THE TRANSATLANTIC ECONOMY 2022

Annual Survey of Jobs, Trade and Investment between the United States and Europe

Daniel S. Hamilton and Joseph P. Quinlan

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TRANSATLANTIC LEADERSHIP NETWORK

Hamilton, Daniel S., and Quinlan, Joseph P., *The Transatlantic Economy 2022: Annual Survey of Jobs, Trade and Investment between the United States and Europe*
Washington, DC: Foreign Policy Institute, Johns Hopkins University SAIS/Transatlantic Leadership Network, 2022.
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ISBN 978-1-947661-14-1

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Table of Contents

ii Key Findings

iv Preface and Acknowledgements

v Executive Summary

1 **Chapter 1:**
Pain and Resilience:
The Transatlantic Relationship in 2022

19 **Chapter 2:**
Jobs, Trade and Investment:
Enduring Ties that Bind

35 **Chapter 3:**
Shifting Dependencies:
Rethinking Russia, China, and Global Supply Chains

43 **Chapter 4:**
Digital Hyperdrive

67 **Chapter 5:**
The 50 U.S. States:
European-Related Jobs, Trade and Investment

81 **Chapter 6:**
European Countries:
U.S.-Related Jobs, Trade and Investment

93 **Appendix A:**
European Commerce and the 50 U.S. States:
A State-by-State Comparison

145 **Appendix B:**
U.S. Commerce and Europe:
A Country-by-Country Comparison

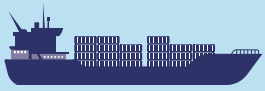
180 Notes on Terms, Data and Sources

182 About the Authors

THE TRANSATLANTIC ECONOMY 2022

16 million jobs
on both sides of the Atlantic

Half of total
global personal consumption



$6 trillion
in total commercial sales a year

One third of global GDP
(in terms of purchasing power)

Thriving Together

No two other regions in the world are as deeply integrated as the U.S. and Europe

Digital

+50% of digitally-enabled services traded between the U.S. and the EU are used to produce export products on each side

55% more data flows via transatlantic cables than over transpacific routes

Innovation

R&D spending

$33 billion U.S. affiliate R&D in Europe (2019)

$48 billion European affiliate R&D in the U.S. (2019)

Investment

64% of global investment into the U.S. comes from Europe (foreign investment stock as of 2020)

59% of U.S. global investment goes to Europe (foreign investment stock as of 2020)

Jobs

Workers

4.8 million U.S. companies in Europe (direct jobs due to investment, 2020 estimates)

4.6 million European companies in the U.S. (direct jobs due to investment, 2020 estimates)

Trade in goods

$333 billion U.S. goods exports to the EU + UK (2021)

$547 billion U.S. goods imports from the EU + UK (2021)

Trade in services

$291 billion U.S. to Europe (2020)

$197 billion Europe to the U.S. (2020)

Preface and Acknowledgements

Daniel S. Hamilton

Joseph P. Quinlan

This annual survey offers the most up-to-date picture of the dense economic relationship binding European countries to America's 50 states. The survey consists of six chapters. Chapter One underscores the resilience of the transatlantic economy in the face of surprises and shocks, from Russia's war on Ukraine and the Covid-19 pandemic to congested supply chains and inflationary pressures. A specific section also discusses possibilities and challenges associated with the U.S.-EU Trade and Technology Council. Chapter Two updates our basic framework for understanding the deeply integrated transatlantic economy via 'eight ties that bind.' Chapter Three discusses shifting U.S. and European commercial relations and dependencies on Russia, China, and the evolution of transatlantic and global supply chains. Chapter Four explores the transatlantic digital economy, which in many ways has become the backbone of commercial connections across the Atlantic. Chapter Five offers an overview of European commercial ties with the United States, and Chapter Six an overview of U.S. commercial relations with Europe. The appended charts provide the most up-to-date information on European-sourced jobs, trade and investment with the 50 U.S. states, and U.S.-sourced jobs, trade and investment with the 27 member states of the European Union, as well as Norway, Switzerland, Turkey, and the United Kingdom.

This annual survey complements our other writings in which we use both geographic and sectoral lenses to examine the deep integration of the transatlantic economy, and the role of the U.S. and Europe in the global economy, with particular focus on how globalization affects American and European consumers, workers, companies, and governments.

Our deep appreciation goes to Kathryn McDonald for her significant contributions. We would also like to thank Thibaut L'Ortye, Wendy Lopes and Garrett Workman for their assistance in producing this study.

We are grateful for the generous support of our annual survey from the American Chamber of Commerce to the European Union (AmCham EU), the U.S. Chamber of Commerce and their member companies, as well as the American Chambers of Commerce in Denmark, Finland, Greece, Ireland, Luxembourg and Sweden.

The views expressed here are our own, and do not necessarily represent those of any sponsor or institution. Other views and data sources have been cited, and are appreciated.

Executive Summary

- In a global economy wracked by surprises and shocks, the U.S. and Europe remain each other's most important markets and geo-economic base. The transatlantic economy generates $6 trillion in total commercial sales a year and employs up to 16 million workers in mutually "onshored" jobs on both sides of the Atlantic. It is the largest and wealthiest market in the world, accounting for half of total global personal consumption and close to one-third of world GDP in terms of purchasing power.

- Ties are particular thick in foreign direct investment (FDI), portfolio investment, banking claims, trade and affiliate sales in goods and services, digital links, energy, mutual R&D investment, patent cooperation, technology flows, and sales of knowledge-intensive services.

- Despite the Covid-19 pandemic, inflationary challenges, congested supply chains, and war in Ukraine, the two sides of the North Atlantic are poised for solid economic growth in 2022. According to estimates for 2021, last year was record-breaking on many fronts:
  - Transatlantic trade in goods reached an all-time high of $1.1 trillion in 2021.
  - U.S. foreign direct investment (FDI) flows to Europe surged to an all-time high of $253 billion;
  - U.S. foreign affiliate income earned in Europe reached an estimated $300 billion, a record high;
  - European affiliates in the United States earned a record-breaking $162 billion;
  - European FDI flows into the United States surged to the highest levels since 2017, hitting an estimated $235 billion.

Transatlantic Investment: Still Driving the Transatlantic Economy

- Trade alone is a misleading benchmark of international commerce; mutual investment dwarfs trade and is the real backbone of the transatlantic economy. The U.S. and Europe are each other's primary source and destination for foreign direct investment.

- Together the U.S. and Europe accounted for 26% of global exports and 33% of global imports in 2020. But together they accounted for 65% of the outward stock and 64% of the inward stock of global FDI. Moreover, each partner has built up the great majority of that stock in the other economy. Mutual investment in the North Atlantic space is very large, dwarfs trade, and has become essential to U.S. and European jobs and prosperity.

- U.S.-based foreign firms generated $397 billion in U.S. exports to the world in 2019; European firms accounted for 57% of the total. Dutch and British companies each exported more than $50 billion in exports made in the U.S.A.

- U.S. foreign affiliate sales in Europe of $3.1 trillion in 2020 were one-third more than total U.S. global exports of $2.1 trillion and roughly half of total U.S. foreign affiliate sales globally.

- Foreign investment and affiliate sales drive transatlantic trade. 65% of U.S. imports from the EU and UK consisted of intra-firm trade in 2020 - much higher than U.S. intra-firm imports from Asia-Pacific nations (around 40%) and well above the global average (48%). Percentages are notably high for Ireland (85%), the Netherlands (74%) and Germany (69%).

- Intra-firm trade also accounted for 39% of U.S. exports to the EU plus UK, and 58% to the Netherlands, 38% to Germany and to the Netherlands, 35% to France and 31% to the UK.

The U.S. in Europe

- Over many decades no place in the world has attracted more U.S. FDI than Europe. During the past decade Europe attracted 57.3% of total U.S. global investment – more than in any previous decade. We are early in this decade, but thus far, Europe's share of U.S. FDI outflows has actually increased to 62.6% of the total. Part of this dynamic reflects weakening U.S. investment flows to China.

- Measured on a historic cost basis, the total stock of U.S. FDI in Europe was $3.7 trillion in 2020 – 59% of the total U.S. global investment position and almost four times U.S. investment in the Asia-Pacific region ($970 billion).

- In the first three quarters of 2021, U.S. companies invested $190 billion in Europe – 17 times more than what they invested in the BRICs ($ 11 billion total in Brazil, Russia, India and China) and 37 times more than what they invested in China alone ($5 billion).

- Despite the pandemic-induced recession, U.S. companies in 2021 earned an estimated $300 billion from their operations in Europe – 23 times what they earned from operations in China.

- Official figures can be misleading when it comes to the original source and the ultimate destination of FDI. For instance, Germany officially accounted for only 4% of U.S. FDI flows since 2010. Yet much U.S. FDI flows into Germany from neighboring countries. Whereas official figures indicate that FDI stock in Germany from the U.S. in 2017 was $90 billion, "real FDI" stock from the U.S. to Germany was actually $170 billion. Similarly, "real FDI" links from Germany to the U.S. are considerably higher than official statistics might indicate. The same is true for other important bilateral investment links.

- In 2020, U.S. FDI flows to nonbank holding companies in Europe rebounded sharply to $62.8 billion. Holding companies accounted for $2.9 trillion, or about 47% of the global U.S. outward FDI position of approximately $6.2 trillion, and 54% of total U.S. FDI stock in Europe.

- Excluding holding companies, total U.S. FDI stock in Europe in 2020 amounted to $1.7 trillion – a much smaller figure but still more than 2.5 times larger than total U.S. investment in the Asia-Pacific region (FDI stock of $654 billion excluding holding companies).

- From 2009 to 2020, Europe still accounted for over half of total U.S. FDI outflows globally and more than double the share to Asia when flows from holding companies are removed from the overall figures.

- Of the top twenty global export platforms for U.S. multinationals in the world, ten are located in Europe. For U.S. companies, Ireland is the number one platform in the world from which their affiliates can reach foreign customers. Switzerland, ranked third, remains a key export platform and pan-regional distribution hub for U.S. firms.

- America's capital stock in the UK ($890 billion) in 2020 is more than triple combined investment in South America, the Middle East and Africa ($278 billion). Total investment stock in China was just $124 billion in 2020, only about 14% of U.S. investment stock in the UK. The U.S. investment presence in China and India ($166 billion in 2020) was just 19% of total U.S. investment in the UK.

- In 2020, Europe accounted for roughly 63% – $17.6 trillion – of Corporate America's total foreign assets globally. Largest shares: the UK (20%, $5.5 trillion in 2019) and the Netherlands (12%, $3.2 trillion in 2019).

- America's asset base in Germany ($960 billion in 2019) was more than a third larger than its asset base in all of South America and more than double its assets in China.

- America's assets in Ireland ($2 trillion in 2019) were light years ahead of those in China ($453 billion).

- Ireland has also become the number one export platform for U.S. affiliates in the entire world. Exports from U.S. affiliates based in Ireland reached $377 billion in 2019, about 5 times more than U.S. affiliate exports from China and about 3.5 times more than affiliate exports from Mexico.

- Total output of U.S. affiliates in Europe ($655 billion) and of European affiliates in the U.S. ($678 billion) in 2020 was greater than the total gross domestic product of such countries as the Netherlands, Turkey or Indonesia.

- Aggregate output of U.S. affiliates globally reached $1.4 trillion in 2020; Europe accounted for 48% of the total.

- U.S. affiliate output in Europe ($686 billion) in 2019 was roughly 73% larger than affiliate output in the entire Asia-Pacific region ($396 billion). U.S. affiliate output in China ($81 billion) and India ($38 billion) lag behind U.S. affiliate output in the UK ($164 billion) and Ireland ($101 billion).

- Sales of U.S. affiliates in Europe were roughly 80% larger than the sales of U.S. affiliates in the entire Asian region in 2019. Affiliate sales in the UK ($724 billion) were double total sales in South America. Sales in Germany ($370 billion) were roughly double the combined sales in Africa and the Middle East.

- U.S. affiliate income from Europe in the first nine months of 2021 ($225 billion) was about 2.7 times more than U.S. affiliate income in all of Asia ($82.8 billion). Europe accounted for roughly 53% of U.S. global foreign affiliate income in the first nine months of 2021.

- U.S. affiliate income from China and India in 2020 ($14.3 billion) was a fraction of what U.S. affiliates earned in the Netherlands ($66 billion), Ireland ($55 billion), or the UK ($41 billion).

- U.S. affiliate income in China in the first three quarters of 2021 ($9.9 billion), however, was more than combined affiliate income in Germany ($6.6 billion) and Spain ($2.8 billion), and income in India ($4.5 billion) was well more than that earned in many European countries.

Europe in the U.S.

- Europe accounted for over 70% of global FDI that flowed into the U.S. in the first three quarters of 2021. Annualizing data, U.S. FDI inflows from Europe are estimated to come in at $235 billion in 2021, versus just $87 billion in 2020.

- The U.S. accounted for almost 25% of the EU27's total outward FDI position globally in 2019 – 10 times more than the EU's investment position in China, which accounted for less than 2.5%. Total European stock in the U.S. of $2.9 trillion in 2020 was more than three times the level of comparable investment from all of Asia. Germany's total FDI stock in the United States totaled $411 billion in 2020. Chinese FDI stock in the United States was less than one-tenth of that total ($38 billion).

- UK firms accounted for 25% ($168 billion) and German companies for 20% ($129 billion) of total European affiliate output in the U.S. in 2020.

- UK firms were the largest source of greenfield foreign investment projects in 18 U.S. states during the ten-year period from July 2011-June 2021. German companies led in 12 states, followed by Canadian companies in 9 states and Japanese companies in 7.

- Europe accounted for roughly 64% of the $4.6 trillion of foreign capital invested in the U.S. as of 2020 on a historic cost basis.

- The bulk of the capital was sunk by British firms (with total UK stock amounting to $487 billion), the Netherlands ($483 billion), Germany ($411 billion), Switzerland ($300 billion).

- In 2019, total assets of European affiliates in the U.S. were an estimated $8.1 trillion. UK firms ranked first, followed by those from Germany, Switzerland and France.

- In 2019, European assets accounted for about 52% of total foreign assets in the United States.

- We estimate that European-owned assets in the U.S. fell slightly in 2020 to $7.9 trillion.

- We estimate income of European affiliates in the U.S. in 2021 hit a record $162 billion.

- The output of British firms in the U.S. in 2019 reached $172 billion – roughly a quarter of the total output of European firms in the U.S. The output of German firms in the U.S. totaled $132 billion, 19% of the European total.

- European companies operating in the U.S. accounted for 61% of the roughly $1.1 trillion contributed by all foreign firms to U.S. aggregate production in 2019. European affiliate output ($694 billion) was more than four times larger than Japanese affiliate output ($163 billion), 5.4 times larger than Canadian affiliate output ($127 billion) and over 46 times greater than Chinese affiliate output ($15 billion).

- Chinese affiliate output in the U.S. of just $15 billion in 2019 was less than that of Sweden ($20 billion).

- European companies accounted for 74% of total foreign FDI in U.S. manufacturing in 2019. The U.S. chemicals sector was the biggest recipient of European investment ($594 billion).

- Affiliate sales, not trade, are the primary means by which European firms deliver goods and services to U.S. consumers. In 2020 European affiliate sales in the U.S. ($2.6 trillion) were more than triple U.S. imports from Europe ($852 billion).

- Sales by British affiliates in the U.S. totaled $684 billion in 2019, followed by German affiliate sales ($548 billion) and those by Dutch affiliates ($378 billion).

Transatlantic Trade

- The EU and the United States are each other's most important trading partners. According to 2021 estimates, EU27-U.S. trade in goods and services of €1.1 trillion was 42% higher than EU27 trade with China of €782 billion.

- Transatlantic goods trade soared in 2021, with both U.S. goods exports to Europe ($386 billion) and U.S. goods imports from Europe ($670 billion) hitting record highs.

- Most trade today is conducted through intermediates, known as indirect trade. The United States, Germany, France and the Netherlands are four of the world's top five indirect traders. While conventional trade statistics portray China as the world's leading exporter, it ranks third in terms of indirect exports – and its share is falling.

- Texas is the top U.S. state exporter of goods to Europe, followed by California, New York, New Jersey and Illinois.

- 45 of the 50 U.S. states, including the Pacific coast's largest state of California, export more goods to Europe than to China, in many cases by a wide margin.

- In 2020 Utah exports to Europe were 15 times those to China; New York, Maryland and North Dakota about 8 times more; Florida and Rhode Island 7 times more; Connecticut and New Hampshire 6 times more; Arkansas, Kentucky and Oklahoma over 5 times more; and Arizona and Illinois 4 times more.

- Germany was the top European export market for 21 U.S. states, the UK for 9, and the Netherlands for 8 in 2020.

Transatlantic Services

- The U.S. and Europe are the two leading services economies in the world. The U.S. is the largest single country trader in services, while the EU is the largest trader in services among all world regions. The U.S. and EU are each other's most important commercial partners and major growth markets when it comes to services trade and investment. Moreover, deep transatlantic connections in services industries, provided by mutual investment flows, are the foundation for the global competitiveness of U.S. and European services companies.

- Five of the top ten export markets for U.S. services are in Europe. Europe accounted for 41% of total U.S. services exports and for 43% of total U.S. services imports in 2020.

- U.S. services exports to Europe reached a record $342 billion in 2019 before plunging 14.7% to $291 billion in pandemic-year 2020. The U.S. had a $94 billion trade surplus in services with Europe in 2020, compared with its $284 billion trade deficit in goods with Europe.

- U.S. imports of services from Europe also plunged 20% in 2020 to $197 billion. The UK, Germany, Switzerland, Ireland, and France are top services exporters to the U.S.

- Moreover, foreign affiliate sales of services, or the delivery of transatlantic services by foreign affiliates, have exploded on both sides of the Atlantic over the past few decades and become far more important than exports.

- Sales of services of U.S. affiliates in Europe totaled $1 trillion, or 55% of the global total in 2019, and roughly two-thirds more than U.S. services exports to Europe of $342 billion.

- The UK alone accounted for 29% ($288 billion) of all U.S. affiliate services sales in Europe in 2019 – more than combined U.S. affiliate services sales in Latin America and the Caribbean ($178 billion), Africa ($15 billion) and the Middle East ($26 billion). Affiliate services sales in Ireland remain quite large – $182 billion.

- Europe accounted for roughly 55% of total U.S. affiliate services sales globally.

- European affiliate sales of services in the U.S. of $655 billion in 2019 were about one-third less than U.S. affiliate sales of services in Europe.

- Nonetheless, European companies are the key provider of affiliate services in the U.S. Foreign affiliate sales of services in the U.S. totaled $1.2 trillion in 2019; European firms accounted for 53% of the total. British affiliates lead in terms of affiliate sales of services ($166 billion), followed closely by Germany ($157 billion).

- European companies operating in the U.S. generated an estimated $615 billion in services sales in 2020 – 3 times more than European services exports to the U.S. of $197 billion.

The Transatlantic Digital Economy

- The transatlantic theatre is the fulcrum of global digital connectivity. U.S. and European cities (Frankfurt, London, Amsterdam, Paris, Stockholm, Miami, Marseille, Los Angeles) are the world's foremost hubs for international communication and data exchange.

