



# WALTER SCOTT

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▶ BNY MELLON | INVESTMENT MANAGEMENT

THE WORLD'S MOST STRATEGICALLY  
SIGNIFICANT COMPONENT:  
A SEMICONDUCTOR CHIP

September 2024

# AGENDA



INTRODUCTION



THE IMPACT OF SEMICONDUCTORS IN OUR DAILY LIVES



WHY DE-RISKING THE SUPPLY CHAIN IS COMPLICATED



ARE PROTECTIONIST TRADE POLICIES INFLATIONARY?



THE INDUSTRY RISKS OF A GEOPOLITICAL CONFLICT WITH CHINA



CONCLUSIONS

## INTRODUCTION

BESPOKE EQUITY PORTFOLIO  
MANAGER

BASED IN EDINBURGH, SCOTLAND &  
BOSTON, USA<sup>†</sup>

100% OWNED BY BNY MELLON SINCE  
2007

\$81.3BN ASSETS UNDER  
MANAGEMENT

284\* CLIENT RELATIONSHIPS

LONGEVITY OF CLIENTS, STAFF &  
PHILOSOPHY



**ALEX TORRENS**

Alex is Head of Walter Scott North America, a division of BNY Mellon Securities Corporation, and is based in Boston. Alex is also a member of the Investment Management Committee. He first joined the firm before university in 2006 and intermittently worked in different departments. Alex participated in the Walter Scott investment internship in 2009 and joined full time as an Investment Analyst in 2010. He performed investing roles until 2023, as an Investment Manager and Co-Head of the Research team from 2016. Alex holds an MA in Law from the University of Cambridge and an Executive Education certificate from Columbia Business School.



**GUSTAVO  
BIKKESBAKKER**

Gustavo is a Client Investment Manager. He joined Walter Scott\*\* in 2022, after 11 years at Meketa Investment Group where he contributed to the firm's client services, sustainability and research efforts. Prior to this, he worked as an investment analyst at Ernst Research and Management, a Boston-based hedge fund. Gustavo earned an MS in Finance from Carroll Graduate School of Management at Boston College, an MSM/MBA from the Arthur D. Little School of Management, an Analista de Sistemas degree from the Fundación BankBoston School of Information Science in Buenos Aires, and a Certificate of Advanced Studies in Sustainable Finance at the Haute École de Gestion Geneva.

As at 30 June 2023. \*284 consists of 137 Clients and 147 Fund Investors.

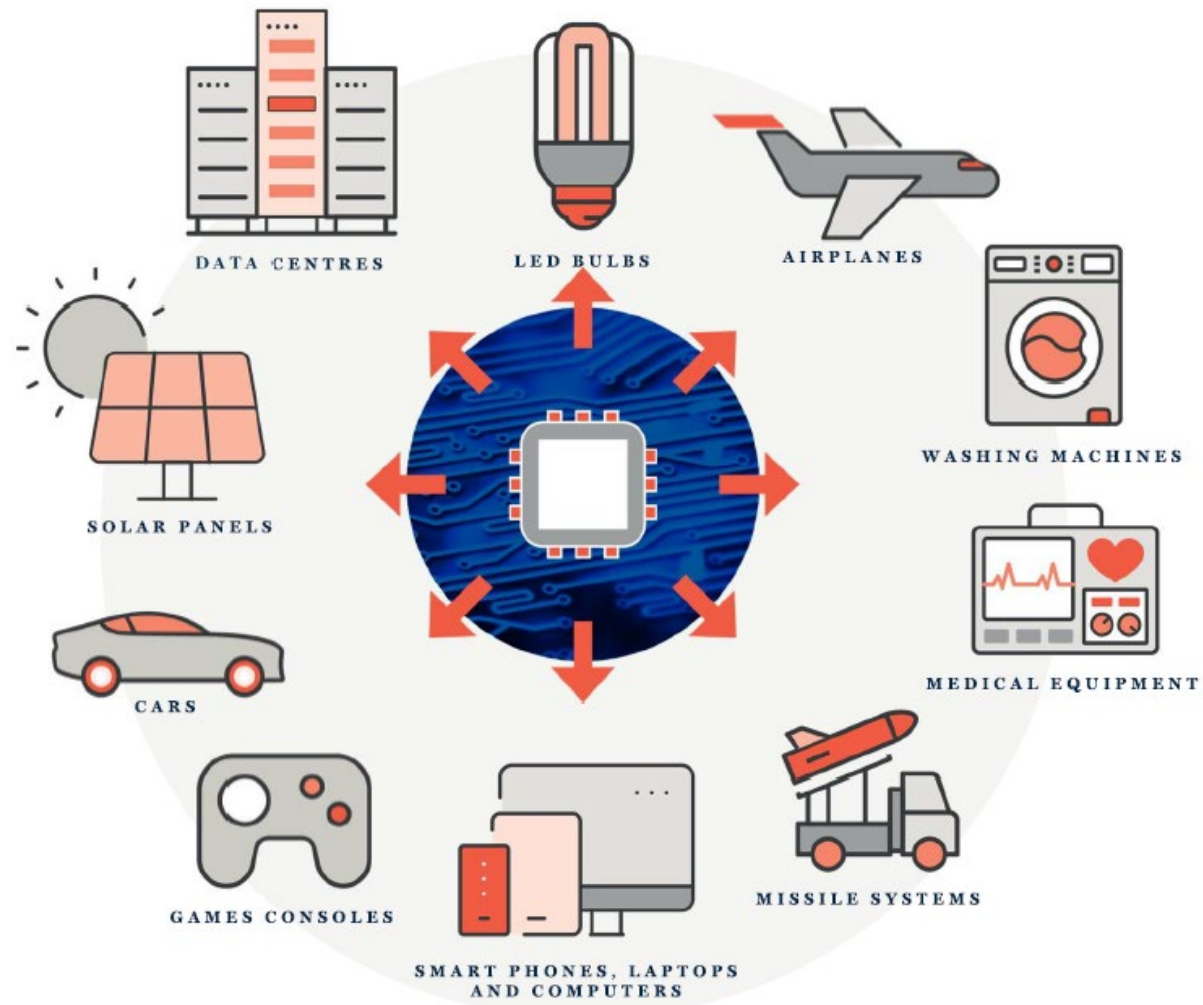
<sup>†</sup> All operations are based in Edinburgh, Scotland with a client service presence in the United States.

