Luxembourg Rail Protocol: estimated impact on rolling stock financing cost in South Africa

Prepared for

Rail Working Group

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compelling economics

Who we are

Leading economics consultancy

Established in 1982, we have a reputation for independence, integrity and analytical excellence among companies, lawyers, policymakers and regulators

International capability and reach

From our offices in Berlin, Brussels, London, Oxford and Rome, and with consultants from over 25 countries, we work with clients all over the world, and provide advice in several languages

In-depth sectoral knowledge

We bring together economic, financial and accounting skills with our extensive industry experience across many sectors, including transport and transport infrastructure.

Compelling, accessible outputs

We pride ourselves on being able to deliver the results from our rigorous analysis in a way that can be understood by all audiences and has the most impact in front of the relevant authorities

Deep knowledge and extensive expertise in the transport and rail sector

We offer a wide range of services in the transport and rail sectors, from regulatory advice and submissions to business planning or antitrust aspects

Our dedicated Transport team advises transport companies, regulators and governments

Our clients in the rail sector: Angel Trains, Aurizon, Arriva, Deutsche Bahn, Network Rail, Rail Delivery Group, Russian Railways, Department for Transport (UK), Office of Rail and Road (UK)

Financial benefits of the Luxembourg Rail Protocol

Objectives

1. Develop a robust assessment of economic benefits, based on the evidence
2. Help RWG, UNIDROIT and their members to consider the country and market impact of the Protocol
3. Help governments consider the effect of the Protocol before its adoption
4. Complement the legal analysis supporting implementation / adoption of the Protocol

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Summary

Direct
micro benefits
assessed at

€1.3bn

equivalent to

R20.0bn

Many additional
micro and macro
benefits
expected

Context

1. Global market volume of the rail industry of €159bn per annum, including €54bn in rolling stock
2. Total market for rail supply is set to continue its growth of recent years at 2.6% per year
3. Growth in the rail market is currently constrained by the availability of funding
4. Luxembourg Rail Protocol improves availability of funds

Source: UNIFE and Roland Berger (2016), 'World rail market study – forecast 2016 to 2021'.

Contents

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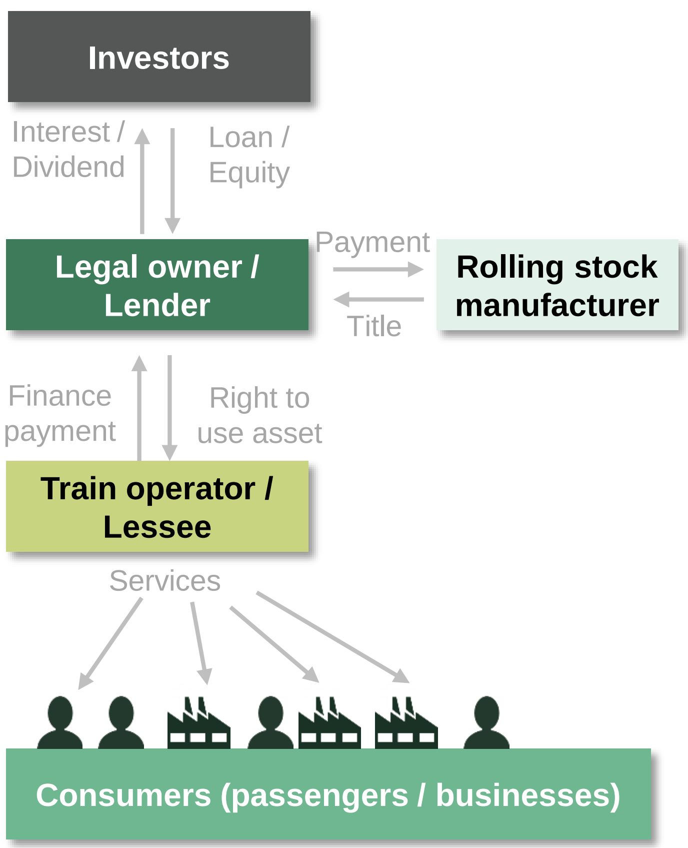
Benefits from the Luxembourg Rail Protocol (LRP)

