

# **Implication of Global Trade Uncertainty on Thailand Manufacturing Sector's Green Innovation**

*Preliminary Draft - Please do not cite*

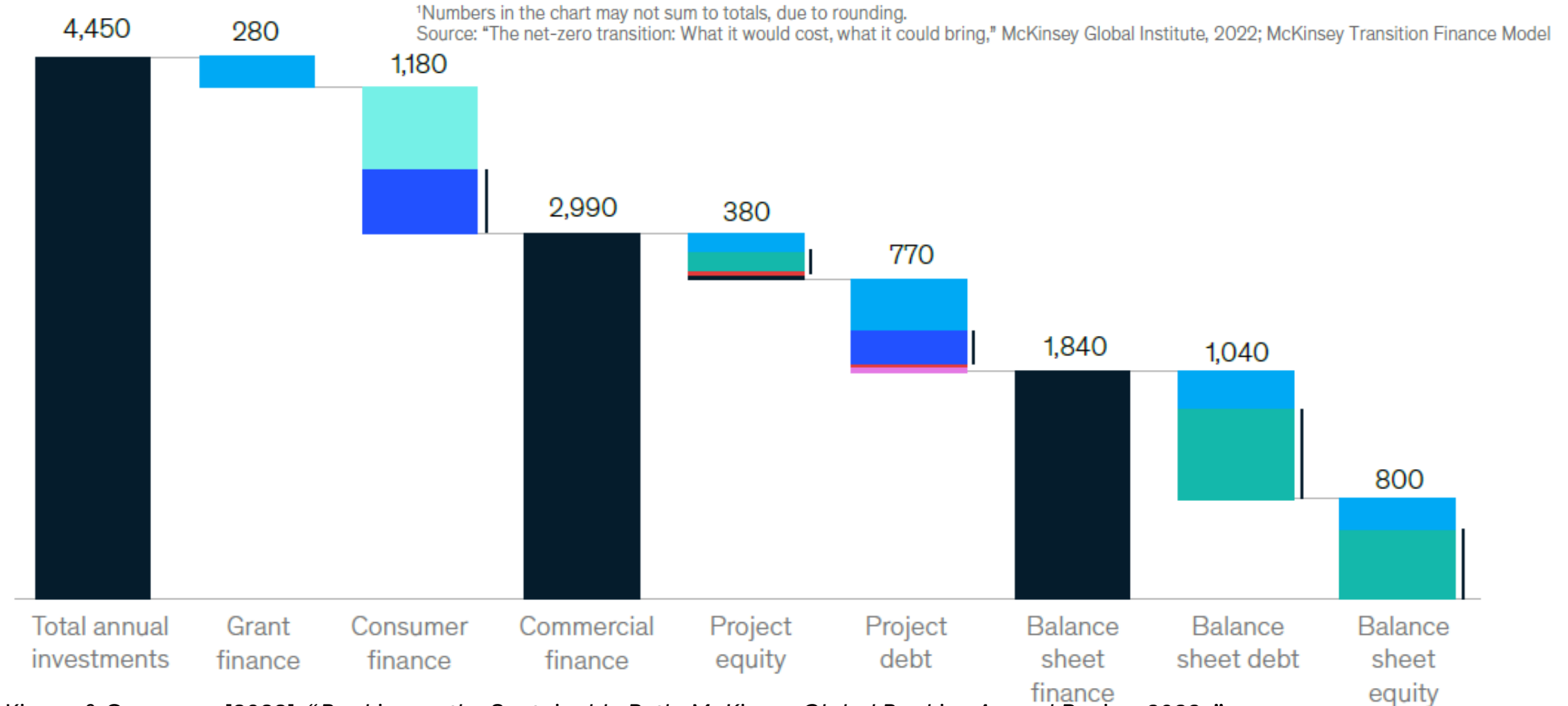
**Nakarin Amarase**

# Financing Green Transition is promising with a variety of possibilities

Annual investment requirement,<sup>1</sup> 2021–30, \$ billion

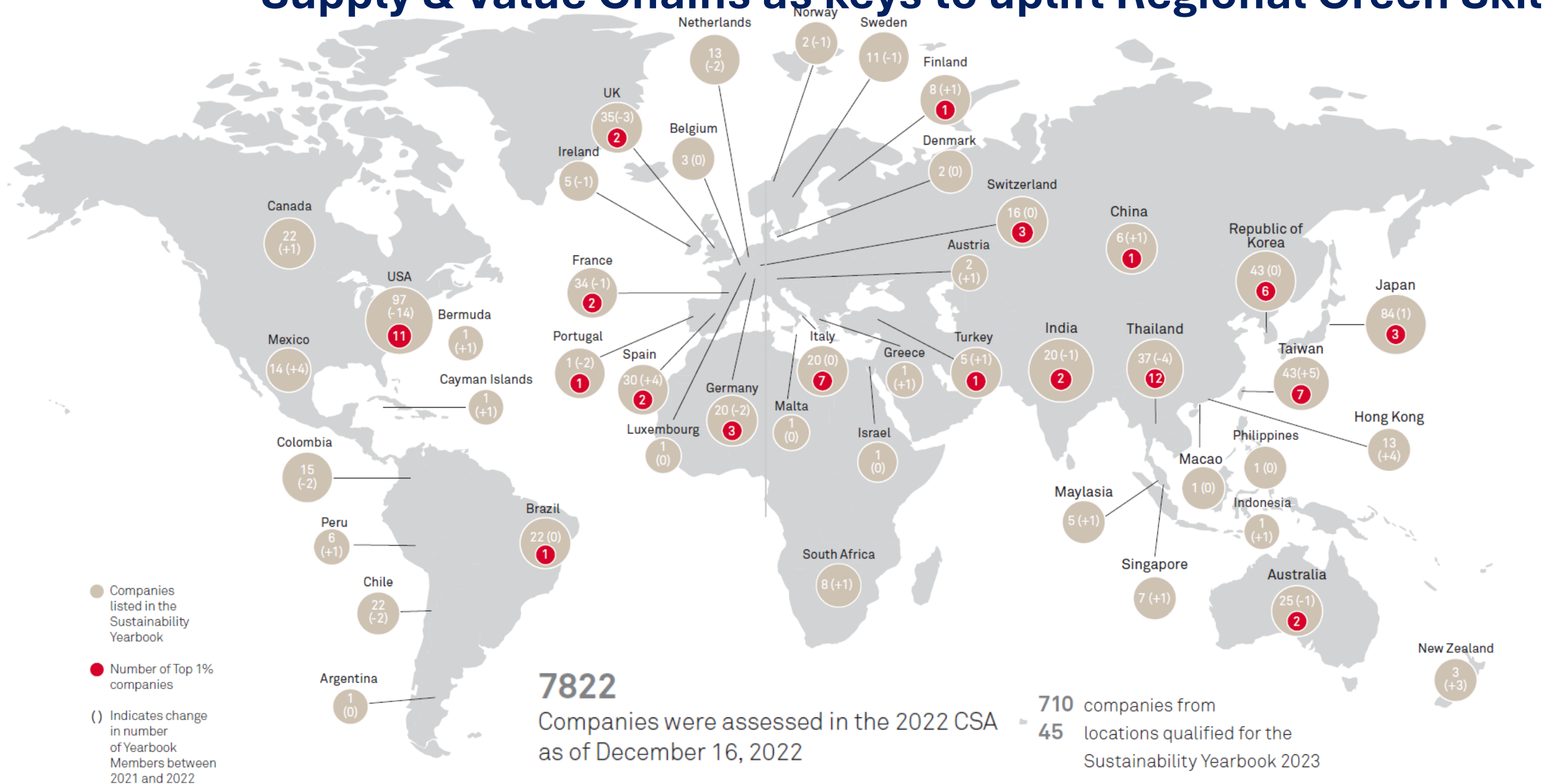
■ Infrastructure funds ■ Commercial financial institutions ■ Households/individuals ■ Corporations  
 ■ Public primary financing actors ■ Private-equity/venture capital funds ■ Institutional investors

| Potential for banks to engage



Source: McKinsey & Company. [2022], "Banking on the Sustainable Path, McKinsey Global Banking Annual Review 2022."

# 51 of 710 Companies Listed in the DJSI are in ASEAN with Supply & Value Chains as keys to uplift Regional Green Skills



Source: S&P Global. [2023] “The S&P Global Sustainability Yearbook 2023” and analyzed by the author.

# BCG (Bio-Circular-Green) Model: Key Conceptual Framework for Growth

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The BCG Economy Model (Bio-Circular-Green) is the Thailand's national strategy aimed at restructuring the economy by utilizing technology and biodiversity to create added value, coupled with environmentally friendly development.



## **Bio Economy**

Aims to utilize biological resources efficiently to create high-value products



## **Circular Economy**

Maximizes the reuse of materials to reduce waste to near zero



## **Green Economy**

Creates a balance between economic, social, and environmental development sustainably



## BOI: Green Investment Mechanism

The Office of the Board of Investment (BOI) utilizes various incentive measures to stimulate investment in targeted BCG industries and green industries, specifically within the EEC (Eastern Economic Corridor) area.

