The Luxembourg Rail Protocol to the Cape Town Convention

Its positive impact on the cost of financing railway rolling stock in the UK

A UK-specific update to the 2018 Oxera study

Prepared for

RAIL WORKING GROUP

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compelling economics

Objectives

1. Update the assessment of micro-economic benefits for the United Kingdom[1] with the latest available data

2. Help RWG, UNIDROIT and their members to consider the country and market impacts of the Luxembourg Rail Protocol

3. Help the UK government consider the effects and economic benefits of the Protocol before its adoption

4. Complement the legal analysis supporting adoption of the Protocol

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[1] Oxera (2018), 'Luxembourg Rail Protocol: estimated impact on rolling stock financing cost in Europe.'

Summary

Direct micro-benefits assessed between **£4.8bn and £5.2bn**

Many additional micro- and macro-economic benefits also expected

Context

1. **Global market volume of the rail industry of €191bn per annum, including €61bn in rolling stock**
2. **Long-run trend growth in the total market for rail supply is 2.2% per year**
3. **Long-term growth in the rail market is currently constrained by the availability of funding**
4. **The Luxembourg Rail Protocol improves the availability and cost of private finance for rolling stock**

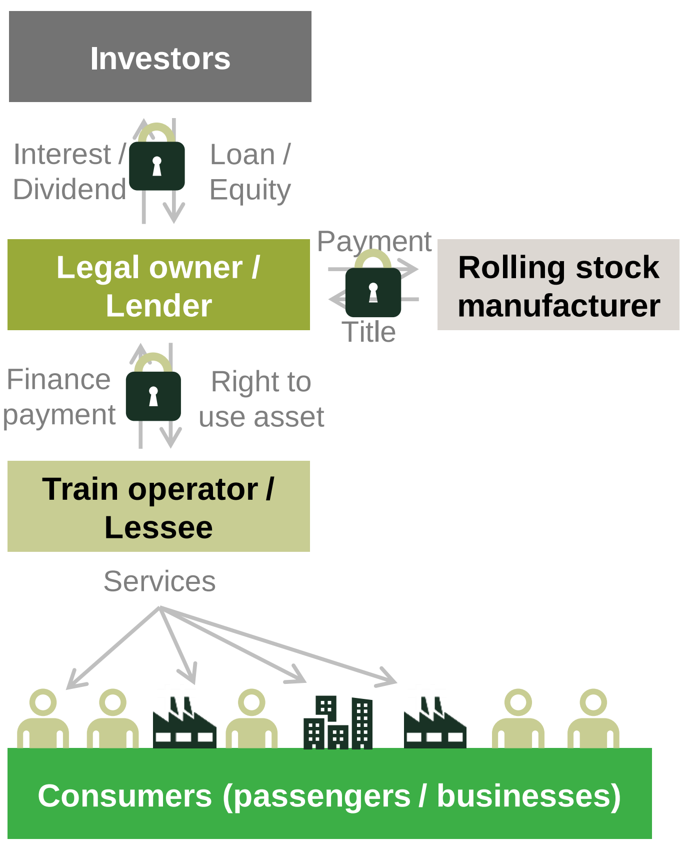
Source: UNIFE and Roland Berger (2018), 'World rail market study – forecast 2018 to 2023'; and SCI Verkehr (2020), 'Worldwide Market for Railway Industries 2020'.

Contents

Contents

The Luxembourg Rail Protocol (LRP) (1/2)

