debt (Kd) LT of 4.57%, similar to CN average LT corporate bond trading yields of 4.6%. Risk Free Rate from current blended 10YR Canadian & US bond yields of 3.07% (blended by location of revenues). Our Asset beta relatively high at 0.80 given relatively high levered betas of Railroads and our standard developing market risk premium of 5.0%.
 - Important TV in 2050E:** Detailed financial forecasts to 2050E, then we derive a Terminal Value of FCF after 2050E at 29-34% of our valuation, equating to an exit EV/EBITDA of 12.4-13.4x in 2050E.

Resultant valuation

- Our CN DDM based equity valuation is C\$234bn & our TP C\$360** (+116% upside Fig. 36): Our TP implies an EV/EBITDA of 24.0x in 2024E, reducing to 17.3x in 2030E given high EBITDA growth.
- CN 4th of 24 on Stock Ranking System**, after Ferrovial, Cellnex and Getlink. Stocks mainly ranked on upside from share price to our DDM/ DCF determined TP.s, our investment philosophy is “asset level bottom up”.
- High IRR:** IRR at current share price of 11.6%, 460bps above our Ke of 7.0%. IRR at Insight valuation/fair value of 7.1%, broadly in line with our Ke.
- High bond yield sensitivity:** First +100bps rise in blended US & Canadian 10YR bond yields reduces our valuation by -18% or C\$64/share or C\$42bn, via higher COC/discount rate (Fig. 38, Fig. 39). Our valuation is sensitive to volumes with +100bps on RTM in 2025-50E our valuation rises 23% or (C\$81/share) and with +100bps on prices in 2025-40E our valuation rises 23% (C\$53/share).
- CN substantially undervalued by Sell Side consensus:** Consensus TP of C\$172, some -53% below our Insight TP. Buys are only 26% of recommendations (9 Buys, 22 Holds, 3 Sells). Our research survey reveals CN is typically covered by transport analysts, focused on assessing coming quarters EPS, then applying a historic P/E trading multiple to derive a TP, which we consider sub-optimal as it: **a) Extrapolates near term earnings** (dependent on non-cash depreciation) over life of a perpetual asset. **b) Not FCF based:** We determine fundamental value by forecasting lifetime FCF discounted by a risk adjusted COC. A DCF valuation is particularly appropriate for CN, given FCF pre-capex of C\$6.9bn, much higher than net income of C\$5.2bn in 2022E. **c) Assumes historical P/E multiple is correct:** Annualised returns of 17% pa in 2010-22 suggest it is not.

Fig. 36: CN valuation summary (C\$)			Fig. 37: CN WACC			Fig. 38: TP sensitivity to assumptions								Fig. 39: TP sensitivity to assumptions summary			
	Fixed WACC DCF	DDM												Variable	Per share	%	Value impact
Sum of EV DCF FCF	225,553	246,843	Equity			Asset beta								Bond yields			
Net debt	(12,429)	(12,429)	Proportion of equity	85%		0.65	0.70	0.75	0.80	0.85	0.90	0.95		+100bps on bond yields	(64)	-18%	(41,689)
Equity value	213,124	234,414	- RFR (blended 10 YR bond yield)	3.05%		1.55%	633	587	548	513	482	454	429	+200bps on bond yields	(112)	-31%	(72,957)
Number of shares	651.40	651.40	- Risk premium	5.0%		2.05%	545	510	479	451	427	404	384	Average for +100bps on bond yield	(56)	-16%	(36,478)
Valuation per share	327	360	- Asset beta	0.80		2.55%	476	449	424	401	381	362	346	+0.10 on asset beta	(32)	-9%	(20,845)
Share price 18 January 2023, 16:03	166.7	166.7	- Levered beta	0.91		3.05%	421	399	378	360	343	328	313	Revenue drivers			
Premium (discount)	96%	116%	- Cost of equity	7.6%		4.05%	376	357	340	325	311	298	286	+100bps on RTM growth 2025-50E	81	23%	52,763
Implied 2024E EV/ EBITDA at TP	20.7	24.0	Debt			4.55%	338	323	308	296	284	272	262	+100bps on prices 2025-40E	87	24%	56,672
Recurring FCF yield at TP	2.7%	2.7%	Proportion of debt	15%		5.05%	306	293	281	270	260	250	241	+100bps on CPI 2025-50E	65	18%	42,341
Net debt/ EV	6%	5%	- Risk free rate	3.05%													
Value in TV	34%	29%	- Credit spread	1.50%		Base RTM growth lifetime											
Exit EV/ EBITDA in 2050E	12.4	13.5	- Pre-tax cost of debt	4.55%		0.00%	141	169	204	248	304	373	460				
IRR at share price		11.6%	- Tax rate	23%		0.50%	160	192	233	283	347	426	526				
Cost of equity (Ke)		7.0%	- Cost of debt	3.51%		1.00%	181	217	263	320	392	482	595				
IRR - Ke		4.65%	WACC	7.0%		1.50%	202	244	295	360	441	543	670				
IRR at Insight valuation		7.1%				2.00%	225	272	330	402	493	607	750				
Canadian grain regulated of revenues		6%				2.50%	250	302	366	447	548	676	835				
RFR blended Canadian & US 10YR bond yields weighted by source of revenues						3.00%	276	333	405	495	608	749	926				
						3.50%	304	367	447	546	671	827	1,024				

- Railroad levered betas relatively consistent over time periods:** Bloomberg levered betas averaged across 4 main N. American Railroads 0.88 over 5 years & 0.90 over 10 years, with CN similar at 0.90 over 5 years & 0.89 over 10 years (Fig. 40, Fig. 41).
- Railroad asset betas mid range in Infrastructure:** We estimate de-levered asset betas averaged for Railroads 0.75 over 5 years & 0.76 over 10 years (Fig. 41), below Airports at 0.91 over 5 years (Covid impacted) & 0.77 over 10 years and slightly below Contractors but above Toll Roads at 0.61 over 5 years (Covid impacted) & 0.54 over 10 years (Fig. 42) but Towers at only 0.52 over 5 years.
- Railroad asset betas below where cyclical cargos may suggest:** Although volumes of product groups carried by CN exhibit cyclicity CN's asset beta of c.0.90 still meaningfully below the market at 1.00.
- CN close to average WACC in developed market infrastructure:** For Railroads, including CN, we estimate an asset beta of 0.80 in our WACC, above Airports at 0.65, Toll Roads at 0.55 and Towers at 0.50. We derive our CN RFR from blended Canadian & US 10YR bond yields of 3.05%, leading to our WACC of 7.0%, in line with our average for developed market Global Infrastructure (Fig. 43).
- CP share price outperformed other railroads:** CP's share price risen +115%, above other Railroads, including CN, a lesser but still decent 64-83% in 5 years from 2018-23 (Fig. 44).