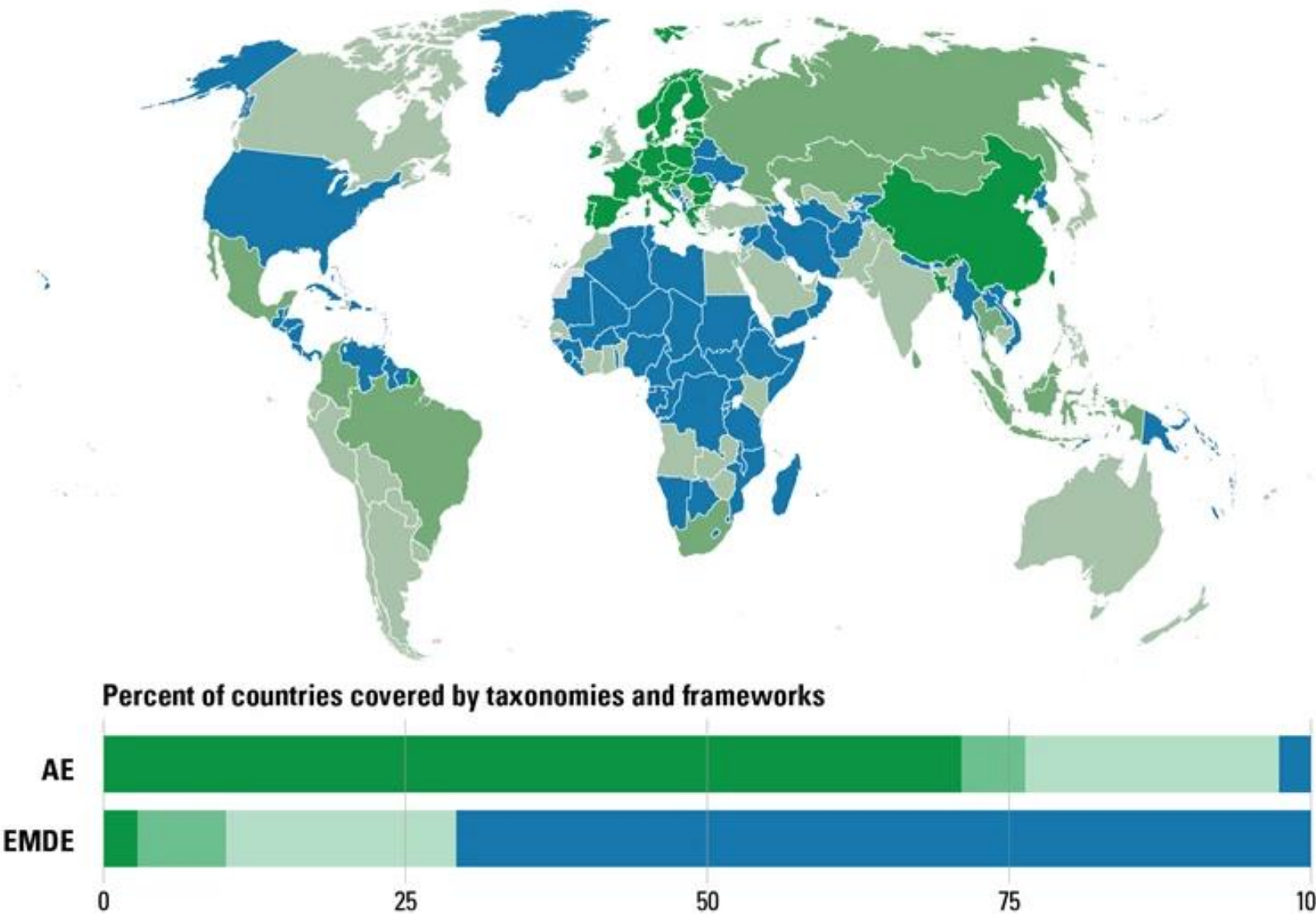
- **Tax Incentives:** Corporate income tax exemption for up to **13 years**.
- **Green Industry:** Supports investment in machinery, energy efficiency, and automation systems.
- **Additional Privileges:** Additional incentives based on business activity type, specific agendas, and location.

## Thailand Taxonomy: Green Investment Standards

Acts as a "**Green Dictionary**" for the financial sector to classify environmentally friendly economic activities. This ensures that capital allocation is directional, efficient, and operates under a unified standard.