Financing the rail industry

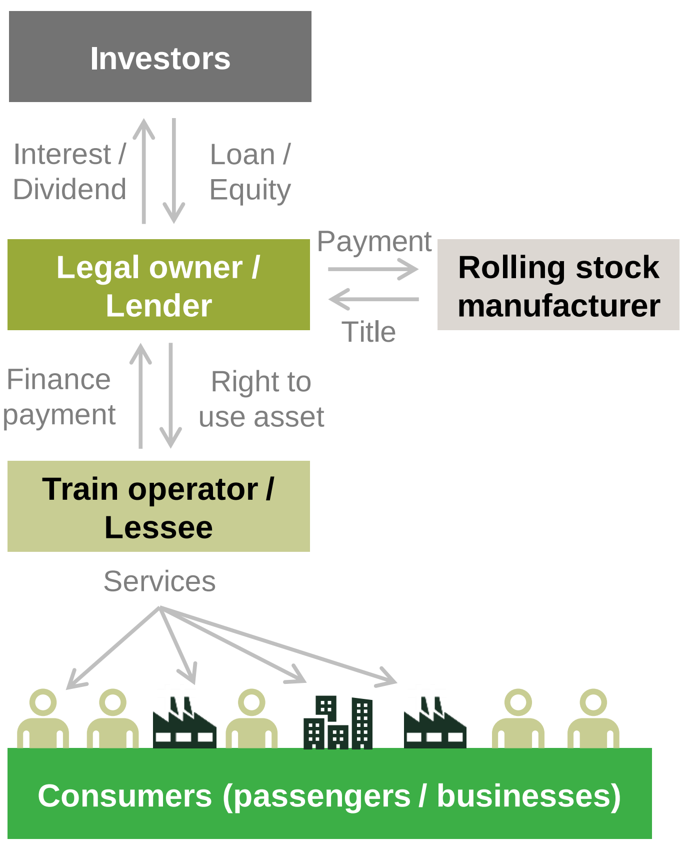


Issues with bringing in private capital due to:

- **uncertainty** around the repossession of collateral for creditors
- **limited** legal infrastructure and tracking of assets
- cross border operational **risks** in light of the absence of national or international public registries showing security interests on rolling stock
- **no common system** for uniquely identifying railway equipment globally and across different types of rolling stock

The Luxembourg Rail Protocol (LRP) (2/2)

Financing the rail industry



Solution: Luxembourg Rail Protocol

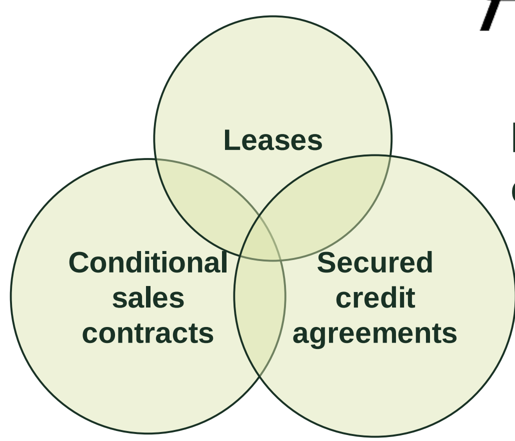
New global legal system for the recognition and prioritisation of security interests held by creditors

Debtors covered

All debtors in ratifying states

Vehicles covered

All vehicles running on tracks, or above, on, or under a guideway



Financing covered

Features of LRP deliver both micro- and macro- benefits

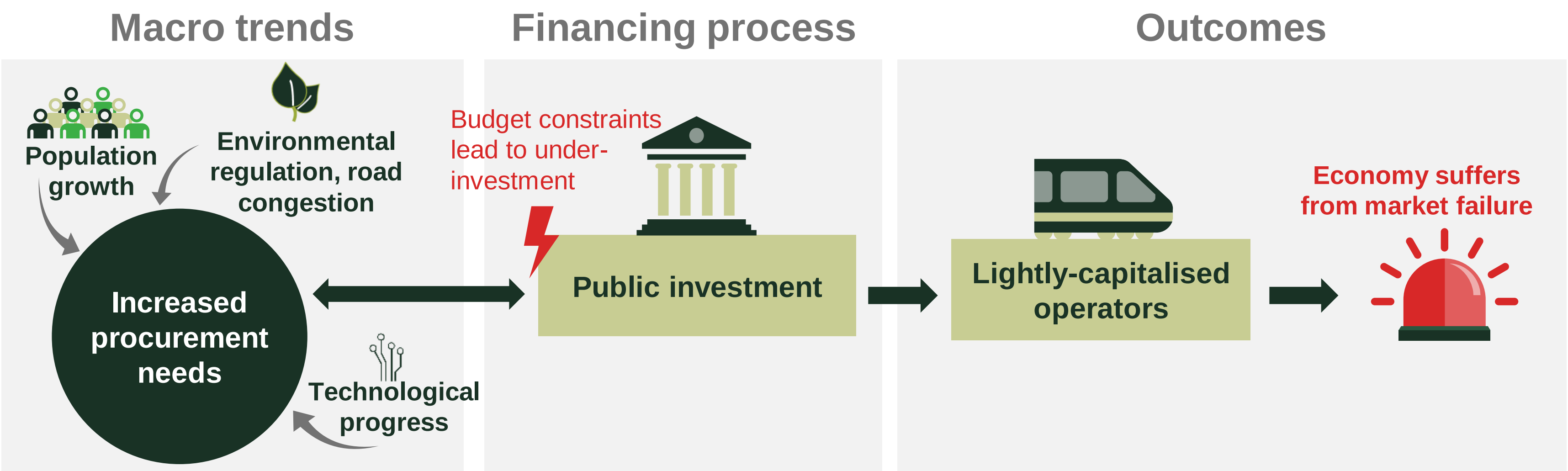
Single central global registry	• **facilitates recording** international interests, and universal numbering system • establishes **clear priority** among **creditors** • **eliminates unnecessary restructuring** of security interests as transactions change
Clear legal framework and enforcement	• **covers all debtors based in contracting states** without differentiating between types of financing structures • provides for **clear creditor rights** on termination, default, and insolvency • recognises and regulates the **security interests** of financiers and other parties • opens the way to **secured finance** with recourse only to the **assets**