The Luxembourg Rail Protocol (LRP)

Financing the rail industry



Issue with bringing in private capital due to:

- uncertainty around the repossession of collateral for creditors
- limited legal infrastructure and tracking of assets
- cross border risks, no international registry
- no common system for identifying railway equipment worldwide

Solution: Luxembourg Rail Protocol

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

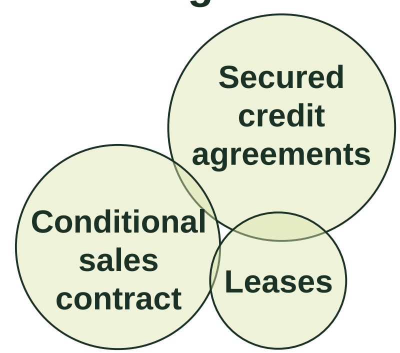
Debtors covered

all debtors in ratifying state

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

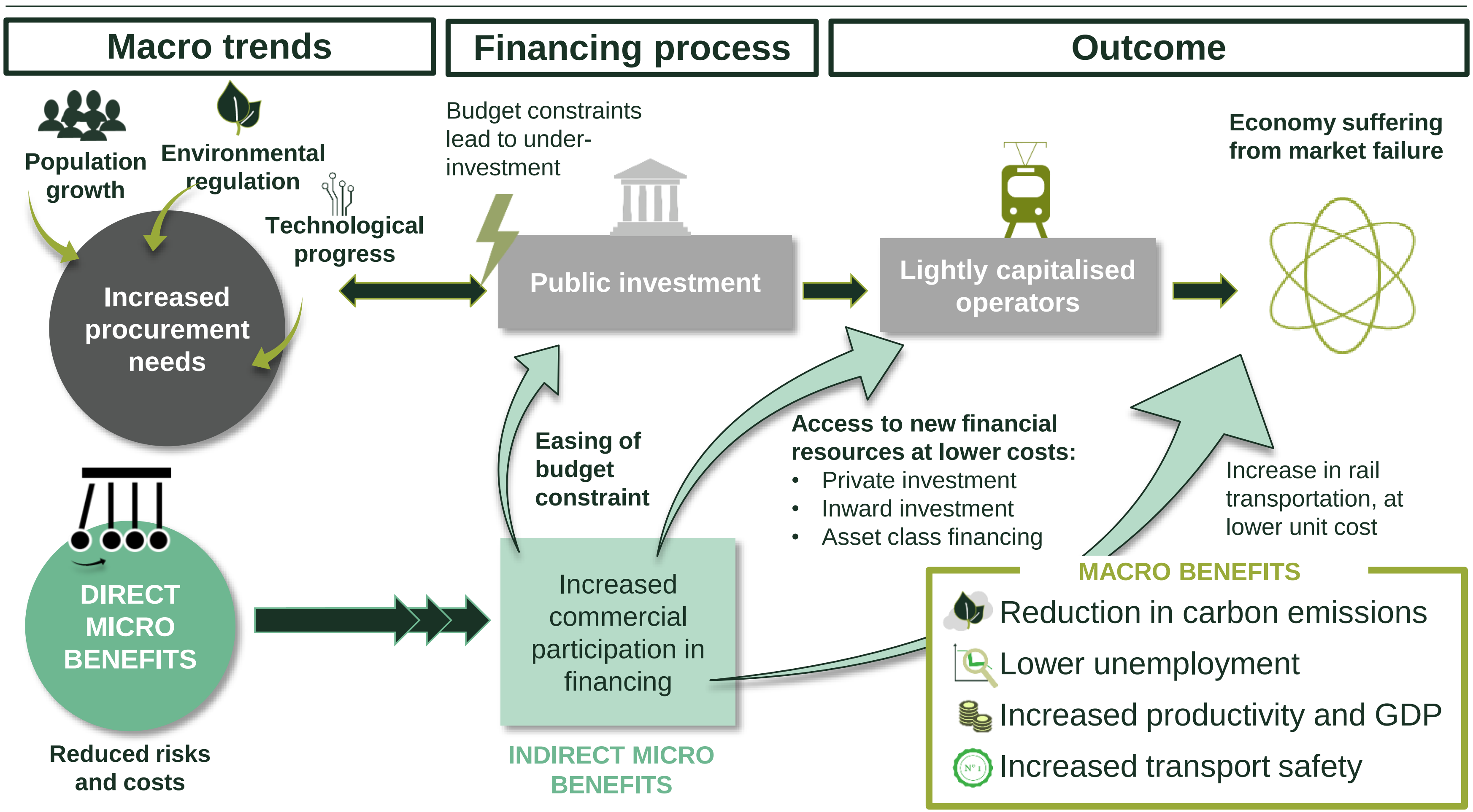
Single central global registry

- **Facilitates** local **recording**, international interests and universal numbering system
- Establishes **clear priority** among **creditors**
- Provides for **real time monitoring** – creditors can check rival claims to related rail equipment