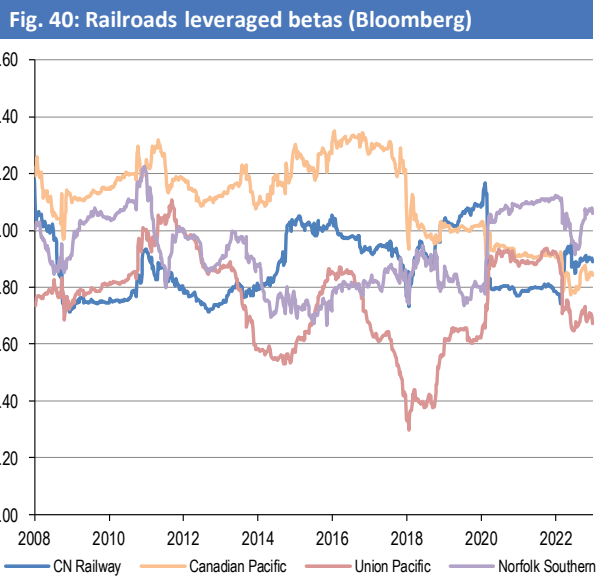
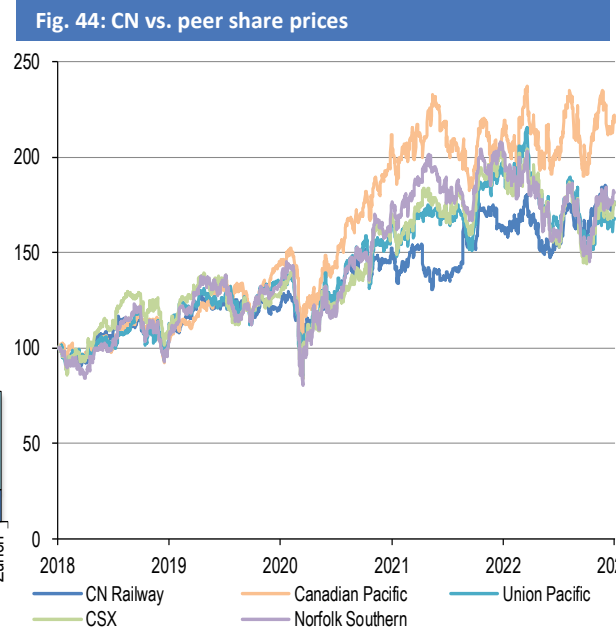
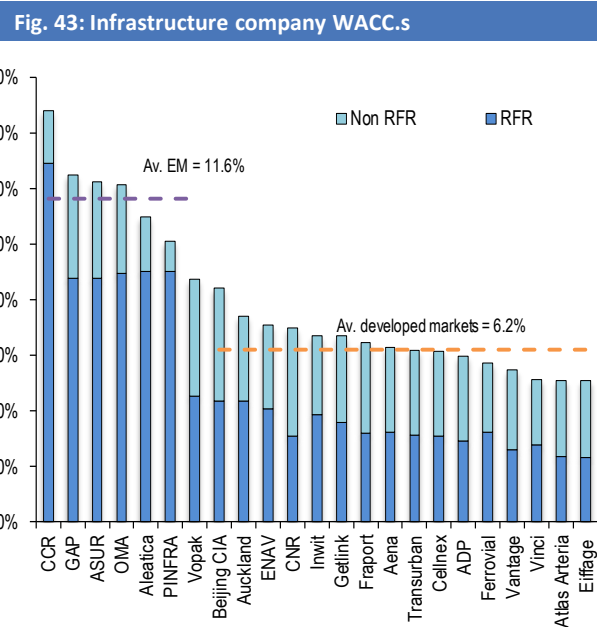
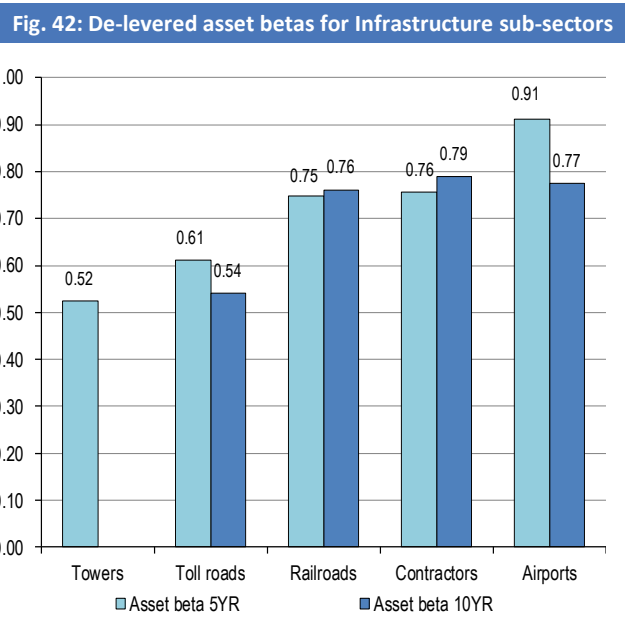


Fig. 41: Conversion of levered to unlevered betas

Railroads	Leveraged betas		Capital structure (D/E)		Tax rate	Asset betas	
	5 year	10 year	5 year	10 year		5 year	10 year
CAN NATL RAIL	0.90	0.89	15%	17%	23%	0.81	0.79
CAN PAC RAIL	0.94	1.09	27%	27%	23%	0.78	0.90
Union Pacific Corp	0.71	0.72	24%	24%	23%	0.60	0.60
Norfolk Southern	0.96	0.89	24%	24%	23%	0.81	0.75
Average Railroads	0.88	0.90	23%	23%	23%	0.75	0.76



* Bloomberg consensus data for Railroad peers (CP, UP & NS) not covered by Insight. CP = Canadian Pacific, UP = Union Pacific. NS =Norfolk Southern.

- CN trading EV/EBITDA above history:** CN trades on an FY2E EV/EBITDA of 12.0x, moderately above its 21 year average of 10.2x in 2001-22E (Fig. 45) but has a well proven LT record.
- CN trades on EV/EBITDA above US peers but below CP:** On 2024E CN trades on an EV/EBITDA of 11.6x, slightly below CP on 12.6x but above UP on 10.0x, NS on 10.0x & CIX on 8.5x (Fig. 46).
- CN's dividend yield trades in relatively tight range:** CN traded within a dividend yield of 1.7-2.6% in last 9 years in 2013-22E (Fig. 47). CN's DPS consistently risen from C\$1.00 in 2014 to C\$2.93 in 2022E but share price risen similarly, leading to dividend yield remaining range bound mostly at 2.0-3.0%.
- Total remuneration key:** Total remuneration includes dividends (typically c.45%) + share buybacks (typically 55%), thus remuneration yield of 5.6%, broadly 2.5x dividend yield of 1.9% in 2022E (Fig. 47).
- CN share price lowly correlated to bond yields:** CN's share price consistently risen but low correlation to inverse 10YR Canadian bond yields, which fell in 2019-20 then increased since mid 2021 (Fig. 49).
- CN, UP CIX market caps above peers:** CN, UP and CIX at market caps of €77bn, €121bn and €63bn above CP at €51bn and NS at €55bn (Fig. 50).

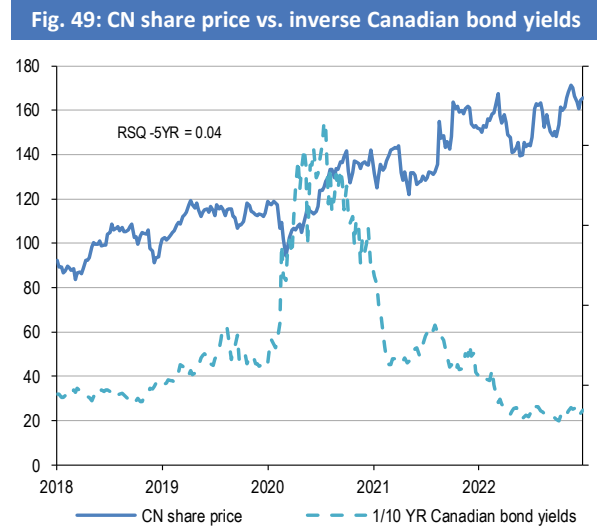
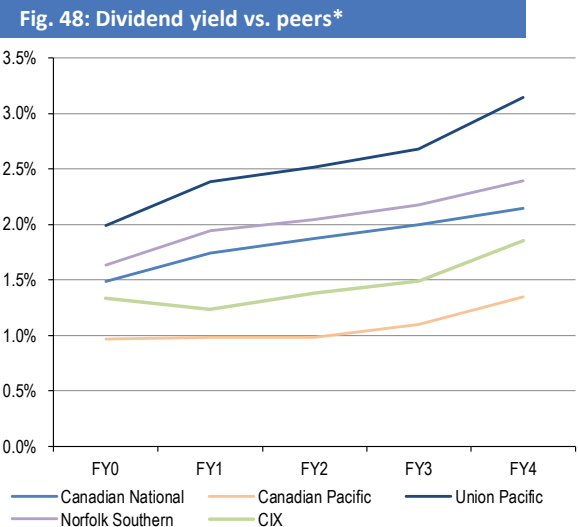
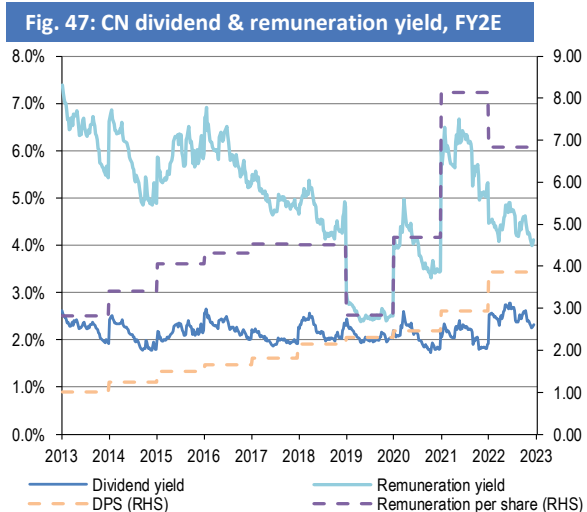
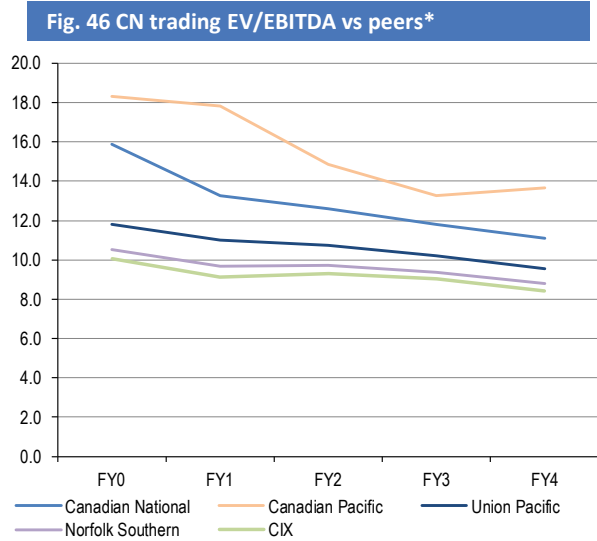
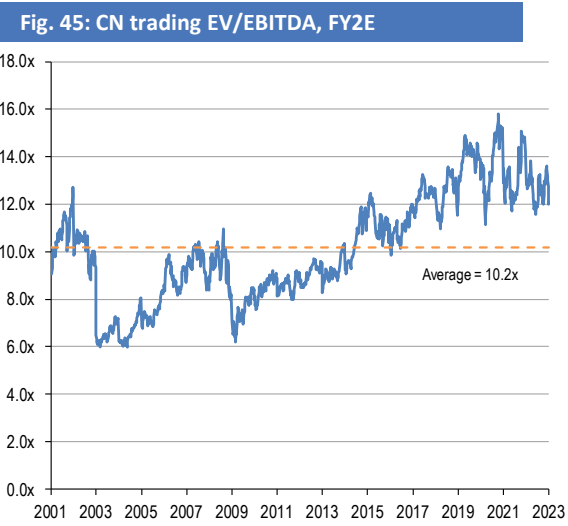


