Geopolitical Risk Index | Case Studies | 2024

Geopolitics of the European Chips Act

Abstract In 2020, global chip production soared to 1 trillion units, with the **EU holding a 9% market share.** Despite Europe's robust R&D capabilities and a strong presence in semiconductor equipment manufacturing, its **global market share remains low and heavily reliant on other countries**. This causes supply chain risks, leading to a need for strategic intervention to ensure resilience and security.

To address these issues, **the European Chips Act**—effective since September 2023—**aims to double the EU's global market** share in semiconductors to 20% by 2030 through **three main pillars: supporting production, strengthening supply security, and facilitating coordination between member states and businesses**.The EU Chip Act led to a rush of investments in semiconductor projects across Europe, positioning the continent as a hub for chip production. **Partnerships, funding opportunities, and reduced geopolitical risks** make Europe an attractive investment destination compared to existing global leaders' unstable positions. However, **challenges such as cybersecurity threats, skill shortages, and technological lag persist,** necessitating ongoing efforts to strengthen competitiveness.

Overall, **the EU Chips Act represents a strategic move towards strengthening the European semiconductor industry** and Korean investors could benefit from it by diversifying their investments in a less risky part of the world with a thriving future.

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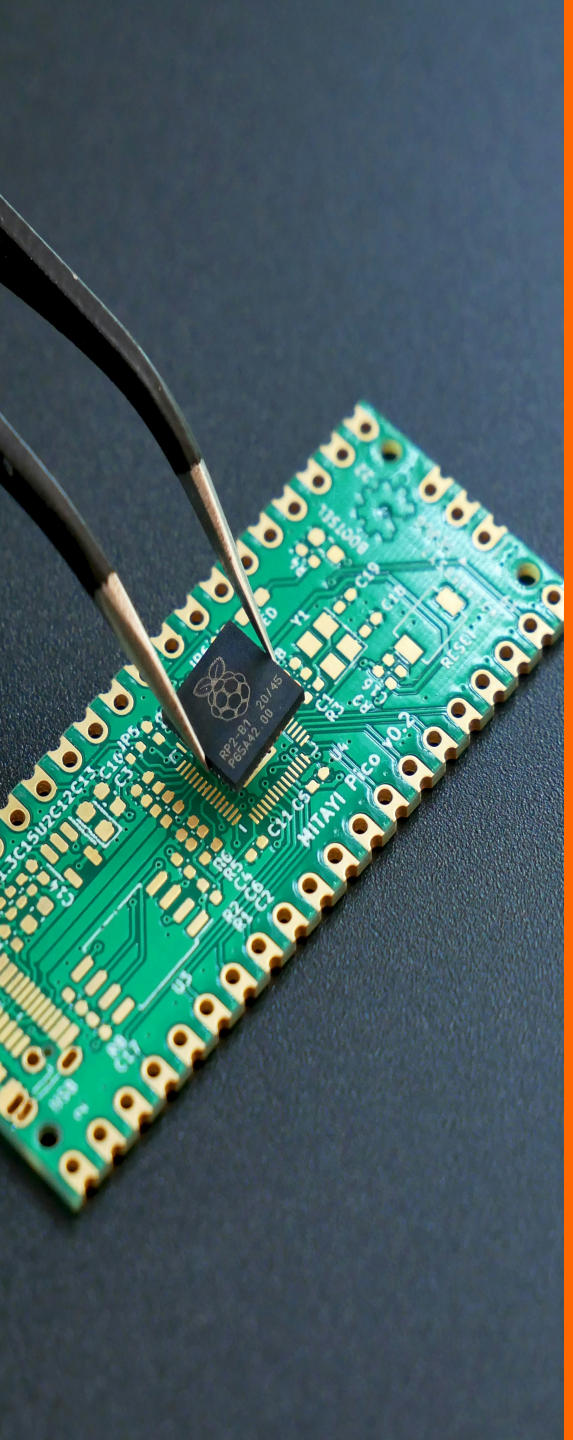

