Do green revenues translate into green alpha?

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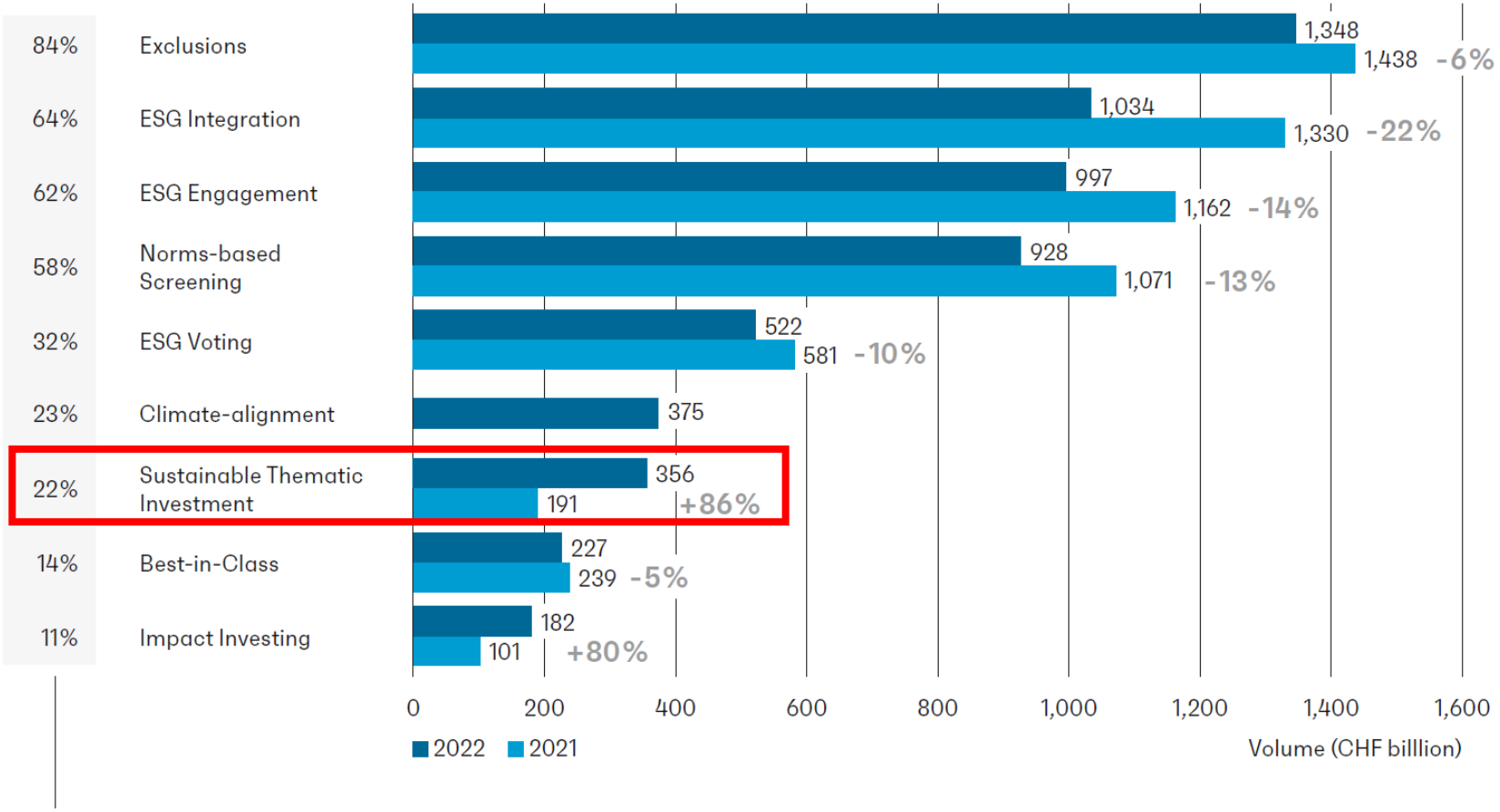
Introduction

- Historically, sustainable investing in public equity markets focused mostly on incorporating traditional ESG criteria into investment decisions

- Examples of traditional ESG criteria
  - workplace safety, water use, GHG emissions, human rights concerns, diversity on boards, etc.

More recently, increasing interest in "sustainability themed investing"

Development of sustainable investment approaches
(in CHF billion) (n=81)



% of total sustainability-related volumes applying respective approach

What is Sustainability-themed investment?

"Investment in businesses contributing to sustainable solutions, both in environmental or social topics."

Source: Swiss Sustainable Investment Market Study 2023 (SSF)

What do we do in our research?

- Study stock market listed firms that provide *"environmental solutions"*
  - Focus on firms that sell "green" products and services (i.e., generate "green revenues")

- **Note**: Having "green revenues" is very different from having good ESG scores
  - Green revenues exhibit low correlations with traditional ESG scores or GHG intensities

What do we do in our research? (contd.)

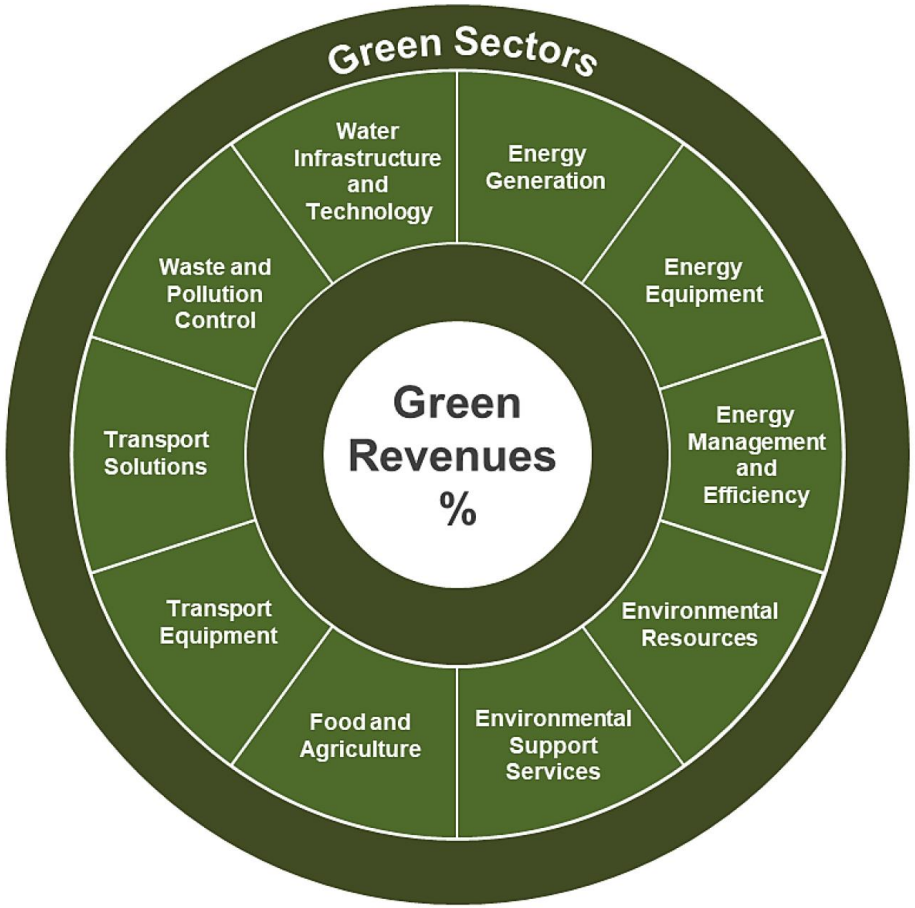
1. **Question :** What is the size of the green economy?
   - How prevalent are “green revenues” among stock market listed firms?
   - What are the main sectors generating green revenues?
   - Are there specific countries with more green revenues?