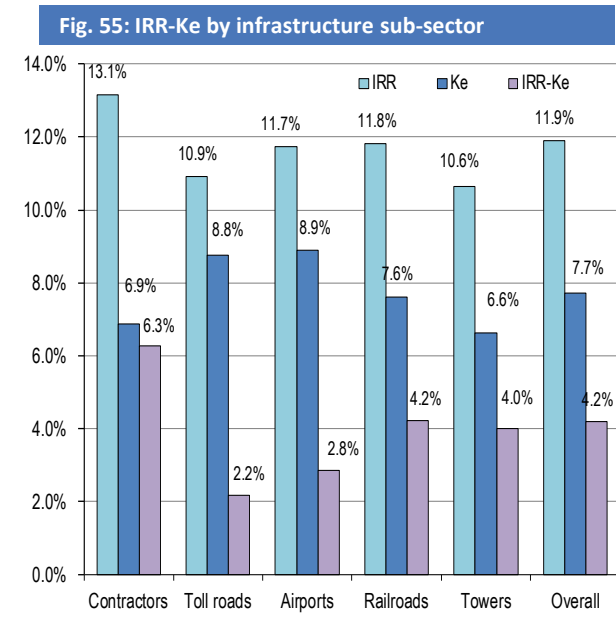
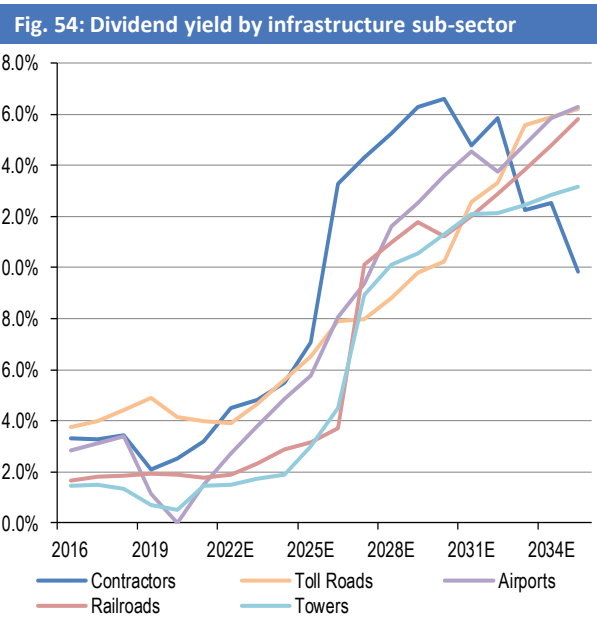
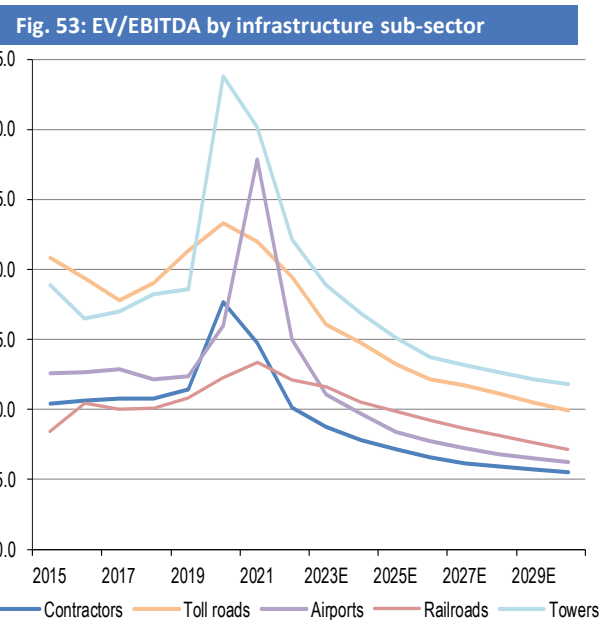
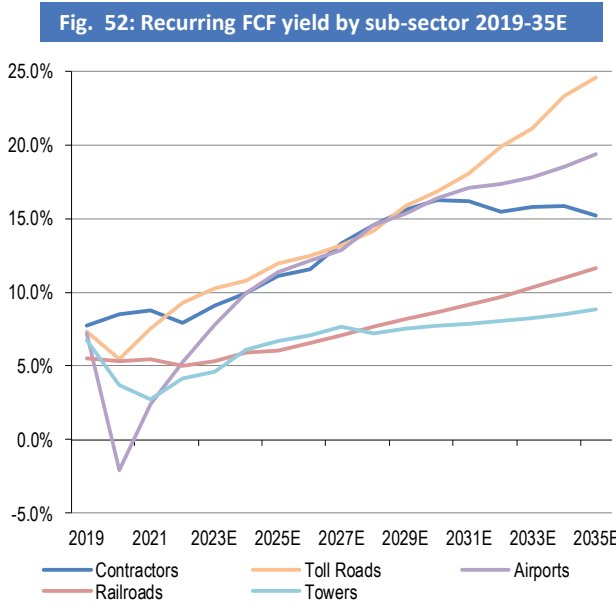
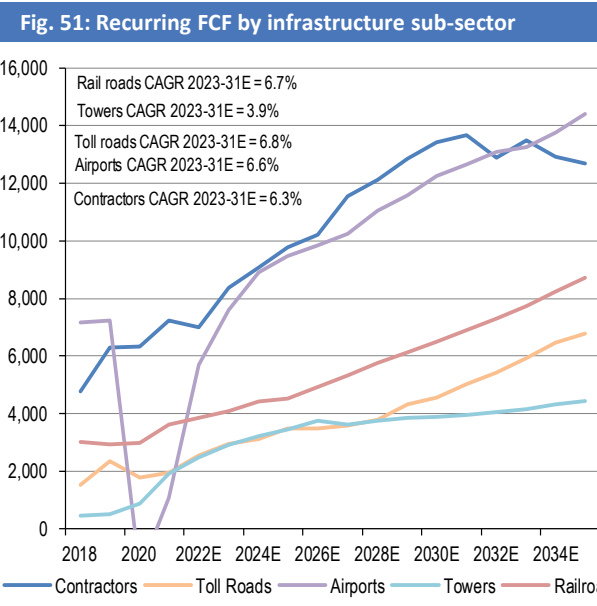
Fig. 50: Railroads consensus valuation data

Railroads	Country	Sh. price (local)	Market cap (local)	Market cap (€m)	Free float
Canadian National Railway	Canada	166.0	111,989	77,306	100%
Canadian Pacific Railway	Canada	79.1	73,602	50,807	100%
Union Pacific Corp	US	213.2	131,094	121,223	96%
Norfolk Southern	US	255.1	59,066	54,619	100%
CSX Corp	US	32.4	68,160	63,028	100%
America weighted average				303,955	

* Bloomberg consensus data for Railroad peers (CP, UP, CSX & NS) not covered by Insight. CP = Canadian Pacific, UP = Union Pacific. NS =Norfolk Southern.