\*\*Whilst an employee of BNY Mellon, Gustavo is 100% focused on supporting Walter Scott clients.



# THE IMPACT OF SEMICONDUCTORS IN OUR DAILY LIVES

Semiconductors are all around us



## THE IMPACT OF SEMICONDUCTORS IN OUR DAILY LIVES

We notice them even more when we can't get them!

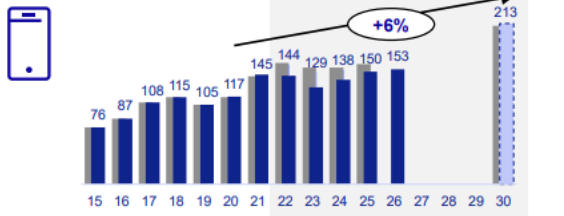


Source: Adobe Stock (generated with AI)

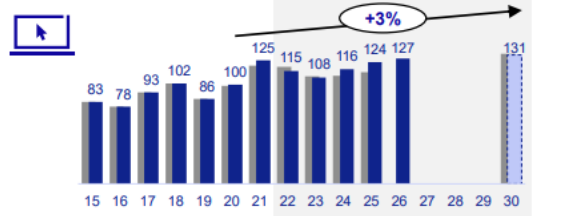
# THE IMPACT OF SEMICONDUCTORS IN OUR DAILY LIVES

Demand is growing in a myriad of end-markets

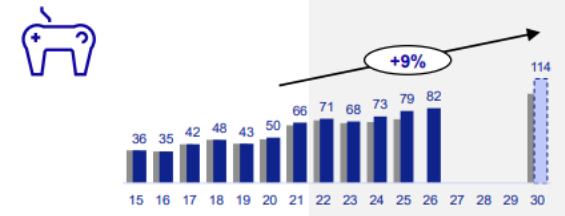
Smartphone (\$bn)



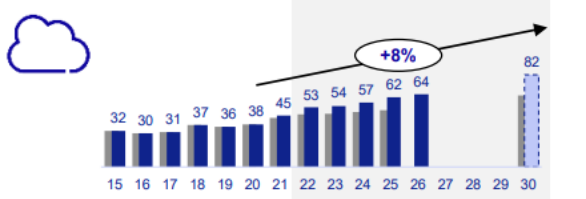
Personal Computing (\$bn)



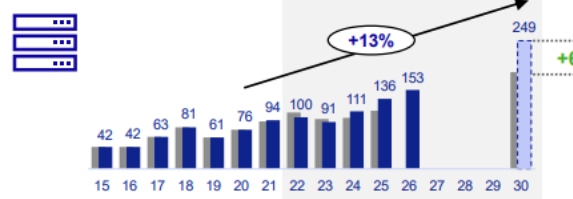
Consumer Electronics (\$bn)