- Transatlantic cable connections are the densest and highest capacity routes, with the highest traffic, in the world, with an estimated 38% compound annual growth rate until 2025. Submarine cables in the Atlantic carry 55% more data than transpacific routes.

- The U.S. and Europe are each other's most important commercial partners when it comes to digitally-enabled services. The U.S. and the EU are also the two largest net exporters of digitally-enabled services to the world.

- U.S. trade in digitally-deliverable services totaled $850.6 billion in 2020, followed by Ireland ($524.9 billion), the UK ($433 billion) Germany ($387.1 billion), China ($294 billion), France ($278.2 billion) and the Netherlands ($250.8 billion).

- In 2020, digitally-enabled services accounted for 73% of all U.S. services exports, 67% of all services imports, and 87% of the U.S. global surplus in trade in services.

- In 2020, the U.S. registered a $213.6 billion trade surplus in digitally-enabled services with the world. Its main commercial partner was Europe, to which it exported over $247 billion in digitally-enabled services and from which it imported $142 billion, generating a trade surplus with Europe in this area of over $105 billion.

- U.S. exports of digitally-enabled services to Europe were about 2.7 times greater than U.S. digitally-enabled services exports to Latin America, and roughly double U.S. digitally-enabled services exports to the entire Asia-Pacific region.

- In 2020, EU member states collectively exported €1 trillion and imported €1 trillion in digitally-enabled services to countries both inside and outside the EU. Excluding intra-EU trade, EU member states exported €551 billion and imported €594.5 billion, resulting in a deficit of €43.3 billion for these services.

- Digitally-enabled services represented 61% of all EU services exports to non-EU countries and 68% of all EU services imports from non-EU countries.

- In 2020, the U.S. accounted for 22% of the EU's digitally-enabled services exports to non-EU countries, and 34% of EU digitally-enabled services imports from non-EU countries.

- The U. S. purchased €122.1 billion, making it the largest recipient of EU27 digitally-enabled services exports – ahead of the UK (€121.1 billion) and just slightly behind the entire region of Asia and Oceania (€138.1 billion).

- Digitally-enabled services are not just exported directly, they are used in manufacturing and to produce goods and services for export. Over half of digitally-enabled services imported by the U.S. from the EU is used to produce U.S. products for export, and vice versa.

- In 2020, EU member states imported just over 1 trillion in digitally-enabled services. 41% originated from other EU member states. Another 20% (€204.7 billion) came from the U.S., making it the largest supplier of these services. The EU imports of these services from the U.S. were almost double imports from the UK (€114.2 billion).

- Even more important than both direct and value-added trade in digitally-enabled services, however, is the delivery of digital services by U.S. and European foreign affiliates. U.S. services supplied by affiliates abroad were $1.8 trillion, roughly 2.5 times global U.S. services exports of $705.6 billion. Moreover, half of all services supplied by U.S. affiliates abroad are digitally-enabled.

- 53% of the $998 billion in services provided in Europe by U.S. affiliates in 2019 was digitally-enabled.

- U.S. affiliates in Europe supplied $529 billion in digitally-enabled services in 2019, more than double U.S. digitally-enabled exports to Europe.

- European affiliates in the U.S. supplied $287 billion in digitally-enabled services in 2019, double European digitally-enabled exports to the U.S.

- In 2019, Europe accounted for 71% of the $303.8 billion in total global information services supplied abroad by U.S. multinational corporations through their majority-owned foreign affiliates.

- U.S. overseas direct investment in the "information" industry in the UK alone was 66% more than such investment in the entire Western Hemisphere outside the United States, and roughly the same as such investment in all of Asia, the Middle East and Africa combined, and 14 times such investment in China. Equivalent U.S. investment in Germany was 2.7 times more than in China.

- Including all types of e-commerce, the United States is the top market in the world; online sales there are 2.8 times higher than in Japan and 3.7 times higher than in China. North America and Europe account for six of the top 10 e-commerce countries.

- North American and European countries account for 9 of the top 10, and 17 of the top 20, countries when it comes to combined digital and entrepreneurial ecosystem development.

- The U.S. leads the world in international trade in products delivered through data flows, followed by the UK, France, Germany, India, Ireland, the Netherlands, and Switzerland.

Transatlantic Jobs

- Despite stories about U.S. and European companies decamping for cheap labor markets in Mexico or Asia, most foreigners working for U.S. companies outside the U.S. are European, and most foreigners working for European companies outside the EU are American.

- European companies in the U.S. employ millions of American workers and are the largest source of onshored jobs in America. Similarly, U.S. companies in Europe employ millions of European workers and are the largest source of onshored jobs in Europe.

- U.S. and European foreign affiliates directly employed an estimated 9.4 million workers in 2020.

- These figures understate the overall job numbers, since they do not include
  - jobs supported by transatlantic trade flows;
  - indirect employment effects of nonequity arrangements such as strategic alliances, joint ventures, and other deals; and
  - indirect employment generated for distributors and suppliers.

- U.S. affiliates directly employed an estimated 4.8 million workers in Europe in 2020 – 30% more than in 2000.

- Roughly 33% of the 14.4 million people employed by U.S. majority-owned affiliates around the world in 2019 lived in Europe; that share is down from 41% in 2009.

- U.S. affiliates employed more manufacturing workers in Europe in 2019 (1.9 million) than they did in 1990 (1.6 million), and about the same as in 2000 (1.9 million). Manufacturing employment has declined in some countries but has rebounded in others.

- Poland has been a big winner: U.S. affiliate manufacturing employment grew almost three times between 2000 and 2019, rising from 51,000 to over 140,000.

- Manufacturing employment among U.S. affiliates in Germany has remained relatively steady (360,000 in 2019). U.S. manufacturing affiliates employed 7,000 more people in the UK in 2019 (301,500) than 2018 (295,000) and 7,000 fewer in France (194,000 in 2018 vs. 187,00 in 2019).

- U.S. affiliates employ more Europeans in services than in manufacturing and this trend is likely to continue. Manufacturing accounted for 38% of total employment by U.S. affiliates in Europe in 2019. U.S. affiliates employed nearly 340,000 European workers in transportation and 274,000 in chemicals. Wholesale employment was among the largest sources of services-related employment, which includes employment in such areas as logistics, trade, insurance and other related activities.

- European majority-owned foreign affiliates directly employed an estimated 4.6 million U.S. workers in 2020.

- In 2019, the top five European employers in the U.S. were firms from the United Kingdom (1.3 million jobs), Germany (860,000), France (765,000), the Netherlands (542,000), and Switzerland (491,000).

- European firms employed roughly two-thirds of all U.S. workers on the payrolls of majority-owned foreign affiliates in 2019.

- UK firms were the largest sources of onshored jobs in 24 U.S. states. Japanese companies led in 10 states, Canadian companies in 9, Dutch companies in 3, German and French companies each led in 2 states.

- European companies directly supported 275,000 jobs in the U.S. transportation equipment industry in 2019 – 46% of total foreign affiliate employment in this industry.

- The top five U.S. states in terms of jobs provided directly by European affiliates in 2019 were California (474,200), Texas (399,000), New York (360,300), Pennsylvania (237,700), and Florida (227,600).

The Transatlantic Energy Economy

- The U.S. has become Europe's largest supplier of liquefied natural gas (LNG), accounting in 2021 for 26% of all LNG imported by EU member countries and the UK. In January and February 2022, the U.S. supplied more than half of all LNG imports into Europe, shipping more to Europe than ever before. Europe accounted for about 75% of all U.S. LNG exports, far outpacing exports to Asia. Moreover, for the first time ever, U.S. exports of liquefied natural gas to Europe exceeded Russia's overall natural gas pipeline deliveries.

- U.S. companies in Europe have also become a driving force for Europe's green revolution, accounting for more than half of the long-term renewable energy purchase agreements in Europe since 2007. U.S. companies account for three of the top four purchasers of solar and wind capacity, and five of the top ten purchasers of renewable energies, in Europe.

- European companies are the top source of FDI in the U.S. energy sector. German companies lead the way, accounting for 16% of 813 greenfield investment projects. Other notable European investors include France (9%), the UK (8%), and Spain (6%).

- Europe and the U.S. made up 67% of all green bonds issued in 2020, and 68% of the total $1.7 trillion in green, social and sustainable debt issuance.

The Transatlantic Innovation Economy

- Bilateral U.S.-EU flows in R&D are the most intense between any two international partners. In 2019 U.S. affiliates spent $32.5 billion on R&D in Europe, 56% of total U.S. R&D conducted globally by affiliates.

- R&D expenditures by U.S. affiliates were the greatest in Germany ($7.1 billion), the UK ($5.6 billion), Switzerland ($4.6 billion), Ireland ($4.2 billion), and France and Belgium with $2 billion each. These six nations accounted for roughly 80% of U.S. spending on R&D in Europe in 2019.

- In the U.S., R&D expenditures by majority-owned foreign affiliates totaled nearly $71.4 billion in 2019; European affiliates accounted for two-thirds of that total.

- German-owned firms were the largest foreign source of R&D in the United States in 2019, spending some $11.0 billion, or 23% of the total of European R&D. Swiss firms ranked second ($10.3 billion or 21.5% of total), followed by British firms ($7.1 billion or 15%).

1

Pain and Resilience:
The Transatlantic Economy in 2022

Russia's further invasion of Ukraine has thrust the world into a dangerous and volatile era. Russian President Vladimir Putin is determined to use military force in a clear violation of Ukraine's sovereignty and international law. Not just human, political and military connections, but also commercial ties, are in the crosshairs. It is useful to recall that the pretext for Russia's 2014 illegal annexation of Ukraine's Crimean Peninsula and its military intervention in eastern Ukraine was a pending trade agreement between Ukraine and the European Union (EU), not NATO's open door.

Whatever the ultimate outcome of Putin's war, the immediate consequences for Ukrainians are horrific, in terms of lives lost, cities destroyed, and families uprooted. The implications for Russia, and for Europe more broadly, are profound, although still uncertain. What is certain: Putin has succeeded in uniting the transatlantic community in ways unknown since Europeans and Americans closed ranks in the wake of the September 11, 2001 terrorist attacks on the United States.

The Atlantic Alliance is doing what it can to support Ukraine without stumbling into direct military confrontation with Russia. The response has been tough and decisive. North America, the United Kingdom, and EU members, joined by a raft of additional countries such as Japan and even neutral Switzerland, unleashed a barrage of sanctions against Russia. Similar sanctions have been imposed on Belarus.

The most prominent sanctions are those on Russia's central bank that prevent it from using its roughly $630 billion stockpile of foreign reserves, largely denominated in euros and dollars, to defend the value of the ruble, shore up its economy, or shield it from the costs associated with its attacks on Ukraine.[1]

Western countries and their partners are also working to deny Russia's most-favorite-nation trade status, which will lead to higher tariffs on Russian goods. They are stopping Russia from borrowing at multilateral financial institutions. They are preventing some Russian financial institutions from using the SWIFT global financial messaging system, making it difficult for those institutions to complete cross-border transactions.[2] These measures build on additional sanctions that target Russian officials, oligarchs, banks, high-tech companies and aircraft makers. They accompany actions to cut Russia off from semiconductor supplies, ban sales of aircraft and jet parts to Russia, block the sale of equipment needed to upgrade oil refineries, and suspend visa-free travel for Russian diplomatic passport holders.

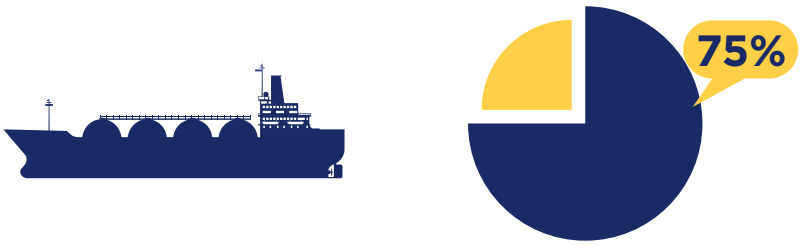
U.S. authorities have banned U.S. individuals from engaging in any transactions with Russia's central bank, its national wealth fund, and its finance ministry, and have made it clear that any bank operating in the United States that transacts with any Russian bank is in big trouble.[3] They expanded the Foreign Direct Product Rule (FDP rule), previously used to nearly bankrupt the Chinese telecom firm Huawei, to halt the export to Russia of any product derivative of U.S. technology or software regardless of its country of manufacture.[4] European countries have taken similar actions. Germany's about-face has been particularly striking. Berlin stopped the approval process for its controversial Nord Stream 2 natural gas pipeline with Russia, pledged to ramp up defense spending, dropped its resistance to arming Kyiv, endorsed damaging financial sanctions on Moscow, and embarked on a costly drive to reduce its energy dependence on Russia.

The impact has been severe. Within a week of Putin's February 24 invasion, Nord Stream 2 AG, the company behind the Russia-to-Germany pipeline, filed for bankruptcy. Moscow's stock market suffered one of the biggest collapses in financial history. The Russian government's credit rating was downgraded to "junk" status. Russian bonds tumbled, and Russian citizens were barred from transferring money to overseas accounts. The ruble plunged to record lows while interest rates doubled to 20%. Sberbank, Russia's biggest lender, pulled out of the European market. Goldman Sachs cut its forecast for Russia's economy in 2022 from 2% growth to a 7% decline.[5] Foreign companies are abandoning the Russian market. Investors are braced for the possibility that Russia could default on its debt for the first time since 1998.[6] Additional sanctions and further decoupling measures are likely.

The New Energy Landscape

In their initial response to Putin's aggression, Western leaders sought to limit the economic blowback on their own economies. Notably, the initial wave of sanctions did not target Russia's sales of oil and gas, which accounted for half of the country's export earnings in 2021. Energy sanctions would not only penalize the U.S. and European energy economies, they would drive prices up to Putin's benefit. Even without energy sanctions, the biggest early impact of the war on the U.S. economy was rising gasoline prices, which are a dollar higher than a year ago.[7] The impact has been far more severe in Europe, which even before Putin's 2022 invasion was experiencing its worst energy crisis since the Arab oil embargos of the 1970s. European energy prices had soared 26% in December 2021 over the previous year, accounting for half of the broader rise in consumer prices. Given that Russia supplies around 40% of Europe's gas and 25% of its oil, energy sanctions would exacerbate the

Share of total U.S. LNG exports going to Europe (January 2022)



crisis. The European Central Bank estimates that a 10% shortage in gas could knock 0.7% off eurozone gross domestic product.[8]

Rerouting of liquefied natural gas (LNG) tankers to Europe, mainly from the United States, had already eased shortages, even though prices remain historically high. Europe accounted for about 75% of all U.S. LNG exports in January 2022, and 61% in December 2021, far outpacing exports to Asia.[9] U.S. tankers on their way to Asia literally turned around to head for Europe. In January, for the first time ever, U.S. exports of liquefied natural gas to Europe exceeded Russia's pipeline deliveries.[10]

These efforts, while helpful, could not compensate for the volatile developments that unfolded in late February 2022. Within a week of the February 24 invasion, European natural gas prices surged to an all-time high of almost €200 a megawatt hour and crude oil topped $118 a barrel for the first time since 2014. To alleviate the pressure, the United States and allies released 60 million barrels from their reserves. Despite pain at the pump, Western determination to mitigate reliance on Putin is becoming manifest. Western energy majors BP, Equinor, ExxonMobil and Shell are divesting their stakes in Russia. Canada and the United States have banned Russian oil imports, and other countries are likely to follow. Big energy refineries, banks and shipowners are boycotting Russian energy purchases.[11]

While the United States will not fully replace Russia or other suppliers as long-term sources of natural gas for energy-starved Europe, Putin's war is recasting the European and global energy landscape. Transatlantic energy connections are growing in importance, as the United States becomes the world's largest LNG supplier, and as U.S. and European companies lead the transition to competitive clean technologies. We discuss these developments in Chapter 5.

The Commodity Pinch

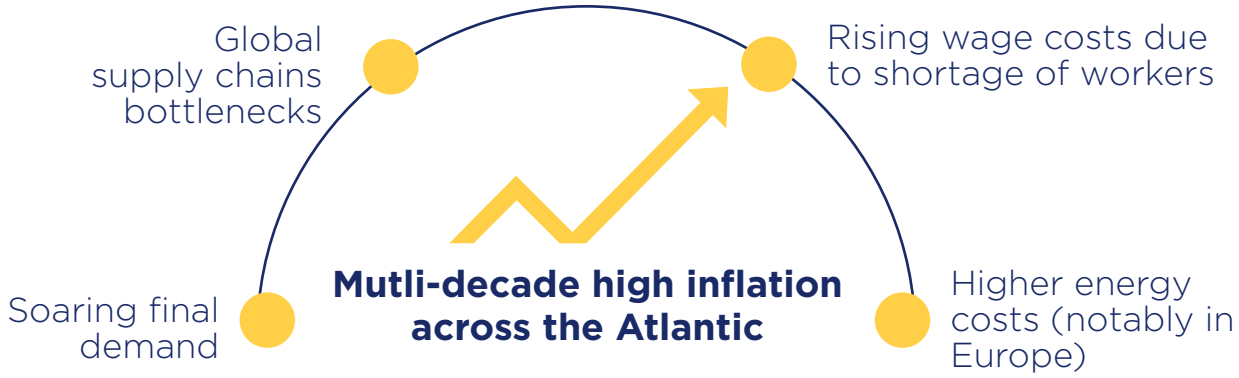
Russia's war and Western sanctions are also squeezing supplies and raising prices for other commodities. Russia and Ukraine account for up to half of global exports of neon, which is vital to semiconductor production in advanced economies. Ukraine produces more than 90% of the semiconductor-grade neon used in the United States. Russia and Ukraine account for 80% of global exports of sunflower oil, 29% of wheat, and 19% of corn. Higher prices and disrupted flows of these commodities will be felt acutely in countries such as Bangladesh, Sudan, Pakistan, Egypt, Lebanon, and Turkey, all of which import most of these commodities from the two combatant countries.[12]

Russia and Belarus are also major exporters of fertilizer, with Russia leading the world; prices, which were at historically high levels before the war, have spiked. Fertilizer scarcity further jeopardizes global crop production. The United States and its European partners will have to increase financial support for affected countries to help them cope.

Prices are also surging for industrial metals for which Russia is also a key source. These include aluminum, which is used in everything from cans to cars; palladium, which is used in mobile phones and automotive exhaust systems; titanium, needed by aircraft and jet engine manufacturers; and platinum, copper and nickel, which are used in the batteries that power electric vehicles.[13]

Under Pressure

Beyond these specific pain points, Putin's war has exacerbated two pre-existing challenges for the transatlantic partnership in 2022. The first is a spike in inflationary pressures. In the nearly two decades we have been publishing this survey, increasing prices and rising inflationary expectations have rarely warranted even a passing reference, given a rather constant low-inflation environment. Yet owing to global supply chain bottlenecks, soaring final demand, rising wage costs due to a dearth of workers, and higher energy costs, notably in Europe, headline consumer price inflation (CPI) in both the United States and Europe is presently running at multi-decade highs. In the United States, the CPI index was 7% higher in December 2021 from a year earlier, a 40-year high. The headline inflation rate for the eurozone was 5.8% in February 2022, the highest since the euro was created. Inflation is higher still in such countries as Germany, Belgium, Spain, Poland, and Lithuania. Oil at $120 to $140 a barrel could raise inflation in advanced economies



by a further 2%, pushing rates in many countries close to 10%.[14] Policy makers on both sides of the Atlantic confront a policy nemesis that has been absent for decades.