Valuation of Railroads decently positioned overall vs. other Infrastructure sub-sectors

- Railroads decent Recurring FCF growth in 2023-31E:** Railroads Recurring FCF CAGR of 6.7%, in line with Airports 6.6% (recovering from pandemic) and Toll Roads 6.8% but moderately above Contractors 6.3% and substantially above Towers 3.9% (Fig. 51).
- Railroads Recurring FCF yield below other transport infrastructure:** Our Railroads Recurring FCF yield of 5.4%, below Towers at 6.7% but more substantially below other transport infrastructure at 9-10% in 2023E (Fig. 52). Recurring FCF yield of Railroads moves above Towers in c.2030E and closes part of gap with Contractors by 2035E (expiry of larger French toll roads).
- Railroads EV/EBITDA below other sub-sectors:** Railroads trades on an EV/EBITDA of 10.6x in 2024E, below other sub-sectors, except Contractors (7.7x) and the differential between sub-sectors is maintained to 2030E (Fig. 53).
- Railroads dividend yield relatively low:** Railroads dividend yield of 2.9% in 2024E, rising to 3.7% in 2026E below other sub-sectors except Towers (substantial Railroad share buybacks key to shareholder remuneration not included here) but to rise to 11.0% in 2028E (as CN model distributes all FCF from 2027E, Fig. 54).
- Railroads 2nd highest IRR-Ke spread:** Railroads high IRR of 11.8%, above relatively low Ke of 7.6%, thus an IRR-Ke of 420bps, above most sub-sectors, Towers 400bps, Airports 280bps and Toll Roads 220bps, except Contractors 690bps (Fig. 55).



* Recurring FCF post interest, tax & maintenance capex. For Railroads we assume maintenance capex at 0.80x depreciation despite high total capex.

DCF summary: Strong lifetime FCF growth, real COC still relatively low vs. LT history

	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	2036E	2037E	2038E	2039E	2040E	CAGR 2022-50E
Blended Canada & US GDP	-4.7%	4.9%	2.8%	1.3%	1.5%	2.1%	1.9%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	
Blended Canada & US CPI	0.9%	3.8%	7.2%	3.9%	2.3%	1.9%	1.9%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	
Intermodal																						
Revenues	3,751	4,115	4,975	5,227	5,507	5,809	6,136	6,482	6,847	7,233	7,641	8,071	8,526	9,007	9,514	10,050	10,617	11,215	11,847	12,514	13,155	4.8%
% change	-1.0%	9.7%	20.9%	5.1%	5.4%	5.5%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.6%	5.1%	
Revenue Ton Miles (RTMs)	59,165	58,412	56,952	58,091	59,253	60,438	61,646	62,879	64,137	65,420	66,728	68,063	69,424	70,812	72,229	73,673	75,147	76,649	78,182	79,746	80,942	1.8%
% change	1.4%	-1.3%	-2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.5%	
Revenue/ RTM (cents)	6.34	7.04	8.74	9.00	9.29	9.61	9.95	10.31	10.68	11.06	11.45	11.86	12.28	12.72	13.17	13.64	14.13	14.63	15.15	15.69	16.25	3.0%
% change	-2.3%	11.1%	24.0%	3.0%	3.3%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Grain & fertilizers																						
Revenues	2,609	2,475	2,643	2,886	3,062	3,246	3,441	3,653	3,878	4,116	4,370	4,638	4,924	5,227	5,548	5,861	6,191	6,540	6,909	7,298	7,709	5.0%
% change	9.1%	-5.1%	6.8%	9.2%	6.1%	6.0%	6.0%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	6.2%	5.8%	5.8%	5.8%	5.8%	5.8%	5.8%	
Revenue Ton Miles (RTMs)	61,736	58,733	52,272	55,409	57,071	58,498	59,960	61,459	62,996	64,571	66,185	67,839	69,535	71,274	73,056	74,517	76,007	77,527	79,078	80,659	82,273	2.0%
% change	11.0%	-4.9%	-11.0%	6.0%	3.0%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	
Revenue/ RTM (cents)	4.23	4.21	5.06	5.21	5.36	5.55	5.74	5.94	6.16	6.37	6.60	6.84	7.08	7.33	7.59	7.87	8.15	8.44	8.74	9.05	9.37	3.0%
% change	-1.8%	-0.3%	20.0%	3.0%	3.0%	3.4%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Petroleum & chemicals																						
Revenues	2,631	2,816	3,312	3,513	3,727	3,914	4,108	4,318	4,539	4,771	4,991	5,220	5,460	5,712	5,974	6,249	6,537	6,837	7,152	7,481	7,825	4.2%
% change	-13.8%	7.0%	17.6%	6.1%	6.1%	5.0%	5.0%	5.1%	5.1%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	4.6%	
Revenue Ton Miles (RTMs)	43,556	42,436	47,528	48,954	50,423	51,179	51,947	52,726	53,517	54,320	54,863	55,411	55,966	56,525	57,091	57,661	58,238	58,820	59,409	60,003	60,603	1.2%
% change	-19.3%	-2.6%	12.0%	3.0%	3.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	
Revenue/ RTM (cents)	6.04	6.64	6.97	7.18	7.39	7.65	7.91	8.19	8.48	8.78	9.10	9.42	9.76	10.10	10.46	10.84	11.22	11.62	12.04	12.47	12.91	3.0%
% change	6.9%	9.9%	5.0%	3.0%	3.0%	3.4%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Metals & minerals																						
Revenues	1,409	1,548	1,923	2,040	2,164	2,283	2,408	2,544	2,688	2,839	2,984	3,137	3,298	3,466	3,644	3,830	4,026	4,232	4,449	4,676	4,916	4.7%
% change	-14.2%	9.9%	24.2%	6.1%	6.1%	5.5%	5.5%	5.6%	5.6%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	5.1%	
Revenue Ton Miles (RTMs)	21,561	26,743	27,679	28,509	29,365	29,952	30,551	31,162	31,785	32,421	32,907	33,401	33,902	34,410	34,927	35,450	35,982	36,522	37,070	37,626	38,190	1.7%
% change	-15.3%	24.0%	3.5%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%	
Revenue/ RTM (cents)	6.53	5.79	6.95	7.15	7.37	7.62	7.88	8.16	8.46	8.76	9.07	9.39	9.73	10.07	10.43	10.80	11.19	11.59	12.00	12.43	12.87	3.0%
% change	1.2%	-11.4%	20.0%	3.0%	3.0%	3.4%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Forest products																						
Revenues	1,700	1,740	1,992	1,855	1,897	1,982	2,070	2,165	2,264	2,369	2,465	2,566	2,671	2,780	2,893	3,011	3,134	3,262	3,395	3,534	3,678	3.1%
% change	-6.0%	2.4%	14.5%	-6.9%	2.3%	4.5%	4.5%	4.8%	4.8%	4.6%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	
Revenue Ton Miles (RTMs)	25,602	25,948	25,170	24,414	24,170	24,412	24,656	24,903	25,152	25,403	25,530	25,658	25,786	25,915	26,045	26,175	26,306	26,437	26,570	26,702	26,836	0.4%
% change	-5.8%	1.4%	-3.0%	-3.0%	-1.0%	1.0%	1.0%	1.0%	1.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
Revenue/ RTM (cents)	6.64	6.71	7.91	7.60	7.85	8.12	8.39	8.69	8.90	9.32	9.66	10.00	10.36	10.73	11.11	11.50	11.91	12.34	12.78	13.23	13.71	2.7%
% change	-0.2%	1.0%	18.0%	-4.0%	3.3%	3.4%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Automotive																						
Revenues	591	576	775	822	864	903	943	986	1,031	1,079	1,123	1,169	1,216	1,266	1,318	1,372	1,428	1,486	1,546	1,610	1,675	3.7%
% change	-31.1%	-2.5%	34.6%	6.1%	5.1%	4.5%	4.5%	4.6%	4.6%	4.6%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	
Revenue Ton Miles (RTMs)	2,597	2,395	2,778	2,862	2,919	2,948	2,977	3,007	3,037	3,068	3,083	3,098	3,114	3,129	3,145	3,161	3,177	3,193	3,209	3,225	3,241	0.7%
% change	-30.5%	-7.8%	16.0%	3.0%	2.0%	1.0%	1.0%	1.0%	1.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
Revenue/ RTM (cents)	22.76	24.05	27.90	28.74	29.60	30.62	31.68	32.79	33.96	35.17	36.42	37.72	39.07	40.46	41.90	43.39	44.94	46.54	48.20	49.92	51.70	3.0%
% change	-0.9%	5.7%	16.0%	3.0%	3.0%	3.4%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Coal																						
Revenues	527	618	943	990	1,010	1,050	1,091	1,136	1,182	1,231	1,281	1,333	1,387	1,444	1,503	1,564	1,628	1,695	1,764	1,836	1,911	3.5%
% change	-19.9%	17.3%	52.5%	5.1%	2.0%	4.0%	3.9%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	
Revenue Ton Miles (RTMs)	16,173	18,421	22,904	23,362	23,362	23,479	23,596	23,714	23,833	23,952	24,072	24,192	24,313	24,435	24,557	24,680	24,803	24,927	25,052	25,177	25,303	0.5%
% change	-8.4%	14.2%	24.0%	2.0%	0.0%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	
Revenue/ RTM (cents)	3.26	3.35	4.12	4.24	4.32	4.47	4.63	4.79	4.96	5.14	5.32	5.51	5.71	5.91	6.12	6.34	6.56	6.80	7.04	7.29	7.55	2.9%
% change	-12.6%	2.7%	23.0%	3.0%	2.0%	3.4%	3.4%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	3.6%	
Total																						
Revenues	13,819	14,477	17,110	17,881	18,786	19,754	20,776	21,874	23,032	24,252	25,481	26,774	28,134	29,566	31,072	32,629	34,266	35,986	37,795	39,697	41,631	4.4%
% change	-7.4%	4.8%	18.2%	4.5%	5.1%	5.1%	5.2%	5.3%	5.3%	5.3%	5.1%	5.1%	5.1%	5.1%	5.1%	5.0%	5.0%	5.0%	5.0%	5.0%	4.9%	
Revenue Ton Miles (RTMs)	230,390	233,138	235,283	241,601	246,562	250,905	255,334	259,851	264,457	269,154	273,368	277,663	282,400	286,501	291,048	295,317	299,659	304,076	308,568	313,138	317,387	1.5%
% change	-4.8%	1.2%	0.9%	2.7%	2.1%	1.8%	1.8%	1.8%	1.8%	1.8%	1.6%	1.6%	1.6%	1.6%	1.5%	1.5%	1.5%	1.5%	1.5%	1.4%		
Revenue/ RTM (cents)	5.74	5.96	7.04	7.17	7.39	7.65	7.91	8.19	8.48	8.78	9.09	9.41	9.74	10.09	10.44	10.81	11.20	11.60	12.01	12.44	12.88	2.9%
% change	-2.2%	3.8%	18.2%	1.9%	3.1%	3.4%	3.4%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.5%	3.6%	3.6%	3.6%	3.6%	3.6%	3.5%	
DCF																						
Adjusted EBITDA	6,995	7,351	8,730	9,494	10,285	10,965	11,708	12,503	13,348	14,243	15,137	16,082	17,083	18,142	19,264	20,421	21,645	22,937	24,303	25,746	27,205	
% change	-4.9%	5.1%	18.8%	8.8%	8.3%	6.6%	6.8%	6.8%	6.8%	6.7%	6.3%	6.2%	6.2%	6.2%	6.2%	6.0%	6.0%	6.0%	6.0%	5.9%	5.7%	
EBITDA margin	50.6%	50.8%	51.0%	53.1%	54.7%	55.5%	56.4%	57.2%	58.0%	58.7%	59.4%	60.1%	60.7%	61.4%	62.0%	62.6%	63.2%	63.7%	64.3%	64.9%	65.3%	
Capex	(2,863)	(2,891)	(2,485)	(2,665)	(2,752)	(2,827																