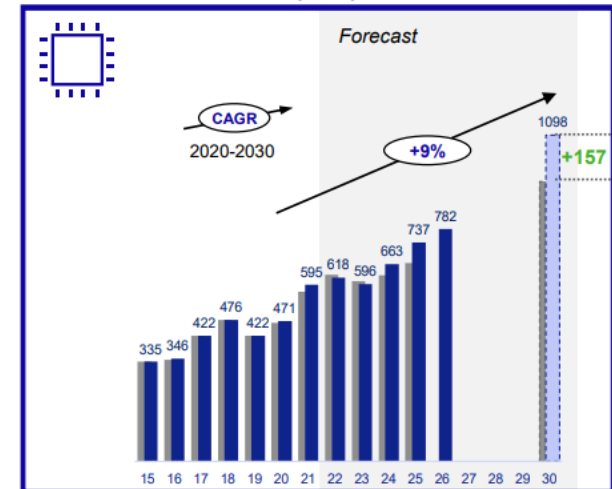
Wired & wireless Infrastructure (\$bn)



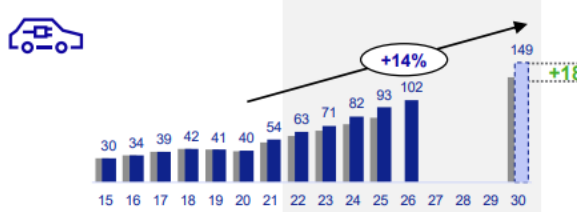
Servers, Datacenters & Storage (\$bn)



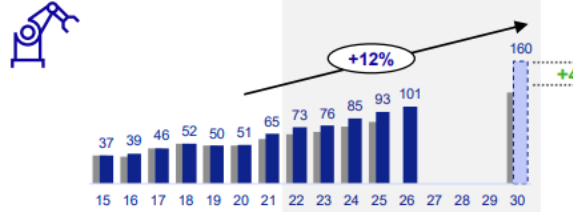
Total Semiconductor (\$bn)



Automotive (\$bn)



Industrial Electronics (\$bn)



Source: Historical data: Gartner. Outlook: Gartner 3Q22 Forecast (Sep22, 2022) for years '22-'26; Outlook 2030: ASML estimate; segment revenue extrapolated using '20-'26 Compound Annual Growth Rate (CAGR). Some deviations from this methodology due to expected growth profile differences across the decade

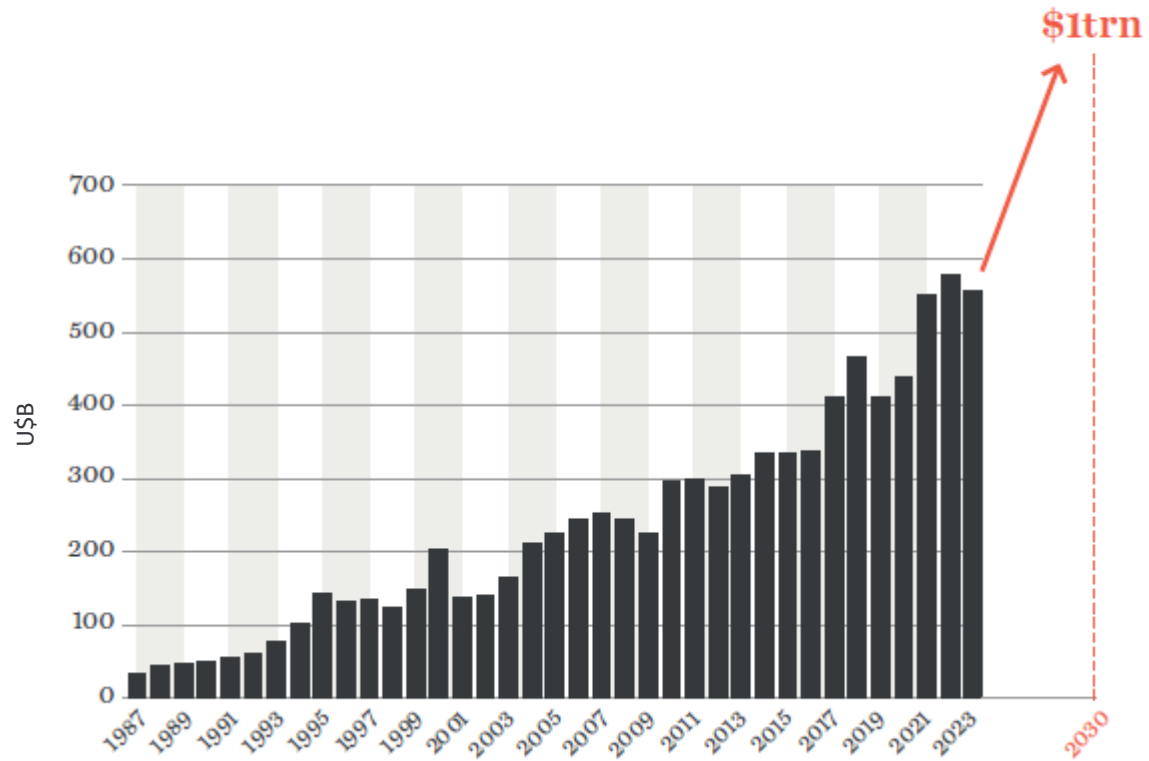
■ CMD 2021 ■ CMD 2022  
■ CMD 2022 - extrapolation