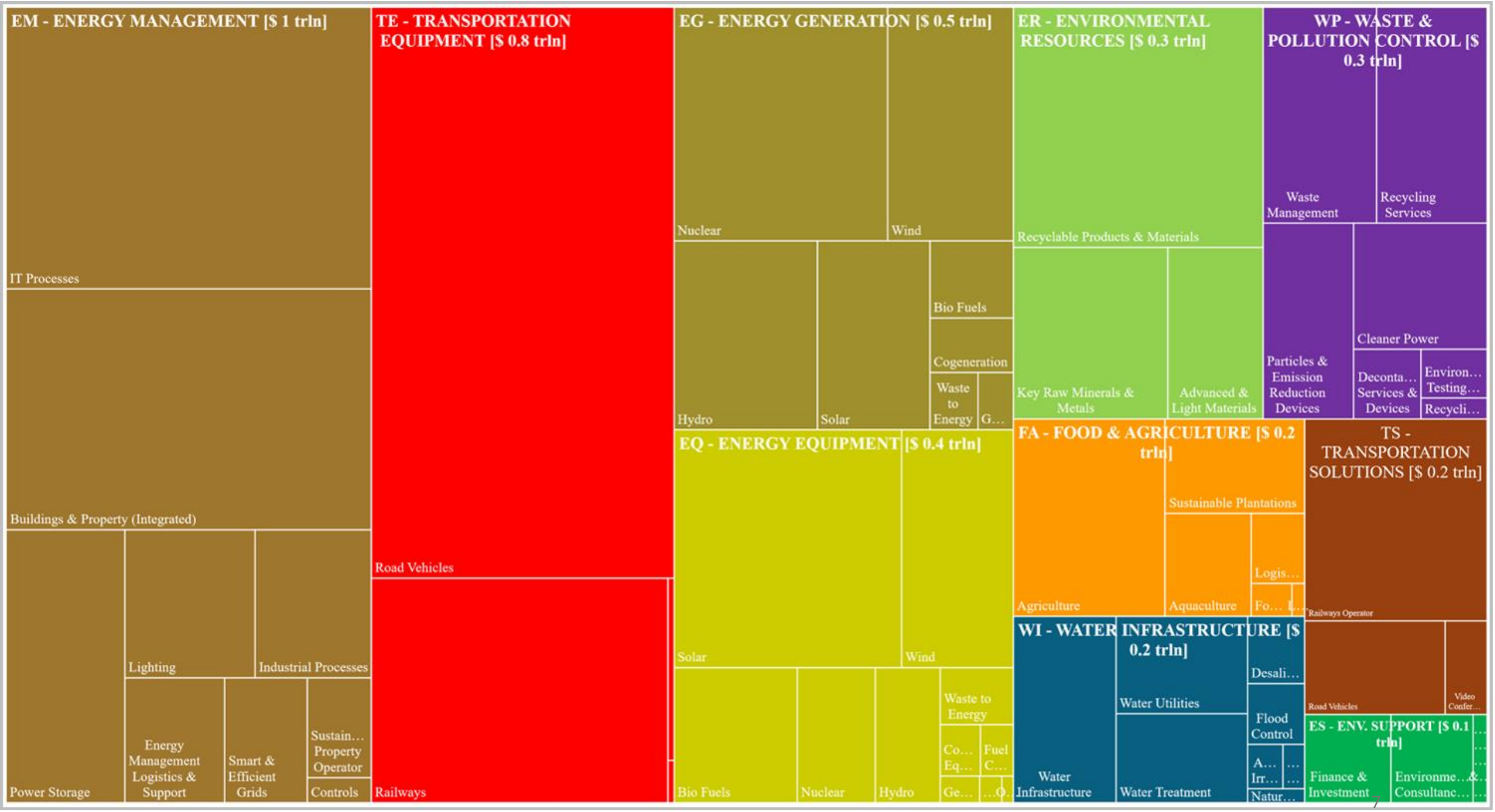
2. **Question :** What drives green revenues?

3. **Question :** Do green revenues translate into investment returns?

Data

- Global sample of >16,000 firms from 48 countries
- Study period: 2008 to 2022
- Data: **FTSE Russell Green Revenues Data**
  - The data classifies firms' corporate revenues into green "activities"
    - Different granularities: Sectors, subsectors, micro-sectors
- **Main dimension of interest:**
  Green Revenues = revenues a company derives from "green" products and services
  - Percentage green revenues (of total revenues)
  - Dollar green revenues




EM - ENERGY MANAGEMENT [$ 1 trln]
IT Processes
Buildings & Property (Integrated)
Power Storage
Lighting
Industrial Processes
Energy Management Logistics & Support
Smart & Efficient Grids
Sustain… Property Operator
Controls
TE - TRANSPORTATION EQUIPMENT [$ 0.8 trln]
Road Vehicles
Railways
EG - ENERGY GENERATION [$ 0.5 trln]
Nuclear
Wind
Hydro
Solar
Bio Fuels
Cogeneration
Waste to Energy
G…
EQ - ENERGY EQUIPMENT [$ 0.4 trln]
Solar
Wind
Bio Fuels
Nuclear
Hydro
Waste to Energy
Co… Eq…
Fuel C…
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ER - ENVIRONMENTAL RESOURCES [$ 0.3 trln]
Recyclable Products & Materials
Key Raw Minerals & Metals
Advanced & Light Materials
WP - WASTE & POLLUTION CONTROL [$ 0.3 trln]
Waste Management
Recycling Services
Particles & Emission Reduction Devices
Cleaner Power
Deconta… Services & Devices
Environ… Testing…
Recycli…
FA - FOOD & AGRICULTURE [$ 0.2 trln]
Agriculture
Sustainable Plantations
Aquaculture
Logis…
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TS - TRANSPORTATION SOLUTIONS [$ 0.2 trln]
Railways Operator
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Video Confer…
WI - WATER INFRASTRUCTURE [$ 0.2 trln]
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ES - ENV. SUPPORT [$ 0.1 trln]
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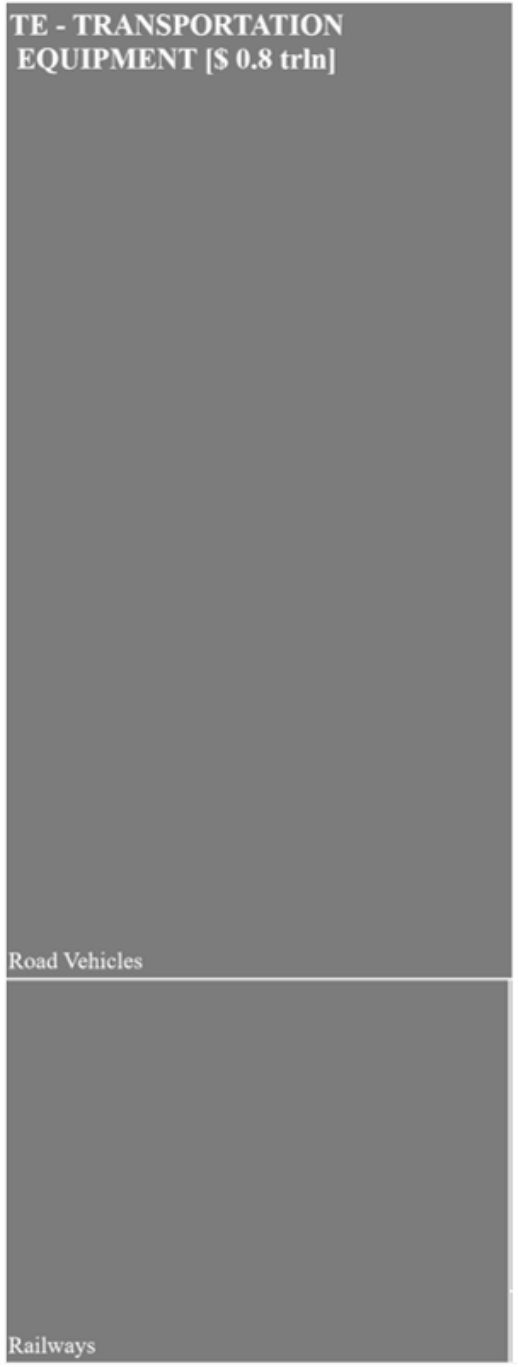
TE - TRANSPORTATION EQUIPMENT [$ 0.8 trln]
Road Vehicles
Railways