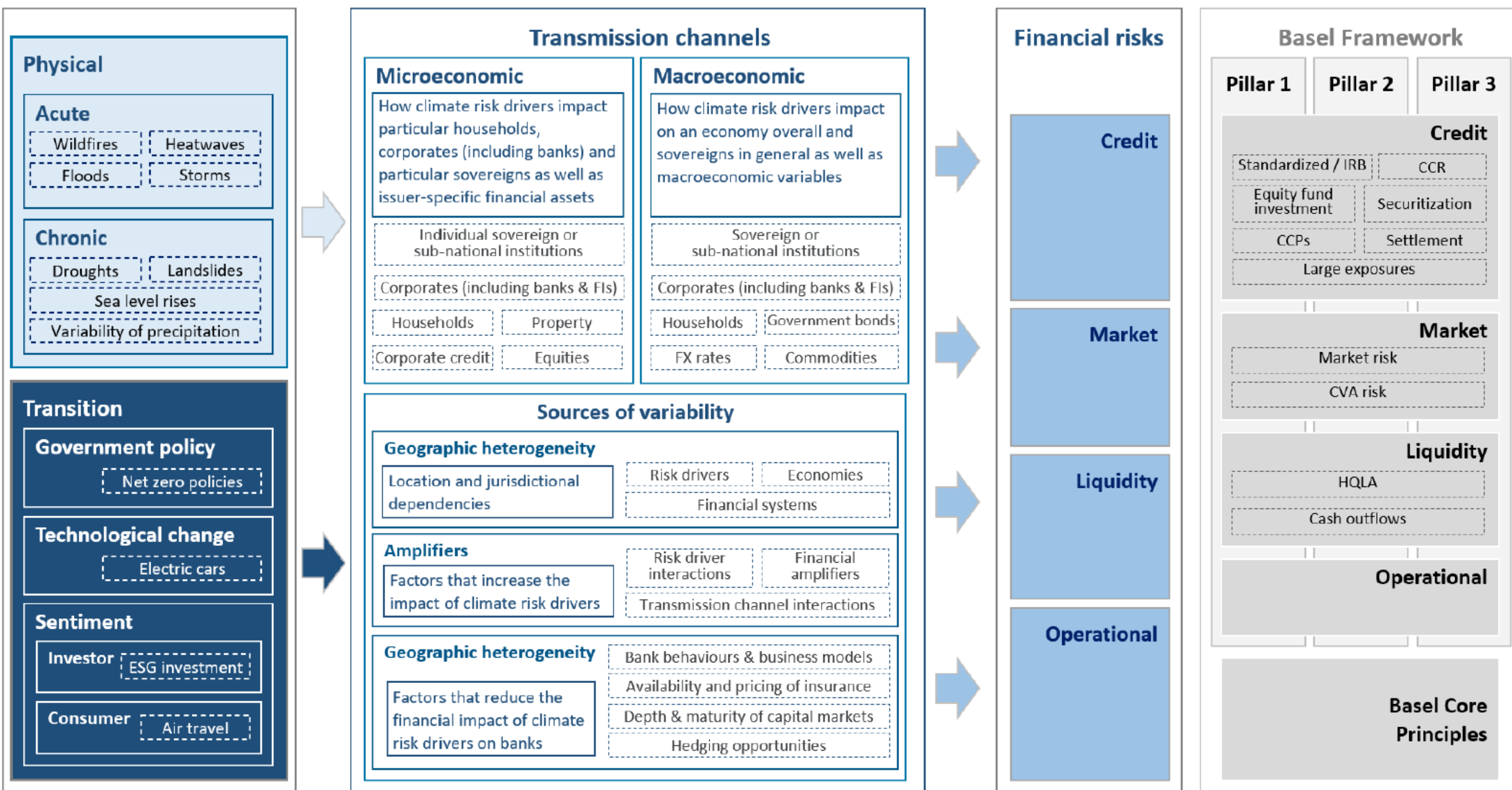
- **Green:** Activities aligned with **Net Zero 2050** goals.
- **Amber:** Activities in the **transition phase**, currently in the process of reducing carbon.
- **Red:** Activities **not aligned** with goals and creating negative impacts.

- No taxonomy/framework/guidelines
- Mandatory green/sustainable finance taxonomy
- Green/sustainable bond framework
- Voluntary green/sustainable finance taxonomy



Source: World Bank [2024], [Taxonomy Astronomy: The global search to define sustainable finance](#)








Source: The Thai Bankers' Association [2023], "INDUSTRY HANDBOOK: INTERNALIZING ENVIRONMENTAL AND CLIMATE CHANGE ASPECTS INTO FINANCIAL INSTITUTION BUSINESS FOR BANKS"



Leader in petrochemicals shifting towards high-value and low-carbon products




-  **Bio-Chemicals:** a fully integrated PLA (bioplastic) plant
-  **Recycle:** ENVICCO plant has already recycled **72,000 tons**.
-  **Sustainable Fuel:** Developed SAF (Sustainable Aviation Fuel) from used oil.

Product Transformation

PTTGC focuses on transforming basic petrochemical products into high-value, environmentally friendly chemicals and fuels.



Leader in the transition to clean energy and future innovation.

-  **Battery:** Leader in G-Cell energy storage systems.
-  **Renewable Energy:** Expanding to **7,058 MW** in 2024.
-  **Strategic Joint Venture:** Building a battery ecosystem in Thailand.

Energy Transformation

GPSC focuses on shifting energy sources from fossil fuels to clean energy, while simultaneously building a new industry around energy storage.



Leader in integrated packaging with the Circular Economy at its core.