Source: ASML Capital Markets Day November 2022

# THE IMPACT OF SEMICONDUCTORS IN OUR DAILY LIVES

In aggregate, it will soon be a trillion-dollar industry

**SEMICONDUCTOR MARKET SIZE WORLDWIDE  
FROM 1987 TO 2023**  
*(in billion U.S. dollars)*

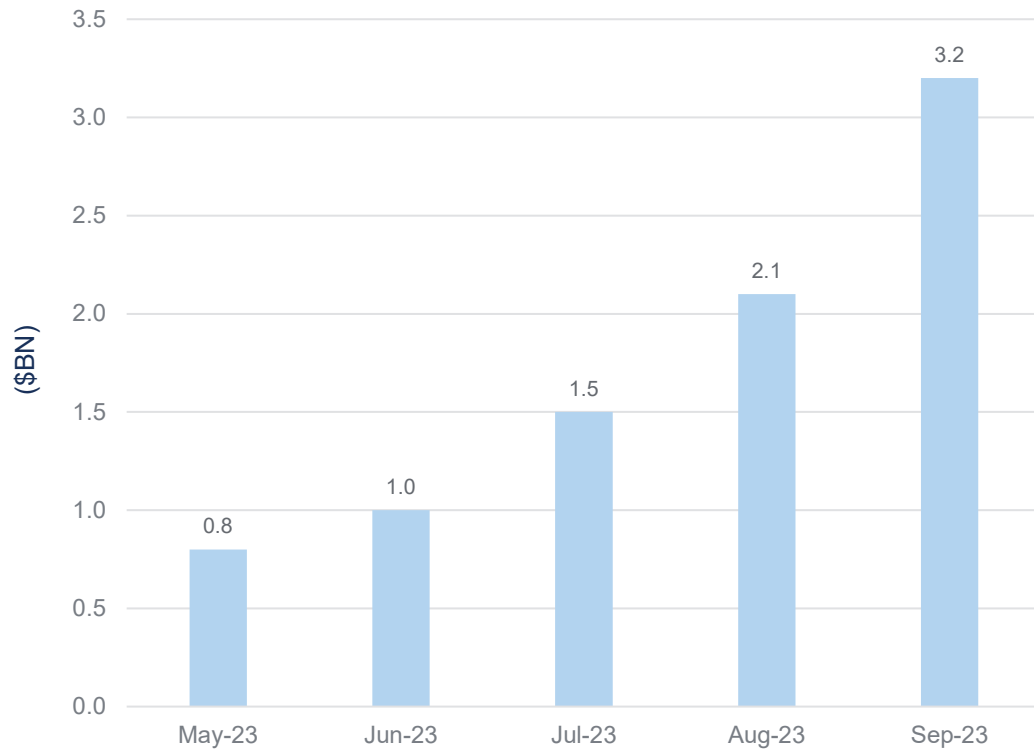


Source: © Statista 2023, McKinsey & Company: <https://www.mckinsey.com/industries/semiconductors/our-insights/the-semiconductor-decade-a-trillion-dollar-industry>