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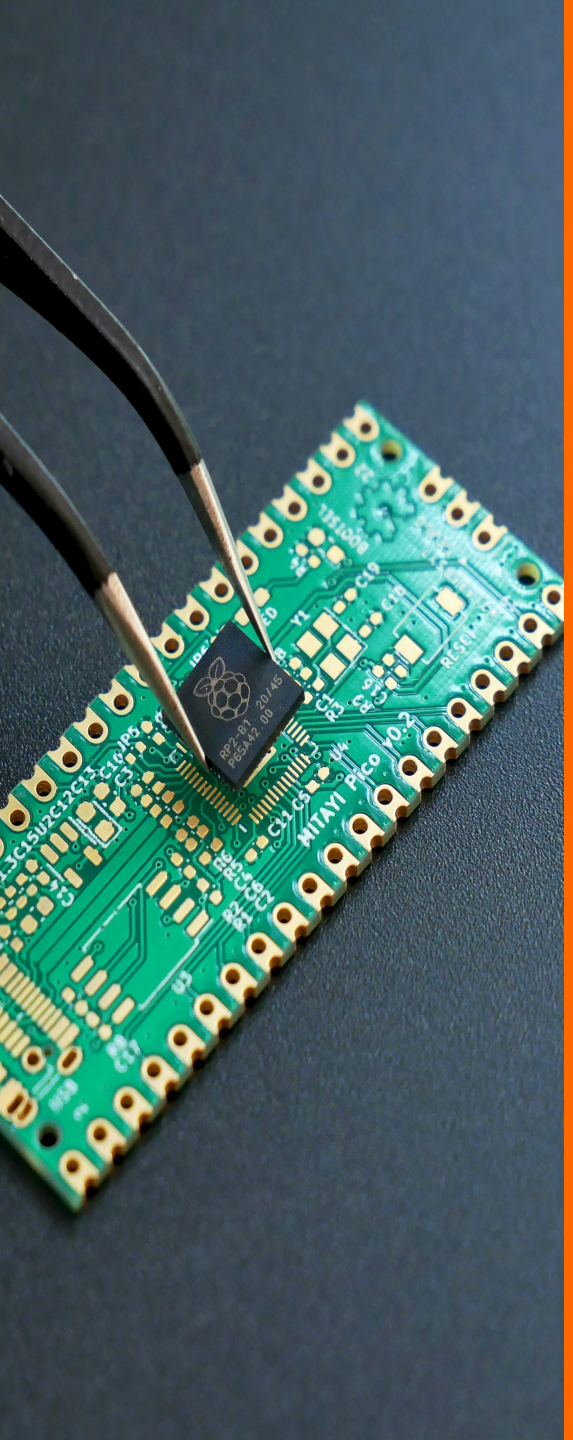

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Geopolitics for Business

Client: Korean investor specialized in semiconductors and other advanced technologies

Goal of research: give advice to client, who are considering diversifying their portfolio to Europe in light of the European Chips Act and increasing geopolitical tension in Taiwan and between China-USA.