TE - TRANSPORTATION EQUIPMENT [$ 0.8 trln]

TESLA
$ 81 bln
100%
(93% in TE - Electrified Road Vehicles & Devices)

TOYOTA MOTOR
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30%
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Road Vehicles

Railways

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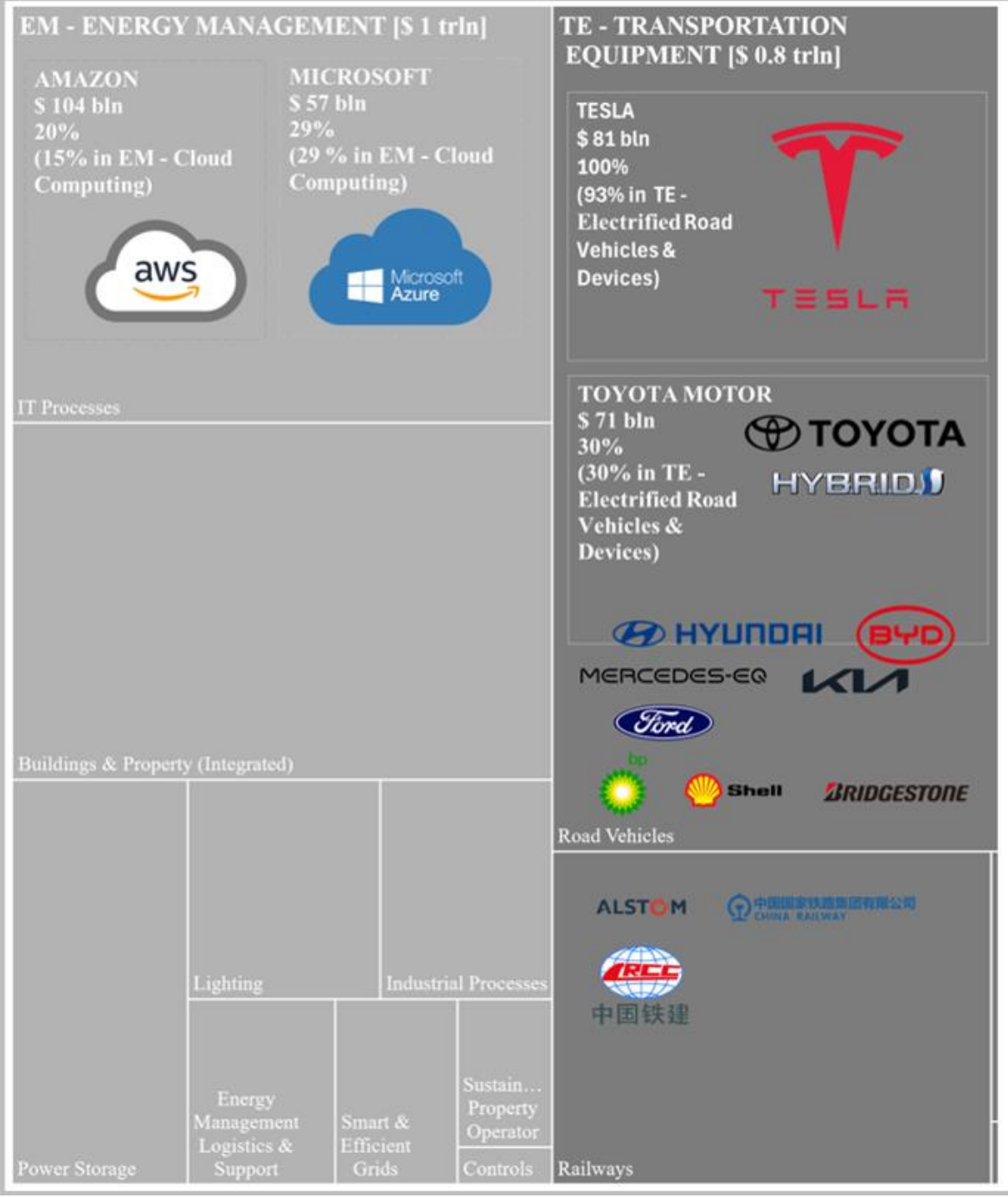
EM - ENERGY MANAGEMENT [$ 1 trln]
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$ 104 bln