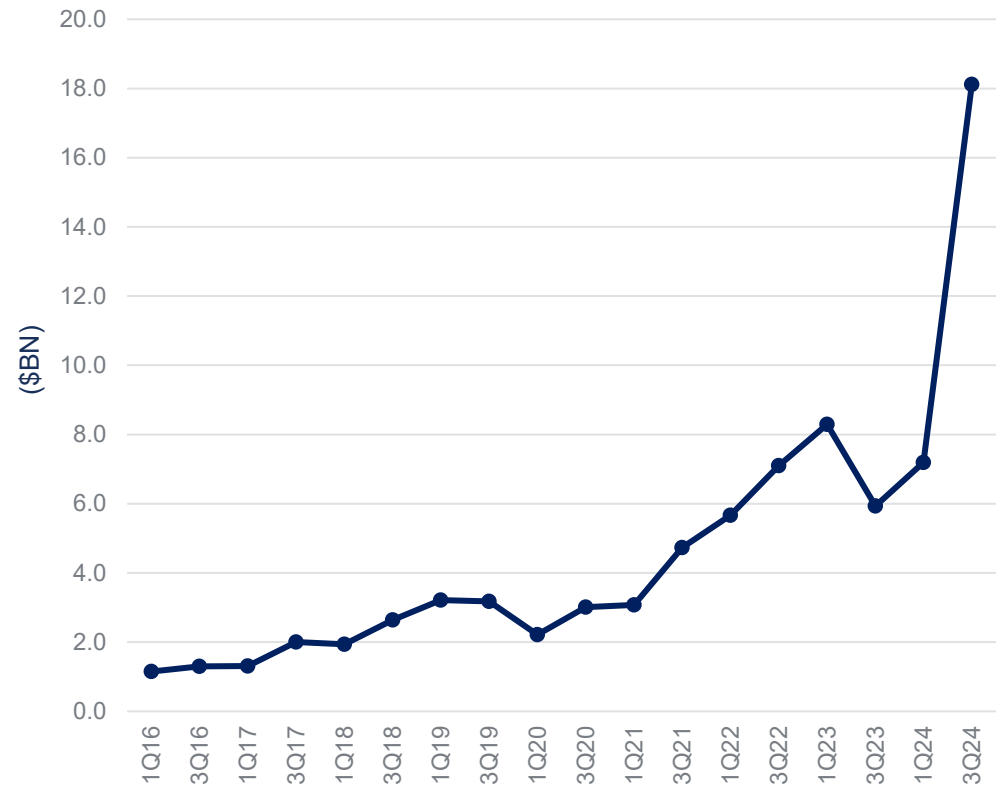
# THE IMPACT OF SEMICONDUCTORS IN OUR DAILY LIVES

And that's what people thought before this happened!

### IN-APP REVENUES GENERATED BY CHATGPT WORLDWIDE



### NVIDIA QUARTERLY TOTAL SALES



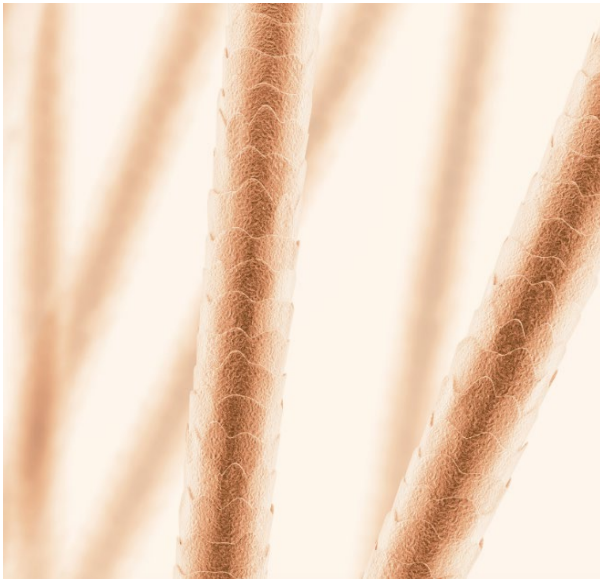
Source: © Statista 2024. NVIDIA Annual Reports 2021-2023 as at December 2023.



# WHY DE-RISKING THE SUPPLY CHAIN IS COMPLICATED



## 1. TECHNICALLY CHALLENGING



3NM = ONE 30,000TH  
OF A HUMAN HAIR

## 2. EXPENSIVE



TSMC SPENDING \$65BN IN USA

## 3. EXISTING ECOSYSTEMS HAVE BEEN DECADES IN THE MAKING



TAIWAN'S ECOSYSTEM

Source: National Nanotechnology Initiative <https://www.nano.gov/nanotech-101/what/nano-size>, TSMC  
Images: Adobe Stock, Getty Images and Adobe Stock (generated with AI).

## WHY DE-RISKING THE SUPPLY CHAIN IS COMPLICATED

Even with expertise, capital, and building new ecosystems there are other challenges to overcome

### **TSMC'S DEBACLE IN THE AMERICAN DESERT**

Missed deadlines and tension among Taiwanese and American co-workers are plaguing the chip giant's Phoenix expansion