That said, the economic and political effects of rising prices on the transatlantic economy bear close watching. To dampen inflationary expectations in the United States, the Federal Reserve is expected to raise the Federal Funds rate by at least three times this year, if not more. The tighter monetary conditions become, the greater the risks of a U.S. economic slowdown and attendant constraining effects on transatlantic economic activity. Ditto for the European Central Bank: the removal of monetary stimulus this year portends weaker economic activity in 2023. In addition, both the United States and Europe are expected to pull back on fiscal spending this year, producing another headwind to future growth.

Then there are the political costs of inflation, with rising prices in the United States threatening not only to eat into the real incomes of U.S. workers but also to upend Democrats' slim governing majority in the fall midterm congressional elections. The politics of inflation could entail economic and political risks in both the United States and Europe, with voter angst acting to stall or forgo transatlantic cooperation on trade, technology, energy, sustainability and investment. The higher U.S. and European inflation rates, the greater the urge to respond with policies that are inward-looking and politically-motivated. Inflation has historically made for bad economic policies.

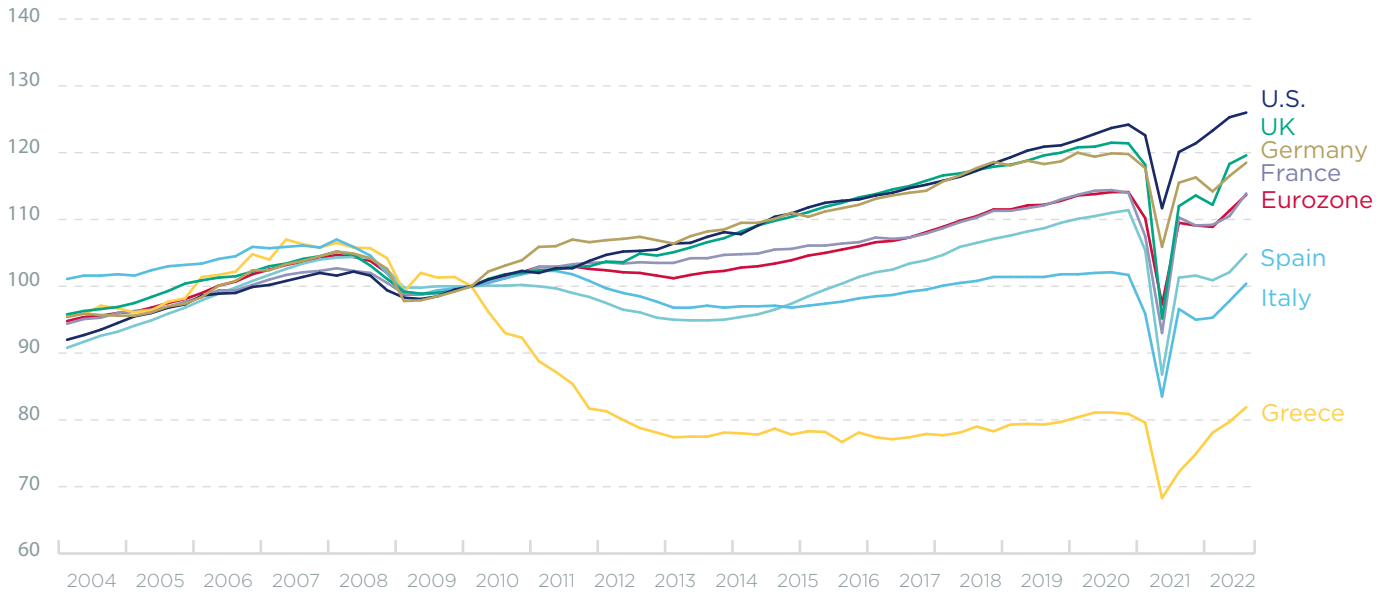
A second challenge lies with the world's congested global supply chains – the blood stream of the global economy. When the pandemic struck in 2020, many countries and companies were stunned to realize how dependent they had become on other external suppliers for critical pharmaceuticals and health care products. And as economies sputtered to restart after widespread lockdowns, soaring demand, port disruptions, material shortages, and Covid-related factory closures wreaked havoc on the world's ability to deliver goods and services through extended supply chains. The upshot: heightened anxieties about excessive dependencies, an unprecedented global supply shock, and a surge in inflationary pressures as the cost of goods soars around the world. The additional shock to energy and commodity flows generated by Putin's war has compounded these problems. It has further underscored the importance of supply chains and forced U.S. and European companies to reconsider yet again how they organize existing and future networks on a global scale. We address these issues in Chapter 3.

Resiliency and Strength

Despite these challenges, what Putin's war has uncovered is the impressive strength and resiliency of the transatlantic economy. The North American and European economies will be far better able to withstand the pain of sanctions than will the Russian economy. Apart from Europe's significant dependence on Russian energy, Western economies overall have limited exposure to the Russian economy and are relatively insulated from the impact of Russia's growing economic isolation. Western banks had already reduced their exposure to Russian financial institutions by 80% following Putin's 2014 intervention in Ukraine, and their claims on the rest of Russia's private sector have halved since then.[15] JPMorgan estimates that the total exposure of foreign banks to Russian banks, companies and the state only amounted to about $89 billion.[16] U.S.-Russia trade is negligible; Russia accounts for roughly 0.55% of total U.S. trade in goods and services. And while the European Union is Russia's largest trading partner, accounting for 37% of Russia's global trade in 2020, Russia represents only around 5% of the EU's trade with the world.[17] Russia is a relatively minor player in the global economy, accounting for just 1.7% of the world's total output – a figure that has surely already shrunk since Putin initiated his latest invasion.[18]

Moreover, the two sides of the North Atlantic enter 2022 in a strong position. In a remarkable demonstration of resiliency and dynamism, the key drivers of the transatlantic economy – investment,

Table 1 Covid-19 Economic Downturn in the U.S. and European Countries (Real GDP level, Q1 2010 = 100)



Source: Haver Analytics.
Data through Q3 2021.

income and trade – staged a robust rebound in 2021. Indeed, 2021 was record breaking on many fronts. Transatlantic trade in goods reached an all-time high of $1.1 trillion in 2021. According to estimates for 2021, U.S. foreign direct investment (FDI) flows to Europe surged to an all-time high of $253 billion; U.S. foreign affiliate income earned in Europe reached an estimated $300 billion, a record high; European affiliates in the United States earned a record-breaking $162 billion; and European FDI flows into the United States surged to the highest levels since 2017, hitting $235 billion.

These figures are emblematic of a world economy that recovered much faster from the Covid-19 pandemic than most expected. Owing to rising global vaccination rates, notably in the developed markets of the United States and Europe, and to uber-monetary and fiscal support, the global economy staged an impressive rebound from the dark days of March 2020, when Covid-19 brought things to a standstill. Global output in 2020 contracted by a stunning 3.1%, one of the severest downturns on record. U.S. output dropped by 3.4%, while economic output in the eurozone plunged 6.4%.

Last year, however, as the world emerged from the pandemic-related lockdowns of 2020, global growth surged, fueled by soaring consumption and investment, and backstopped by generous levels

2021: a record-breaking year

Transatlantic trade in goods

$1.1 trillion

FDI flows (2021 estimates)

$253 billion
U.S. to Europe

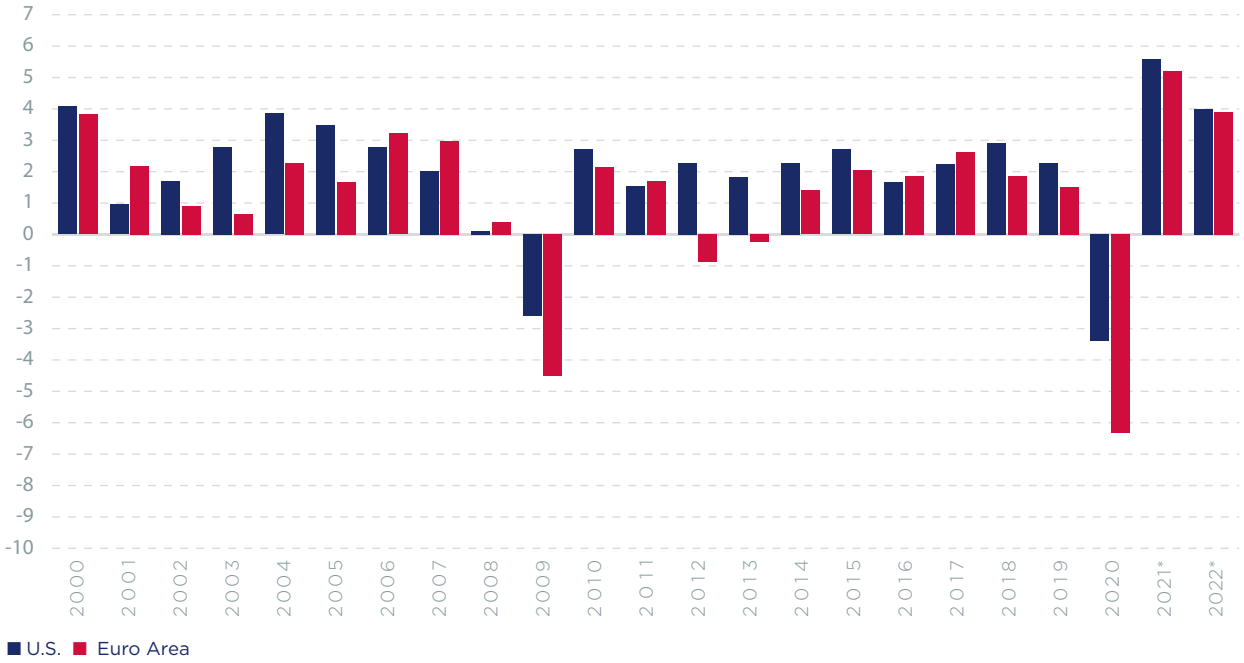
$235 billion
Europe to U.S.

Growth

5.7%
U.S.

5.2%
Euro Area

Table 2 **U.S. vs. Euro Area** Real GDP, Annual Percent Change



**2021 estimate, 2022 forecast.*
Data as of January 2022.
Source: International Monetary Fund.

of public sector spending. Global output in 2021 rose 5.9% according to IMF estimates, one of the strongest economic rebounds in decades. The UK's economy expanded by 7.5%, the best in the G7 group of big, industrial nations, followed closely by France at 7%. The U.S. economy grew by 5.7%, with real GDP reaching pre-pandemic levels in the second quarter of 2021. The euro area posted growth of 5.2% in 2021, and many European economies are on their way to reaching pre-pandemic levels of output. While Germany's export-led economy struggled with global supply chain backlogs and slowing growth in China, it looks to recover in 2022.[19]

Both the United States and Europe are poised for solid economic growth in 2022, with the disruptive effects of the pandemic likely to fade, the impact of Russia's isolation largely manageable, and as the spillover effects of easy monetary and fiscal policies help to grease economic activity. The combined U.S. fiscal and monetary response – over $12 trillion in 2020-2021 – was more than half of U.S. GDP, representing one of largest government spending surges in U.S. history. European policy makers also stepped up in a big way, with eurozone and UK governments introducing roughly $8 trillion in fiscal and monetary stimulus since the beginning of the pandemic.

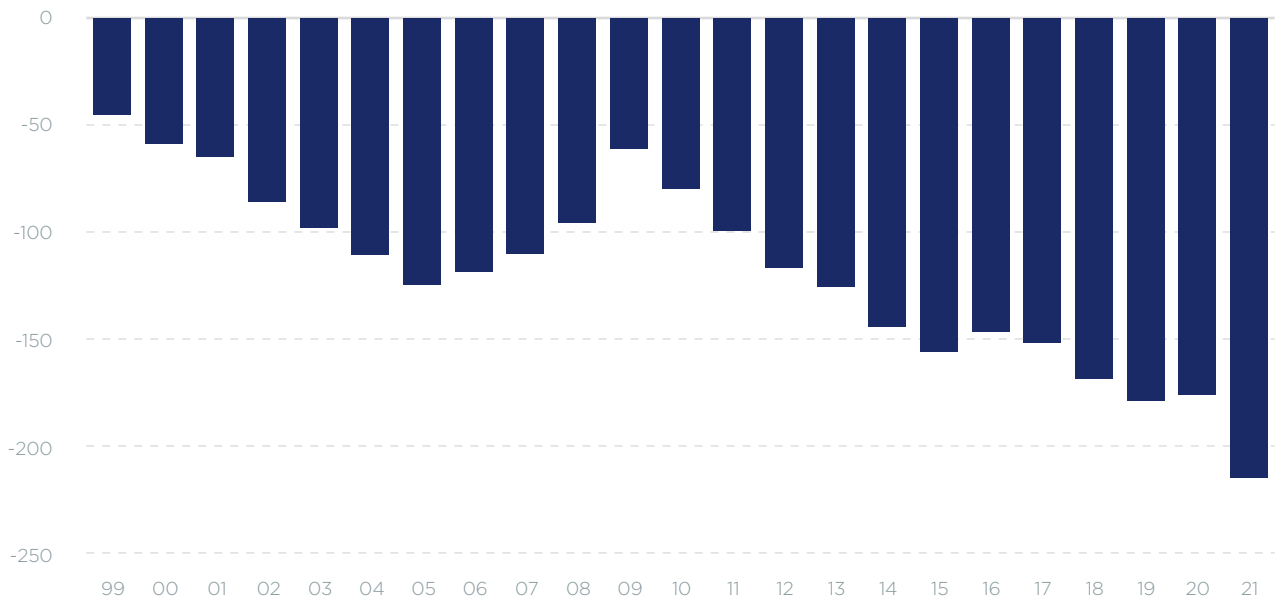
As policy tailwinds fade in 2022, the baton of growth is being passed to consumers and companies. The outlook for U.S. consumer spending is one of the strongest in years, with full employment, rising wages, and rising home and stock values helping to drive increased spending levels, notably among high-income households. The downside: real wages in the United States and Europe are falling due to the effects of accelerating inflation, hurting low-income families the most. This dampening effect is expected to be offset by rising pent-up spending among various cohorts on both sides of the Atlantic.

Transatlantic personal consumption accounted for roughly half of global consumption in 2020, versus India and China's combined share of 15%. This fact underscores the attractiveness of the transatlantic economy and reinforces a point we have long made: notwithstanding rising consumer expenditures in China, the United States and Europe still control the commanding heights of global consumption. Consumption is dependent on per-capita income, and based on this metric, the average transatlantic consumer is far wealthier than their counterparts in Asia's twin giants.

In terms of corporate spending, U.S. firms were sitting atop some $7 trillion in free cash flow at the end of 2021, thanks to record corporate profits and the low cost of credit. Firms on both sides of the pond are flush with cash, which portends more transatlantic mergers and acquisitions (M&A), more hiring, even faster wage growth, and more bilateral investment in 2022.

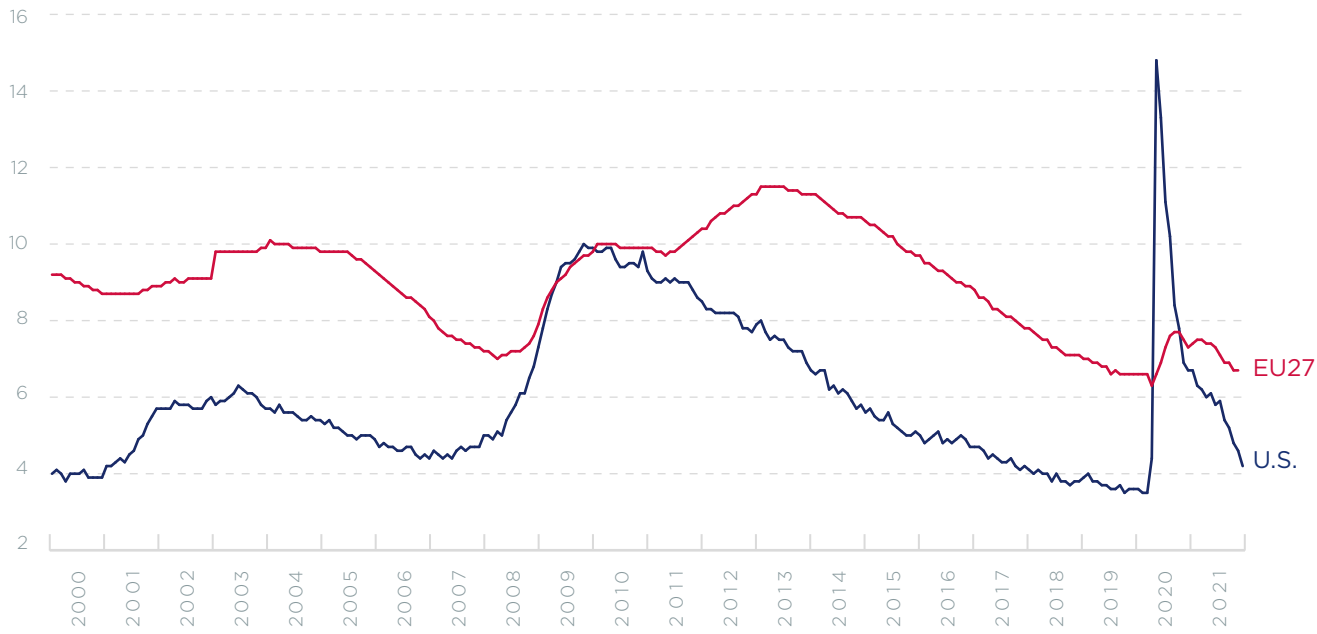
Transatlantic goods trade soared in 2021, with both U.S. goods exports to Europe ($386 billion) and U.S. goods imports from Europe ($670 billion) hitting

Table 3 U.S. Merchandise Trade Balance with the EU (including the UK) ($Billions)



Source: United States Census Bureau.
Data as of February 2022.

Table 4 U.S. vs. EU Unemployment Rate Harmonized Unemployment Rate, % of Labor Force (Monthly)



Source: OECD.
U.S. data through November 2021. EU data through October 2021. EU excludes the UK.

The U.S. and the EU reinvigorated their partnership in 2021

Vaccine roll-out

Global corporate tax agreement

Climate action

Trade dispute resolutions (aircraft subsidies and steel and aluminum)

Trade and Technology Council

record highs. This discrepancy also led to an all-time merchandise trade deficit of $284 billion. That said, there is more to transatlantic trade than goods. Commercial transactions are far more balanced if one includes services trade, digitally-enabled commerce, and investment flows, as we highlight in Chapters 2 and 4.