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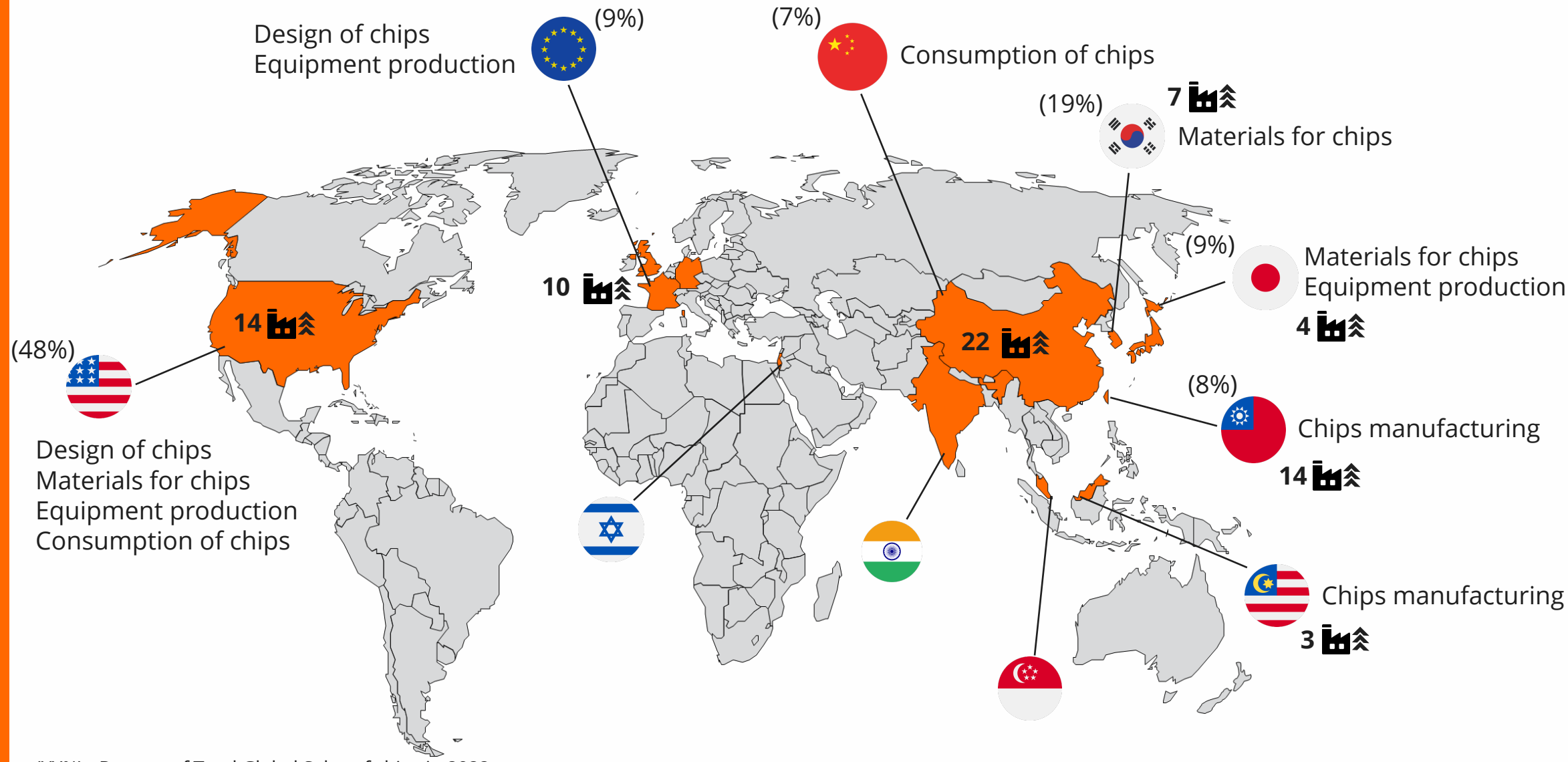
The Global manufacturers of semiconductor chips

Manufacturing process is divided between countries



(XX%) - Percent of Total Global Sales of chips in 2022

- Number of new manufactiring facilities between 2021 and 2025

Geopolitics of the EU Chips Act | Geopolitical Risk Index - 2024

Strength and weaknesses of Europe in the Semiconductor Chips Market

Strengths

1. Intense R&D with companies investing over 15% of revenues into next-gen technologies

2. Presence of world-leading research organizations and companies across the EU

3. Pioneering techniques for producing advanced chips

4. Strong position in materials and equipment for chip manufacturing

Weaknesses

1. Heavy reliance on suppliers from China, Taiwan, and East Asia

2. Vulnerability to global supply chain disruptions leading to shortages

Opportunities for Growth

1. Increase funding for R&D. Collaborate with leading EU research organizations and tech firms to construct new manufacturing facilities