- **Eliminates unnecessary restructuring** of security interests as transactions change

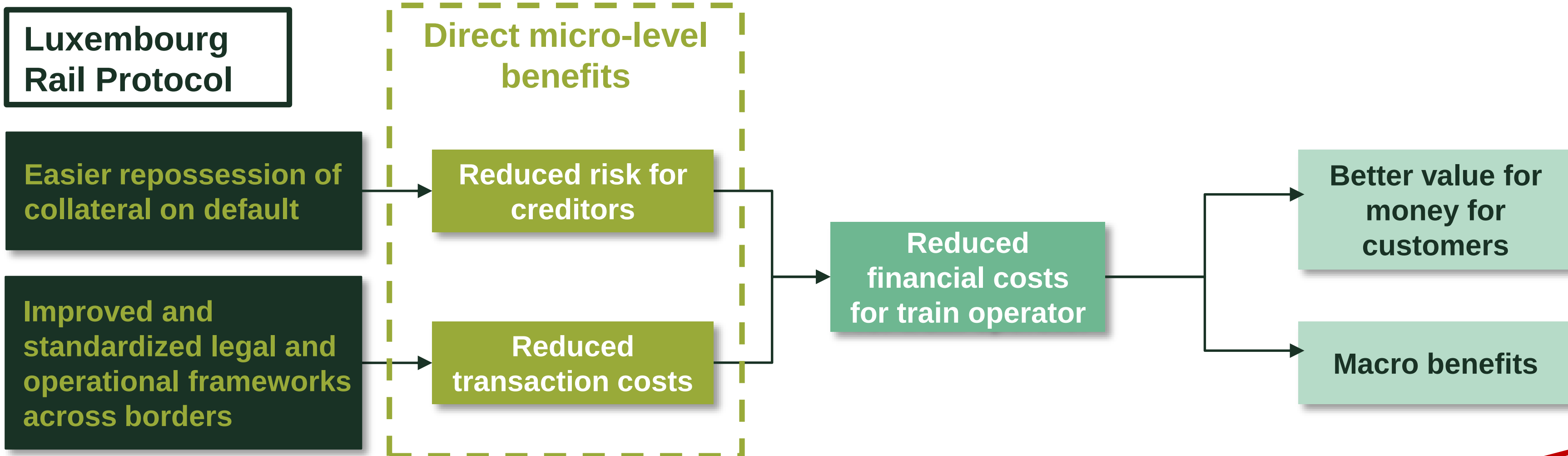
Clear legal framework and enforcement

- **Covers contracting states and all debtors therein** without differentiating across the type 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**

LRP will reduce costs and help growth in rail transport



This study focuses on the direct micro-level benefits



Indirect micro-level benefits

Not quantified

- facilitates **operating leases**
  - opens up the market to new competition
  - drives standardisation of equipment and economies of scale in manufacturing
- potentially cuts **Export Credit Agency finance premia** following the Aircraft Protocol
- enables **unique global identifier** enabling tracking and leading to insurance, maintenance, and many other cost savings
- registration of creditor claims provides **cross-border creditor protection** even if no ratification in the state