Both sides of the Atlantic also took important steps to reinvigorate their partnership in 2021, the fruits of which are reflected in economic recovery and a united front against Putin. They agreed to provide vaccines to two-thirds of the world's population. They agreed to rewrite global tax rules on corporate income that could overturn a century of established tax practice. They agreed to again join forces to tackle climate change, including through the Global Methane Pledge. They agreed to suspend for five years mutual tariffs related to the ongoing Boeing-Airbus dispute, as they seek an ultimate resolution to the matter. They also agreed to lift U.S. tariffs on European steel and aluminum and countervailing European tariffs on U.S. goods. And they created a U.S.-EU Trade and Technology Council (TTC) to grow the bilateral trade, investment, and technology relationship; avoid new unnecessary technical barriers to trade; facilitate regulatory cooperation; and cooperate on international standards development. The TTC comprises 10 working groups on issues ranging from supply chain resilience and data governance to technology standards and clean technology development. The parties have already signaled close alignment on investment screening and export controls. In this year's survey, we explore four additional areas where the TTC could make a difference: ICT competitiveness; semiconductors; artificial intelligence; and clean tech and critical materials. Each of these topics is addressed in a separate box later in this chapter.

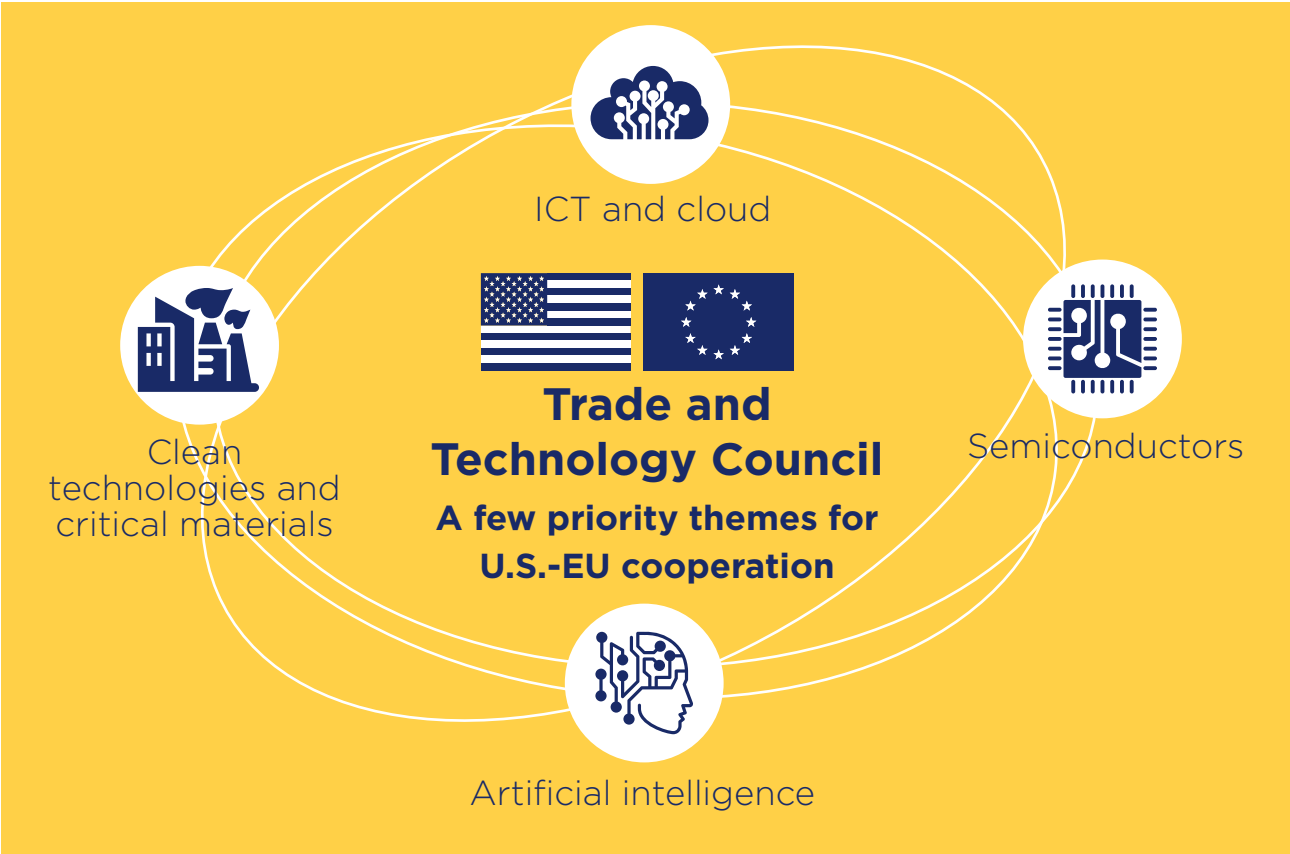
This newfound sense of transatlantic unity is an opportunity for the United States and the EU to address lingering irritants in their own relationship. U.S. concerns center on the motivations behind the collapse of the U.S.-EU Privacy Shield governing transfers of personal data, the protectionist impulses behind the Digital Markets Act, industrial strategies intended to promote "European champion" companies, and the EU proposal for a carbon border adjustment mechanism, which could disadvantage non-EU companies. The EU worries about the Biden Administration's efforts to strengthen "Buy America" rules, its proposals for electric vehicle tax credits, and its decision to postpone but not resolve transatlantic disputes on U.S. steel and aluminum tariffs. Each party's efforts to subsidize its semiconductor sector and other digital industries could lead to subsidy wars that would only benefit China.

Negotiations on a successor agreement to Privacy Shield are particularly fraught. Transatlantic data flows – the lifeblood of the transatlantic economy – remain in legal limbo after the European Court of Justice in summer 2020 invalidated for a second time U.S.-EU arrangements governing the transfer of personal data for commercial purposes. Negotiators are seeking yet another successor agreement, which U.S. Commerce Secretary Gina Raimondo has called "the number one priority."[20] However, since the Court's judgment is rooted in differences in law rather than in policy, even a Privacy Shield 2.0 is likely to face legal challenges from within the EU.

There are also signs that the global tax deal agreed by 139 countries in October 2021 may be in for a rough ride. The deal's Pillar One would enable countries to tax between 20% and 30% of the profits of the world's largest and most profitable companies above a 10% earnings margin, based on where a company

makes its sales, rather than where it is incorporated. For Pillar 1 to come to life, international tax treaties need to be amended. In the United States, this means that two-thirds of a deeply divided U.S. Senate will need to agree to any changes – and Republicans have already poured cold water on the arrangement. The deal's Pillar 2 deal would apply a minimum 15% corporate tax rate to a much larger set of companies by the governments where those companies are headquartered, if a company has not paid 15% overall across its global operations. The goal is to remove incentives by those companies to shift profits between jurisdictions to avoid taxes. While all EU member states originally signed on, Hungary, Estonia and Poland have threatened to veto an EU directive to implement the deal until the United States implements Pillar One. The upshot is that the deal is unlikely to be fully implemented anytime soon.

These policy differences, while quite real, are now playing out in a context of transatlantic unity rather than division. Despite Putin's disruptive war, the macroeconomic and policy backdrops for the transatlantic economy are generally quite positive for 2022. Real growth is decelerating but at above-average historical levels. The drivers of growth are shifting from the public sector to the private sector, while employment levels remain strong. Pre-pandemic output levels will be achieved in many economies. Bilateral trade and investment flows are solid. There are bumps on the road to recovery, yet transatlantic partnership rebounded in 2021, is proving itself to be resilient in the face of new challenges, and all indications are that it will forge ahead again in 2022.



TTC Priority Theme A: ICT and Cloud

U.S. and European goals in the ICT/cloud sectors align in many ways. However, instead of building on dense transatlantic digital interconnections and the shared principles that underpin them, in recent years the two parties have allowed a series of digital disconnects to roil U.S.-EU relations.

If one analyzes the full technology stack, important opportunities emerge. An overall bargain could conceivably be achieved by joint efforts to enhance Open RAN for 5G, advance common or compatible privacy standards, and guarding against external and internal security threats and market abuses, coupled with U.S. willingness to grant European firms greater access to its domestic 5G market and European willingness to cooperate more closely on potential regulations for platforms and artificial intelligence (AI).

Whereas the EU is relatively underdeveloped compared to the United States in higher technology layers such as AI and platforms, the United States is relatively underdeveloped compared to the EU in key parts of lower technology layers such as 5G. Moreover, after the initial transatlantic turmoil generated by U.S. efforts to oust Chinese 5G telecoms from critical networks, not only at home but in Europe and elsewhere, many – but not all – European allies have also acted to marginalize those companies' presence in their networks. If anything, the two sides have only grown closer in their analyses of the economic challenges from non-market economies in the intervening years.

The two parties have opportunity to use the U.S.-EU Trade and Technology Council (TTC) to harness their respective strengths to enhance their technological leadership. It would be useful for both parties to reaffirm their joint commitment to core principles, such as transparency in legislation and regulation; the independence of regulatory authorities; open networks for consumers to access and distribute information, applications and services of their choice; the importance of a strong and competitive shared environment for ICT development and use; strong yet flexible intellectual property (IP) laws; interoperable data protection regimes that enable innovation while also protecting privacy; agreement that governments should allow foreign participation in their ICT services; affirmative policies in support of digital trade and data flows; science and technology cooperation related to digital innovation and research; and robust international cooperation to manage policy differences. In addition, the two parties should foster industry Codes of Conduct for data protection in the cloud, building on efforts currently under way on each side of the Atlantic. If the two sides of the Atlantic prove able to harness their joint potential based on these principles, they could form the core of a wider technology alliance of like-minded democracies that could prove much more vibrant and attractive than autocratic alternatives.[21]

TTC Priority Theme B: Semiconductors

The leading supply chains of common interest to the United States and the EU revolve around semiconductors, which the two parties have called "the material basis for integrated circuits that are essential to modern-day life and underpin our economies." In this area, the two parties have acknowledged that they have "some important respective strengths as well as ongoing, significant mutual dependencies, and common external dependencies." Each has announced initiatives to mitigate those dependencies, improve security of supply, and boost their ability to design and manufacture the "most powerful and resource efficient semiconductors."[22]

To understand how the two parties could accomplish these goals, it is important to look at the key elements of highly-fragmented, highly-specialized, and global semiconductor production networks. The key stages are design, fabrication, assembly, testing and packaging (ATP), and production of semiconductor manufacturing equipment (SME). While specific companies and countries may be leaders in one or more elements of the overall process, none has a lock on all.[23]

U.S. enterprises are global leaders in SME production and in semiconductor design and associated design tools. European firms also show strength in design and SME production, and in some materials key to the semiconductor manufacturing process. The EU has a strong position in certain sub-segments such as discrete semiconductors (global sales leader), analogue integrated circuits, micro-controllers, power electronics, sensors, chip architecture and advanced chip-making equipment. The EU is also well positioned in the 'More than Moore' market (products made up of a mix of semiconductors), as well as in dedicated processors for applications in the automotive and industrial sectors (including machinery), which are all expected to grow significantly in the future.[24] Despite these respective strengths, each party relies heavily on third countries for highest-end chip manufacture, critical materials, and assembly packaging and testing.

Whereas EU leaders have used the concept of "strategic autonomy" to animate their efforts to alleviate semiconductor supply chain dependencies, U.S. commentators speak of "decoupling" from non-market economies. The decoupling metaphor is easy to understand, because it evokes a simple image of disconnecting a cable, in this case a worrying link to China. If drawn to their ultimate conclusions, however, both terms would wreak havoc on the U.S., European, and global economies. Despite each side's push for self-reliance, achieving fully independent chip supplies is unrealistic, given the highly complicated, specialized and global nature of semiconductor supply chains. Moreover, neither term is an accurate depiction of actual U.S. or EU policies. Neither party is really trying to break free of its interdependencies; each is more intent on redefining the terms of those interdependencies in ways that can enhance its relative security and prosperity. Given each party's relative balance of strengths and weaknesses, the best course for the two parties to enhance security of semiconductor supply is not to "decouple" or become fully "autonomous" from all other semiconductor producers; it is to ensure that other semiconductor producers remain dependent on them, by doubling down on areas of strength.[25]

For the United States, this can mean some efforts to mitigate strategic vulnerabilities such as reliance on foreign semiconductor fabrication, and assembly packaging and testing. It means working with the EU and other like-minded countries to ensure reliability of supplies of critical materials. Most of all, it means reinforcing U.S. strengths in semiconductor design and SME production. For the EU, it means acknowledging that becoming completely autonomous in high-end semiconductor fabrication is just "not doable," as EU competition chief Margrethe Vestager has acknowledged[26] -- not only because the EU has neither the incentives or the resources to overtake the world's leading high-end fabricators, but because the EU itself has relatively low demand. As a whole, the EU accounts only for 9% of global semiconductor imports, compared to Asia, which accounts for 83% of exports and 81% of imports. Instead, the EU should focus its resources on areas of strength

by fostering semiconductor subsectors upon which other countries, including the semiconductor superpowers, are reliant. Those strengths include R&D projects in chip and software design, SME, and materials innovation for important chip manufacturing inputs, such as chemicals, sensors, power electronics, embedded security solutions and security chips. Furthermore, potential exists for transatlantic complementarities and synergies—especially when it comes to investing in cutting-edge technologies that do not yet have market viability. Coordination in the implementation of both the U.S. and EU CHIPS Acts will be essential.

While the TTC's potential regarding semiconductors is currently limited by France's insistence that the focus remain on "short-term supply chain issues" rather than longer-term strategies, it offers a chance for the two parties to harness their respective strengths and mitigate their respective dependencies within semiconductor supply chains. The two parties have already agreed to jointly identify gaps and vulnerabilities, map capacity in the semiconductor value chain, and strengthen domestic semiconductor ecosystems. They could conduct a joint assessment of supply chain vulnerabilities, improve transparency throughout the semiconductor supply chains, build synergies between the U.S. National Science Foundation and the Horizon Europe framework programs, and work to design new microchips that could perform better – and require less energy – than silicon. U.S.-EU cooperation could form the core of a broader semiconductor consortium of like-minded nations, including Japan, Taiwan and South Korea, that could also consider forging a common innovation base with R&D of next-generation semiconductor designs and materials.[27]

TTC Priority Theme C: Artificial Intelligence

McKinsey estimates that widespread adoption of artificial intelligence (AI) could grow European economic activity by almost 20% by 2030. However, even though the EU has more specialized AI researchers than the United States or China, it lags both in AI investments, adoption, and R&D spending. The EU's fragmented market hampers the scale-up of small- and-medium sized AI and blockchain enterprises, and constrains the access of such firms to creation of large, cross-country pools of data for building and testing their algorithms, limiting their ability to compete globally.[28]

When it comes to AI, the European Commission has prioritized risk management and trust. It has introduced draft legislation for a new regulatory framework through the Artificial Intelligence Act (AIA), which is the first effort to create a comprehensive AI law, and another example of EU efforts to lead the world in making rules to govern the digital economy, which tracks with parallel efforts to regulate online content, competition in digital markets, privacy, and other areas. While a final law is only likely to emerge after several years, the current draft would apply to any company selling an AI product or service in the EU, so would be extraterritorial in nature, and thus could become another digital flashpoint between Washington and Brussels.[29]

Despite potential transatlantic challenges, U.S. policymakers share the EU's interest in mitigating risks associated with AI. In addition, even though the United States is the world's AI leader, with the largest share of private investment, the most start-ups, and strengths in AI talent, R&D, data, hardware and commercialization of innovation, U.S. public and private leaders are concerned about the country's ability to maintain this position, particularly in light of rising Chinese competition. Here, too, there is potential—and arguably the imperative—for greater transatlantic cooperation.[30]

U.S. and EU policymakers are aligned around two core themes for AI policy: (1) enabling innovation and competition, and (2) ensuring trust and accountability. But there are important differences in these policy approaches. Washington tends to focus on the importance of incentivizing innovation and growth, greater R&D funding, and light-touch regulation, whereas Brussels tends to focus on risk management and trust. The TTC could play a role by exploring to what extent these approaches can be aligned behind a joint U.S.-EU effort to enable safe and responsible AI innovation and adoption globally. Whether the two parties can avoid costly divergence in the regulation of AI in the future will become apparent quickly as discussions move to legal definitions and metrics for risk management requirements. The task is to seek common or complementary positions that balance AI risks against the risks inherent in slowing technological innovation. As Nigel Corey of ITIF warns, the United States and the EU should seek common principles, norms and regulations, "but they should not expect to achieve complete convergence."[31] Indeed, the goals of the TTC overall are all about encouraging the coherence and interoperability of U.S. and EU regulatory approaches—without necessarily insisting on the same approaches.

TTC Priority Theme D: Clean Technologies and Critical Materials

Existing and emerging technologies are transforming the way energy is produced, transported, and consumed. They will be indispensable to decarbonization. Competitive considerations come into play, as each side of the Atlantic is focused on promoting its own clean-tech commercial breakthroughs. Nonetheless, the immense scale of the climate challenge gives the two parties both need and opportunity to harness their respective strengths. European research and early-stage development of low-carbon technologies continues to be world-beating. Yet the EU is relatively weak when it comes to scaling and commercializing its innovations. The United States, in contrast, accounts for more than 65% of global cleantech growth equity funding and venture capital investments, yet trails in areas of low-carbon research where Europe is strong. Given the deeply integrated nature of the transatlantic innovation economy, both parties stand to gain by harnessing their relative synergies to promote scaled-up demonstration projects that hold promise for commercialization.[32]

Such efforts are not just "nice to do," they take on added urgency when considering that autocratic governments such as China do not necessarily need to rely on purely market-based approaches to deploy the technologies of the future. Beijing directs massive resources to promote its own competitors in many clean-tech areas, based on differing norms than those likely to be found in democracies. A cautionary tale is offered by the solar industry, where pioneering U.S. and European companies once led global markets. Today, thanks to substantial government subsidies, forced technology transfer, and predatory pricing, China produces three-quarters of global supplies.

Russia's war on Ukraine further highlights the urgent imperative of promoting new energy sources, increasing Europe's energy security, and the need to wean itself off of overdependence on oil and gas from unreliable actors.

Leaders at the June 2021 U.S.-EU Summit pledged to "work towards" a Transatlantic Green Technology Alliance. Both parties must use the TTC to make it real. A Green Technology Alliance could help both parties align on technical standards, address regulatory discrepancies, and mobilize public and private investment to rapidly scale up breakthrough technologies in hard-to-abate sectors so they can become

more affordable, accessible and attractive than their traditional, higher-carbon counterparts.[33] This will require greater public investment in demonstration projects, which is a major weakness in the clean energy innovation system. Public investments should not and cannot take the place of the far larger resources the private sector can bring to bear, but private investment is currently deterred by the high costs and risks still associated with scaled-up clean tech demonstration projects. Governments can set incentives and market signals to help make clean-tech innovations commercially viable, spurring further investments and paving the way for widespread adoption and deployment by the private sector. [34]

A related challenge is posed by the flow of critical materials. The IEA projects that global demand for critical materials generated by the widespread deployment of clean technologies will quadruple by 2040 and increase six-fold by 2050. EU demand is slated to increase 10-fold.[35] The largest reserves of such materials are in developing countries already struggling to raise their populations from poverty even as they commit to low-carbon development. Many developed countries are likely to be as dependent on these critical-materials producers as they have dependent on fossil-fuel suppliers. The issue is particularly sensitive because the United States and the EU are each inordinately dependent on China for many critical materials, potentially opening them to economic coercion. China controls 50-90% of the world's clean energy minerals supply chains and is dominant in their processing and refining. When it comes to rare earths, China accounts for 98% of EU imports and 80% of U.S. imports.[36]

While both parties are slowly taking action to wean themselves off their respective dependencies, those efforts will take time and be incomplete. It is in the interest of both parties to work together, with other democratic market economies, and with key critical-materials suppliers, in strategic partnerships that can forge secure and sustainable supply chains and low-carbon development of these critical materials.