2. Reduce reliance on third-country suppliers by satisfying internal demand by internal supply

3. Capture opportunities in sectors driving chip demand, like industrial automation

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The EU Chip Act: context, objectives and key information

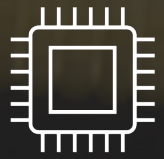
EUROPEAN CHIPS ACT

Created in **September 2023**

2 objectives:

- Reduce semiconductor shortage and ensure the resilience of supply chains
- Reduce external dependencies by strengthening Europe's technological leadership and ensuring the EU's technological sovereignty

Three pillars of EU Chips Act



CHIPS FOR EUROPE INITIATIVE

- Bridging the gap between research, innovation, and industrial activities in chip manufacturing
- Supported by a €3.3bn fund
- 5 operational objectives(1)

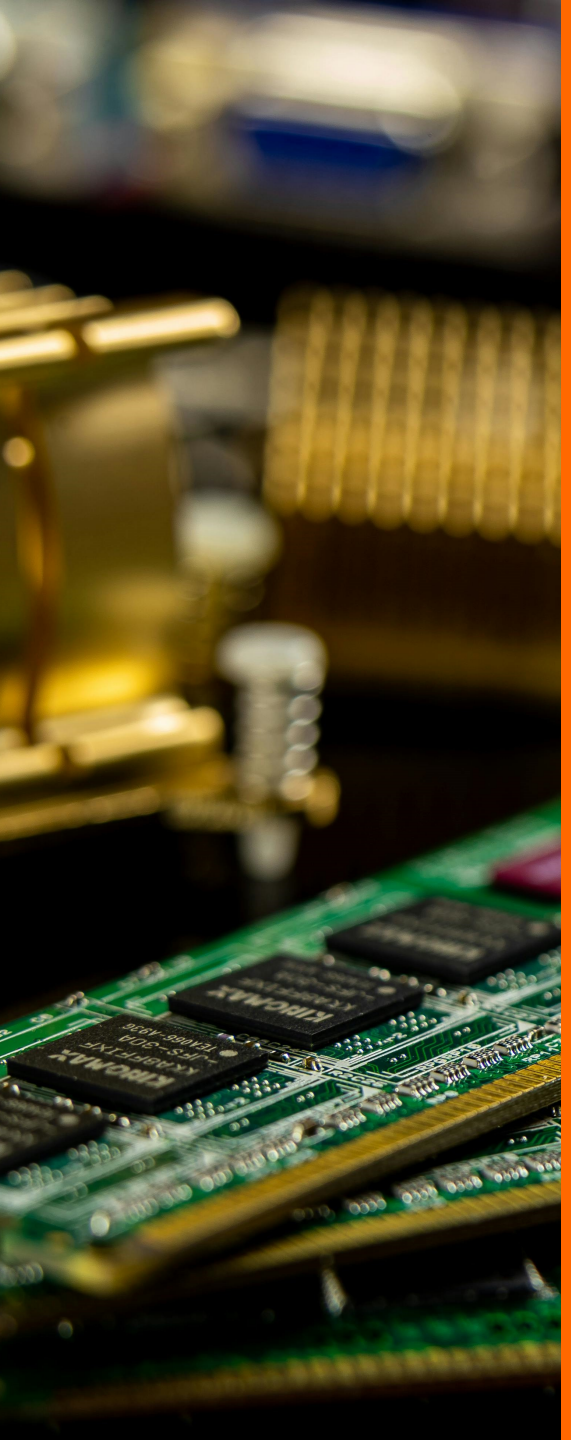
FRAMEWORK TO ENSURE SECURITY OF SUPPLY AND RESILIENCE

- Creates a status scheme for facilities and design center
- Make EU's design centers more attractive to private financing
- Gives the Commission the authority to prioritize product orders