20%
(15% in EM - Cloud Computing)
aws
MICROSOFT
$ 57 bln
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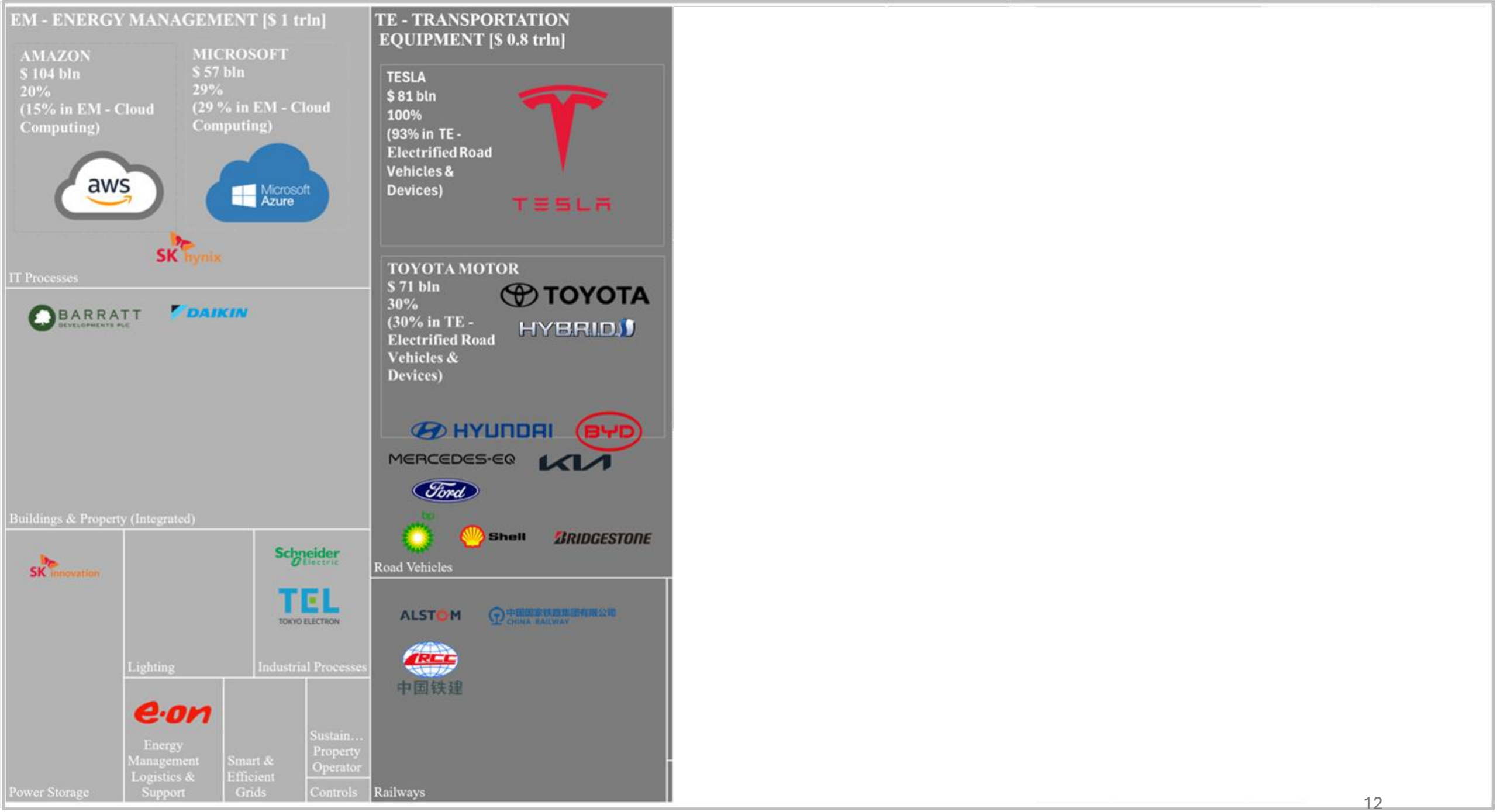
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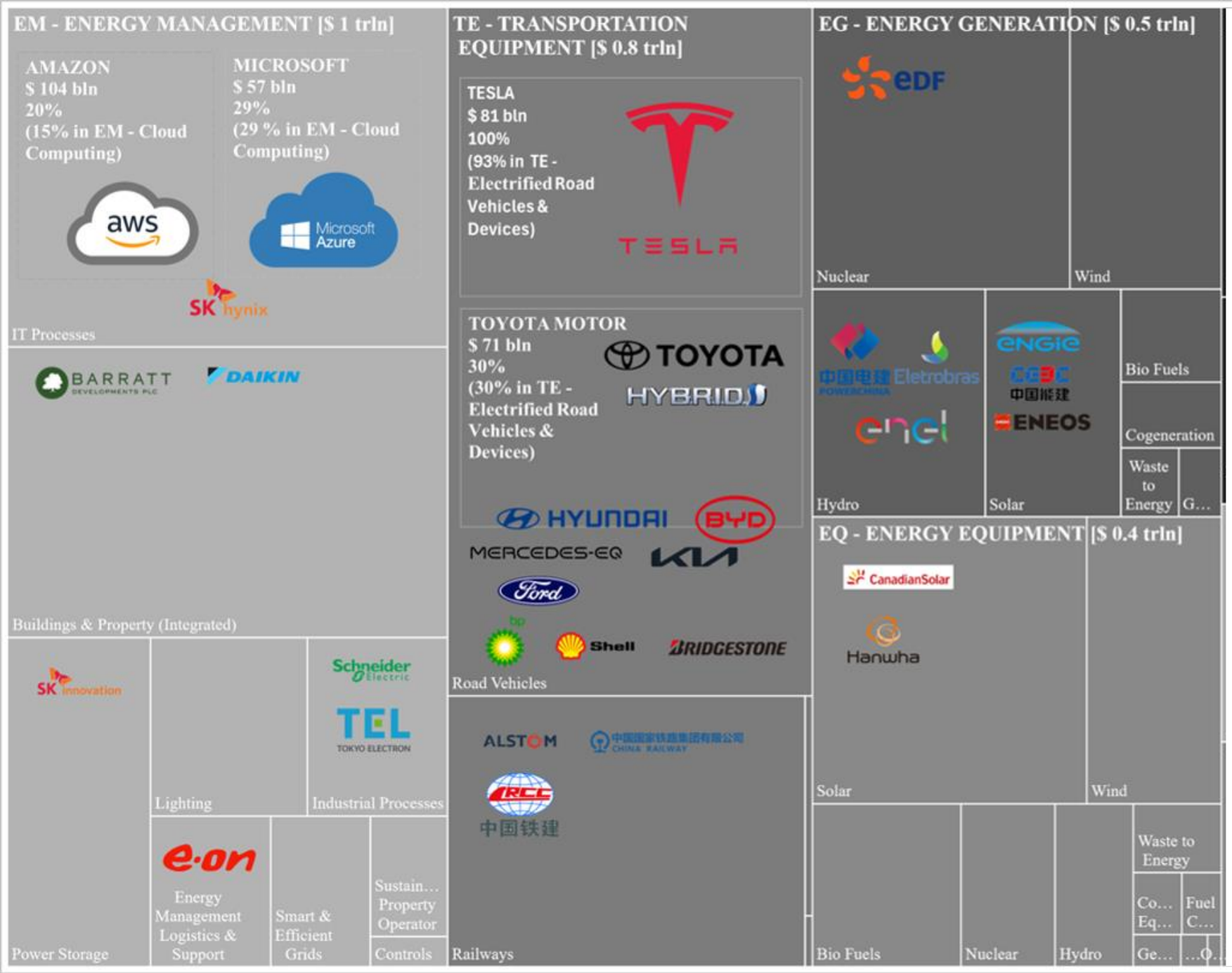
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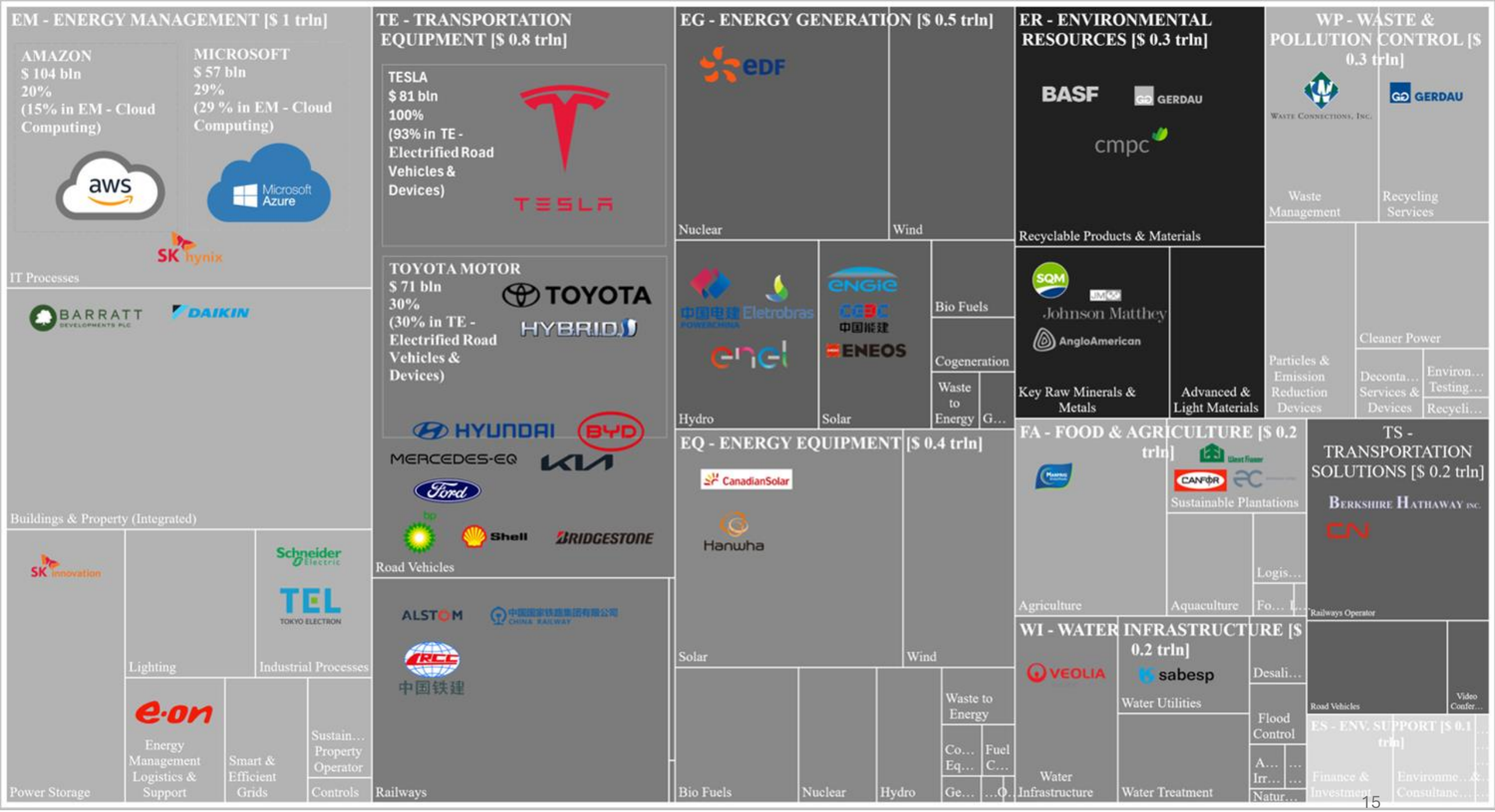
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Outline