Box 1.1 Brexit All the Way

One year after the United Kingdom shed the last vestiges of its membership in the European Union, Brexit remains a rocky road.

It is difficult to distinguish the pandemic's disruptive effects from those generated by Brexit. Nonetheless, it is notable that tariff-free UK-EU trade has rebounded far less robustly than the UK's and EU's trade flows with other countries. China has overtaken Germany as the largest single source of UK goods imports. Ongoing UK-EU disruptions have led the two sides to further extend deadlines for some types of customs provisions, rules-of-origin declarations, medicines labelling, and food controls, along with product conformity assessments. The UK has deferred introduction of various new health and safety regulations that would diverge from EU practice. Still, relations are strained.

The UK's Withdrawal Agreement treats Northern Ireland, which is part of the UK, as being within the EU customs area, to prevent the need for a hard border on the island of Ireland. But it also requires checks on goods flowing from Great Britain to Northern Ireland. This essentially creates a customs border in the middle of the Irish Sea, although the checks would be performed at British ports. However, London now insists that this provision needs to be overhauled, both to dispense with those checks and to diminish the role of the European Court of Justice in settling disputes. It is threatening to trigger the Brexit agreement's Article 16 safeguard clause, which would suspend the customs checks. The EU, in turn, has warned that invoking Article 16 could lead to suspension of the entire UK-EU agreement. The negotiations are becoming politically fraught ahead of Northern Ireland elections in May 2022.

Significantly, UK-EU divorce arrangements did not include meaningful provisions for trade in services, which make up some 80% of the British economy. The two parties inked a memorandum of understanding enabling the financial industry to trade across the UK-EU border, but a formal "equivalence" deal remains elusive. The stakes are high: Britain sells billions in financial services to the EU each year, even as it consistently runs deficits in trade in goods. The EU has made clear that over time it expects banks to move their euro-denominated trades into the bloc, although it has been quick to say that it wants to avoid a "cliff edge" when it comes to limiting bilateral financial flows.[37]

The impact has already been dramatic. More than 440 London-based financial institutions have moved part of their business or set up hubs within the eurozone, shifting assets equivalent to 10% of the UK's banking system.[38] The EU's largest stock market operator, Euronext, is moving the data centers that house all of its trading from Basildon, England to Bergamo, Italy. And Amsterdam has displaced London as Europe's top share trading venue, with average daily trading of €9 billion ahead of London's €8.3 billion.[39]

Despite these hiccups, financial services remain one of the UK's key industries, and London remains Europe's overall top financial center and a dominant force in global finance. UK banking sectors assets totaled £10.3 trillion at the end of the first half of 2021, the third-largest in the world and the largest of any country in Europe. EU financial markets were just half the size of the UK's in April 2021. The UK also has Europe's biggest legal services and insurance markets. Brexit-related job moves from the UK to the EU totaled less than 7,400, according to EY figures as of December 2021. That is far fewer than the tens of thousands predicted after the 2016 referendum. And UK banks continue to account for a major share of EU financial transactions – as much as 90% in the case of euro-denominated financial derivatives.[40]

Brexit has also affected the UK's economic relationship with the United States. Overall, U.S.-UK commercial ties are robust and thriving. Measured on an historic cost basis, U.S. companies had invested a record $890 billion in the UK economy and British firms roughly $500 billion in the U.S. economy by 2020 – directly supporting over 2.6 million jobs in both countries. U.S. FDI in the UK in 2020 was seven times more than such investment in China. The United States has become the leading destination for UK financial services exports since the UK's departure from the EU. Two-way services trade totaled $114 billion and goods trade an additional $108 billion.

In terms of trade policies, however, bilateral ties have hit a rough patch. While the UK joined in the U.S.-EU ceasefire over Boeing-Airbus subsidies, it was not part of the bilateral arrangement under which Washington agreed to suspend its steel and aluminum tariffs on the EU and Brussels suspended its countervailing tariffs on U.S. goods. Only in January 2022 did Washington and London start talks on reaching a similar arrangement; meanwhile, bilateral tariffs remain in place. U.S.-UK talks on a possible free trade agreement are still on hold, in part due to Washington's concerns that abrogation of the Northern Ireland protocol could endanger the Good Friday peace agreement that was brokered by the United States.

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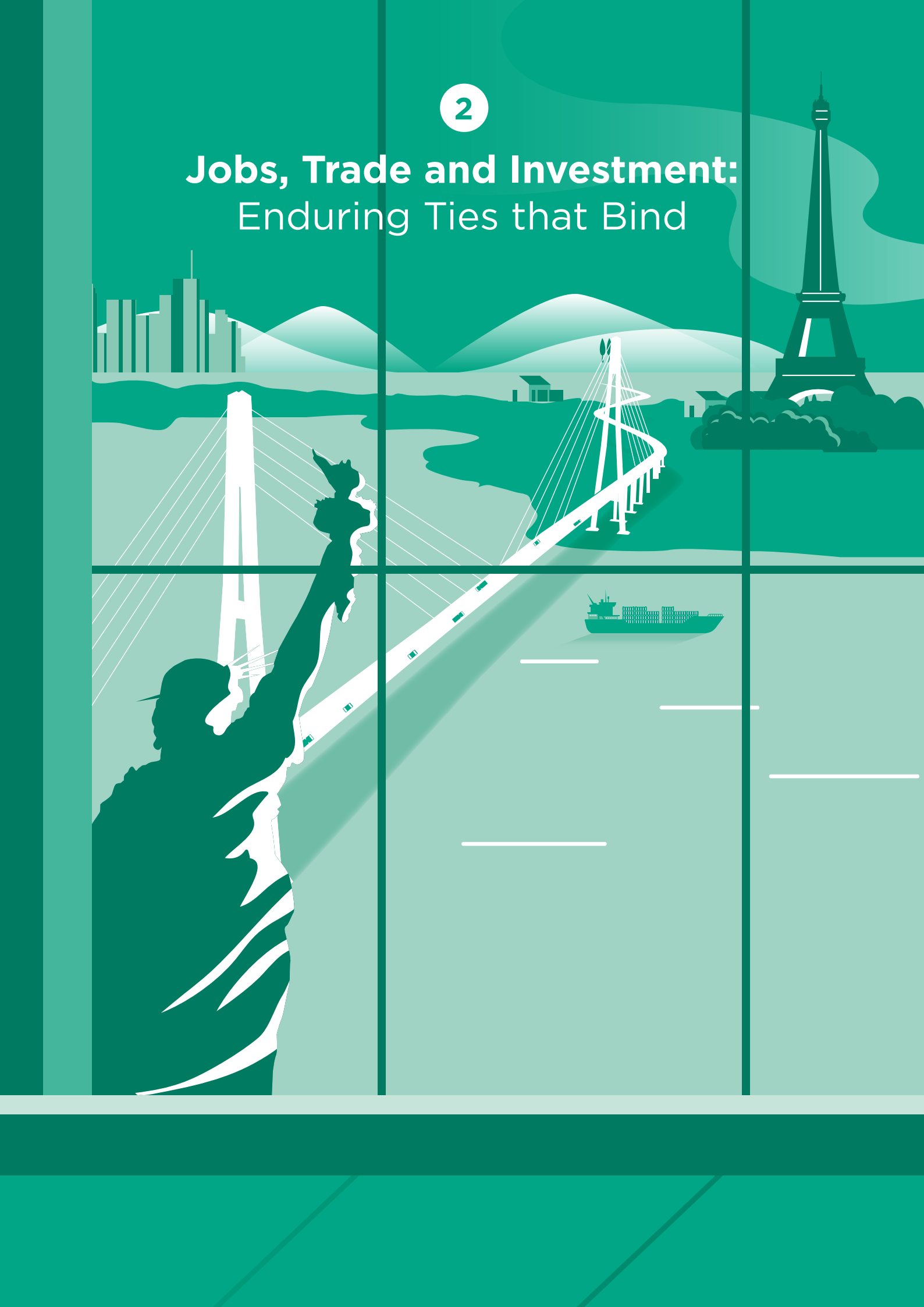
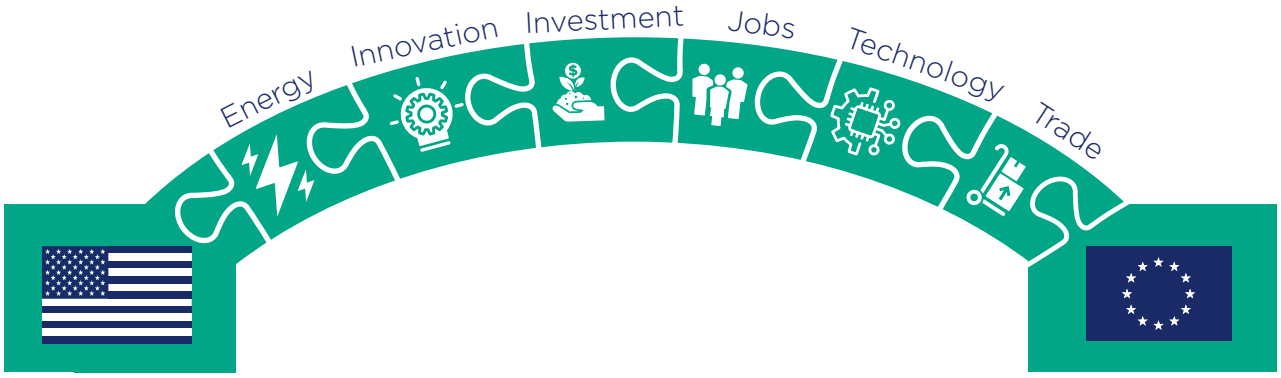
Jobs, Trade and Investment:
Enduring Ties that Bind





Despite much talk of de-globalization, chatter of "America first" in the United States, and "strategic autonomy" in some parts of Europe, the two sides of the North Atlantic remain deeply intertwined and embedded in each other's markets. This is not likely to change any time soon, given the deep and entangled commercial ties that link the transatlantic economy, and the fact that shareholders and stakeholders on both sides of the pond directly benefit from deep transatlantic integration. The fact that the United States and Europe are each embroiled in increasingly contentious trade and investment tensions with Russia and China also suggests transatlantic cooperation will endure. And the post-pandemic world of tighter energy supplies and tighter labor markets portends thicker transatlantic ties.

China, to be sure, has arrived on the international stage. But thanks to the dense interlinkages of investment, trade, technology, innovation and jobs that bind the two sides of the North Atlantic together, the transatlantic economy remains a central pillar of the global economy. The combined output of the United States and Europe accounted for roughly one-third of world GDP in terms of purchasing power parity in 2021. Excluding the UK, the EU27 and the United States account for a substantial 31% of world GDP – higher than the combined output of China and India (one-quarter of world GDP) and on par with the newly created combined output of the Regional Comprehensive Economic Partnership (RCEP) in Asia of 31% of GDP.

The transatlantic economy is not only larger than the twin giants of Asia but also significantly wealthier. And because wealth matters, it's little wonder that consumers in the United States and the EU easily outspend their counterparts in China and India. As mentioned in Chapter One, the two combined accounted for 50% of global personal consumption in 2021, versus a combined share of just 14% for China and India. Per capita incomes – a key metric of a nation's wealth – matter and on this score, it's no contest. The United States (with an estimated per capita income of roughly $69,000 in purchasing power parity terms in 2021) and the European Union (est. $48,000) are far wealthier than China ($19,000) and India ($7,000).

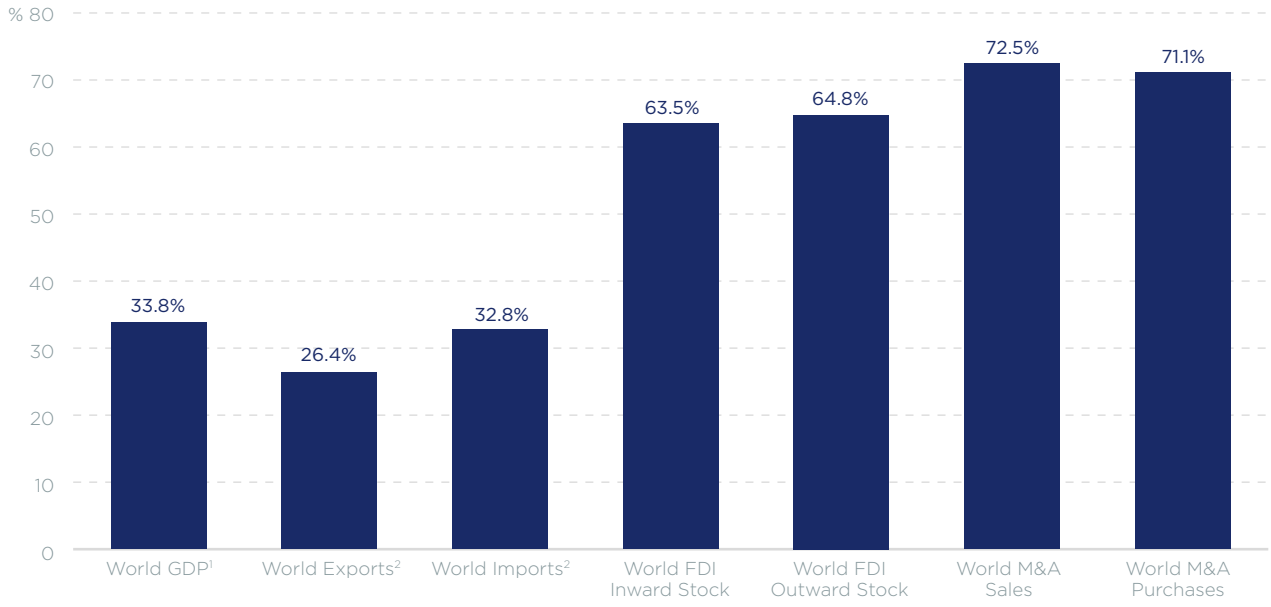
In addition to the above, the transatlantic economy is a repository of innovation and technological advancement, and at the forefront of global foreign direct investment and global mergers and acquisitions (M&A) activity. Taken together, U.S. and European goods exports to the world (excluding intra-EU trade) accounted for roughly 26% of global goods exports in 2020, the last year of complete data; combined goods imports represented around one-third of the world total. Meanwhile, the United States and Europe together accounted for roughly 64% of global inward stock of foreign direct investment (FDI) and 65% of outward stock of FDI. Each partner has built up the great majority of that stock in the other economy. Mutual investment in the North Atlantic space is very large, dwarfs trade, and has become essential to U.S.

Share of World GDP

31% U.S. and EU27

31% Regional Comprehensive Economic Partnership (RCEP)

Table 1 The Transatlantic Economy vs. The World (Share of World Total)



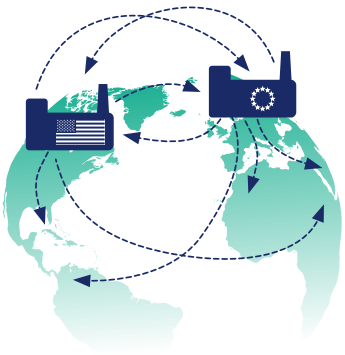
Sources: UN, IMF, figures for 2020.Transatlantic economy measured as U.S., EU, U.K., Norway, Switzerland and Iceland.
1. Based on PPP estimates.
2. Excluding intra-EU, U.K., Norway, Switzerland and Iceland trade.

and European jobs and prosperity. Over 70% of M&A purchases are by U.S. and European companies.

It is no surprise, therefore, that the largest commercial artery in the world stretches across the Atlantic. Total transatlantic foreign affiliate sales were estimated at $5.7 trillion in 2020, easily ranking as the most integrated commercial partnership on account of the thick investment ties between the two parties.

That said, the burgeoning middle class of the developing nations represents new sources of supply (labor) and demand (consumers) for U.S. and European firms. American and European companies are building out their in-country presence in the developing nations, and for good reason. Economic growth rates are still above the global average in most nations, populated with young consumers who desire Western goods and services. In addition, the technological skill levels of many developing nations are now on par with many developing nations. China, for instance, is a rapidly emerging as an innovation superpower; India lags behind but is advancing; more people in Latin America, Africa and the Middle East are online and connected to the global digital economy. It all makes perfect sense for U.S. and European firms to invest outside the transatlantic economy.

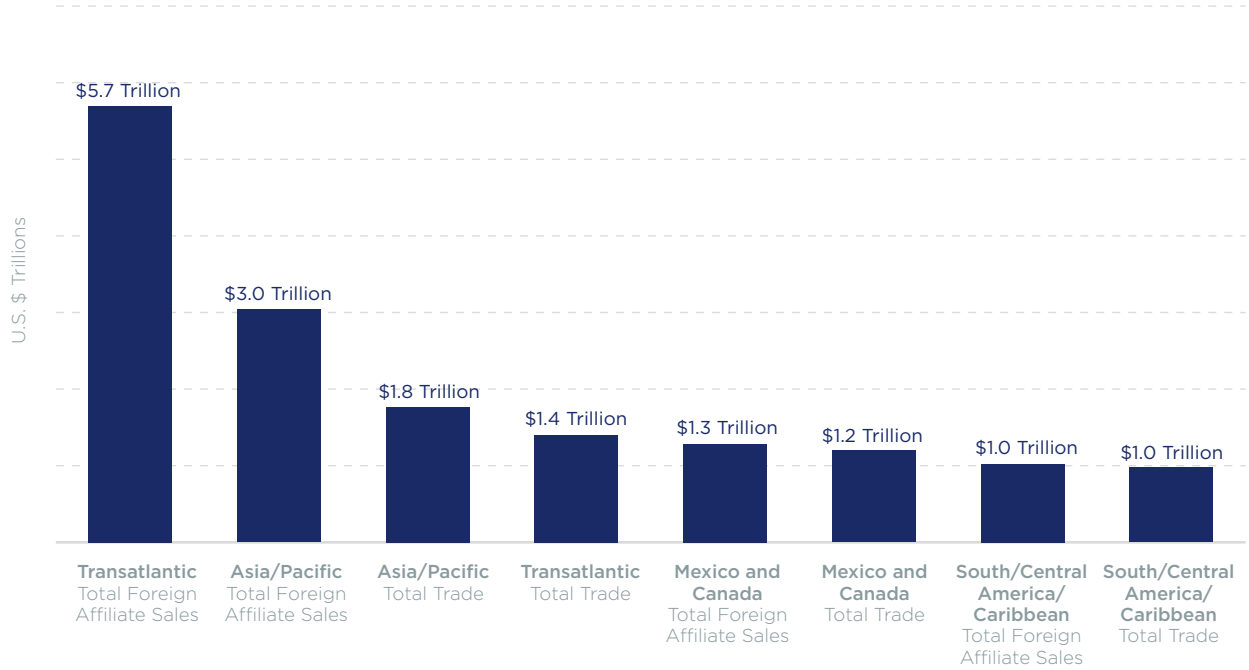
What is often missing from this either/or picture, however, is the fact that for many U.S. and European companies, the transatlantic economy is the geo-economic base from which they can engage successfully in other parts of the world. Many European car companies, for instance, invest in the United States and then export cars made in the U.S.A. to China and other countries. U.S. services companies, in turn, use the scale offered by their



The transatlantic economy

A launchpad to the rest of the world for U.S. and European companies

Table 2 America's Major Commercial Arteries



Foreign Affiliate Sales: Author's estimates for 2020. Total Trade: Data for goods & services, 2020. South/Central America and Caribbean includes Mexico.
Source: Bureau of Economic Analysis.

dense investment linkages across the transatlantic economy to be globally competitive when it comes to offering services in other parts of the world. Many U.S. multinationals – for both goods and services – also use their presence in Europe to serve the markets of North Africa and the Middle East and beyond.