DIRECT MICRO-BENEFITS

INDIRECT MICRO-BENEFITS

MACRO-BENEFITS

LRP will reduce costs and help long-term growth in rail transport post-COVID (1/2)



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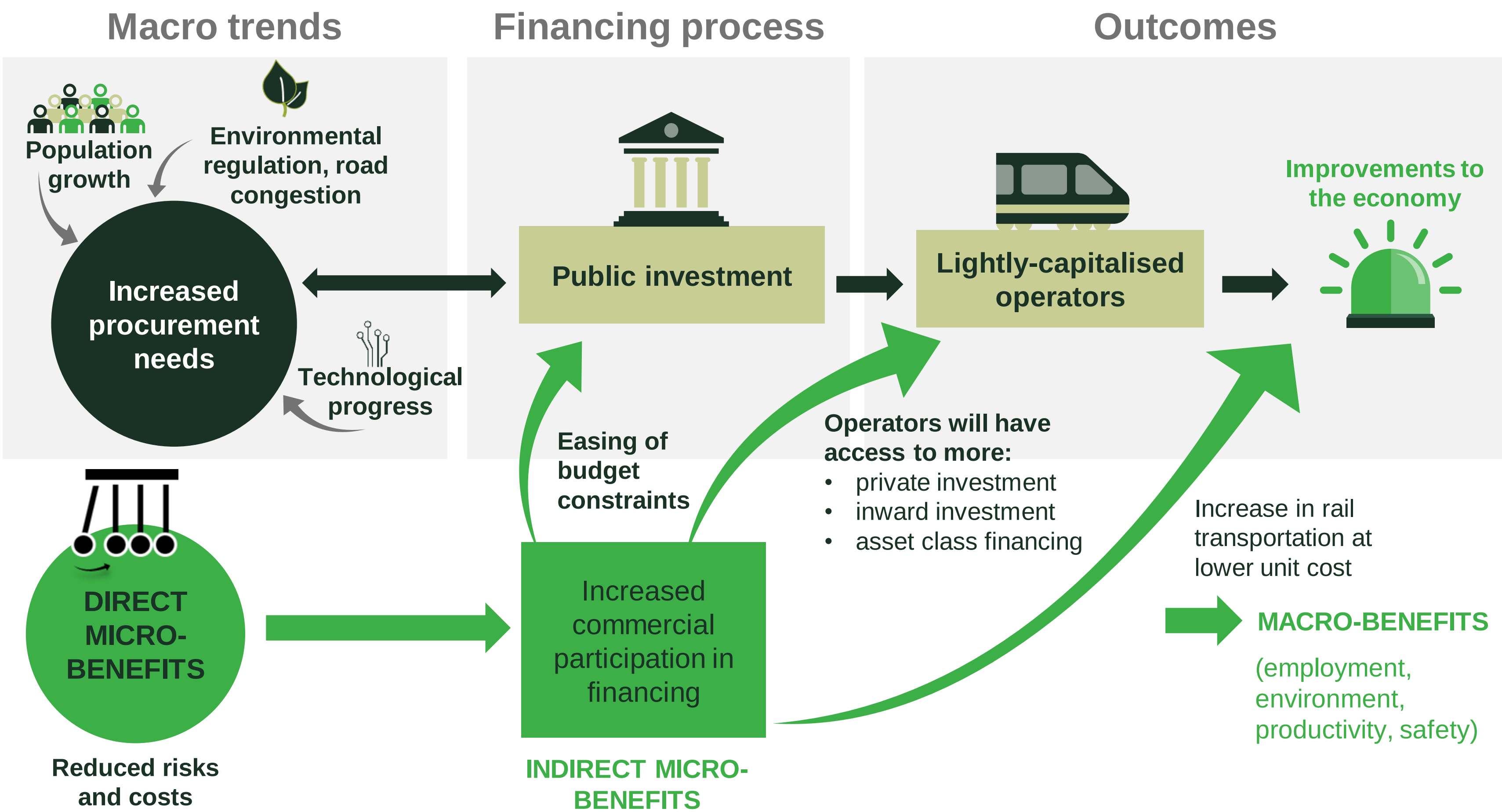
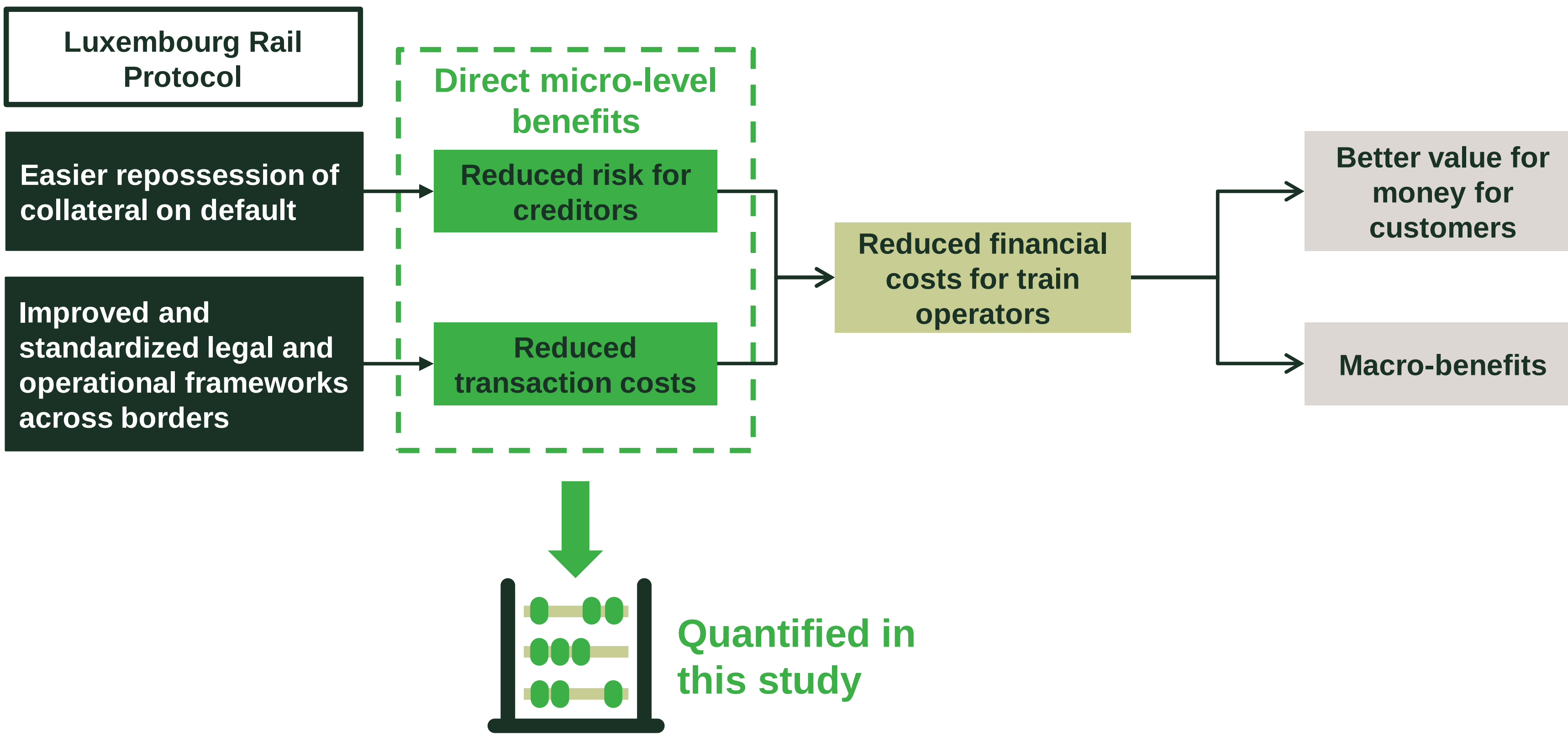
LRP will reduce costs and help long-term growth in rail transport post-COVID (2/2)