THE EUROPEAN SEMICONDUCTOR BOARD

- Creation of the board to be a coordination mechanism between the Member States
- Tool of mapping and monitoring
- Works in coordination with pilar 2

Note: (1) Including setting up a Virtual Design Platform, enhancing pilot lines for process development, accelerating the development of Quantum chips, addressing skills shortages, and establishing a Chips Fund to facilitate financing for start-ups and SMEs



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CONSEQUENCES

NEW INVESTMENTS

- Attracting foreign companies like TSMC to increase their european market share
- European companies also benefiting : ASML and other EU chipmakers
- **Fresh capital for R&D**

EU CHIPS ACT CONSOLIDATION

- **ESRA**: EU and the Silicon Saxony
- **Collaboration**: a dialogue platform

GLOBAL LANDSCAPE

- Worldwide trend of introducing subsidy programs to attract
- Western **restriction measures**
- **Rising Geopolitical Risk**

CONSEQUENCES

Evidence of Europe attracting

NEW INVESTMENTS

1

TSMC investment into Saxony

The microchip giant invested **€3,5mln** for the construction of a semiconductor plant in Dresden, together with the Dutch company NXP and the German Infineon and Bosch, for a total value of €10bln. Largely thanks to the strong **support** from the **EU** and the **German Government**.

2

Existing European companies are also benefitting

ASML supplies the entire globe with devices that are essential for the AI development. The Chips Act helps offset the loss of the Chinese market by creating a new wave of investments that create new demands.

The other Europe's biggest chipmakers, **Infineon**, **NXP** and **STMicroelectronic**, are also attracting fresh investments either from private investors or European institutions like EIB

3

Fresh capital for R&D

Investment in **Grenoble** and **Catania**, a **€600 mln loan** to STMicroelectronics from EIB. Further movements from Intel, that is working to enlarge its investments, sponsoring two **microchip construction buildings** in Magdeburg.

Cooperation as a result of European Chips Act

Case: The “Silicon Saxony”

An industry association of nearly 300 companies in microelectronics and related sectors in Saxony. Evidence of a meaningful European center of microelectronics

What is **ESRA**?

The **European Semiconductors Regions Alliance**, launched on the 7th of September 2023, signed in Bruxelles, counts now 27 regions from 12 member states.

The Alliance represents the collaboration of the European Committee and the Free State of Saxony.

“With ESRA, we are opening up new ways for regions to collaborate, research and innovate to ensure Europe’s economic and digital sovereignty”.

GLOBAL COMPETITION

WORLDWIDE TREND

Clear trend where governments **worldwide** are trying to **attract** semiconductor companies and build up their **independent** supply chain.

Examples of countries having introduced wide policy program: South Korea, Japan, Taiwan, China,

INCREASING GEOPOLITICAL RISKS

Increasing risk for companies as governments are viewing the global value chain of chips as a security threat and **introducing export restrictions** against third countries