In all of these ways, the transatlantic partnership remains important not only to the United States and Europe, but also to the world. The U.S.-European partnership is too big and too important to fail, as made all too clear when dissecting the activities of foreign affiliates on both sides of the pond.

The Ties That Bind – Quantifying the Transatlantic Economy

We have long made the case that when it comes to global commerce, traditional trade statistics are incomplete and misguided metrics when measuring the level of global engagement between two parties. Global commerce beats to the tune of foreign direct investment and affiliate sales, not cross-border trade. Hence, as we outline and emphasize each year in this survey, it is the activities of foreign affiliates – the foot soldiers of the transatlantic partnership – that bind the United States and Europe together. Investment, not trade, drives U.S.-European commerce. Understanding this dynamic is essential to understanding the enduring strength and importance of the transatlantic economy.

Over the past years we have outlined and examined eight key indices that offer a clear picture of the "deep integration" forces binding the U.S. and Europe together. This chapter updates those indices with the latest available data and our estimates. Each metric, in general, has ebbed and flowed with cyclical swings in transatlantic economic activity, but has nevertheless grown in size and importance over the past decade.

1. Gross Product of Foreign Affiliates

As standalone entities, U.S. affiliates in Europe and European affiliates in the United States are among the largest and most advanced economic forces in the world. The total output, for instance, of U.S. foreign affiliates in Europe (an estimated $655 billion in 2020) and of European foreign affiliates in the United States (estimated at $678 billion) was greater than the total gross domestic product of most countries. Combined, transatlantic affiliate output – around $1.3 trillion – was larger than the total output of such countries as the Netherlands, Turkey or Indonesia.

Total output of foreign affiliates

(2020 estimate)

$655 billion
U.S. in Europe

$678 billion
Europe in the U.S.

U.S. affiliate output

(2019)

$686 bn
Europe

$396 bn
Asia-Pacific

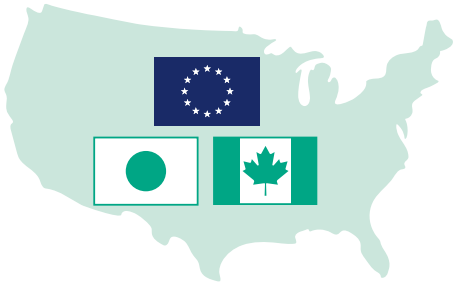
By our estimation, European affiliate output in the United States dropped by around 2.2% in 2020, due to the pandemic-related slowdown in U.S. economic activity, while U.S. affiliate output in Europe slipped by 4.5%. Affiliate output most likely rebounded in 2021 from the depressed levels of the prior year and are set to continue expanding this year. In the United States, European affiliates are operating in one of the most dynamic economies in the world and are expected to boost their near-term output again this year.

On a global basis, the aggregate output of U.S. foreign affiliates was around $1.4 trillion in 2020, with Europe (broadly defined) accounting for around 48% of the total. Looking at actual figures for 2019 from the Bureau of Economic Analysis, U.S. affiliate output in Europe ($686 billion) was 73% greater than affiliate output in the entire Asia-Pacific region ($396 billion).

In the United States, meanwhile, European affiliates are major economic producers in their own right, with British and German firms of notable importance. The U.S. output of British companies was estimated at $168 billion in 2020, about one-quarter of the European total. For the same year, output from German affiliates operating in the United States totaled $129 billion, or nearly 20% of the European total.

In 2019, the last year of available data, European affiliates in the United States accounted for nearly 62% of the roughly $1.1 trillion that affiliates of foreign multinationals contributed overall to U.S. aggregate production.

Beyond Europe, only Canadian and Japanese investors have any real economic presence in the United States. Japanese affiliate output totaled nearly $163 billion in 2019, the last year of complete data, while Canadian affiliate output totaled $127 billion. Foreign direct investment from China had soared in the United States over the past few years, but from a relatively low base, and now is plummeting due to bilateral commercial tensions and tighter U.S. scrutiny of such investments. Chinese affiliate output in the U.S. totaled just $15 billion in 2019, less than that of Sweden ($20 billion).



Beyond Europe, only Canada and Japan have a significant economic presence in the United States

U.S. foreign assets in Europe
$18 trillion
(2019)

2. Assets of Foreign Affiliates

The global footprint of corporate America and corporate Europe is second to none, with each party each other's largest foreign investor. According to the latest figures from the Bureau of Economic Analysis, U.S. foreign assets in Europe totaled $18 trillion in 2019, representing roughly 63% of the global total.

For 2020, we estimate that U.S. foreign assets in Europe fell 2.5% to $17.6 trillion in light of pandemic-related economic pressures. Within the region, the bulk of U.S. assets was in the United Kingdom, with U.S. assets in excess of $5.5 trillion in 2019, or around 20% of the global total.

U.S. assets in the Netherlands (around $3.2 trillion) were the second largest in Europe in 2019. America's significant presence in the Netherlands reflects its strategic role as an export platform/distribution hub for U.S. firms doing business across the continent. To this point, more than half of affiliate sales in the Netherlands are for export, particularly within the EU.

Meanwhile, America's asset base in Germany ($960 billion in 2019) was more than a third larger than its asset base in all of South America. America's asset base in Poland, the Czech Republic and Hungary (roughly $171 billion) was on par with corporate America's assets in South Korea ($186 billion). America's assets in Ireland ($2 trillion in 2019) were light years ahead of those in China ($453 billion).

As for foreign-owned assets in the United States, Europe's stakes are sizable and significant. Total assets of European affiliates in the United States were valued at roughly $8.1 trillion in 2019. The United Kingdom ranked first, followed by Germany, Switzerland, and French firms. In 2019, the last year of available data, European assets in the United States accounted for over 52% of all foreign-owned assets in the United States. We estimate that European-owned assets in the United States fell slightly in 2020 to $7.9 trillion.

3. Affiliate Employment

U.S. and European foreign affiliates are a major source of employment for the general transatlantic workforce. Indeed, on a global basis, affiliates of both U.S. and European parents employ more workers in the United States and Europe than in other places in the world. Most foreign workers on the payrolls of U.S. foreign affiliates are employed in the developed nations, notably Europe.

U.S. foreign affiliate employment in Europe has increased steadily since the turn of the century, with affiliate employment in Europe rising from 3.7 million workers in 2000 to 4.9 million workers in 2019, the last full year of available data. That represents a near 33% increase. We estimate that U.S. foreign affiliates in Europe employed slightly fewer workers (4.8 million) in 2020, still an impressive feat given difficult pandemic-driven economic conditions on both sides of the pond.

Table 3 U.S. - European Employment
Thousands of employees, 2020*, select countries

Country	U.S. Companies in Europe	European Companies in the U.S.
Austria	43.2	31.4
Belgium	122.5	65.7
Czech Republic	71.8	0.1
Denmark	40.5	37.5
Finland	20.8	34.8
France	494.2	717.7
Germany	671.9	806.6
Greece	14.6	3.5
Hungary	65.6	0.2
Ireland	148.7	316.8
Italy	251.5	92.8
Luxembourg	23.6	21.7
Netherlands	255.5	509.2
Norway	42.1	6.8
Poland	214.2	0.9
Portugal	32.2	0.9
Romania	80.5	< 50
Spain	177.9	86.3
Sweden	68.5	212.6
Switzerland	97.5	460.2
United Kingdom	1,464.2	1,174.7
Europe	**4,800.7**	**4,598.7**

Source: Bureau of Economic Analysis.
**2020 Estimates. Majority-owned bank and non-bank affiliates.*

U.S. foreign affiliate employment in Europe

4.9 million
workers
(2019)

While aggregate employment levels continue to rise modestly, manufacturing employment has plateaued since 2000. U.S affiliate manufacturing employment totaled 1.9 million in 2000, on par with the levels of 2019. However, while the overall number has stayed roughly the same, the country composition has changed, with more investment shifting to lower-cost locales like Poland and Hungary versus high-cost economies like Germany and France. The largest employment declines were reported in the United Kingdom, with the total U.S. affiliate manufacturing workforce falling from 431,000 in 2000 to 301,000 in 2019. U.S. manufacturing employment in France dropped from 249,000 to 187,000 while a slight decline from 388,000 to 360,000 was reported in Germany between 2000 and 2019. In terms of net gains in manufacturing jobs, Poland has been a significant winner, with U.S. affiliate manufacturing employment growing almost three times, from 51,000 in 2000 to over 140,000 in 2019, and continuing on an upward trend. Roughly 35% of all manufacturing workers employed by U.S. foreign affiliates outside the United States in 2019 were based in Europe.

On a global basis, U.S. majority-owned affiliates (including banks and non-bank affiliates) employed 14.6 million workers in 2019, with the bulk of these workers – roughly 33% – toiling in Europe. That share is down from 41% in 2009. That decline is in part a consequence of Europe's cyclical slowdown for some years, and in part due to the fact that U.S. overseas capacity is expanding at a faster pace in faster-growing emerging markets than slower-growth developed nations. Another factor at work: more and more U.S. firms are opting to stay home due to competitive wage and energy costs, as opposed to shipping more capacity abroad. The sweeping overhaul of the U.S. corporate tax code in 2017, which significantly lowered America's tax rate relative to many in Europe, has spurred more investment to come home or stay in the United States. More on that in Chapter Six. That said, however, with the U.S. labor market at its tightest in decades, U.S. firms are even more dependent on European workers to drive production and sales.

European foreign affiliate employment in the U.S.

4.9 million
workers
(2019)

Most employees of U.S. affiliates in Europe live in the UK, Germany, and France. Meanwhile, U.S. majority-owned firms are on balance hiring more people in services activities than in manufacturing. The latter accounted for 38% of total U.S. foreign affiliate employment in Europe in 2019. The key industry in terms of manufacturing employment was transportation equipment, with U.S. affiliates employing nearly 340,000 workers, followed by chemicals (274,000). Wholesale employment was among the largest sources of services-related employment, which includes employment in such activities as logistics, trade, insurance and other related functions.

Although services employment among U.S. affiliates has grown at a faster pace than manufacturing employment over the past decade, U.S. affiliates employed more manufacturing workers in Europe in 2019 (1.9 million) than in 1990 (1.6 million). This reflects the EU enlargement process, and hence greater access to more manufacturing workers, and the premium U.S. firms place on highly skilled manufacturing workers, with Europe one of the largest sources in the world.

When it comes to affiliate employment, trends in the United States are similar to those in Europe. Despite stories on the continent about local European companies relocating to lower cost locales in eastern Europe and Asia, most foreign workers of European firms are employed in the United States. Based on the latest figures, European majority-owned foreign affiliates directly employed 4.9 million U.S. workers in 2019. The top five European employers in the United States were firms from the UK (1.3 million jobs), Germany (860,000), France (765,000), the Netherlands (542,000) and Switzerland (490,000). European firms employed roughly two-thirds of all U.S. workers on the payrolls of majority-owned foreign affiliates in 2019.

In the aggregate, the transatlantic workforce directly employed by U.S. and European foreign affiliates in 2019 was roughly 9.8 million strong, roughly

unchanged from the year before. In 2020, given the transatlantic economic recession, employment levels were either down slightly or static at best. Employment growth, however, is likely to have rebounded in 2021 and is expected to increase modestly again in 2022.

One reminder: as we have stressed in the past, these figures understate the employment effects of mutual investment flows, since these numbers are limited to direct employment, and do not account for indirect employment effects on nonequity arrangements such as strategic alliances, joint ventures, and other deals. Moreover, foreign employment figures do not include jobs supported by transatlantic trade flows. Trade-related employment is sizable in many U.S. states and many European nations. In the end, direct and indirect employment remains quite large. We estimate that the transatlantic workforce numbers some 14-16 million workers, counting both direct affiliate employees as well as those whose jobs are supported by transatlantic trade. Europe is by far the most important source of "onshored" jobs in America, and the United States is by far the most important source of "onshored" jobs in Europe.

4. Research and Development (R&D) of Foreign Affiliates

The United States and Europe remain primary drivers of global R&D. Yet as the globalization of R&D has gathered pace, more and more global R&D expenditures are emanating from Asia in general and China in particular. Beijing is unrelentingly focused on being a global leader in artificial intelligence, quantum computing, space exploration, cyber security, life sciences, electric vehicles, supercomputing, semiconductors and 5G wireless devices. Beijing's long-term goal is to become an "international innovation leader" by 2030 and a "world powerhouse of scientific and technological innovation" by 2050.

While governments and corporations are the main drivers of R&D spending, foreign affiliates of multinationals are also in the thick of things. In fact, foreign affiliate R&D has become more prominent over the past decades as firms seek to share development costs, spread risks, and tap into the intellectual talent of other nations. Alliances, cross-licensing of intellectual property, mergers and acquisitions, and other forms of cooperation have become more prevalent characteristics of the transatlantic economy. The digital economy has become a powerful engine of greater transatlantic R&D. The complexity of scientific and technological innovation is leading innovators to partner and share costs, find complementary expertise, gain access to different technologies and knowledge quickly, and collaborate as part of "open" innovation networks. Cross-border collaboration with foreign partners can range from a simple one-way transmission of information to highly interactive and formal arrangements. Developing new products, creating new processes, and driving more innovation – all of these activities result from more collaboration between foreign suppliers and U.S. and European firms. And all of this collaboration, regardless of sector or industry, is dependent on the ability to transfer data across borders as we discuss in Chapter 4.

Bilateral U.S.-EU flows in R&D are the most intense between any two international partners. In 2019, the last year of available data, U.S. affiliates spent $32.5 billion on research and development in Europe, up slightly from the prior year. On a global basis, Europe accounted for roughly 56% of total U.S. R&D in 2019. R&D expenditures by U.S. affiliates were the greatest in Germany ($7.1 billion), the United Kingdom ($5.6 billion), Switzerland ($4.6 billion), Ireland ($4.2 billion), and France and Belgium with $2 billion each. These six nations accounted for nearly 80% of U.S. spending on R&D in Europe in 2019.

R&D spending of foreign affiliates
(2019)

$32.5 billion
U.S. in Europe

$47.8 billion
Europe in the U.S.

Table 4 The Top 20 R&D Spenders

2019	Company	R&D Spending 2020 (€ Billions)	R&D Spending Change from 2019	Country	Industry
1	Alphabet	22.5	6.0%	US	Software & Computer Services
2	Huawei Investment & Holding	17.5	6.7%	China	Technology Hardware & Equipment
3	Microsoft	16.9	7.5%	US	Software & Computer Services
4	Samsung Electronics	15.9	5.1%	South Korea	Electronic & Electrical Equipment
5	Apple	15.3	15.6%	US	Technology Hardware & Equipment
6	Facebook	15.0	35.6%	US	Software & Computer Services
7	Volkswagen	13.9	-2.9%	Germany	Automobiles & Parts
8	Roche	11.2	3.9%	Switzerland	Pharmaceuticals & Biotechnology
9	Intel	11.0	1.5%	US	Technology Hardware & Equipment
10	Johnson & Johnson	9.9	7.1%	US	Pharmaceuticals & Biotechnology
11	Toyota Motor	8.6	-1.3%	Japan	Automobiles & Parts
12	Daimler	8.4	-12.3%	Germany	Automobiles & Parts
13	Bristol-Myers Squibb	8.4	70.9%	US	Pharmaceuticals & Biotechnology
14	Merck Us	8.3	10.5%	US	Pharmaceuticals & Biotechnology
15	Pfizer	7.8	16.1%	US	Pharmaceuticals & Biotechnology
16	Bayer	7.7	36.9%	Germany	Pharmaceuticals & Biotechnology
17	Alibaba Group Holding	7.1	32.9%	China	Software & Computer Services
18	Novartis	7.1	0.7%	Switzerland	Pharmaceuticals & Biotechnology
19	BMW	6.3	-2.2%	Germany	Automobiles & Parts
20	Honda Motor	6.2	-5.5%	Japan	Automobiles & Parts
		225.2	**5.0%**		

Source: The 2021 EU Industrial R&D Investment Scoreboard. Data as of December 2021.
Note: Only companies that disclose their R&D figures according to the Scoreboard methodology can be included in the ranking. ***Excluded from the ranking is Amazon*** *which, according to the Scoreboard, would be positioned at #1 in the world R&D ranking if it had separated its R&D and content investments in its annual report.*

In the United States, meanwhile, expenditures on R&D performed by majority-owned foreign affiliates totaled $71.4 billion in 2019. As in previous years, a sizable share of this R&D spending emanated from world-class leaders from Europe, given their interest in America's highly skilled labor force and world-class university system. Most of this investment by European firms took place in such research-intensive sectors as autos, energy, chemicals, and telecommunications. In 2019, R&D spending by European affiliates accounted for $47.8 billion, or 67%, of total foreign R&D spending in the United States.

On a country basis, German-owned affiliates were the largest foreign source of R&D in the United States in 2019, spending some $11.0 billion, or 23% of the total of European R&D. Swiss firms ranked second, with $10.3 billion, or 21.5% of the total, followed by British firms, $7.1 billion or 15% of the total. As Table 4 highlights, almost all of the world's most innovative companies are domiciled in the United States or Europe.

5. Intra-firm Trade of Foreign Affiliates

While cross-border trade is a secondary means of delivery for goods and services across the Atlantic, the modes of delivery – affiliate sales and trade – should not be viewed independently. They are more complements than substitutes, since foreign investment and affiliate sales increasingly drive cross-border trade flows. Indeed, a substantial share of transatlantic trade is considered intra-firm or related-party trade, which is cross-border trade that stays within the ambit of the company. Intra-firm or related party-trade occurs when BMW or Siemens of Germany sends parts to BMW of South Carolina or Siemens of North Carolina; when Lafarge or Michelin send intermediate components to their Midwest plants, or when General Motors or 3M ships components from Detroit, Michigan or St. Paul, Minnesota to affiliates in Germany or the UK. All of these examples are at the core of interconnected global supply chains.

Table 5 Related-Party Trade, 2020

Country	U.S. Imports: "Related Party Trade" as % of Total	U.S. Exports: "Related Party Trade" as % of Total
European Union (incl. UK)	65	39
Germany	69	38
France	47	35
Ireland	85	38
Netherlands	74	58
UK	54	31

Source: U.S. Census Bureau.
Data as of January 2022.

The tight linkages between European parent companies and their U.S. affiliates are reflected in the fact that roughly 65% of U.S. imports from the European Union consisted of intra-firm trade in 2020, the last year of available data. That is much higher than the intra-firm imports from Pacific Rim nations (around 40%) and well above the global average (48%). The percentage was even higher in the case of Ireland (85%) and Germany (69%).