This study focuses on the direct micro-level benefits (1/2)



This study focuses on the direct micro-level benefits (2/2)

Indirect micro-level benefits

Not quantified

- facilitates **operating leases which**
    - open up the market to new competition
    - provide more flexibility for operators
    - drive standardisation of equipment
- potentially cuts **Export Credit Agency finance premiums** (following the example of the Aircraft Protocol)
- the **unique global identifier** enables more efficient asset location and status tracking, leading to savings on insurance, maintenance, and reductions of many other costs
- registration of creditor claims provides **protection for creditors and operators on cross border routes** even without ratification by the state where the rolling stock is located

Macro-benefits

Not quantified

Reduction in polluting greenhouse gases

Increased productivity and GDP

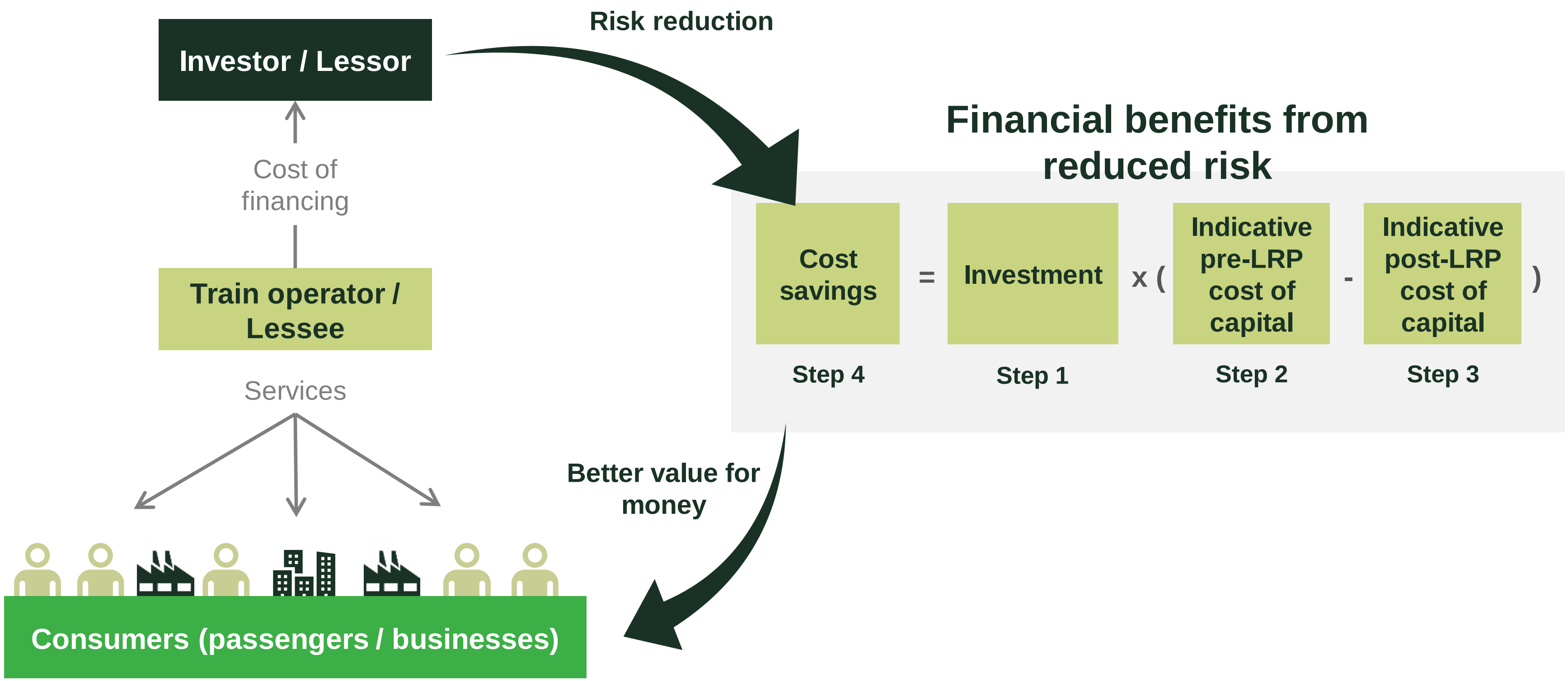
Lower unemployment

Increased transport safety, less congestion

Contents

Methodological approach

The methodology is the same as that applied in the 2018 Oxera study on the financing benefits of the LRP in European countries, with updates to the data used to reflect the latest changes