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   - How prevalent are “green revenues” among stock market listed firms?
   - What are the main sectors generating green revenues?
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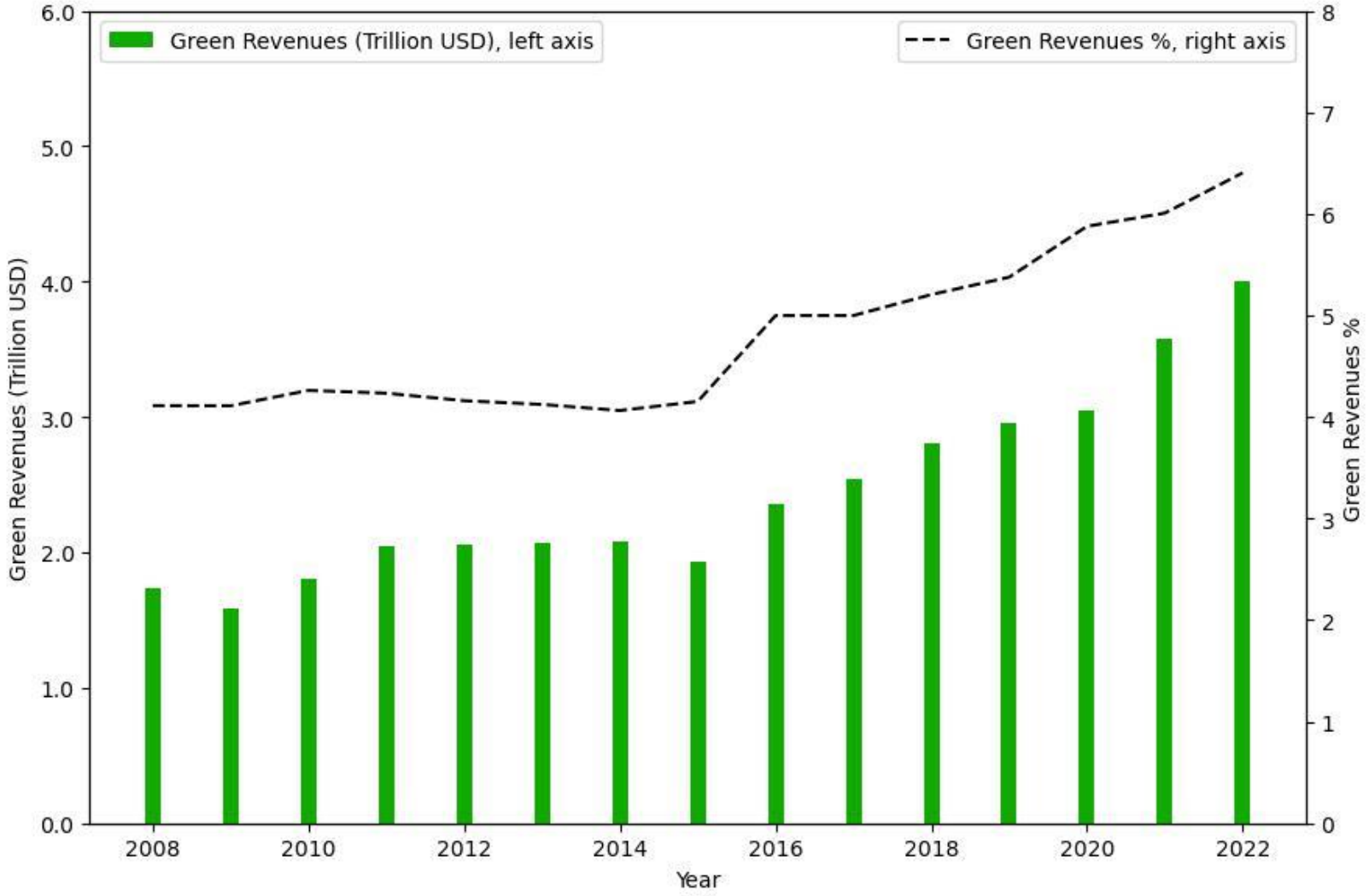
2. **Question :** What drives green revenues?

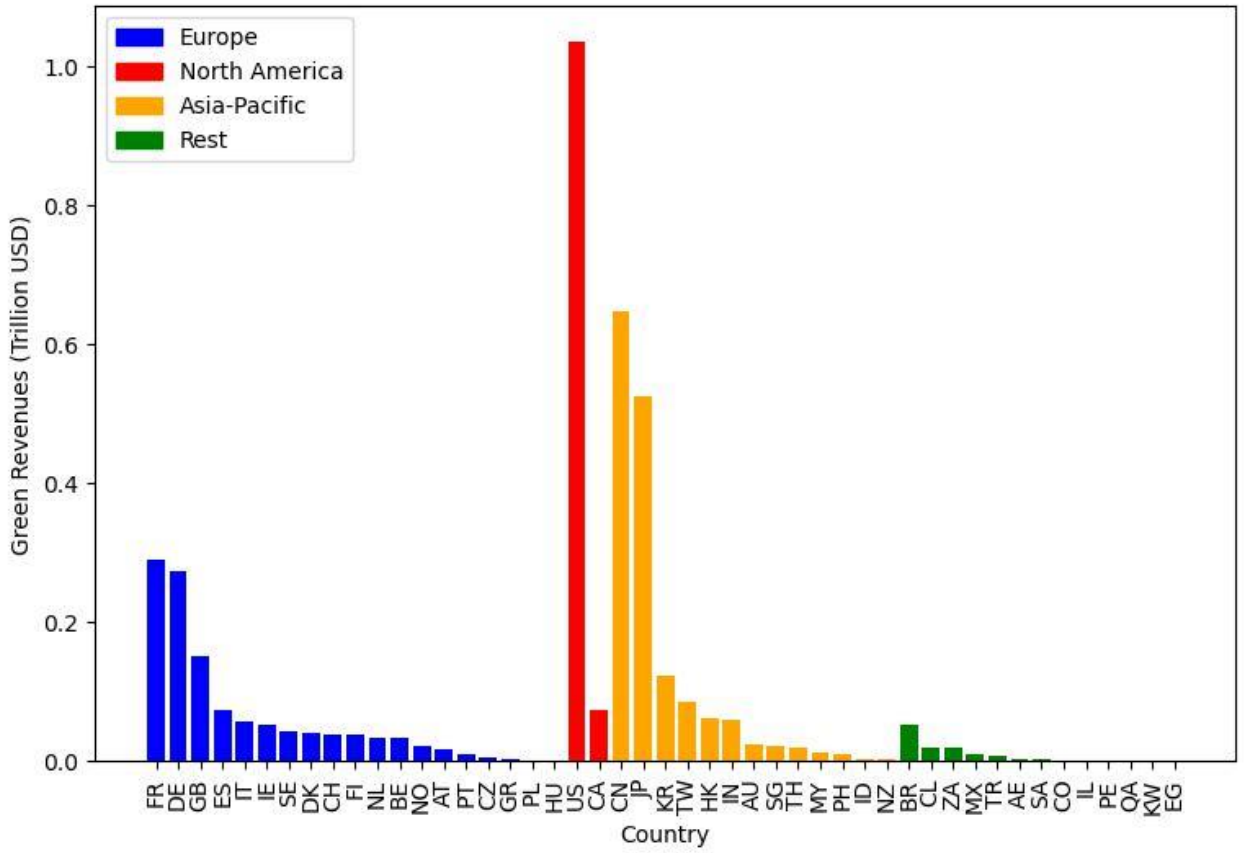
3. **Question :** Do green revenues translate into investment returns?

Question 1: How big is the green economy?