Meanwhile, 39% of U.S. exports to the EU plus UK in 2020 represented intra-firm trade, but the percentage is much higher for some countries. For instance, more than half of total U.S. exports to the Netherlands (58%) was classified as related-party trade. The comparable figure for Germany was 38% and for France it was 35%.

6. Foreign Affiliate Sales

U.S. majority-owned foreign affiliate sales on a global basis (goods and services) totaled an estimated $6.4 trillion in 2020. Total U.S. exports, in contrast, were $2.1 trillion in 2020, or roughly one-third of foreign affiliate sales. This gap underscores the primacy of foreign affiliate sales over U.S. exports. As we have noted many times before, one of the best kept secrets in Washington is how U.S. firms actually deliver goods and services to foreign customers.

As usual, Europe accounted for the bulk of U.S. affiliate sales in 2020. We estimate that U.S. foreign affiliate sales in Europe totaled $3.1 trillion; U.S. affiliate sales in Europe, by our estimates, amounted for roughly half of the global total.

Reflecting the primacy of Europe when it comes to U.S. foreign affiliate sales, sales of U.S. affiliates in Europe were roughly 80% larger than the comparable figures for the entire Asian region in 2019, the last full year of available data. Affiliate sales in the United Kingdom ($724 billion) were double total sales in South America. Sales in Germany ($370 billion) were roughly double the combined sales in Africa and the Middle East.

Affiliate sales are also the primary means by which European firms deliver goods and services to customers in the United States. In 2020, for instance, we estimate that majority-owned European affiliate sales in the United States ($2.6 trillion) were more than triple U.S. imports from Europe. By country, sales of British firms were the largest ($684 billion) in 2019, followed by Germany ($548 billion), and the Netherlands ($378 billion). For virtually all countries in Europe, foreign affiliate sales were easily in excess of their U.S. imports in 2020.

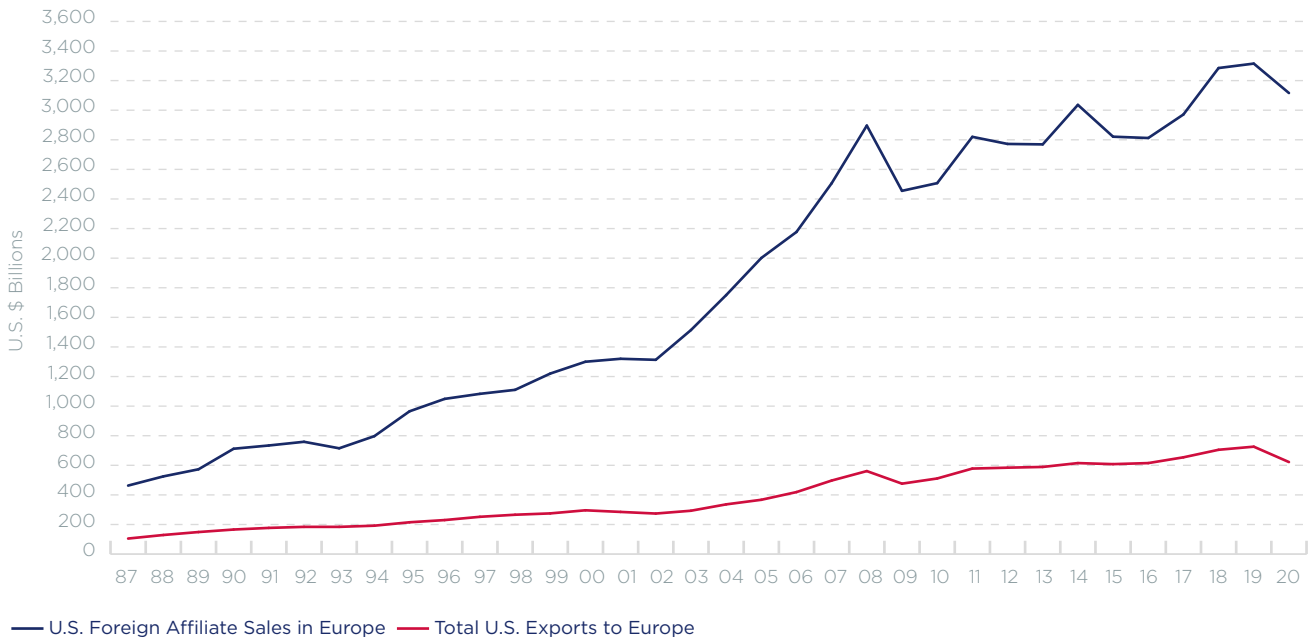
Foreign affiliate sales

(2020 estimate)

$3.1 trillion
U.S. in Europe

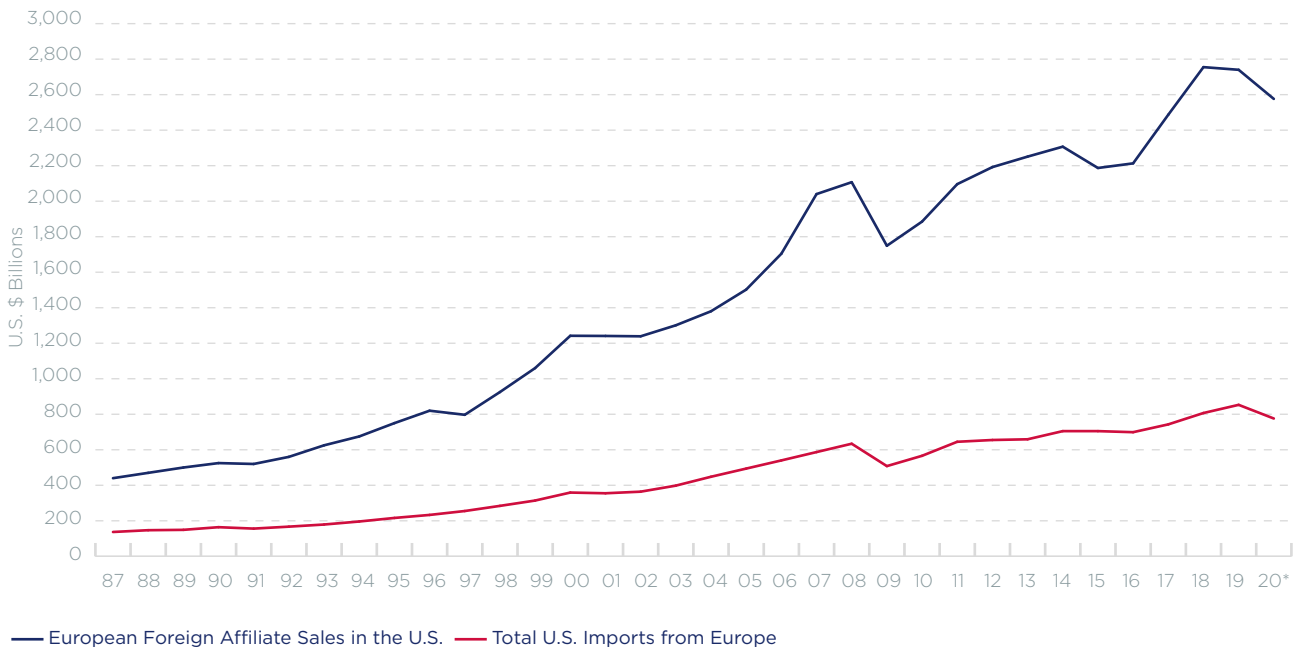
$2.6 trillion
Europe in the U.S.

Table 6 Sales of U.S. Affiliates in Europe vs. U.S. Exports to Europe



Source: Bureau of Economic Analysis.
Majority-owned non-bank affiliates data: 1987 - 2008. Majority-owned bank and non-bank affiliates: 2009 - 2020.
**Foreign Affiliate Sales: Estimates for 2020.*

Table 7 Sales of European Affiliates in the U.S. vs. U.S. Imports from Europe



Source: Bureau of Economic Analysis
Majority-owned non-bank affiliates: 1987 - 2006. Majority-owned bank and non-bank affiliates: 2007 - 2020.
**Foreign Affiliate Sales: Estimates for 2020.*

7. Foreign Affiliate Profits

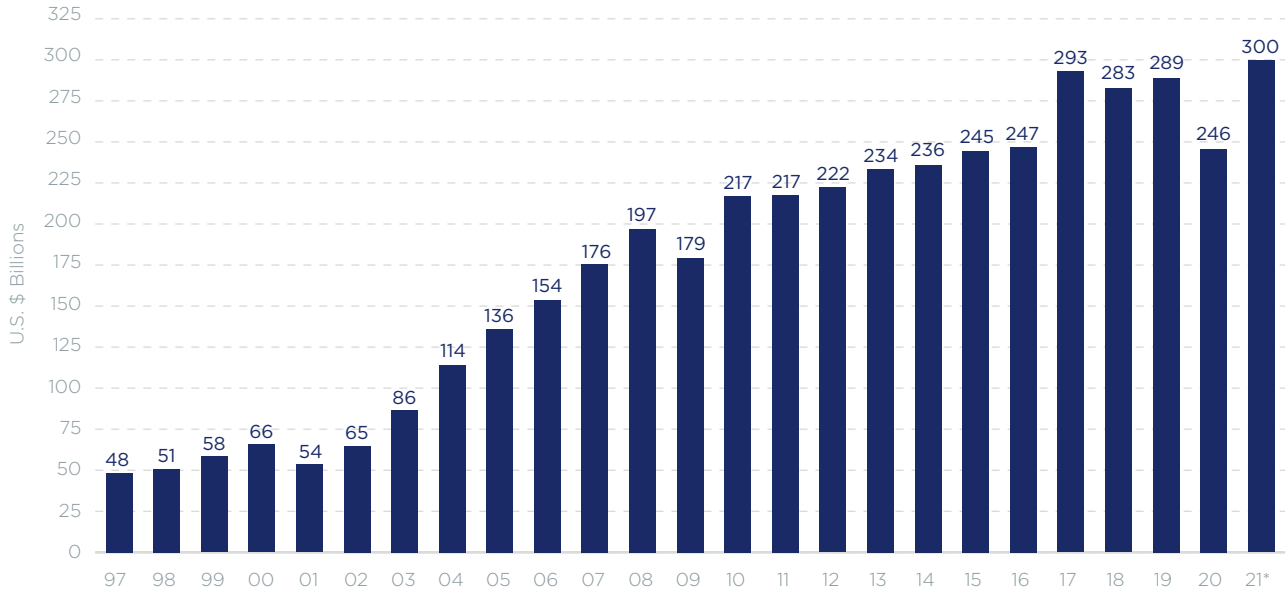
As we outlined in Chapter 1, transatlantic profits rebounded strongly in 2021 from the depressed levels of 2020, reflecting the healing and improving health of the transatlantic economy. By our estimates (based on three quarters' worth of data), U.S. affiliate income in Europe rose to a record $300 billion, while European affiliate income earned a record $162 billion in the United States. It was a banner year for profits.

As the key source of foreign profits for U.S. firms, the EU accounted for nearly 53% of U.S. global foreign affiliate income in the first nine months of 2021. Europe, in other words, remains a very important market to U.S. multinationals. As a reminder, we define Europe here in very broad terms, including not only the EU27 but also the United Kingdom, Norway, Switzerland, Russia and smaller markets in Central and Eastern Europe.

On comparative basis, U.S. affiliate income from Europe is simply staggering: $225 billion in the first nine months of 2021, about 2.7 times more than U.S. affiliate income in all of Asia ($82.8 billion). It is interesting to note that combined U.S. affiliate income from China and India in 2020 ($14.3 billion), the last year of full data, was a fraction of what U.S. affiliates earned/reported in the Netherlands, the United Kingdom and Ireland.

Still, there is little doubt that the likes of China, India and Brazil are becoming more important earnings engines for U.S. firms. To this point, in the first nine months of 2021, U.S. affiliate income in China alone ($9.9 billion) was well in excess of affiliate income in Germany ($6.6 billion), France ($2.7 billion), and Spain ($2.9 billion). U.S. affiliates in India earned $4.5 billion in the January-September period, well more than that earned in many European countries.

Table 8 Earnings in Europe Rebound to New Highs (U.S. foreign affiliate income earned in Europe)



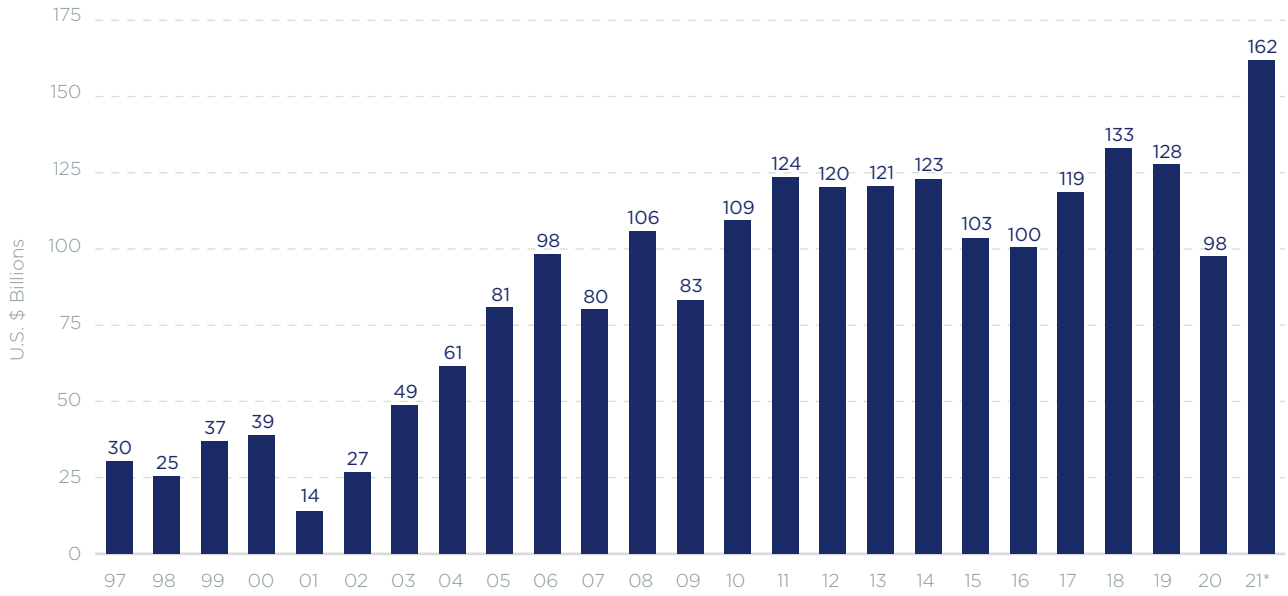
Source: Bureau of Economic Analysis.
**Data for 2021 is annualized using 3 quarters of 2021 data*

Foreign affiliate profits (2021 estimate)

$300 billion
U.S. in Europe

$162 billion
Europe in the U.S.

Table 9 European Affiliate Earnings Expected to Rebound Sharply in 2021
(Foreign affiliate income earned in the U.S.)



Source: Bureau of Economic Analysis.
**Data for 2021 is annualized using 3 quarters of 2021 data.*

All that said, we see rising U.S. affiliate earnings from the emerging markets as a complement, not a substitute, to earnings from Europe. The latter very much remains a key source of prosperity for corporate America.

Similarly, the United States remains the most important market in the world in terms of earnings for many European firms. For 2021, we estimate income of European affiliates in the United States hit a record $162 billion.

8. Transatlantic Services

The United States and Europe are the largest services economies in the world. They are each other's largest services market, which means that when an exogenous shock like Covid-19 strikes, transatlantic service activities are most vulnerable. Indeed, the global shock of the pandemic battered numerous U.S.-EU service activities, ranging from the transport of goods, to travel and leisure, and related service activities.

That said, and excluding the effects of the pandemic, trade in services has become an increasingly important component of the transatlantic economy. U.S. services exports to Europe reached a record $342 billion in 2019 before plunging 14.7% in 2020, to $291 billion. The declines were sweeping across the board, but most noticeable in transport and travel. Indeed, unprecedented transatlantic travel restrictions lead to sharp declines in U.S. travel exports and imports to Europe. Among European states, the largest declines in travel exports and imports were with the United Kingdom. Nonetheless, the UK remained the largest market for U.S. services exports and the largest source of U.S. services imports.

U.S services imports from Europe also declined by 20% in 2020, to $197 billion. As a result, the U.S. services surplus with Europe dropped slightly to $94 billion, from $96 billion the year before. This compares to a $284 billion trade deficit in goods for the same year. On a regional basis, Europe accounted for 41% of total U.S. services exports in 2020 and for 43% of total U.S. services imports.

Five out of the top ten export markets for U.S. services in 2020 were in Europe. The UK ranked first, followed by Ireland (ranked 2nd), Switzerland (3rd), Germany (7th), and the Netherlands (10th). Of the top ten service providers to the United States in 2020, five were European states, with the UK ranking first, Germany second, Switzerland sixth, Ireland seventh, and France tenth.