Debt characteristics		
Last updated	Sep-22	Year
Net debt	12,900	2022E
ND/ EBITDA	1.32	2023E
Average cost of debt	5.00%	2023E
EBITDA/ interest	14.7	2023E
Average maturity (years)	20.7	
Canada credit rating	AAA	

Credit Quality Score * **Strong**

- + Strong FCF, limited overall volume cyclicality & pricing power derived from unreplicable network
- + Low leverage, ND/ EBITDA only 1.2x in 2023E, high FCF coverage (DSCR 12x in 2023E)
- + Long duration debt, limited expiry (<20%) pre 2028
- + Strong liquidity position, cash + undrawn facilities
- + Operates in US & Canada, with strong sovereign ratings & mostly well resourced clients
- Cyclicity of individual product cargos, mostly commodities

* Credit Quality Score (5 grades): Excellent, Strong, Good, Medium, Weak.

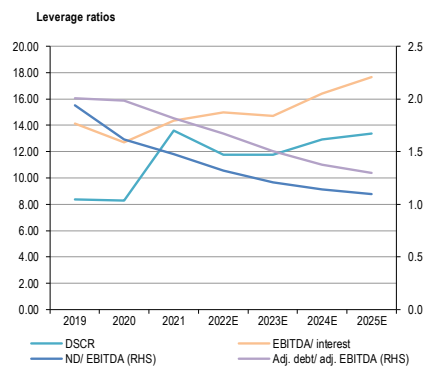
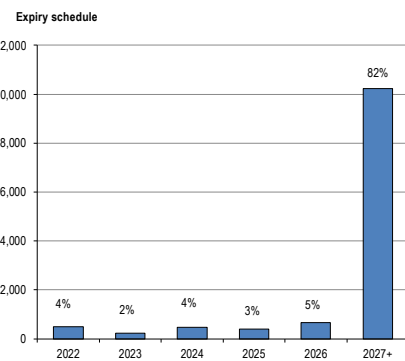
Debt by type		
Notes & Debentures	Dec-21	%
Commercial paper	140	1%
Equipment loans & other	780	6%
Gross debt	13,439	100%
Unamortised discount & debt issuance costs	(954)	
Total debt	12,485	

Selected bonds						
Bond	Size	Coupon	Yield	Yield - coupon	Moody's rating	S&P rating
CNRCN 3.85 08/05/32	800	3.85%	4.24%	0.39%	A2	A
CNRCN 6 1/4 08/01/34	500	6.25%	4.65%	-1.60%		
CNRCN 3 1/2 11/15/42	250	3.50%	4.99%	1.49%		
Total	1,550	4.57%	4.49%	-0.08%		

Debt in issue						
Notes & debentures	Maturity	Interest rate	Currency	US\$ C\$, 2021 denominated	Weighting	Expiry
Canadian National series:						
7-year notes (2)	Feb 18, 2021	2.75%				
10-year notes (2)	Dec 15, 2021	2.85%	US\$	400		
10-year notes (2)	Nov 15, 2022	2.25%	US\$	250	316	2022
30-year debentures	May 15, 2021	7.63%	US\$	150	190	2023
10-year notes (2)	Nov 21, 2024	2.95%	US\$	350	442	2024
10-year notes (2)	Sep 22, 2025	2.80%		350	2,80%	2025
10-year notes (2)	Mar 1, 2026	2.75%	US\$	500	632	2026
30-year notes (2)	Jul 15, 2028	6.90%	US\$	475	600	2028
10-year notes (2)	Jul 31, 2028	3.20%		350	2,80%	2028
10-year notes (2)	Feb 8, 2029	3.00%		350	2,80%	2029
30-year debentures (2)	Oct 15, 2031	7.38%	US\$	200	253	2031
30-year notes (2)	Aug 1, 2034	6.25%	US\$	500	632	2034
30-year notes (2)	Jun 1, 2036	6.20%	US\$	450	569	2036
Puttable Reset Securities PURSSM (2)	Jul 15, 2036	6.71%	US\$	250	316	2036
30-year debentures (2)	Nov 15, 2037	6.38%	US\$	300	379	2037
30-year notes (2)	Nov 15, 2040	3.50%	US\$	250	316	2042
30-year notes (2)	Nov 7, 2043	4.50%	US\$	250	316	2043
30-year notes (2)	Sep 22, 2045	3.95%		400	3,20%	2045
30-year notes (2)	Aug 2, 2046	3.20%	US\$	650	821	2046
30-year notes (2)	Aug 1, 2047	3.60%		500	3,99%	2047
30-year notes (2)	Feb 3, 2048	3.65%	US\$	600	758	2048
30-year notes (2)	Jul 31, 2048	3.60%		450	3,59%	2048
30-year notes (2)	Jan 20, 2049	4.45%	US\$	650	821	2049
30-year notes (2)	Feb 8, 2049	3.60%		450	3,59%	2049
30-year notes (2)	Feb 8, 2050	3.05%		450	3,59%	2050
30-year notes (2)	May 1, 2050	2.45%	US\$	600	758	2050
50-year notes (2)	Sep 22, 2065	4.00%		100	0.80%	2065
Illinois Central series:						
100-year debentures	Sep 15, 2096	7.70%		158	1.26%	2096
BC Rail series						
90-year subordinated notes	Jul 14, 2094	Non-interest bearing		842	6.73%	2094
Total Notes & Debentures				12,519	100.0%	2044

1. All notes & debentures unsecured
2. Fixed rate debt securities redeemable, in whole or in part, at option of Company any time, at greater of par & a formula price based on interest rates at redemption.