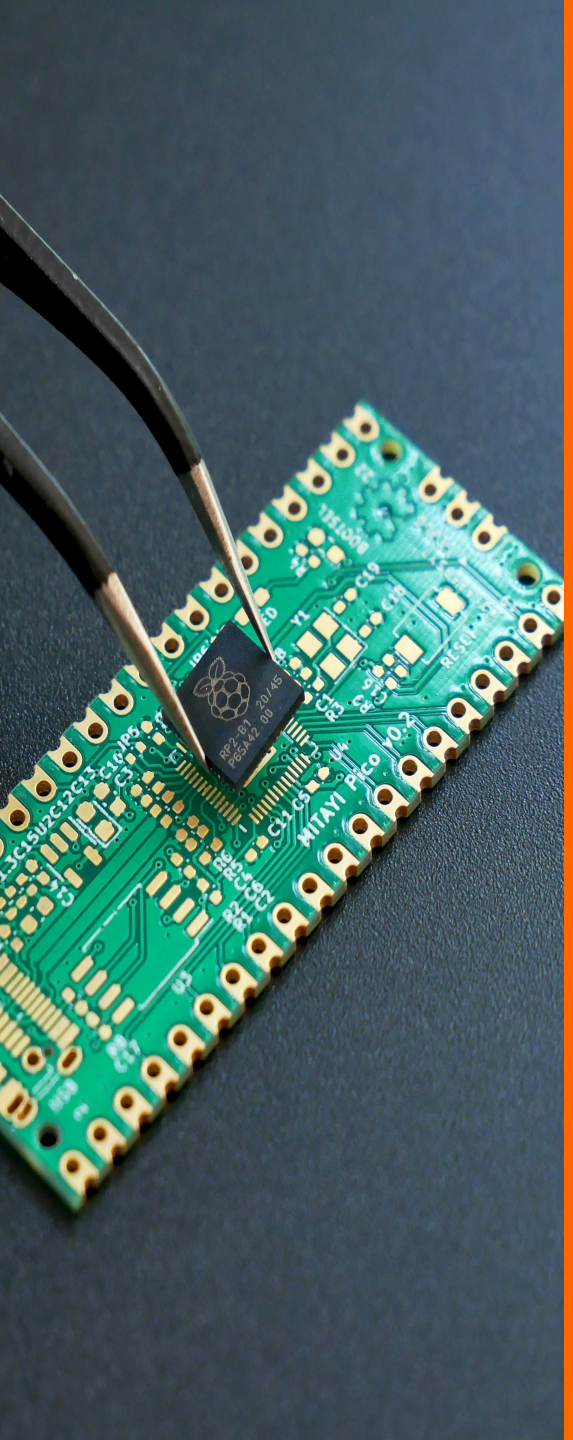
Example: Export restrictions towards China by US and their Allies.

The Global race to attract a chip factory means substantial subsidy schemes around the world

EUROPEAN CHIPS ACT

					
Funding	€ 43 Bn (existing funds)	$54 Bn grants+ $24bn for 25% tax credit	Tax reduction depending on size[2]	$66,75Bn & 33% of capital cost subsidised	Tax incentive[1]
Determination for funding	• First-of-a-kind facilities • Projects funding gap	No restrictions and apply widely	• Both foreign & domestic companies • Focus on national high-tech industrial complexe	Focus on Rapidus	• Thresholds on expenses • Lead technological innovation
Relation w/third countries	Build parternships	Restriction to expand production to China	Export restrictions	Export barrier to China	Approval for overseas investments
Skill shortage	Establish competence centre	$200m for CHIPS for America Workforce	University grant (₩ 54Bn) to nurture talent	Estalish LSTC w/ training program	Semiconductor training school

Note: (1) 25% on R&D, 30% of annual income tax & 200% on R&D expenditure if IP sold abroad; (2) 15% for big and 25% for SMEs



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RISKS & OPPORTUNITIES

OPPORTUNITIES

PARTNERSHIP CREATION

The EU chip acts facilitates collaborations with EU-based businesses, expanding market share and creating innovative solutions.

FUNDING OPPORTUNITIES

The EU chip acts offers funding through the EIB and chip funds, minimizing capital costs.

SUPPLY CHAIN RESILIENCE

Investing in the EU ensures a local and reliable supply of cutting-edge semiconductor component.

LOWER GEOPOLITICAL RISKS

The EU's cooperative strategy fosters stability amidst US-China tensions, reducing geopolitical risks and barriers to market access.

Sources:

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RISKS

SECURITY THREATS

Growing cyber security attacks at the chip level pose risks to the security of semiconductor devices in Europe, including the protection of intellectual property and manipulation of the supply chain.

SKILLS SHORTAGES

The European semiconductor industry faces challenges in terms of skills deficits and attracting young talent, which may hinder its innovative capacity and global competitiveness.