Step 1: Investment to finance (1/2)

Key assumptions from the original, 2018 Oxera model, then applied to multiple countries

- **Investment:** assume that both the financing of new rolling stock and the refinancing of the current fleet are affected by the ratification of the LRP. Refinancing occurs when the age of a RS unit reaches 10 years or 20 years.
- **Source of financing:** assume that (i) only private financing benefits from the LRP; (ii) the share of public financing will decrease by half by 2025 due to the catalyst effect of the LRP and then remain constant from 2025 onwards.
- **Periods:** forecast from 2020 to 2049 – terminal value calculated at 2049.

<u>2020-2024:</u> forecasts of new deliveries are assumed to offset retirements based on assumed asset life of 30 years.

<u>2025-2035:</u> model a catch-up period of higher deliveries where average age of fleet exceeds 20 years, i.e. where the LRP will unlock new finance and deliveries to replace ageing fleet.

Investment

Financing using LRP

Financing new rolling stock

Freight | **Passenger**

Data (sources)

2020-2024	2025-2034	2035-2049	2049 onwards
Average annual market value of deliveries by type of RS by country	Theoretical CAGR over a 10-year-period to account for catch-up when average fleet age > 20 years	Steady state with annual market value growing with 2% inflation	Growing into perpetuity using inflation as growth rate, and discounted at the pre-LRP WACC
(SCI Verkehr data)	(assumption)	(assumption)	(assumption)

Step 1: Investment to finance (2/2)

How do the original assumptions and methodology apply to the calculations of the benefits in the UK?

- **source of financing[1]:**
  - in the data available on financing sources for rolling stock in the UK, (almost) all of the rolling stock is privately financed (both based on 2018 or 2020 data)
  - as such, all financing benefits emerge from the reduction in financing cost, and there is no assumed ‘catalyst’ effect of the LRP (i.e. a decrease in the share of public financing) takes place
- **additional purchases to account for catch-up of oldest fleets:**
  - the data underpinning the 2018 Oxera study resulted in an average age of the UK fleet slightly above 21 years old, which resulted in a moderate catch-up over a ten-year period to reach the 20-year average
  - more recent, 2020 data indicates that the average age is now around 20 years old, which removes the need for a catch-up through new purchases. As such, new purchases are assumed to reach a steady state by 2025, based on the methodology described above

Notes: [1] In this methodology, no benefits would accrue on publicly-financed stock, as the risk and creditworthiness (and hence, the cost) of public financing is driven by wider considerations and likely to be less affected by the improved collateralisation resulting from the LRP.

Step 2: Indicative pre-LRP cost of capital

Indicative level of pre-LRP cost of capital

weight : E / (D+E)

weight : D / (D+E)

Cost of equity

Levered beta x Equity risk premium + Domestic sovereign yield

Cost of debt

Domestic sovereign yield + Loan margin

Beta based on the European railroad transportation industry (simplifying assumption)

Equity risk premium of the country for a mature equity market

Yield on domestic government bond, adjusted by:

- difference between long-term forecast of domestic inflation and ECB target (to account for expected exchange rate depreciation / appreciation vs euro which is the currency underpinning the data available)
    - this does not affect the calculation of benefits for the UK based on 2020 data
- country risk premium is implicit in the domestic sovereign yield

Loan margins by credit rating for **low collateralisation** used by the European Commission in State aid cases

Step 3: Indicative post-LRP cost of capital

Risk reduction (not quantified)

Cost of equity

Levered beta x Equity risk premium + Domestic sovereign yield

Cost of debt

Domestic sovereign yield + Loan margin

Risk reduction (quantified)

Lower transaction costs

Assumption

-10bp

Indicative level of post-LRP cost of capital

Based on 2020 data, for the UK (high-income OECD country), this results in a decrease of the (pre-tax) cost of capital of

- 34bp

Margin reduction (from low to **high collateralisation)**

OECD country risk classification for export credits	Reduction in margin (in bp)
High-income OECD country	40
Grade 3	145
Grade 4	300
Grade 7	600