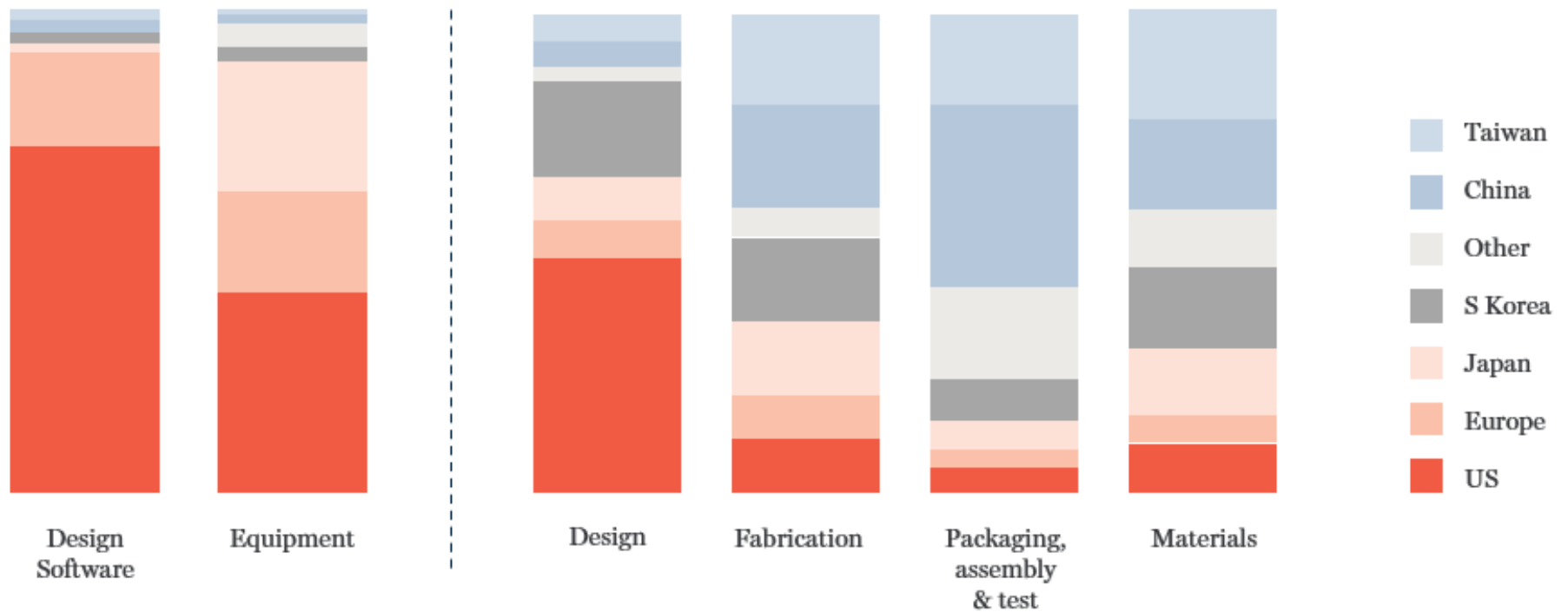


Source: <https://restofworld.org/2024/tsmc-arizona-expansion>, *TSMC's debacle in the American desert*, article by Viola Zhou, 23 April 2024.  
Image: Getty Images

## WHY DE-RISKING THE SUPPLY CHAIN IS COMPLICATED

Ultimately, it is a global industry, with significant geographic concentrations, which will take time to diversify

SEMICONDUCTOR INDUSTRY VALUE ADDED BY ACTIVITY AND REGION 2021 (%)



Source: Semiconductor Industry Association, State of Industry Report November 2022

## ARE PROTECTIONIST TRADE POLICIES INFLATIONARY

Export controls limit revenues (so investment will likely be amortised through price increases). Other policies are potentially inflationary, except in the very long-run, too



Source: Congress.gov, Bureau of Industry and Security.



## ARE PROTECTIONIST TRADE POLICIES INFLATIONARY?

To reiterate, this is a multinational industry. Redistribution of investment will have incremental cost



Images courtesy of: ASML, AtlasCo, Hoya, Infineon Technologies AG, ShinEtsu, Texas Instrument, Taiwan Semiconductor Manufacturing Co., Ltd, VAT Group

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## ARE PROTECTIONIST TRADE POLICIES INFLATIONARY

And investment in the US will be more expensive for some

*"Chipmaking costs in the US could  
be twice those in Taiwan"*

**MORRIS CHANG**

*Founder and former chairman and CEO of TSMC*

Source: Taipei Times

## THE INDUSTRY RISKS OF A GEOPOLITICAL CONFLICT WITH CHINA



Source: Adobe Stock

## THE INDUSTRY RISKS OF A GEOPOLITICAL CONFLICT WITH CHINA

Further protectionist measures seem likely, with similar consequences to what we have experienced

**HOW HUAWEI SURPRISED THE US WITH A CUTTING-EDGE CHIP MADE IN CHINA**

The inside story of how the country's flagship tech company kept its edge in the semiconductor war despite sanctions

This clipping features a main headline in bold black text, a sub-headline in a smaller black font, and a body of text. A red horizontal bar is positioned above the sub-headline. Below the text, there are four grey rectangular blocks representing images or graphics, with a red horizontal bar above the second block from the left.