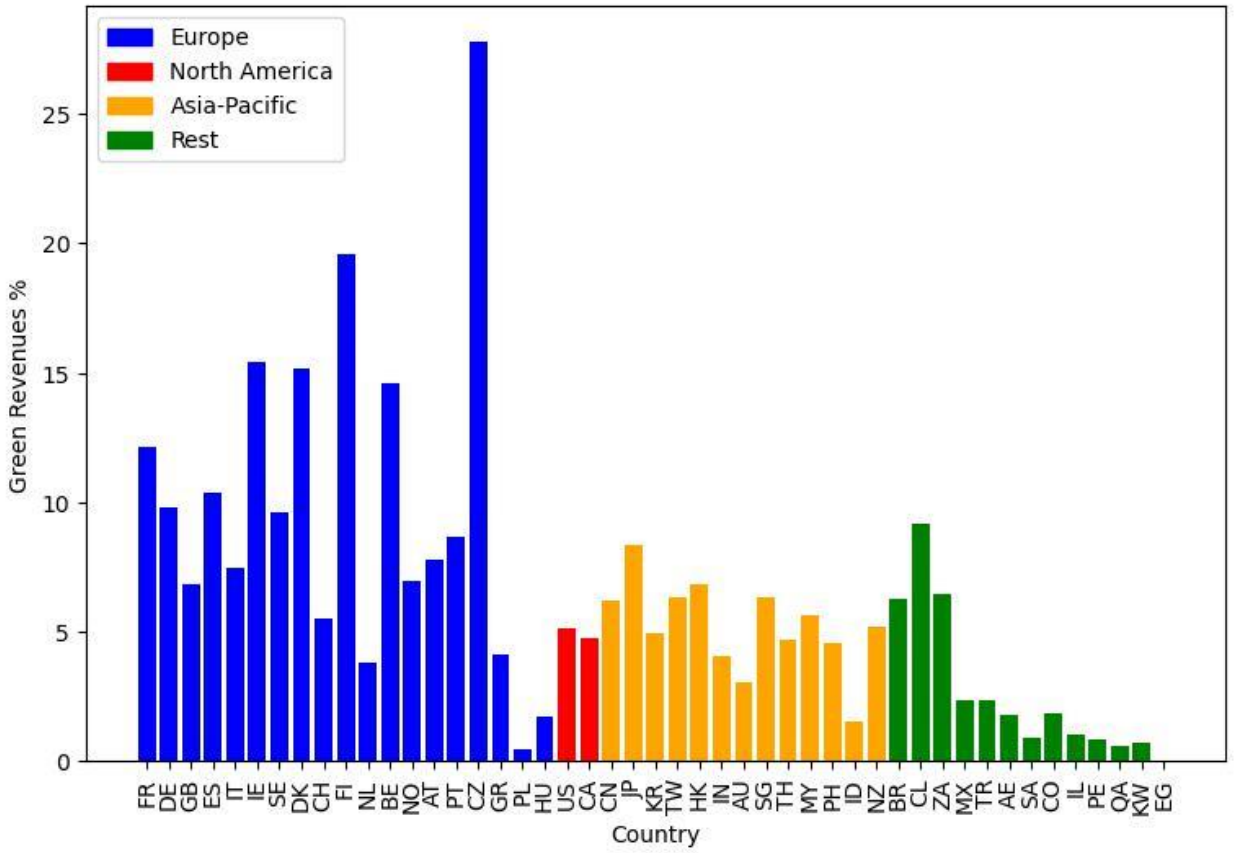


Green revenues by country

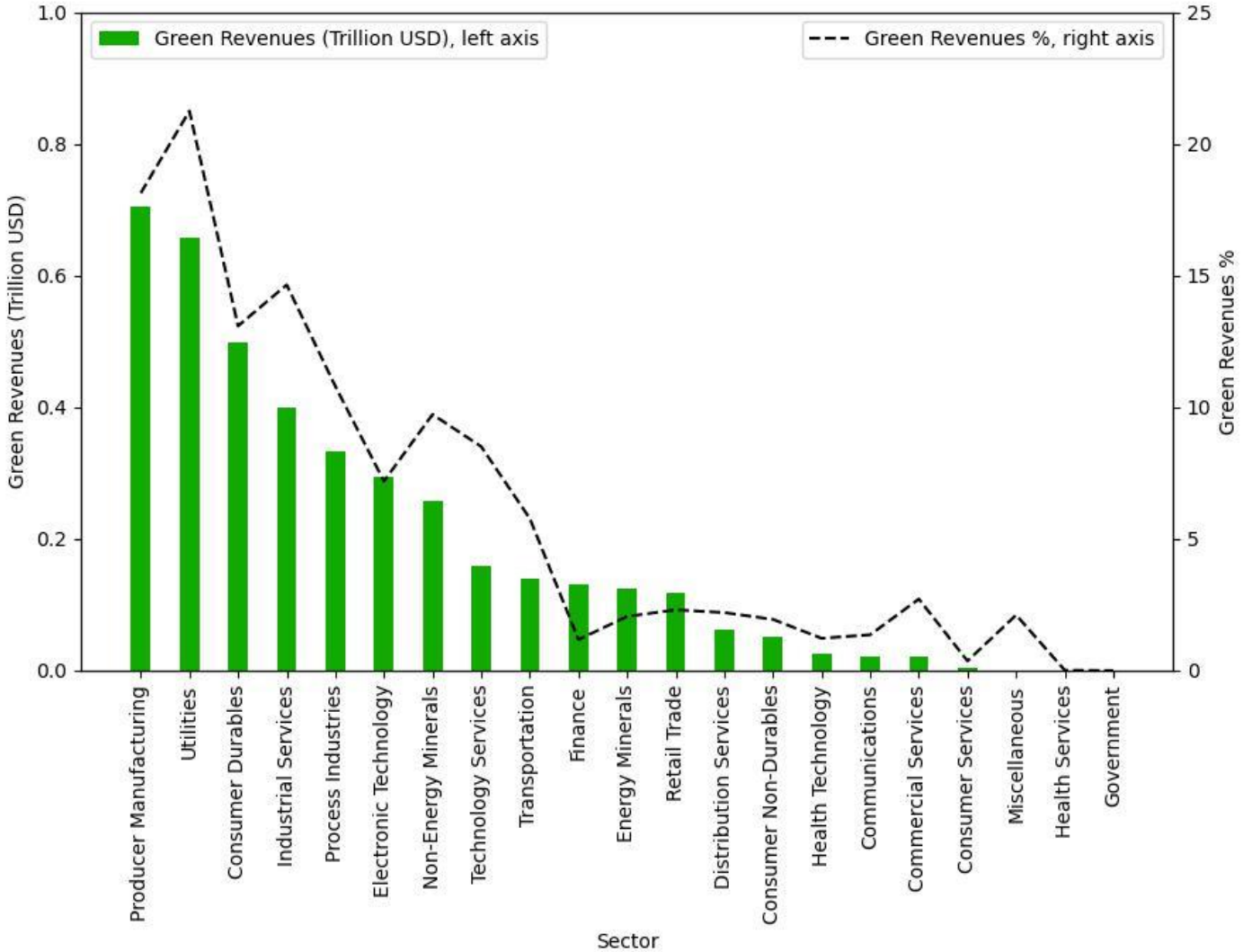
Absolute (trillion USD)



Relative (% of total revenue)



Which sectors generate most green revenues?