Investment to finance | Pre-LRP cost of capital | Post-LRP cost of capital | **Financial benefits**

Step 4: Financial benefits

2020-2049

Cost of financing pre-LRP

Cost of capital pre-LRP x invested capital

-

Cost of financing post-LRP

Cost of capital post-LRP x invested capital

=

Average annual financial benefits of c. £120.0m

discounting

Present value of financial benefits over the period

+

2049 onwards

Financial benefits in 2049 for investment in new rolling stock

growing in perpetuity — growth rate = inflation

discounting

Terminal value of financial benefits from 2048 onwards in present value terms

Additional effects of the LRP modelled in this update

In calculating the direct, micro-economic benefits of the LRP, a number of other potentially positive financial effects have not been taken into account. We understand that additional indirect micro-economic benefits (referred to above) are likely to be particularly relevant:

Relevant indirect micro-benefit

- **standardisation of equipment:** we understand that the adoption of the LRP is likely to result in further standardisation of rolling stock equipment. This in turn is likely to result in an increase in the (residual) value of rolling stock (especially in the later parts of its useful asset life) by being more likely to be easily re-usable in other geographies
    - this effect was not taken into account in the model underpinning the 2018 Oxera study
    - for the purposes of this update, we have modelled this potential effect as having similar consequences to an increase in the value of the rolling stock as collateral, i.e. a further reduction in the loan margins use to derive the cost of debt
    - we have used an indicative reduction of 5bp of the loan margin, resulting in a total decrease of the (pre-tax) cost of debt of 45bp (compared to 40bp without this effect)
        - this effect only applies to new purchases of rolling stock as opposed to refinancing, which pertains to rolling-stock already in circulation

Contents

Results of the analysis

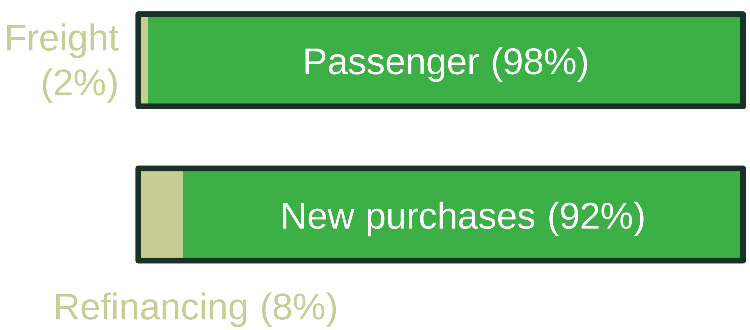
Without the additional effects on the value of rolling stock as collateral

Present value of total savings

=

£4,800m

Breakdown of the savings:



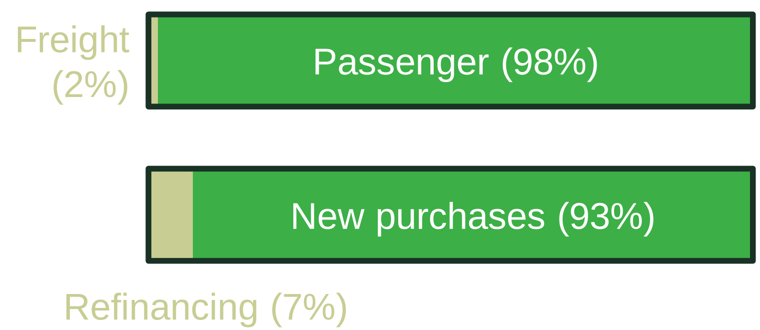
With the additional effects on the value of rolling stock as collateral

Present value of total savings

=

£5,166m

Breakdown of the savings:



Discussion of the results

We note the following:

- there is some evidence to suggest that the **extent of new freight wagons and locomotives to be financed is conservative in our estimates**, which means total benefits and freight's proportion could be greater. Any transfer of road freight capacity onto rail under the UK Government's sustainability agenda has not been taken into account and will likely increase these figures materially
- the **cost of passenger vehicles is significantly higher** than those of freight wagons, which partly contributes to the analysis showing the majority of costs savings in the passenger sector
- we understand that the **data on rolling stock excludes cable cars and vehicles which have joint road and rail running capacity** such as maintenance vehicles and plant, all of which are covered under the LRP. As such, overall micro-economic benefits may be underestimated

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