TECHNOLOGICAL LAG

The EU chip industry encounters hurdles in keeping up with the fat growing technological advancements and innovations in chips worldwide, making its less competitive at global scale

Sources:

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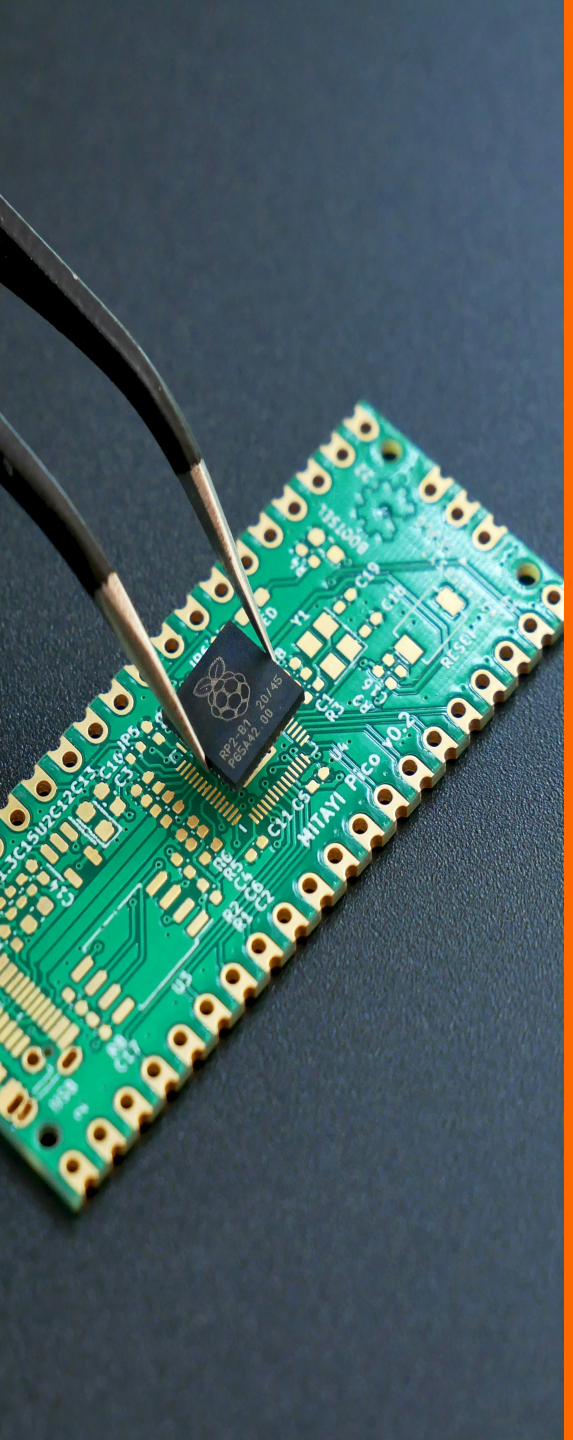