Assessing direct financing cost reductions: methodology

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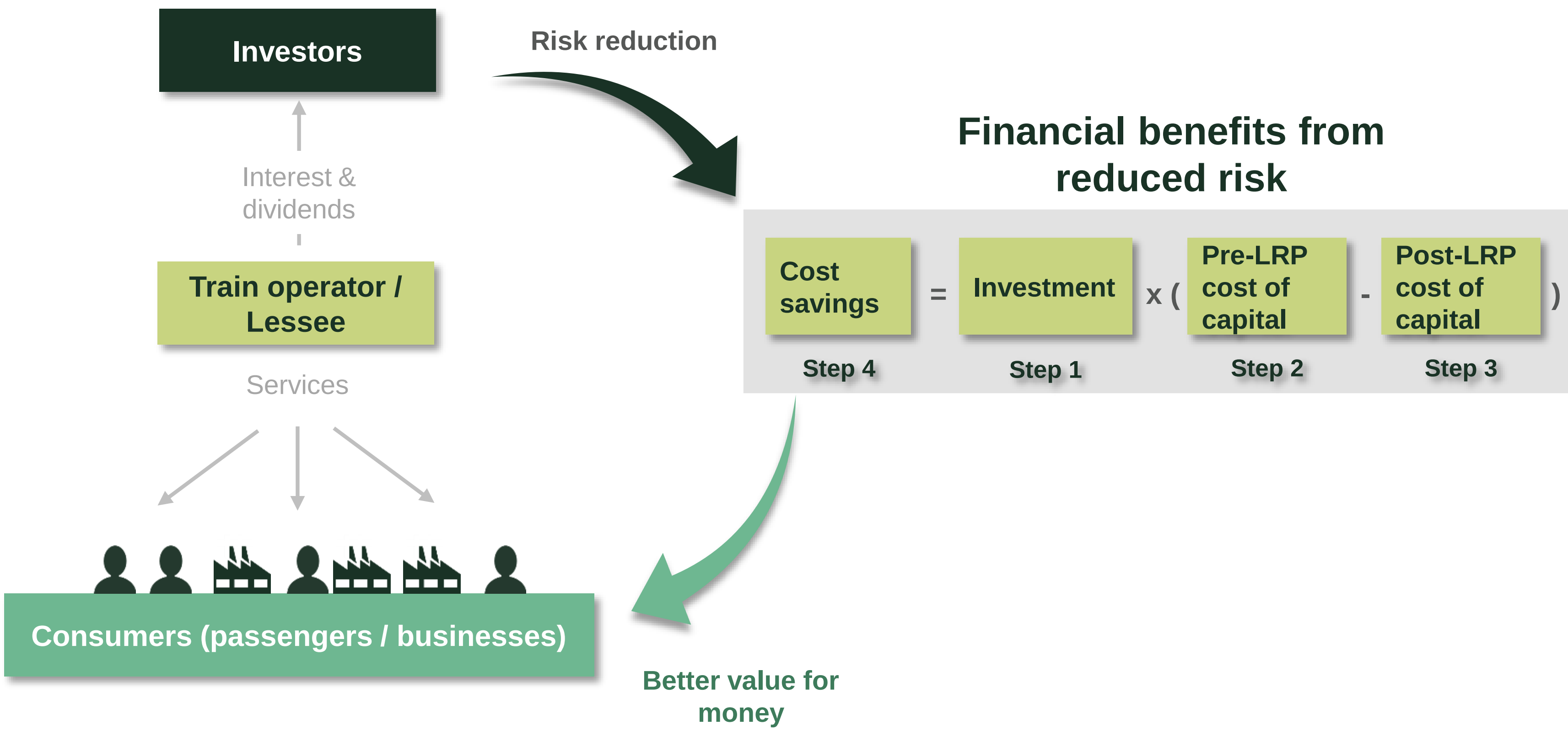
Methodological approach



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

Step 1: Investment to finance

Key assumptions

- **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 2023 due to the catalyst effect of the LRP and then remain constant from 2023 onwards.
- **Periods:** forecast from 2018 to 2047 – terminal value calculated at 2047.