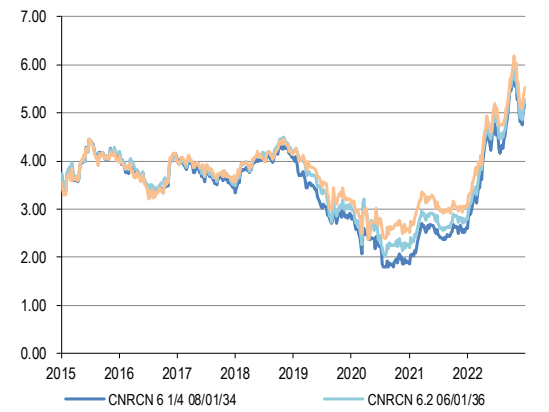
Debt maturity schedule																											
As at																											
Dec-21	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046+	Total	2027+
Expiry	501	222	476	385	667		950	350		253			632		885	379					316	316		400	6,187	12,519	10,224
Expiry %	4%	2%	4%	3%	5%	0%	8%	3%	0%	2%	0%	0%	5%	0%	7%	3%	0%	0%	0%	0%	3%	3%	0%	3%	49%	100%	82%



Leverage ratios											
ND/ EBITDA	1.9	1.6	1.5	1.3	1.2	1.1	1.1	1.3	1.5	1.7	
DSCR*	8.37	8.30	13.62	11.77	11.78	12.93	13.38	14.20	14.80	12.58	
EBITDA/ interest	14.1	12.7	14.4	15.0	14.7	16.4	17.6	18.7	19.4	16.4	
Adj. debt/ adj. EBITDA**	2.00	1.98	1.82	1.67	1.50	1.38	1.30	1.25	1.44	1.63	

*DSCR Insight definition: (FCF post tax - mainten. capex)/ interest
** Company definition

Fig. 56: CN corporate bond yields



Division	2024E revenues	% of revenues	Activity	Drivers/ end demand/ strategy	Contracts
Petroleum & chemicals	3,727	20%	Only railroad serving all 3 petrochemical hubs (U.S. Gulf Coast, Alberta Heartland, Southwest Ontario). Most shipments originate in W. Canada (a key oil & gas development area & major center for natural gas & world-scale petrochemicals & plastics) in eastern Canadian regional plants; and in Louisiana petrochemical corridor between New Orleans and Baton Rouge. CN transports >50% of Canadian petrochemical production.	Markets within N America. Close correlation with N. American economy and oil & gas production. N. America auto, housing & medical production. LNG & hydrogen production. Green energy production. Renewable diesel & sustainable aviation fuel production.	
Metals & minerals	2,164	12%	Primarily materials related to oil & gas development such as frac sand, drilling pipe & large diameter pipe, steel, iron ore, non-ferrous base metals & ores, raw materials including scrap metal, industrial materials including aggregates, construction materials such as roofing & railway equipment, machinery & dimensional (large) loads. Strong origin franchise (access to mining areas), coupled with access to port facilities. Serves 10 aluminium smelters, more than other railroads. Top mover of iron ore & metal ore in N. America.	Oil and gas development, non-residential construction, manufacturing production of railcars, heavy equipment, aerospace & consumer goods. Non-residential construction activity. Government spending on infrastructure projects. World demand for ores & metals.	
Forest products	1,897	10%	Extensive rail access to western & eastern Canadian fiber-producing regions, among largest in N. America. In U.S. strategically located to serve both Midwest and southern U.S. corridors with interline connections to other Class I railroads.	Lumber & panels, housing starts & renovation activities primarily in U.S.; for fibers (mainly wood pulp), consumption of paper, pulpboard & tissue in North American & offshore markets; & newsprint, advertising lineage, non-print media, overall economic conditions, primarily in U.S.	
Coal	1,010	5%	In U.S., thermal coal transported from mines served in southern Illinois, or from western U.S. mines via interchange with other railroads, to major utilities in Midwest and Southeast U.S. & offshore markets via terminals on U.S. Gulf Coast. Petroleum coke, a by-product of oil refining process exported to offshore markets via terminals on west coast of Canada & U.S. Gulf Coast & shipped to industrial users in domestic markets.	Weather conditions, environmental regulations, global energy, coal & steel supply, demand conditions, and for U.S. domestic utility coal, price of natural gas.	
Grain & fertilizers	3,062	16%	Depends primarily on crops grown & fertilisers processed in Western Canada & U.S. Midwest. Grain segment consists of wheat, oats, barley, flaxseed, rye, peas, lentils, corn, corn meal, ethanol, dried distillers grain, canola seed & canola products, soybeans, soybean products, sweeteners & animal fat. Grain mostly produced in Western Canada & moved by CN exported via ports of Vancouver, Prince Rupert & Thunder Bay.	Grain: Weather conditions, harvested acreage, mix of grain crops & crop yield, size & quality of individual crops, international market conditions Fertiliser: Input prices, demand, government policies, international competition.	Grain exported to U.S. not regulated. Canadian grain exports elsewhere regulated. Revenue caps or "entitlements" set by Canadian Transportation Agency (CTA), set by tons & distance. Penalty = amount above entitlement + 5% . Entitlement inflates at VRCPI (Volume Related Composite Price Index) of labour, fuel, materials & investments set by CTA, CP & CNR.
Intermodal	5,507	29%	Network of inland intermodal terminals, located near ports & large urban centers. Collaborations with key ports. CNTL handles container pickups & deliveries between 23 CN intermodal terminals & customer locations, with 1.5m pa containers moved.		
Domestic intermodal			Consumer products & manufactured goods, serving retail, wholesale & logistics provider channels in Canada, US & Mexico. Includes CN owned trucking companies: TransX & H&R.	Consumer markets & economic growth.	
International intermodal			Handles import & export container traffic, serving major ports of Vancouver, Prince Rupert, Montreal, Halifax, New Orleans & Mobile.	N. American economic & trade conditions, global trade patterns & N. American IP.	
Automotive	864	5%	Moves both domestic finished vehicles & parts through N. America, providing service to vehicle assembly plants in Ontario, Michigan & Mississippi. Serves shippers of finished vehicle imports via ports of Halifax & Vancouver & interchange with other railroads	Automotive production & sales in N. America, driven by average age of vehicles in N. America & price of fuel.	
Other	556	3%	Non-rail logistics services that support CN's rail business, including vessels & docks, transloading & distribution, automotive logistics, freight forwarding & transportation management.		
Total	18,786	100%			