**CHINA ON CUSP OF NEXT-GENERATION CHIP PRODUCTION DESPITE US CURBS**

SMIC and Huawei plan to make new 5nm processor, supporting Beijing's goal for advanced semiconductors

This clipping features a main headline in bold black text, a sub-headline in a smaller black font, and a body of text. A red horizontal bar is positioned above the sub-headline. Below the text, there are four grey rectangular blocks representing images or graphics, with a red horizontal bar above the second block from the left.

**HUAWEI, SMIC SET TO DEFY US SANCTIONS WITH 5NM CHIPS: FT**

The 5nm tech will be used to produce chips for Huawei's new smartphones, and, if successful could also be used for its AI chips

This clipping features a main headline in bold red text, a sub-headline in a smaller black font, and a body of text. A red horizontal bar is positioned above the sub-headline. Below the text, there are four grey rectangular blocks representing images or graphics, with a red horizontal bar above the second block from the left.

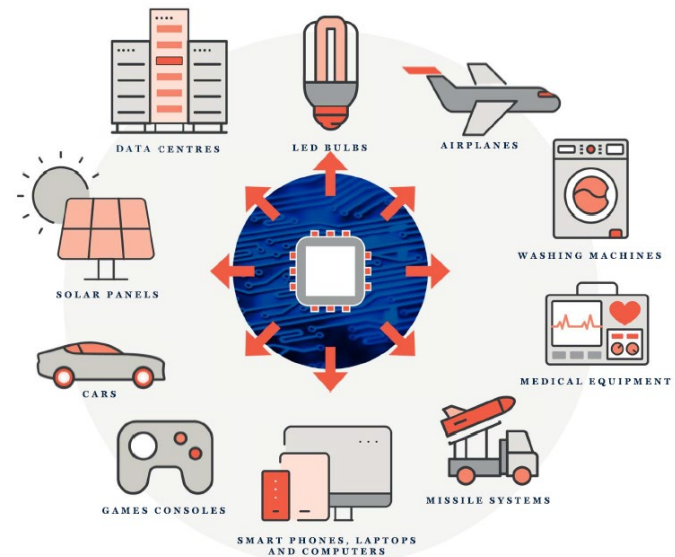
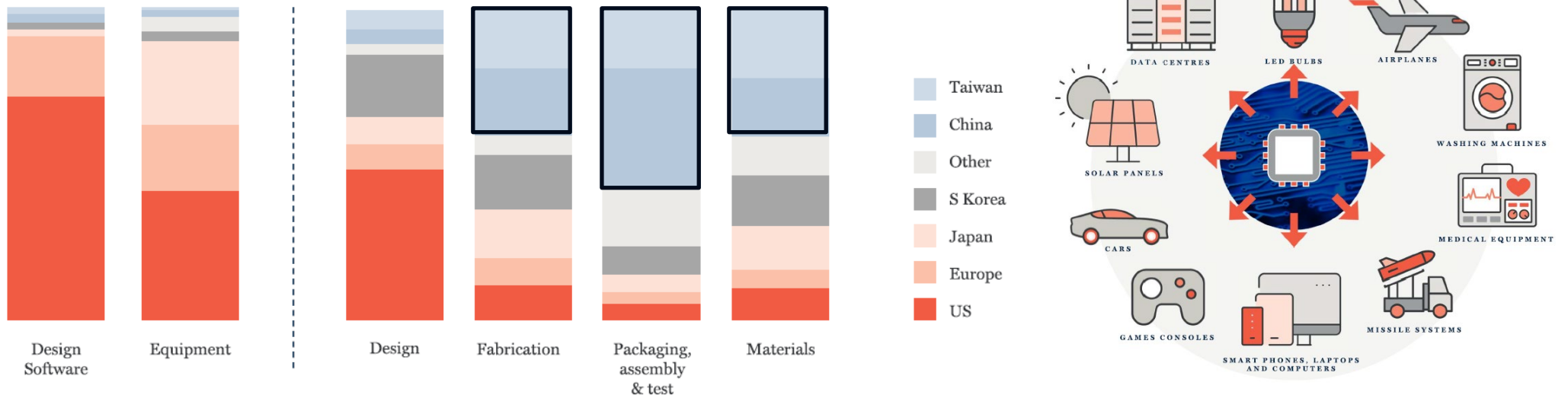
Source: Asia Financial Times and Asia Financial



# THE INDUSTRY RISKS OF A GEOPOLITICAL CONFLICT WITH CHINA

More extreme scenarios would be incredibly disruptive for the industry, and more broadly

**SEMICONDUCTOR INDUSTRY VALUE ADDED BY ACTIVITY AND REGION 2021 (%)**



Source: Semiconductor Industry Association, State of Industry Report November 2022

## SESSION RECAP



- Semiconductors are all around us, with demand growing in a myriad of end-markets.
- De-risking the supply chain is complicated, requiring expertise, capital and new ecosystems.
  - Protectionist trade policies are inflationary.
- The industry risks of a geopolitical conflict with China should not be underestimated.