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Three drivers of green revenues

1. **Green innovation**
   - Firms with more green patents generate higher green revenues
2. **Regulation**
   - Regulatory push towards sustainability (e.g., EU Taxonomy, etc.) in Europe resulted in higher green revenues
3. **Institutional ownership**
   - Firms with high institutional ownership generate higher green revenues
     - Ownership by long-term-oriented institutions (i.e., institutions with lower portfolio turnover) most relevant
     - ESG investors (i.e., signatories PRI investors) do not play a role

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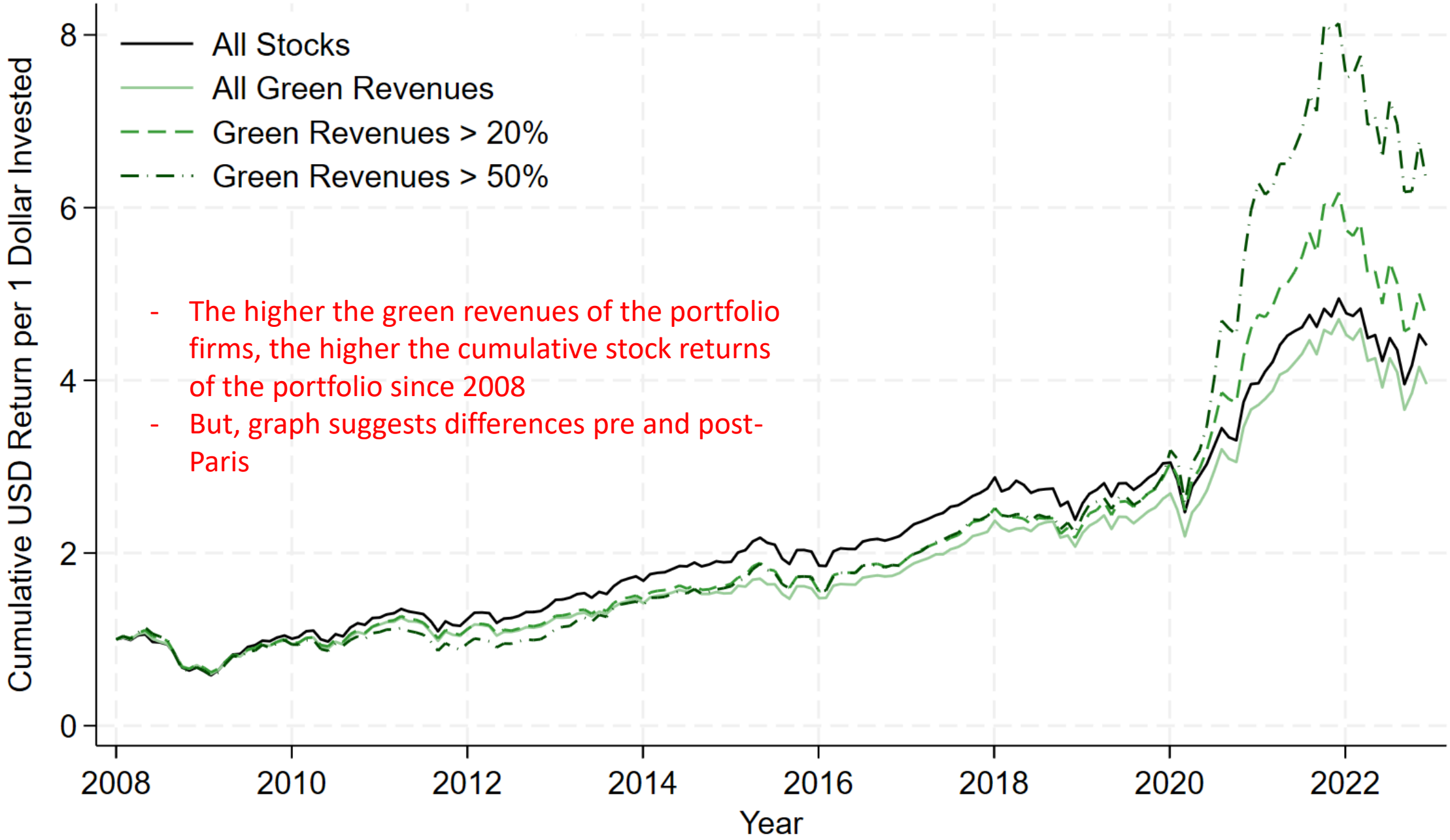
Is there a green alpha from investing in firms with high green revenues?

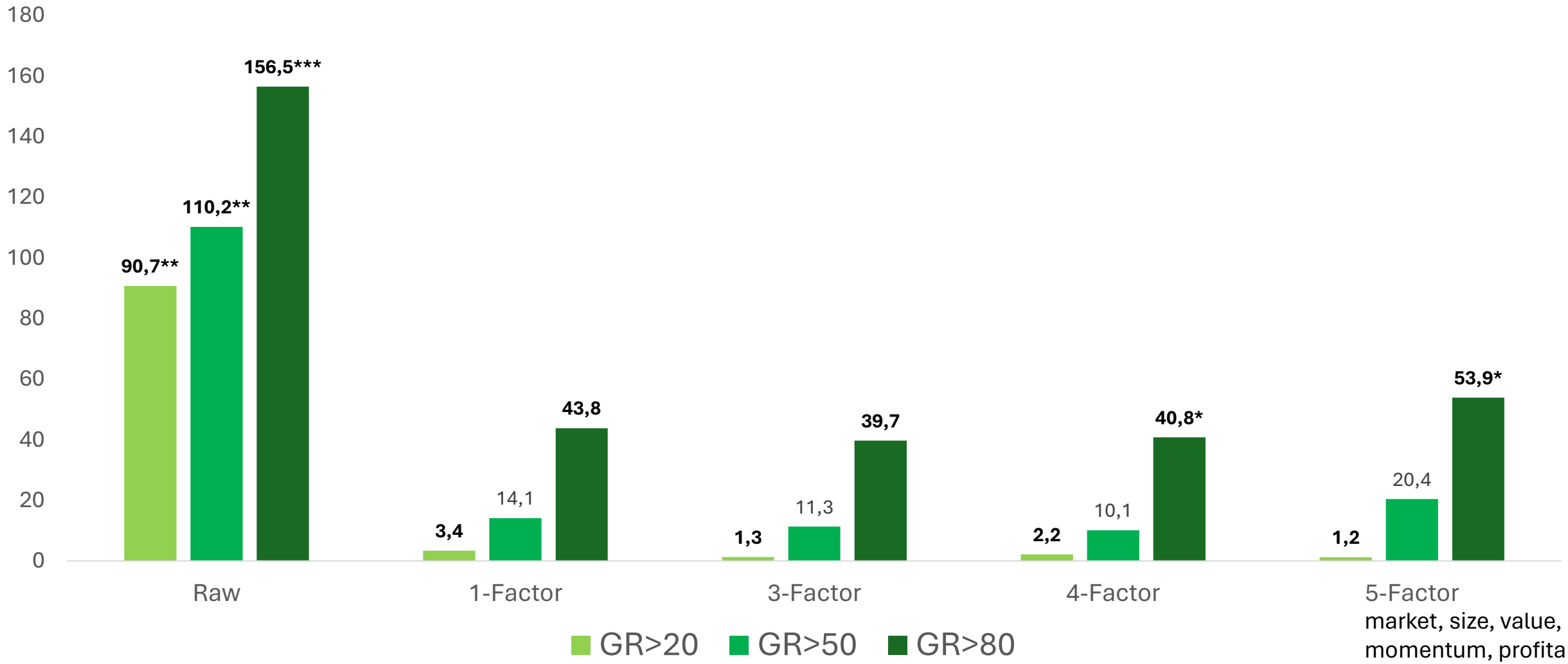
- Evaluate the performance of several value-weighted portfolios:
  1. all green stocks (green revenues > 0%)
  2. stocks with green revenues > 20%
  3. stocks with green revenues > 50%
  4. stocks with green revenues > 80%



- The higher the green revenues of the portfolio firms, the higher the cumulative stock returns of the portfolio since 2008
- But, graph suggests differences pre and post-Paris

Is there a ”green alpha” when controlling for known asset pricing factors?