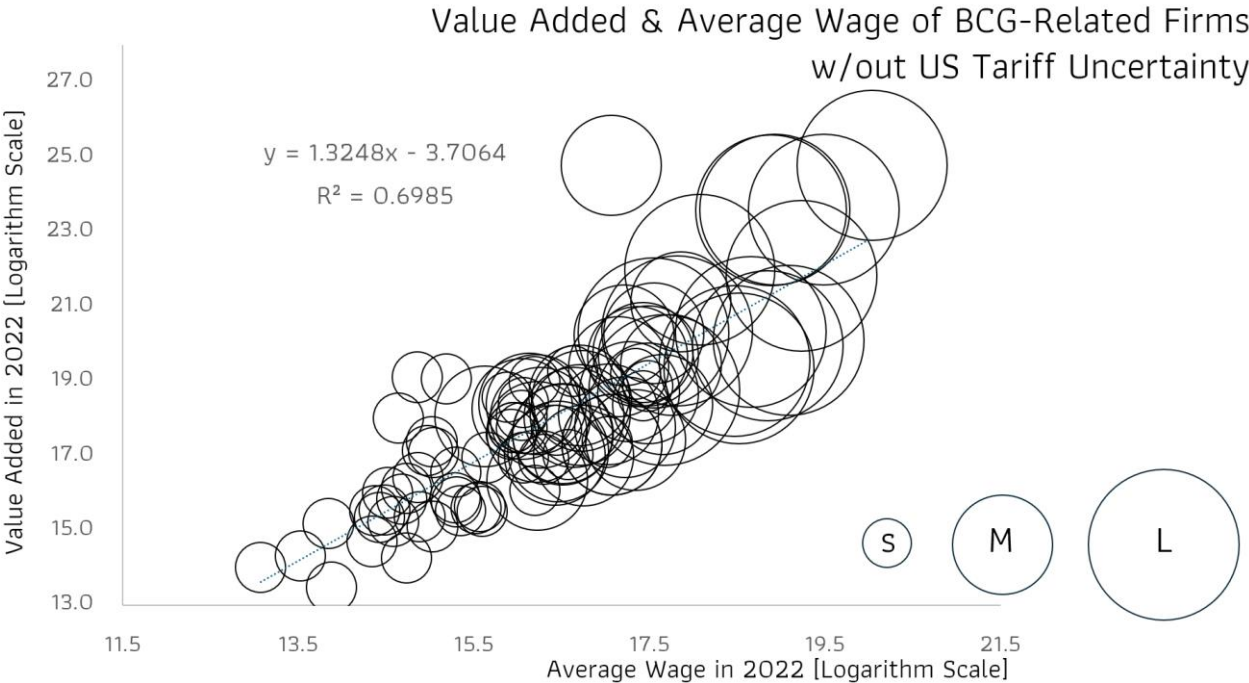
-  **Circular Economy:** The largest recycling leader in ASEAN.
-  **Sustainable Packaging:** **59%** of revenue came from this segment in 2024.
-  **Vertical Integration:** Access to recycled raw material sources globally.

Business Model

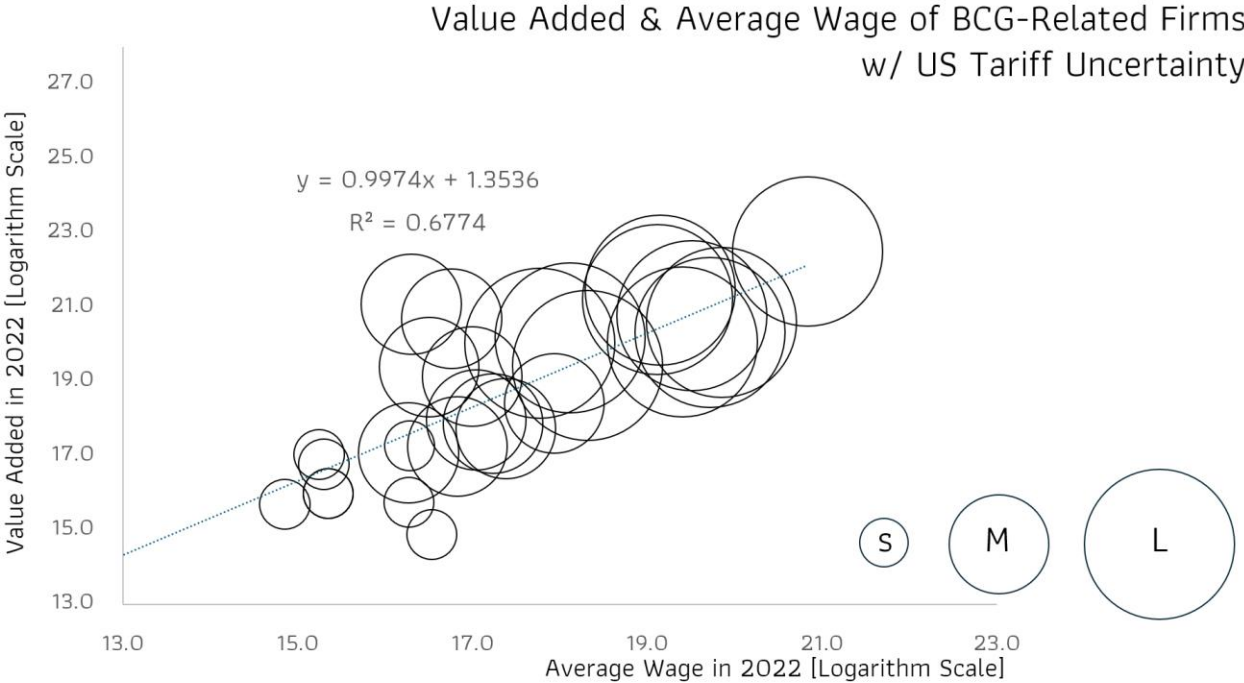
SCGP focuses on using the Circular Economy as the core principle to create competitive advantages throughout the entire value chain.