Financial summary

Profit and loss statement	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E
Year-end 31 Dec									
Revenue									
Intermodal	3,787	3,751	4,115	4,975	5,227	5,507	5,809	6,136	6,482
Petroleum & chemicals	3,052	2,631	2,816	3,312	3,513	3,727	3,914	4,108	4,318
Grain & fertilizers	2,392	2,609	2,475	2,643	2,886	3,062	3,246	3,441	3,653
Forest products	1,808	1,700	1,740	1,962	1,855	1,897	1,982	2,070	2,165
Metals & minerals	1,643	1,409	1,548	1,923	2,040	2,164	2,283	2,408	2,544
Coal	658	527	618	943	990	1,010	1,050	1,091	1,136
Automotive	858	591	576	775	822	864	903	943	986
Total freight revenues	14,198	13,218	13,888	16,562	17,333	18,230	19,186	20,198	21,284
Other revenues	719	601	589	548	548	556	567	578	590
Total revenue	14,917	13,819	14,477	17,110	17,881	18,786	19,754	20,776	21,874
% change	4.2%	-7.4%	4.8%	18.2%	4.5%	5.1%	5.1%	5.2%	5.3%
Opex									
Labor & fringe benefits	(2,922)	(2,723)	(2,879)	(2,968)	(3,167)	(3,311)	(3,458)	(3,600)	(3,753)
Purchased services & material	(2,267)	(2,152)	(2,082)	(2,144)	(2,187)	(2,231)	(2,291)	(2,350)	(2,414)
Fuel	(1,637)	(1,152)	(1,513)	(2,481)	(2,233)	(2,144)	(2,202)	(2,258)	(2,319)
Equipment rents	(444)	(432)	(336)	(339)	(346)	(357)	(366)	(375)	(386)
Casualty & other	(492)	(508)	(506)	(582)	(591)	(599)	(615)	(631)	(648)
Loss (recovery) on assets HFS	0	(486)	137	0	0	0	0	0	0
Other / Transaction-related costs	0	0	(84)	0	0	0	0	0	0
Opex (pre-depreciation)	(7,762)	(7,453)	(7,263)	(8,515)	(8,524)	(8,642)	(8,932)	(9,215)	(9,520)
% change	3.5%	-4.0%	-2.5%	17.2%	0.1%	1.4%	3.4%	3.2%	3.3%
Adjusted EBITDA	7,357	6,995	7,351	8,730	9,194	10,285	10,965	11,708	12,503
% change	4.5%	-4.9%	5.1%	18.8%	8.8%	8.3%	6.6%	6.8%	6.8%
Adjusted EBITDA margin	49.3%	50.6%	50.8%	51.0%	51.3%	54.7%	55.5%	56.4%	57.2%
Depreciation & amortization	(1,562)	(1,589)	(1,598)	(1,688)	(1,679)	(1,718)	(1,760)	(1,802)	(1,846)
Total opex	(9,324)	(9,042)	(8,861)	(10,203)	(10,203)	(10,360)	(10,692)	(11,017)	(11,366)
% change	5.6%	-3.0%	-2.0%	15.1%	0.0%	1.5%	3.2%	3.0%	3.2%
Operating income									
5.83%	4,777	5,616	6,907	7,677	8,426	9,062	9,759	10,508	
% change	1.9%	-14.6%	17.6%	23.0%	11.2%	9.8%	7.5%	7.7%	7.7%
Margin	37.5%	34.6%	38.8%	40.4%	42.9%	44.9%	45.9%	47.0%	48.0%
Interest expense	(538)	(554)	(610)	(560)	(582)	(645)	(628)	(621)	(627)
Other income (loss)	374	321	1,327	375	400	400	400	408	416
Income before tax	5,429	4,544	6,333	6,722	7,495	8,181	8,834	9,546	10,297
Income tax expense	(2,213)	(982)	(1,441)	(1,546)	(1,724)	(1,882)	(2,032)	(2,196)	(2,368)
Tax rate	22.3%	21.6%	22.8%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
Net income	4,216	3,562	4,892	5,176	5,771	6,299	6,802	7,350	7,929
% change	-26%	-15.5%	37.3%	5.8%	11.5%	9.2%	8.0%	8.1%	7.9%
Adjustments	(27)	222	(674)	22	0	0	0	0	0
Adjusted net income	4,189	3,784	4,218	5,198	5,771	6,299	6,802	7,350	7,929
Adjusted number of shares	720.1	711.3	708.5	690.2	670.0	657.7	651.4	651.4	651.4
Adjusted number of shares	722.6	710.1	710.3	692.1	671.9	659.6	653.3	653.3	653.3
Basic EPS	5.85	5.03	6.00	7.50	8.61	9.58	10.44	11.28	12.17
Diluted EPS	5.83	5.00	6.89	7.48	8.59	9.55	10.41	11.25	12.14
Adjusted diluted EPS	5.80	5.31	5.94	7.51	8.59	9.55	10.41	11.25	12.14
% change	5.4%	-8.5%	11.9%	26.5%	14.4%	11.2%	9.0%	8.1%	7.9%
Payout ratio	37%	46%	36%	39%	45%	50%	50%	55%	72%
DPS	2.15	2.30	2.46	2.93	3.87	4.78	5.21	6.19	16.83
% change	18.1%	7.0%	7.0%	19.1%	31.5%	23.5%	9.0%	18.9%	171.9%
Change in revenues	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E
Petroleum & chemicals	14.7%	-13.8%	7.0%	17.6%	6.1%	6.1%	5.0%	5.0%	5.1%
Metals & minerals	-2.7%	-14.2%	9.9%	24.2%	6.1%	6.1%	5.5%	5.5%	5.6%
Forest products	-1%	-6.0%	2.4%	14.5%	-6.9%	2.3%	4.5%	4.5%	4.6%
Coal	-0.5%	-19.9%	17.3%	52.5%	5.1%	2.0%	4.0%	3.9%	4.1%
Grain & fertilizers	1.5%	9.1%	-5.1%	6.8%	9.2%	6.1%	6.0%	6.0%	6.2%
Intermodal	9.3%	-1.0%	9.7%	20.9%	5.1%	5.4%	5.5%	5.6%	5.6%
Automotive	3.4%	-31.1%	-2.5%	34.6%	6.1%	5.1%	4.5%	4.5%	4.6%
Total revenue	4.2%	-7.4%	4.8%	18.2%	4.5%	5.1%	5.1%	5.2%	5.3%
Proportion of revenues	2019	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E
Intermodal	25%	27%	28%	29%	29%	29%	29%	30%	30%
Petroleum & chemicals	20%	19%	19%	19%	20%	20%	20%	20%	20%
Grain & fertilizers	16%	19%	17%	15%	16%	16%	16%	17%	17%
Forest products	12%	12%	12%	12%	10%	10%	10%	10%	10%
Metals & minerals	11%	10%	11%	11%	11%	12%	12%	12%	12%
Coal	4%	4%	4%	6%	6%	5%	5%	5%	5%
Automotive	6%	4%	4%	5%	5%	5%	5%	5%	5%
Other	5%	4%	4%	3%	3%	3%	3%	3%	3%
Total revenue	100%	100%	100%	100%	100%	100%	100%	100%	100%

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New Insight estimates

- **Insight above Bloomberg consensus EBITDA 5-6% in 2023-25E:** Mainly due to revenues 1-3% above and EBITDA margins 181-223bps above Bloomberg consensus.
- **Insight above Bloomberg consensus EPS 7-9% in 2023-25E,** mainly due to levered impact of moderately higher EBITDA.
- **Insight above Bloomberg consensus DPS 24-46% in 2023-25E:** Mainly due to higher EPS and payout ratio rising from 40% in 2022E to 50% in 2024-25E.
- **Insight mostly at Co. guidance:** Insight in line on RTM growth, operating ratio, EPS growth but slightly ahead on ROIC at 16.5% (guidance 15.0% & 4% above on FCF at C\$4.37bn (guidance C\$4.2bn).

Estimated metric	2022E	2023E	2024E	2025E	2026E
Revenues					
Revenue (current)	17,110	17,881	18,786	19,754	20,776
Revenue Bloomberg consensus	17,060	17,641	18,396	19,117	
Insight vs. Bloomberg consensus	0%	1%	2%	3%	
Opex (pre-depreciation)					
Opex (current)	(8,515)	(8,524)	(8,642)	(8,932)	(9,215)
Opex Bloomberg consensus	(8,444)	(8,593)	(8,735)	(8,767)	
Insight vs. Bloomberg consensus	1%	-1%	-1%	2%	
Adj. EBITDA					
Adj. EBITDA (current)	8,730	9,494	10,265	10,965	11,708
EBITDA Bloomberg consensus	8,616	9,048	9,661	10,350	
Insight vs. Bloomberg consensus	1%	5%	6%	6%	
EBITDA margin (current)	51.0%	53.1%	54.7%	55.5%	56.4%
EBITDA margin consensus	50.5%	51.3%	52.5%	54.1%	
Insight vs. Bloomberg consensus	0.52%	1.81%	2.23%	1.37%	
Recurring FCF					
Recurring FCF (current)	5,257	5,921	6,399	6,553	7,101
Adjusted diluted EPS					
Adjusted diluted EPS (current)	7.48	8.59	9.55	10.41	11.25
EPS Bloomberg consensus	7.46	8.06	8.81	9.57	
Insight vs. Bloomberg consensus	1%	7%	9%	9%	
DPS					
DPS (current)	2.93	3.87	4.78	5.21	6.19
DPS Bloomberg consensus	2.89	3.11	3.32	3.57	
Insight vs. Bloomberg consensus	1%	24%	44%	46%	
Net debt					
Net debt (current)	12,900	12,554	12,429	12,539	12,874
Net debt Bloomberg consensus	14,829	15,719	16,417	17,932	
Insight vs. Bloomberg consensus	-13%	-20%	-24%	-30%	

Insight vs. Co. guidance 2022E

	Company	Insight	Difference	Details
RTM growth	Low single digit	1%		
Operating ratio	< 60.0%	59.8%		
Adjusted diluted EPS growth	25%	26%	1%	Increased from 15-20%
Implied adjusted diluted EPS	7.42	7.51	9%	
ROIC	15.0%	16.5%	1.5%	
FCF (Co. definition)	4,200	4,370	4%	Increased from C\$3.7-4.0bn