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On behalf of us all,

THANK YOU

## APPENDIX

### 1. DEFINITION OF FIRM

Walter Scott & Partners Limited (“Walter Scott”) is an investment management firm authorised and regulated in the United Kingdom by the Financial Conduct Authority in the conduct of investment business. Walter Scott is a non-bank subsidiary and 100% owned by The Bank of New York Mellon Corporation. All operations are based in Edinburgh, Scotland with a client service presence in the United States. Walter Scott is responsible for portfolios managed on behalf of pension plans, endowments and similar institutional investors. Total assets under management were US\$81.3 billion as at 30 June 2023.

### 2. PRIVACY NOTICE

Personal information may be collected by Walter Scott following attendance at, or registration to attend, a Walter Scott, affiliate or partner event and will be used solely for the purpose of facilitating the provision of investment management services and managing business relationships. For more information about how Walter Scott collects, uses and shares personal information and an individual’s legal rights (including opt-out rights), please see the full privacy notice which is available on the website: [www.walterscott.com/privacy-policy](http://www.walterscott.com/privacy-policy).

### 3. LEVERAGE, DERIVATIVES AND SHORT POSITIONS

Walter Scott does not generally use derivatives, but American style currency options have been used occasionally for hedging purposes (most recently held in 2007). Walter Scott does not use leverage or short positions.

### 4. FIRM POLICIES

Policies for valuing portfolios, calculating performance, and preparing GIPS Reports are available upon request.

### 5. BENCHMARK DEFINITIONS

Walter Scott compares its composites against the published MSCI indices as shown in this presentation. Further information on these indices can be found at: [www.msci.com](http://www.msci.com)

### 6. COMPLIANCE STATEMENT

Communication of performance figures reflected in this document must be on a one-on-one basis, private and of a confidential nature. They may not be disseminated to the public in any print, electronic or other medium, including a web-site or any database of general circulation. The following disclosures must be provided in writing when onwardly communicating these performance figures.

Unless otherwise stated performance figures do not reflect the deduction of investment advisory fees.

Returns will be reduced by investment advisory fees and any other expenses that may be incurred in the management of an account.

### 7. IMPORTANT INFORMATION

#### 7.1 Walter Scott’s Investment Approach

This presentation contains certain statements based on Walter Scott’s experience and expectations about the markets in which it invests its portfolios and about the methods by which it causes its portfolios to be invested in those markets. Those statements are not guaranties of future performance and are subject to many risks, uncertainties and assumptions that are difficult to predict. The information in this presentation is subject to change and Walter Scott has no obligation to revise or update any statement herein for any reason. The opinions expressed in this presentation are those of Walter Scott and should not be construed as investment advice.

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Past performance is not a guide to future returns and returns may increase or decrease as a result of currency fluctuations. The objective mentioned may therefore not be reached. Many factors affect investment performance including changes in market conditions, interest rates, currency fluctuations, exchange rates and in response to other economic, political, or financial developments. Investment return and principal value of an investment will fluctuate, so that when an investment is sold, the amount returned may be less than that originally invested. This presentation does not represent and must not be construed as an offer or a solicitation of an offer to buy or sell securities, commodities and/or any other financial instruments or products. This presentation may not be used for the purpose of an offer or solicitation in any jurisdiction or in any circumstances in which such offer or solicitation is unlawful or not authorised.

#### 7.5 Performance Indices

Comparisons to the indices have limitations because the volatility and material characteristics of the indices represented in this presentation may be materially different from that of the portfolio managed by Walter Scott. Because of these differences, investors should carefully consider these limitations when evaluating the performance in comparison to benchmark data as provided herein. Where referencing MSCI or any other index performance figures:

The MSCI data is comprised of a custom index calculated by MSCI for, and as requested by, Walter Scott & Partners Limited. The MSCI data is for internal use only and may not be redistributed or used in connection with creating or offering any securities, financial products or indices.



## APPENDIX

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### 7.6 Benchmark Definitions

#### **MSCI ACWI**

The MSCI All Country World Index (ACWI) captures large and mid cap representation across 23 developed and 24 emerging markets countries. With approximately 2,800 constituents, the index covers around 85% of the global investable equity opportunity set. Further information can be found at [www.msci.com](http://www.msci.com)

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