# Firms w/ High Value Added paid Higher Average Wages



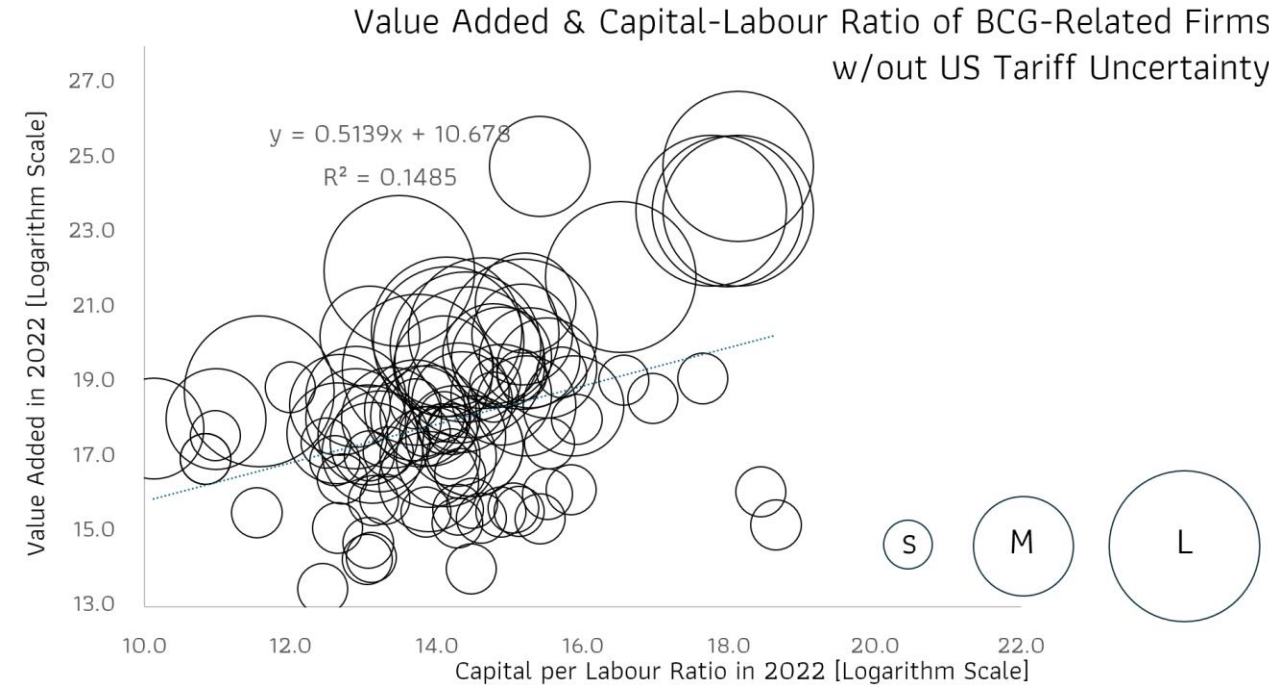
Source: Data from the NSO's Industrial Census 2022 and MOC's Firm Registration Database 2022, calculated by the author