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of valuation	2024	Current year	2023
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Date of valuation	2024			2023																											G	1.25%		
	2020	2021	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	2031E	2032E	2033E	2034E	2035E	2036E	2037E	2038E	2039E	2040E	2041E	2042E	2043E	2044E	2045E	2046E	2047E	2048E	2049E				2050E
Adjusted EBITDA	6,995	7,351	8,730	9,494	10,285	10,965	11,708	12,503	13,348	14,243	15,137	16,082	17,083	18,142	19,264	20,421	21,645	22,937	24,303	25,746	27,270	28,011	28,772	29,554	30,356	31,180	32,026	32,895	33,786	34,702	35,642	Grate		
% change		5.1%	18.8%	8.8%	8.3%	6.6%	6.8%	6.8%	6.8%	6.7%	6.3%	6.2%	6.2%	6.2%	6.2%	6.0%	6.0%	6.0%	6.0%	5.9%	5.9%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%	2.7%			
Δ&A	(1,589)	(1,598)	(1,688)	(1,679)	(1,718)	(1,760)	(1,802)	(1,846)	(1,891)	(1,936)	(1,983)	(2,030)	(2,079)	(2,129)	(2,182)	(2,232)	(2,285)	(2,340)	(2,395)	(2,452)	(2,510)	(2,570)	(2,630)	(2,692)	(2,754)	(2,818)	(2,883)	(2,950)	(3,017)	(3,086)	(3,157)			
EBIT	5,406	5,753	7,042	7,815	8,566	9,205	9,905	10,657	11,457	12,307	13,154	14,052	15,004	16,014	17,084	18,189	19,359	20,598	21,908	23,294	24,760	25,442	26,142	26,862	27,602	28,362	29,143	29,945	30,769	31,616	32,485			
Tax	(1,168)	(1,309)	(1,620)	(1,797)	(1,970)	(2,117)	(2,278)	(2,451)	(2,635)	(2,831)	(3,025)	(3,232)	(3,451)	(3,683)	(3,929)	(4,184)	(4,453)	(4,737)	(5,039)	(5,358)	(5,695)	(6,052)	(6,413)	(6,778)	(7,148)	(7,523)	(7,903)	(8,287)	(8,676)	(9,070)	(9,470)			
tax rate	21.6%	22.8%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%			
NOPAT	4,238	4,444	5,422	6,018	6,596	7,088	7,627	8,206	8,822	9,477	10,129	10,820	11,553	12,330	13,154	14,006	14,907	15,860	16,869	17,936	19,065	19,590	20,130	20,684	21,254	21,839	22,440	23,058	23,692	24,344	25,014			
Δ&A	1,589	1,598	1,688	1,679	1,718	1,760	1,802	1,846	1,891	1,936	1,983	2,030	2,079	2,129	2,180	2,232	2,285	2,340	2,395	2,452	2,510	2,570	2,630	2,692	2,754	2,818	2,883	2,950	3,017	3,086	3,157			
FCF pre capex	5,827	6,042	7,110	7,697	8,315	8,847	9,430	10,052	10,713	11,413	12,111	12,850	13,632	14,459	15,334	16,238	17,192	18,200	19,264	20,388	21,575	22,160	22,760	23,376	24,008	24,657	25,323	26,007	26,709	27,430	28,170			
Total capex	(2,863)	(2,891)	(2,485)	(2,665)	(2,752)	(2,827)	(2,893)	(2,961)	(3,030)	(3,101)	(3,173)	(3,248)	(3,324)	(3,402)	(3,481)	(3,563)	(3,646)	(3,732)	(3,819)	(3,908)	(3,993)	(4,079)	(4,168)	(4,258)	(4,351)	(4,445)	(4,542)	(4,640)	(4,741)	(4,845)	(3,157)		Ex	
Maintenance capex	(1,589)	(1,598)	(1,598)	(1,679)	(1,718)	(1,760)	(1,802)	(1,846)	(1,891)	(1,936)	(1,983)	(2,030)	(2,079)	(2,129)	(2,180)	(2,232)	(2,285)	(2,340)	(2,395)	(2,452)	(2,510)	(2,570)	(2,630)	(2,692)	(2,754)	(2,818)	(2,883)	(2,950)	(3,017)	(3,086)	(3,157)		EV/EBITDA	
Expansion capex	(1,274)	(1,293)	(887)	(986)	(1,034)	(1,067)	(1,100)	(1,143)	(1,185)	(1,228)	(1,270)	(1,312)	(1,354)	(1,396)	(1,438)	(1,480)	(1,522)	(1,564)	(1,606)	(1,648)	(1,690)	(1,732)	(1,774)	(1,816)	(1,858)	(1,900)	(1,942)	(1,984)	(2,026)	(2,068)	(2,110)		12.4%	
FCF	2,964	3,151	4,625	5,032	5,563	6,021	6,537	7,092	7,683	8,312	8,938	9,603	10,308	11,058	11,853	12,675	13,546	14,468	15,445	16,480	17,582	18,080	18,592	19,117	19,657	20,212	20,782	21,367	21,968	22,586	25,014	441,758		
Discount factor						1.00	0.93	0.87	0.82	0.76	0.71	0.67	0.62	0.58	0.54	0.51	0.48	0.44	0.42	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.18	0.17		
Discounted FCF						5,563	5,628	5,711	5,792	5,865	5,931	5,961	5,987	6,007	6,023	6,035	6,032	6,026	6,016	6,003	5,987	5,971	5,739	5,516	5,302	5,096	4,898	4,707	4,524	4,347	4,178	4,325	76,383	225,553
DDM																																	CAGR 2023-50E	
Cash flow																																		
Operating FCF	6,165	6,971	6,855	7,600	8,118	8,313	8,904	9,527	10,223	10,810	11,381	11,978	12,605	13,319	14,068	14,836	15,641	16,489	17,380	18,397	19,469	19,934	20,405	20,963	21,534	22,121	22,723	23,342	23,976	24,628	25,296			
Capex	(2,863)	(2,891)	(2,485)	(2,665)	(2,752)	(2,827)	(2,893)	(2,961)	(3,030)	(3,101)	(3,173)	(3,248)	(3,324)	(3,402)	(3,481)	(3,563)	(3,646)	(3,732)	(3,819)	(3,908)	(3,993)	(4,079)	(4,168)	(4,258)	(4,351)	(4,445)	(4,542)	(4,640)	(4,741)	(4,845)	(3,157)			
FCF prior to dividends	3,302	4,080	4,370	4,935	5,366	5,488	6,011	6,567	7,193	7,709	8,207	8,731	9,281	9,917	10,587	11,273	11,994	12,758	13,561	14,488	15,476	15,854	16,237	16,705	17,183	17,676	18,182	18,702	19,235	19,783	22,140			
Dividends	(1,634)	(1,740)	(2,022)	(2,590)	(3,141)	(3,391)	(4,013)	(4,942)	(6,060)	(7,191)	(8,532)	(10,001)	(11,610)	(13,363)	(15,273)	(17,344)	(19,489)	(21,721)	(24,045)	(26,466)	(28,987)	(31,608)	(34,329)	(37,150)	(40,071)	(43,092)	(46,213)	(49,434)	(52,755)	(56,176)	(59,697)			
Repurchase of common shares	(379)	(1,582)	(3,600)	(2,000)	(2,100)	(2,205)	(2,315)	0																										
Net cash	1,668	2,340	2,347	2,345	2,225	2,095	1,980	(3,375)	(3,767)	(4,192)	(4,546)	(4,804)	(5,073)	(5,352)	(5,641)	(5,940)	(6,249)	(6,568)	(6,897)	(7,236)	(7,585)	(7,944)	(8,313)	(8,692)	(9,081)	(9,480)	(9,889)	(10,308)	(10,737)	(11,176)	(11,625)			
Other	(1,650)	(3,600)	(2,000)	(2,100)	(2,205)	(2,315)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Decrease/ (increase) in net debt	690	(1,253)	345	125	(110)	(335)	(3,375)	(3,767)	(4,192)	(4,546)	(4,804)	(5,073)	(5,352)	(5,641)	(5,940)	(6,249)	(6,568)	(6,897)	(7,236)	(7,585)	(7,944)	(8,313)	(8,692)	(9,081)	(9,480)	(9,889)	(10,308)	(10,737)	(11,176)	(11,625)	(2,350)			
Net debt	12,337	11,647	12,900	12,554	12,429	12,539	12,874	16,250	20,046	24,209	28,754	32,159	35,868	39,908	44,392	49,003	54,103	57,343	60,757	64,365	68,175	71,931	73,885	75,891	77,950	80,065	82,237	84,466	86,755	89,104				
Net debt/ EV																																		
Net debt/ EBITDA		1.6	1.5	1.3	1.2	1.1	1.1	1.3	1.5	1.7	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		
Ratios																																		
ROIC/ EBITDA																																		
DDM																																		
Equity FCF		1,740	2,022	2,590	3,141	5,592	6,346	9,942	10,960	11,901	12,753	12,135	12,991	13,955	14,979	15,977	17,094	15,998	16,975	18,096	19,287	17,707	18,140	18,658	19,189	19,736	20,296	20,873	21,464	22,072	24,489	390,682		
Discount factor					1.00	0.93	0.87	0.82	0.76	0.71	0.67	0.62	0.58	0.54	0.51	0.48	0.44	0.42	0.39	0.36	0.34	0.32	0.30	0.28	0.26	0.24	0.23	0.21	0.20	0.18	0.17	0.17		
Discounted equity FCF					3,141	5,231	5,545	8,119	8,366	8,492	8,506	7,565	7,571	7,602	7,627	7,604	7,605	6,652	6,598	6,574	6,550	5,621	5,382	5,175	4,975	4,782	4,597	4,419	4,248	4,083	4,234	67,551	234,414	
% of disc. FCF					1%	2%	2%	3%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%		
FCF profile							6%					18%					16%					14%					11%							
RR.s																																		
RR at Insight EV DCF																																		
RR at Insight DDM valuation					(213,124)	3,141	3,391	4,031	9,942	10,960	11,901	12,753	12,135	12,991	13,955	14,979	15,977	17,094	15,998	16,975	18,096	19,287	17,707	18,140	18,658	19,189	19,736	20,296	20,873	21,464	22,072	24,489	441,758	7.1%
RR at share price					(234,414)	3,141	3,391	4,031	9,942	10,960	11,901	12,753	12,135	12,991	13,955	14,979	15,977	17,094	15,998	16,975	18,096	19,287	17,707	18,140	18,658	19,189	19,736	20,296	20,873	21,464	22,072	24,489	390,682	6.3%
					(108,555)	3,141	3,391	4,031	9,942	10,960	11,901	12,753	12,135	12,991	13,955	14,979	15,977	17,094	15,998	16,975	18,096	19,287	17,707	18,140	18,658	19,189	19,736	20,296	20,873	21,464	22,072	24,489	390,682	11.6%

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