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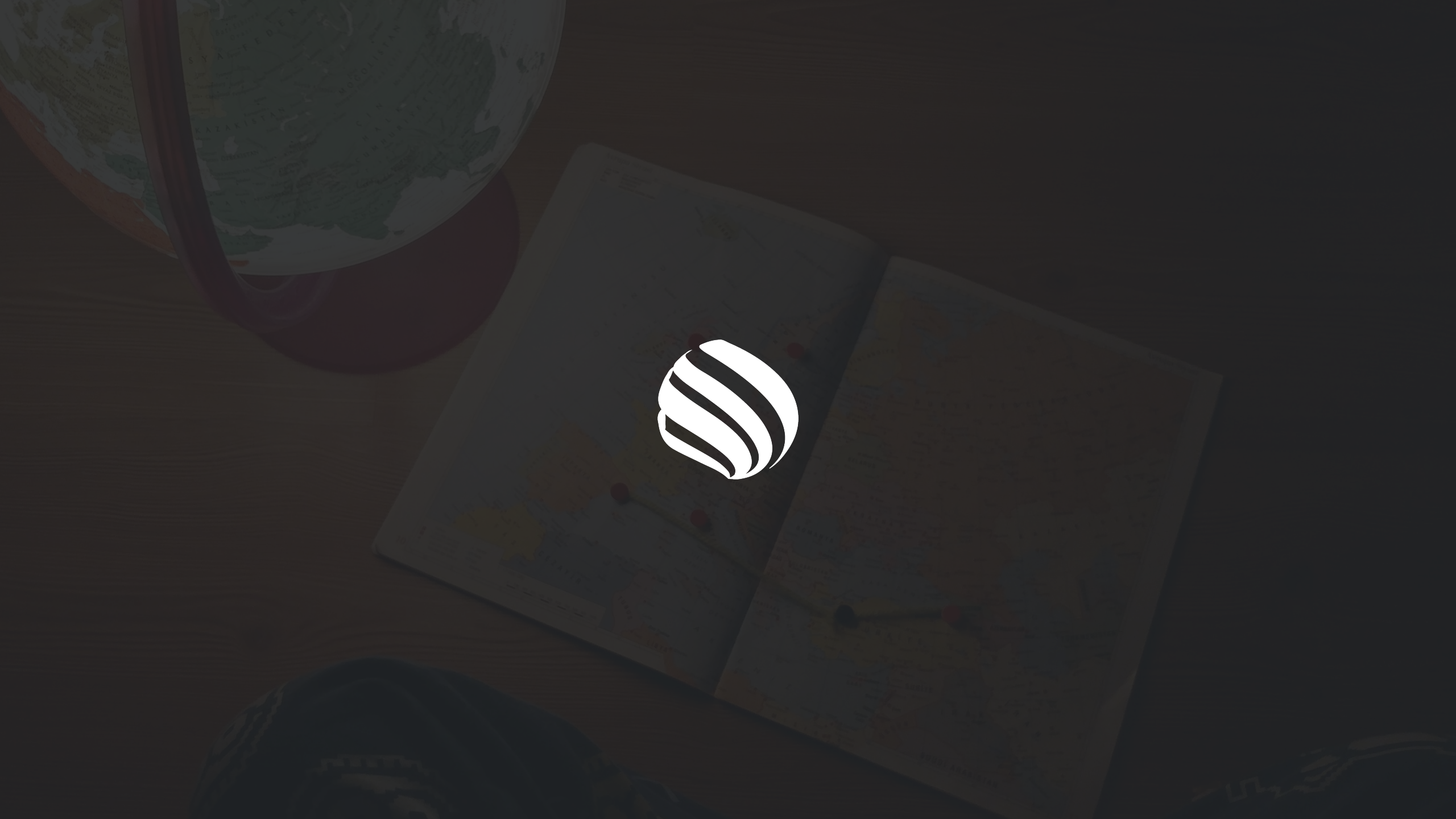
CONCLUSION

- Despite Europe's robust R&D capabilities and a strong presence in semiconductor equipment manufacturing, **its global market share remains low and heavily reliant on other countries**
- Need a response to supply chain risks to ensure resilience and security.
- **European Chips Act aims to double the EU's global market share in semiconductors to 20% by 2030** through three main pillars: supporting production, strengthening supply security, and facilitating coordination between member states and businesses.
- The EU Chip Act **led to a rush of investments in semiconductor projects across Europe**, positioning the continent as a hub for chip production.
  - **Partnerships, funding opportunities, and reduced geopolitical risks make Europe an attractive** investment destination compared to existing global leaders' unstable positions.
  - However, **challenges such as cybersecurity threats, skill shortages, and technological lag persist,** necessitating ongoing efforts to strengthen competitiveness.
- **Recommendation**:
  - EU Chips Act represents a strategic move towards strengthening the European semiconductor industry and Korean investors could benefit from it by diversifying their investments in a less risky part of the world with a thriving future.



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