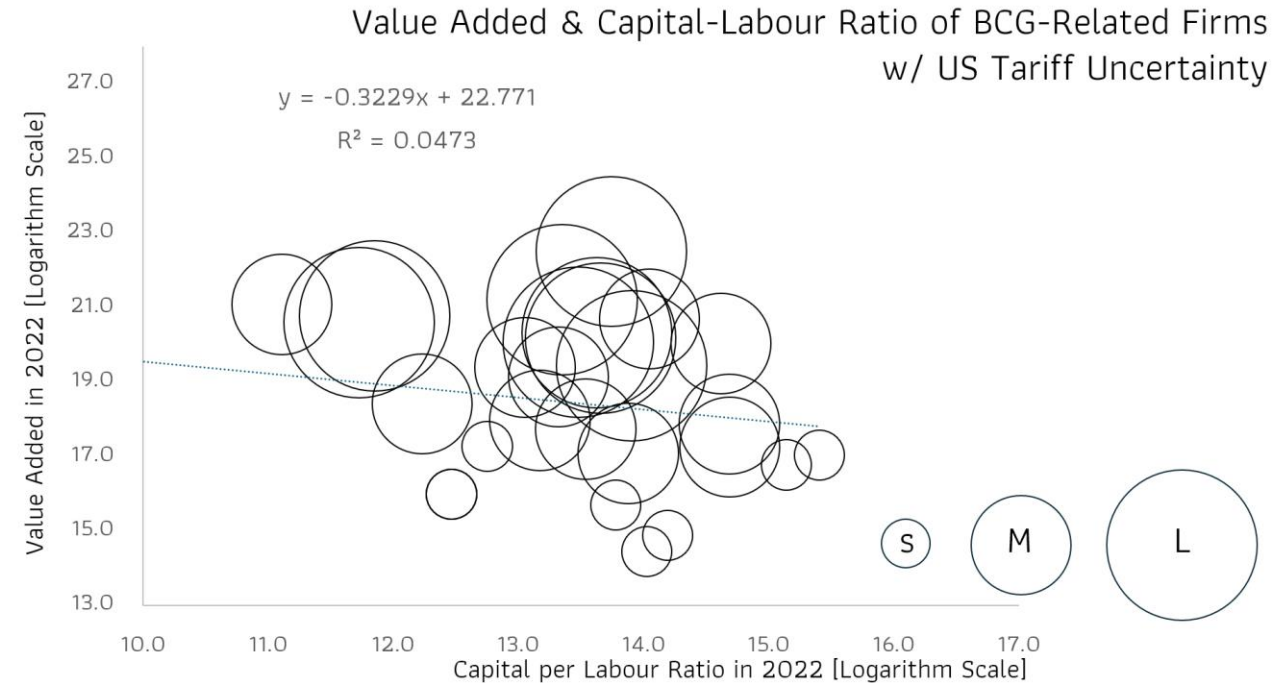
Source: Data from the NSO's Industrial Census 2022 and MOC's Firm Registration Database 2022, calculated by the author