<u>2018-2022:</u> forecasts of new deliveries are assumed to offset retirements based on assumed asset life of 30 years.

<u>2023-2032:</u> model a catch-up period of higher deliveries for countries where average age of fleet exceeds 20 years, i.e. where the LRP will unlock new finance and deliveries to replace aging fleet.

Investment

Financing using LRP

Financing new rolling stock

Freight | **Passenger**

Data (sources)

2018-2022	2023-2032	2033-2047	2048 onwards
Average annual market value of deliveries by type of RS by country in EUR	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 inflation in the EU (2%)	Growing into perpetuity using inflation as growth rate, and discounted at the pre-LRP WACC
(SCI Verkehr data)	(assumption)	(assumption)	(assumption)

Catch-up through reducing average age of fleet

Rationale and methodology

Assets older than 40 years assumed to be gradually retired

↓

Average fleet age therefore gradually reduces to 20 years

↓

This drives additional fleet replacement, which is assumed to happen over 10 years

For South Africa, the average fleet age of around 21 years results in additional purchases of 0.1% per year under this methodology

Luxembourg Rail Protocol → **Increase in access to private financing for all operators** → **Higher rate of investment in new fleet over a catch-up period of 10 years until the average fleet age is 20 years**

Step 2: pre-LRP cost of capital

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 adjusted for inflation

Cost of debt

Sovereign yield adjusted for inflation + Loan margin

Beta based on the railroad transportation industry

Equity risk premium 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)
- country risk premium is implicit in the domestic sovereign yield

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

i **data on value of rolling stock in EUR**

Step 3: post-LRP cost of capital

Risk reduction (not quantified)

Cost of equity

Levered beta x Equity risk premium + Risk-free rate adjusted for inflation and country risk premium

Risk reduction (quantified)

Cost of debt

Risk-free rate adjusted for inflation and country risk premium + Loan margin

Post-LRP cost of capital

Lower transaction costs (quantified)

assumption

-10bp

Cost of capital savings

230bp

Margin reductions for **higher collateralisation**

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

Step 4: Financial benefits

2018-2047

+

2048 onwards

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

=

Annual financial benefits

discounting

Present value of financial benefits over the period

Financial benefits in 2047 for investment in new rolling stock

growing in perpetuity

- growth rate: inflation
- pre-LRP WACC

discounting

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

Results

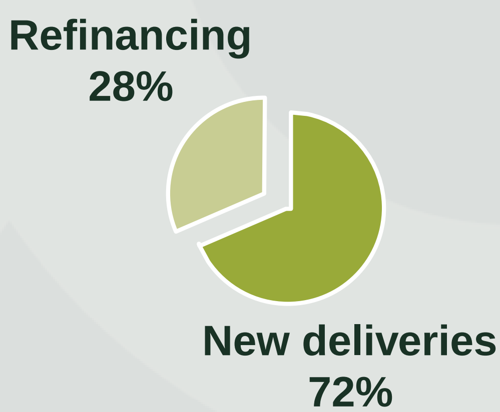
FINANCIAL BENEFITS

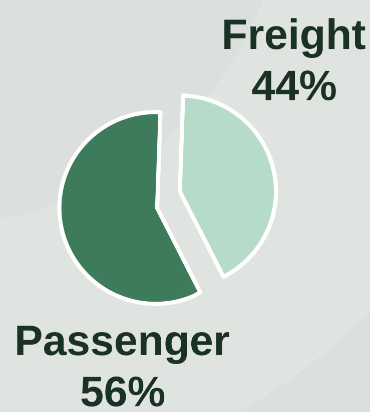
€1.3bn total benefits

equivalent to

R20.0bn total benefits

R358 per inhabitant





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