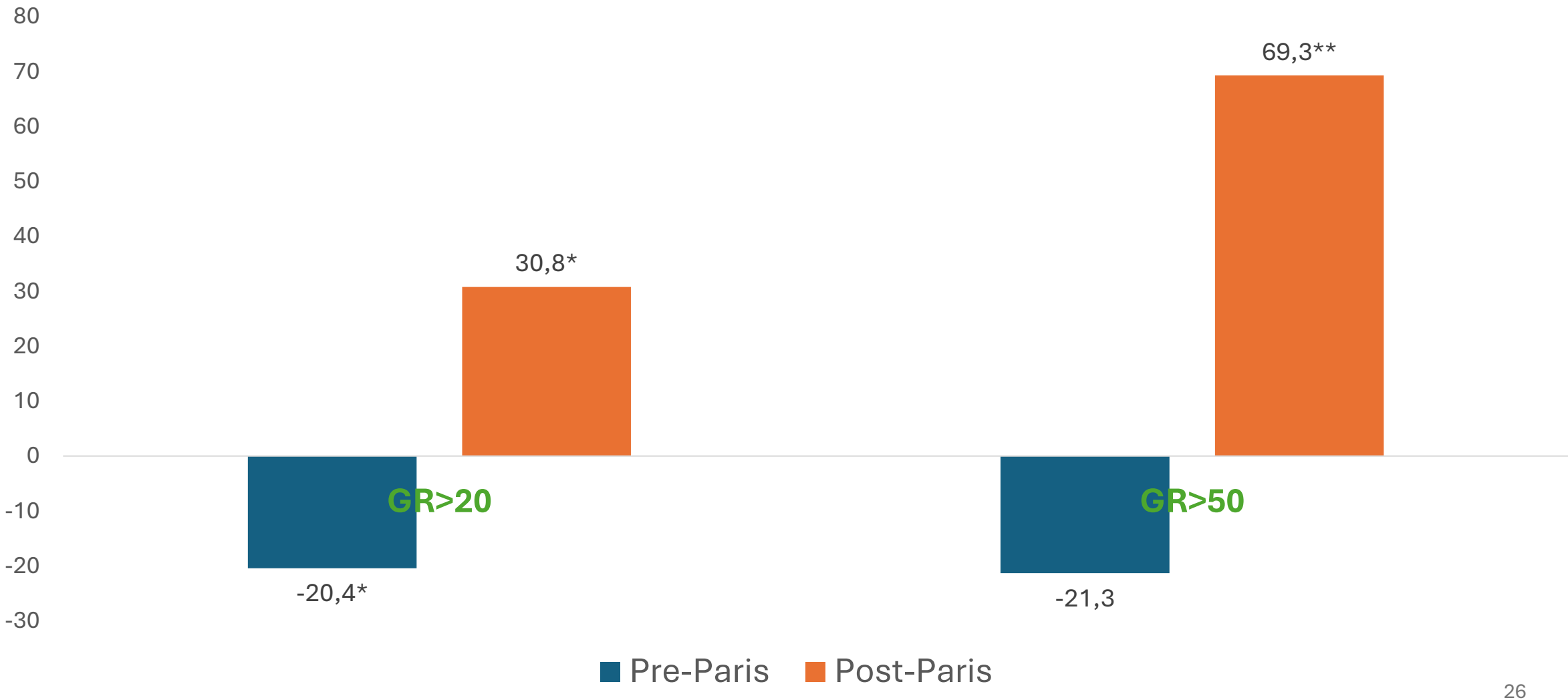
(Average monthly alpha (in bps))



*** p<0.01, ** p<0.05, * p<0. 1

Five-Factor Alphas - Pre- and Post Paris

(Average monthly alpha (in bps))



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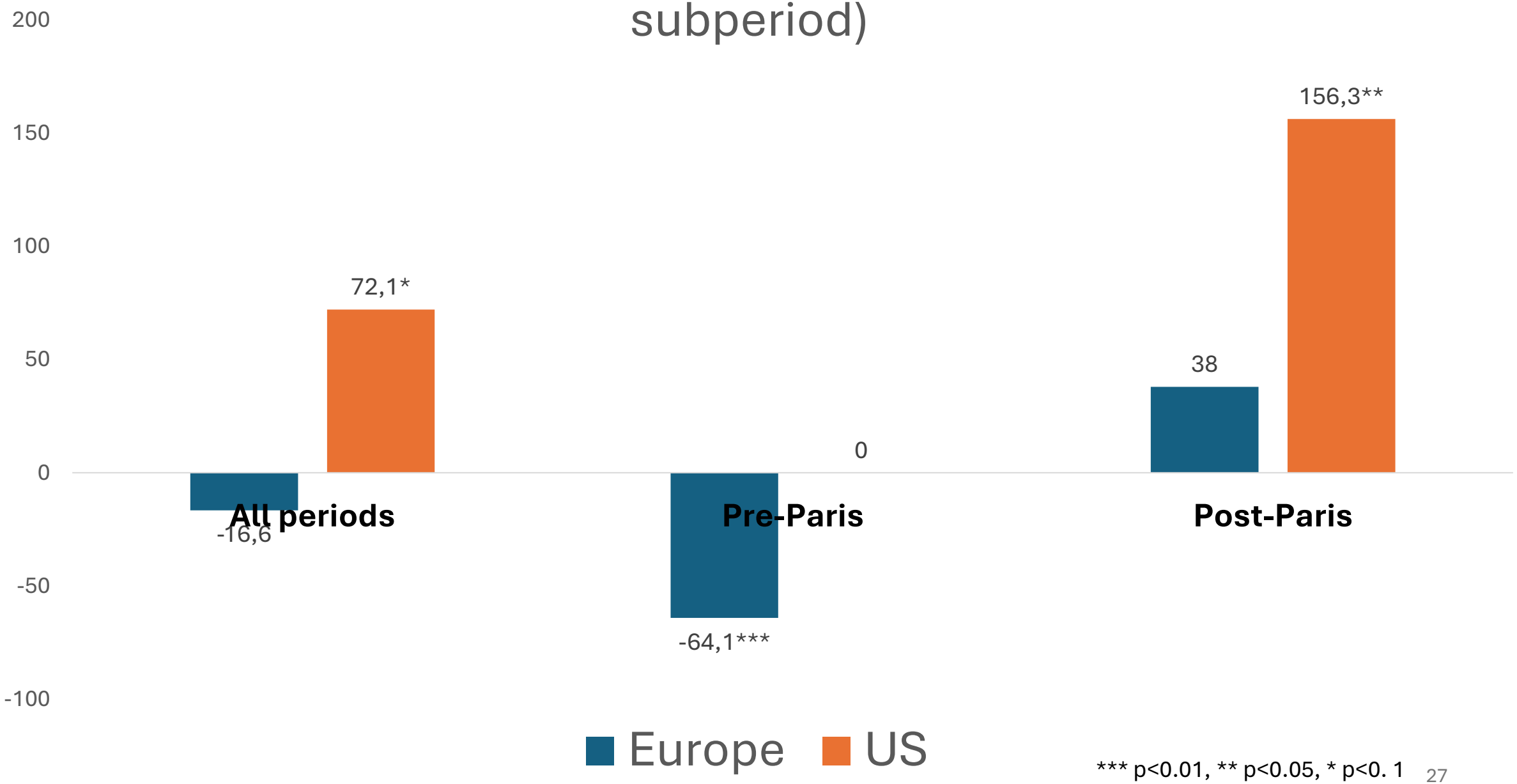
Five-Factor Alpha GR>50 Portfolio (by country, and subperiod)



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Conclusions and main findings

- **Q1: Sizing the green economy**
  - In 2022, the green economy was about USD 4tn (roughly the size of the Oil & Gas sector)
  - Acceleration post 2015
  - US and China largest in terms of absolute green revenues, but Europe has higher relative green revenues
- **Q2: Identify the drivers of the green economy**
  - #1 - Corporate innovation: taking green patents to market
  - #2 - Public policies: European Sustainable Finance regulatory push
  - #3 - Ownership: institutional owners, in particular long-term oriented ones
- **Q3: Study the financial returns from investing in green firms**
  - Is there a green alpha? Weak alpha for the firms with highest green revenues
  - Largely concentrated among US firms
  - Green alpha, if at all, materializes mostly post-Paris

Thank you for your attention.