**Source:** NSO's Industrial Census 2022 and calculated by the author

# Value Added has slightly correlated w/ Capital-Labour Ratio



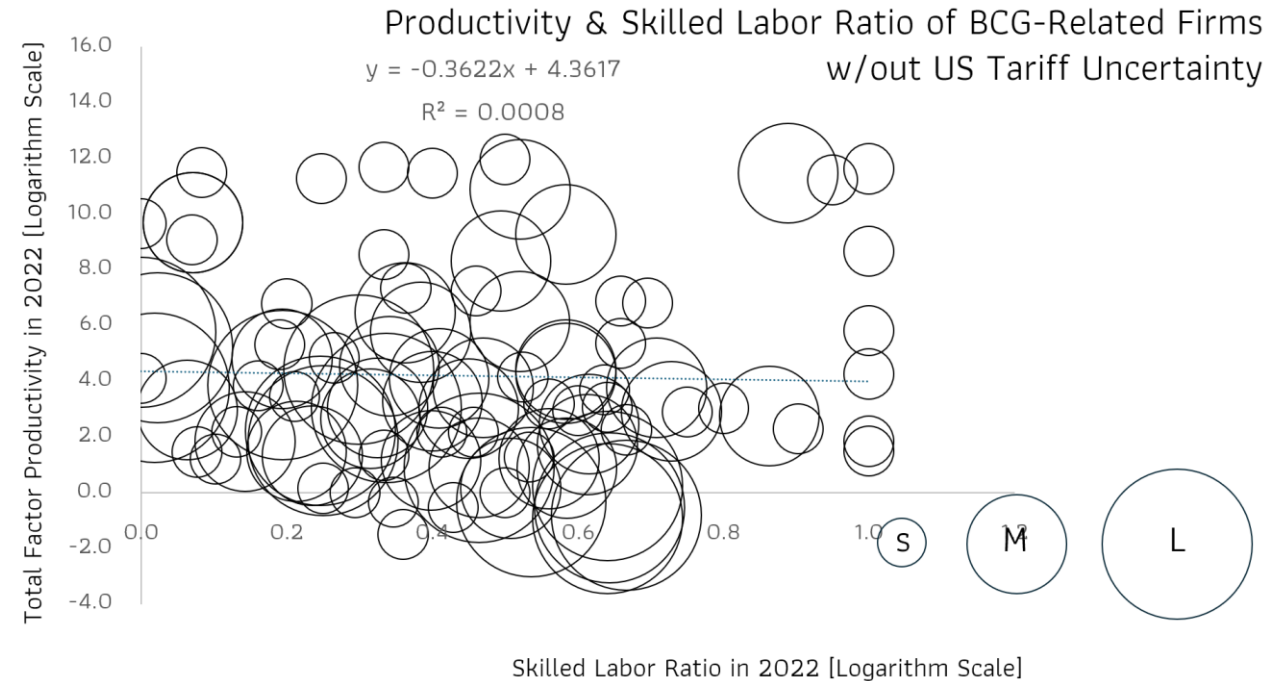
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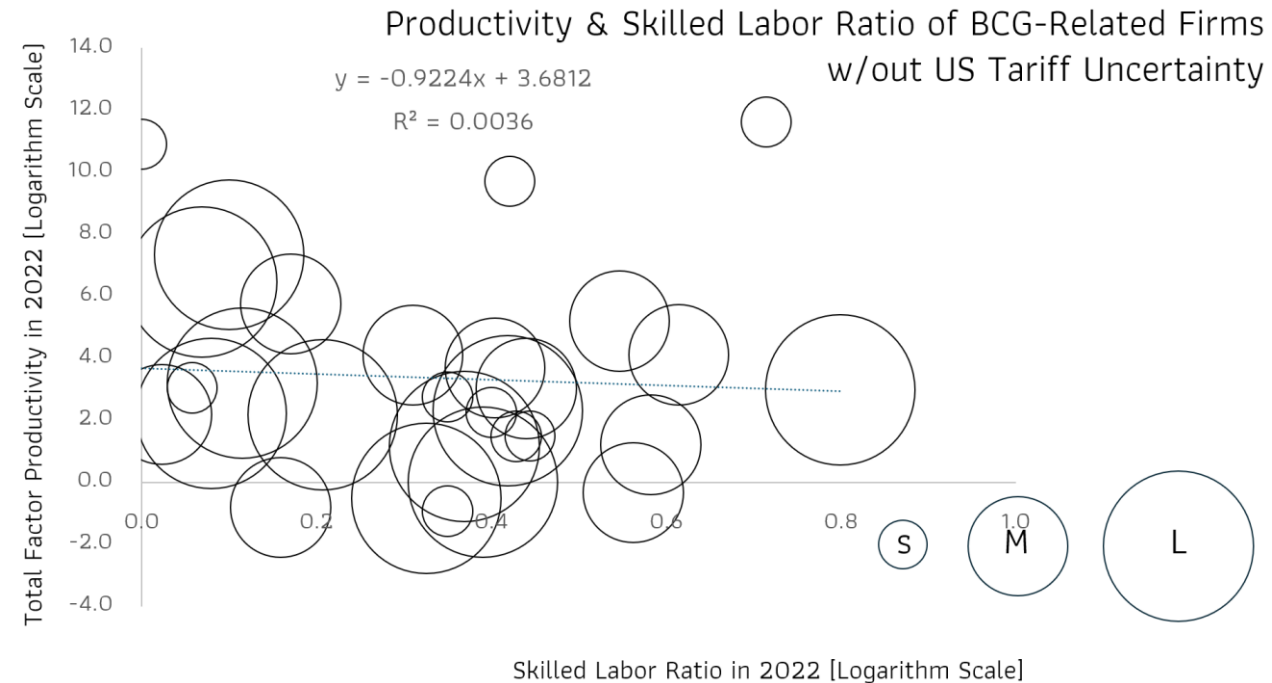
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# Total Factor Productivity has not correlated w/ Skilled Labor



Source: Data from the NSO's Industrial Census 2022 and MOC's Firm Registration Database 2022, calculated by the author



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		<b>Opportunities</b> continuously cheaper Green Tech / reducing reliance on government support	<b>Threats</b> Global Trade Uncertainty / Intense Competition / Greenwashing
Large businesses have more access to green innovation within the supply chain	<b>Strengths</b>	<b>SO: Offensive Strategy</b> Use strengths to capitalize on opportunities <ul style="list-style-type: none"> <li>Integrate sustainability into business operations</li> <li>Build expertise in Taxonomy</li> </ul>	<b>ST: Preventive Strategy</b> Use strengths to avoid or mitigate the impact of threats <ul style="list-style-type: none"> <li>Accelerate the comprehensive adoption of Taxonomy</li> <li>Invest seriously in human resources.</li> </ul>
Resource access gap between SMEs and large corporates	<b>Weakness</b>	<b>WO: Remedial Strategy</b> Utilize opportunities to correct or reduce weaknesses <ul style="list-style-type: none"> <li>Develop a green supply chain to support SMEs</li> <li>Reduce the gap for SMEs through guarantee funds</li> </ul>	<b>WT: Defensive Strategy</b> Reduce weaknesses and avoid threats simultaneously <ul style="list-style-type: none"> <li>Initiate a National Green Skills Development Program</li> <li>Create innovative financial products for SMEs</li> </ul>

# Bio-Circular-Green (BCG) Economy lay solid foundation for Thailand's sustainable growth