Table 10 Top Markets for U.S. Services Trade ($Billions), 2020

U.S. Services Exports

Rank	Total Services		Travel		Other Business		Financial		IP Charges		Transport		Telecom/Info	
1	U.K.	62.7	China	15.7	Ireland	31.3	U.K.	19.8	Ireland	21.5	Japan	5.2	Canada	6.4
2	Ireland	61.9	Mexico	9.0	U.K.	17.3	Canada	9.0	Switzerland	17.7	Canada	5.0	U.K.	5.5
3	Canada	53.7	India	7.5	Singapore	16.1	Japan	5.1	China	8.3	Germany	4.2	Japan	4.6
4	Switzerland	42.0	Canada	5.7	Switzerland	15.6	Ireland	5.0	Canada	7.4	S. Korea	3.9	Switzerland	3.7
5	China	40.4	S. Korea	2.9	Canada	15.3	Luxembourg	4.8	Japan	5.9	U.K.	3.3	Ireland	3.3
6	Japan	37.8	Brazil	2.2	Germany	10.6	China	4.5	Netherlands	5.4	China	3.1	Brazil	2.9
7	Germany	29.6	U.K.	2.2	Japan	8.5	Germany	3.6	U.K.	5.2	France	2.4	Germany	2.8
8	Singapore	24.7	Japan	2.0	Netherlands	6.2	Australia	3.3	Germany	4.5	Denmark	2.2	Australia	2.6
9	Mexico	23.4	Australia	1.2	France	4.3	Netherlands	3.0	South Korea	3.9	Taiwan	1.9	China	1.7
10	Netherlands	18.1	Saudi Arabia	1.1	Mexico	3.5	Mexico	2.9	Hong Kong	3.8	Switzerland	1.9	Mexico	1.7
	Total	**705.6**	**Total**	**72.8**	**Total**	**183.2**	**Total**	**144.3**	**Total**	**113.8**	**Total**	**56.7**	**Total**	**56.7**

U.S. Services Imports

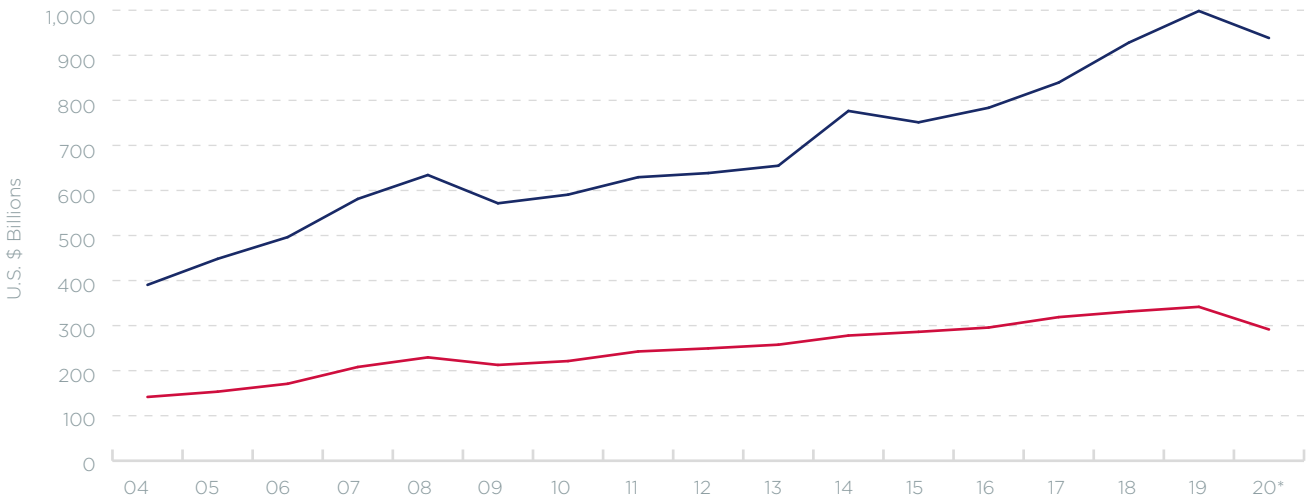
Rank	Total Services		Travel		Other Business		Financial		IP Charges		Transport		Telecom/Info	
1	UK	52.5	Mexico	8.8	UK	15.7	UK	13.2	Japan	8.0	Japan	7.0	India	11.9
2	Germany	31.6	UK	1.9	India	11.1	Canada	2.8	Germany	7.2	China	5.3	Canada	5.9
3	Japan	30.9	Dominican Republic	1.9	Canada	8.4	Singapore	2.4	Switzerland	5.6	Germany	5.2	Ireland	5.5
4	Canada	29.3	Canada	1.4	Germany	8.0	Japan	2.3	UK	4.9	Canada	4.9	UK	3.3
5	India	25.9	Italy	0.9	Ireland	6.9	Hong Kong	2.1	Netherlands	2.8	Taiwan	4.6	Netherlands	1.2
6	Switzerland	24.9	France	0.9	Switzerland	6.9	France	1.3	Ireland	2.5	Denmark	4.4	Philippines	1.1
7	Ireland	18.9	Japan	0.8	China	6.7	Australia	1.0	France	2.4	France	4.0	Germany	0.9
8	Mexico	17.2	Germany	0.8	Singapore	5.2	China	1.0	Canada	2.0	Switzerland	3.6	Switzerland	0.6
9	China	15.6	India	0.7	Japan	5.2	Germany	0.9	Denmark	1.4	South Korea	3.4	Japan	0.6
10	France	13.3	Spain	0.7	Netherlands	5.1	Switzerland	0.7	India	0.9	UK	3.4	Mexico	0.5
	Total	**460.3**	**Total**	**35.8**	**Total**	**117.7**	**Total**	**42.3**	**Total**	**43.0**	**Total**	**72.4**	**Total**	**38.6**

Source: Bureau of Economic Analysis.
Data as of January 2022.

Trade figures, while significant, do not do full justice to the importance of the transatlantic services economy. Transatlantic foreign affiliate sales of services are much deeper and thicker than traditional trade figures suggest. Indeed, sales of affiliates have exploded on both sides of the Atlantic over the past few decades thanks to falling communication costs and the rise of the digital economy. Affiliate sales of services have not only supplemented trade in services, they have become the overwhelming mode of delivery in a rather short period of time. Worldwide affiliate sales of U.S. services almost doubled in the ten years from 2005 to 2019, the last year of available data, reaching a record $1.8 trillion in 2019.

Sales of services of U.S. foreign affiliates in Europe totaled $1 trillion, or 55% of the global total in 2019. U.S. services exports to Europe in the same year totaled $342 billion, well below sales of services by affiliates. In other words, like goods, U.S. firms primarily deliver services in Europe (and vice versa) via their foreign affiliates rather than by trade. The UK accounted for roughly 29% ($288 billion) of all U.S. affiliate services sales in Europe -- more than combined U.S. affiliate sales in Latin America and the Caribbean ($178 billion), Africa ($15 billion) and the Middle East ($26 billion). Affiliate sales in Ireland remain quite large—$182 billion—and reflect strong U.S-Irish foreign investment ties, underlined by the

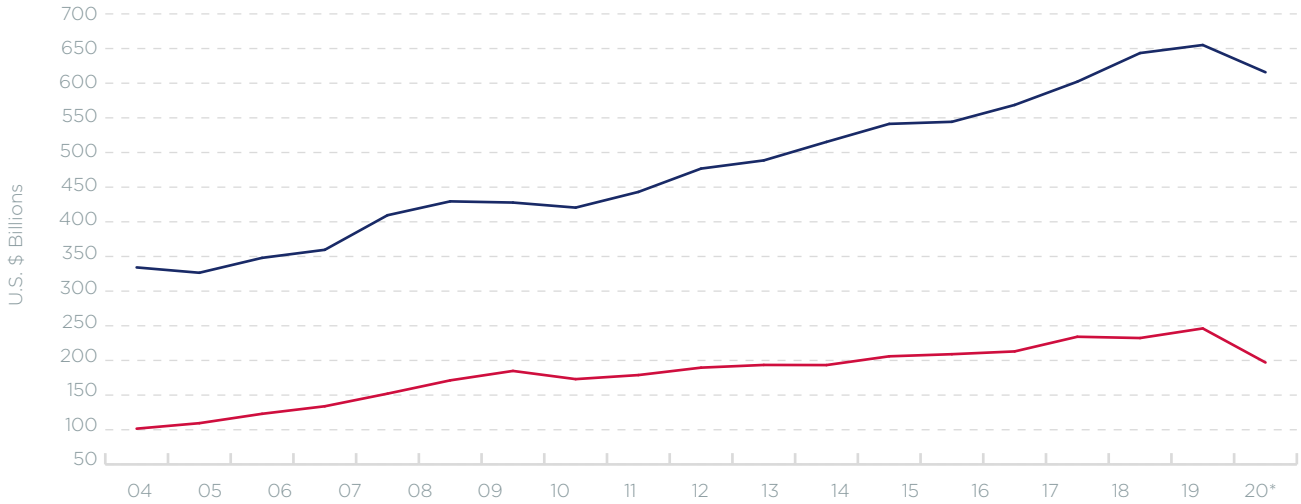
Table 11 U.S. - Europe Services Linkages



U.S. Affiliates Services Supplied in Europe. U.S. Services Exports to Europe

Source: Bureau of Economic Analysis.
Majority-owned bank and non-bank affiliates.
**Services supplied in Europe are estimates for 2020.*

Table 12 Europe - U.S. Services Linkages



European Affiliates Services Supplied in the U.S. U.S. Services Imports from Europe

Source: Bureau of Economic Analysis.
Majority-owned bank and non-bank affiliates.
**Services supplied in the U.S. are estimates for 2020.*

presence of several leading U.S. internet, software and social media leaders.

U.S. affiliate sales of services in Europe continue to exceed sales of services by U.S. affiliates of European firms. In 2019, the last year of complete data, European affiliate services sales in the United States totaled $655 billion, about one-third below comparable sales of U.S. affiliates in Europe. That said, European affiliates are the key provider of affiliate services in the United States. British affiliates lead in terms of affiliate sales of services in the United States ($166 billion), followed closely by German affiliates ($157 billion). We estimate that European affiliate services sales in the United States fell modestly in 2020 due to the pandemic-induced recession, to around $615 billion, yet still well above U.S. services imports from Europe ($197 billion) in the same year. The difference between affiliate sales of services and services imports reflects the ever-widening presence of European service leaders in the U.S. economy.

Foreign direct investment and foreign affiliate sales, not trade, represent the **backbone of the transatlantic economy**

In the end, the United States and Europe owe a good part of their competitive position in services globally to deep transatlantic connections in services industries provided by mutual investment flows. A good share of U.S. services exports to the world are generated by European companies based in the United States, just as a good share of European services exports to the world are generated by U.S. companies based in Europe.

These eight indices convey a more complex and complete picture of U.S.-European engagement than trade figures alone. Transatlantic commerce goes well beyond trade. Foreign direct investment and foreign affiliate sales, not trade, represent the backbone of the transatlantic economy.

Table 13 America's FDI Roots in Europe ($Billions)

Industry	U.S. FDI to Europe	Europe's % of Total U.S. FDI
European Total, all industries	3,660	59%
Manufacturing	510	53%

Note: Historic-cost basis, 2020.
Source: Bureau of Economic Analysis.

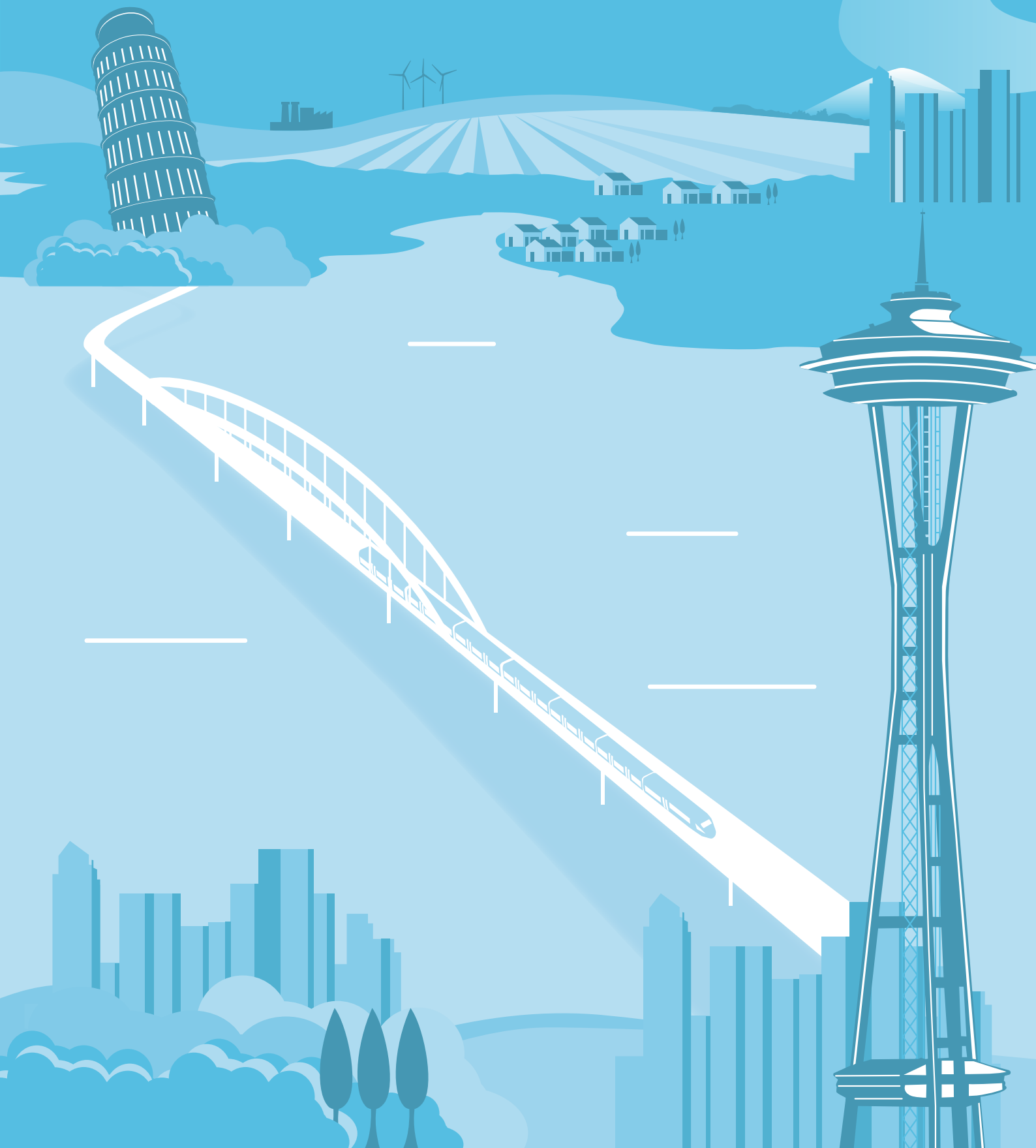
Table 14 Europe's FDI Roots in the U.S. ($Billions)

Industry	U.S. FDI from Europe	Europe's % of Total U.S. FDI
Total from Europe, all industries	2,946	64%
Manufacturing	1,374	74%

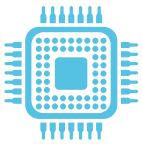
Note: Historic-cost basis, 2020.
Source: Bureau of Economic Analysis.

3

Shifting Dependencies: Rethinking Russia, China, and Global Supply Chains



Strategic sectors with vulnerable supply chains for both the U.S. and the EU



Semiconductors

Pharmaceuticals

Batteries

Critical materials

One consequence of the war in Ukraine is renewed attention to strategic dependencies. While the United States has limited exposure to the Russian economy, Europe is far more reliant on flows of energy and other commodities. This was a major reason why the EU preferred to exclude energy from the tough initial array of sanctions it leveled against Moscow. At the same time, the war has generated a new-found determination among Europeans to end their reliance on Russian energy over the medium-term, by identifying alternative supplies, turbo-charging renewables and clean tech development, prolonging indigenous fossil-fuel and nuclear power output, and improving energy efficiency measures. This will not be easy.

Beyond energy, the war in Ukraine has further scrambled regional and global supply chains already disrupted by the pandemic. When Covid-19 struck in 2020, many countries and companies were stunned to realize how dependent they had become on other countries for critical pharmaceutical and health care supplies. In 2021, as economies sputtered to restart after widespread lockdowns, the world's ability to deliver goods and services through extended supplier networks was further whipsawed by soaring demand, port disruptions, material shortages, and Covid-related factory closures. And now in 2022, flows of commodities and manufacturing components have been further upended. The upshot: heightened anxieties about excessive dependencies, unprecedented global supply and price shocks, surges in inflationary pressures, and drags on growth.

These shocks are forcing U.S. and European companies to reconsider how they organize their regional and global supplier networks. While Russia's war is creating headline disruptions, the deeper rethink centers around China, given U.S. and European concerns about inordinate dependencies on another potent strategic rival, and the country's far greater importance as a critical node in global supply chains.

How Dependent Are Europe and the United States on China?

In 2021, the European Commission and the United States published reviews of their respective supply chains, identifying dependencies and policies that could mitigate potential vulnerabilities.[1] Each identified semiconductors, pharmaceuticals, batteries and critical materials as strategic sectors with vulnerable supply chains due to highly concentrated reliance on a small number of suppliers. The EU report identified heightened import dependencies on China (52%), Vietnam (11%), and Brazil (5%); the U.S. report highlighted heavy reliance on China, in terms of both supply and demand.

Both the EU and the United States have important common dependencies vis-à-vis China, particularly regarding various COVID-related goods and active pharmaceutical ingredients (APIs, including vitamins, antibiotics, and hormones), critical materials, and products needed for the green and digital transitions, such as permanent magnets, electric accumulators,

Table 1 EU and U.S. Dependencies on China and the Rest of the World

	Number of Dependent products	Potential for Diversification				Share in Total Import Value
		Low	*Medium*	*Medium-High*	*High*	
U.S./EU Dependencies on China	20	61%	9%	9%	21%	EU: 2.8% U.S.: 4.1%
U.S./EU Dependencies on Rest of the World	70	25%	8%	22%	45%	EU: 4.6% U.S.: 5.1%

Sources: European Commission; United States Government; Ganyi Zhang, "EU-US: Public policies take up the challenges of the supply chain," Upply, July 23 2021, https://market-insights.upply.com/en/eu-us-public-policies-take-up-the-challenges-of-the-supply-chain.

Table 2 EU and U.S. Mutual Dependencies on China and the Rest of the World: Examples by Sector

	Health	Critical Materials	Renewables	Digital/ICT
U.S./EU Dependencies on China	APIs; Covid-19 related goods (face masks, gloves)	Tungstates, ferro-alloys, etc.	Permanent magnets	Laptops, cell phones, radio-broadcast receivers
U.S./EU Dependencies on Rest of the World	APIs; Covid-19 related goods (face masks, gloves)	Various	Permanent magnets, Type electric accumulators	Laptops, cell phones, radio-broadcast receivers

Source: European Commission; United States Government; Zhang.

cell phones, and radio broadcast receivers. Tables 1 and 2 track common U.S./EU dependencies vis-à-vis the rest of the world and China in particular.

The EU and the United States approach supply chain resiliency in similar ways. Both have identified roughly comparable sectors of high dependencies, and both emphasize the need to increase domestic capacity in those areas. Each has underscored the importance of transatlantic cooperation, and the need to modernize and strengthen international trade rules. In 2021, they created a Trade and Technology Council (TTC) to engage with each other, and with the private sector, to enhance the resiliency and robustness of their respective supply chains, especially in highly-vulnerable ecosystems.

Pharmaceuticals are an area of shared acute concern. Pharmaceutical supply chains have entangled countries around the world in a web of opaque and asymmetric interdependencies. The United States and Europe are each extraordinarily dependent on imports of APIs, the key ingredients for antibiotics and many other common medicines. The Covid-19 pandemic exposed stunning dependencies on drugs and medical supplies. Through the TTC the two parties could improve transparency throughout the pharmaceuticals supply chain; encourage industry to introduce quality management systems; facilitate advanced manufacturing techniques that promise to enhance diversification and redundancy; accelerate capacity for on-demand manufacturing capabilities for APIs and finished drug products; and establish virtual stockpiles and rapid-reaction mechanisms.[2]

Additional TTC priority themes are semiconductors, ICT and cloud technologies, artificial intelligence, clean tech and critical materials. Each is treated in an individual box in Chapter One.

Shifting Supply Chains

Even before the pandemic, concerns had been growing about supply chain resiliency and the asymmetric dependencies that had built up in the deeply intertwined supply chains linking the United States, Europe, and China. Before the pandemic hit, many companies were already shifting production out of China or diversifying their production. Some didn't want to become inordinately dependent on any one particular link in their supply chain. Several feared data security and privacy risks. Others wanted to avoid being caught in a U.S.-China trade war. And many decided that rising labor costs in China made other locales more attractive.[3] Footwear, accessories, toy and furniture manufacturers began moving out of China more than a decade ago. More than 83% of North American businesses and about 90% of European firms have announced plans to relocate at least part of their supply chains away from China.[4]

As a result, phrases like "regionalization," "near-shoring," and "on-shoring" are commonplace today as companies consider diversifying and simplifying their supply chains. The mantra of "just-in-time" has been replaced by "just-in-case," with more multinationals creating redundancies and safeguards in their supply chains. The rise in economic nationalism has contributed to this rethink as well, as more and more U.S. and European firms find themselves caught between the political pressures and incentives to build/invest locally versus the competitive advantages of leveraging resources from all over the world. How firms remain competitive and profitable while reducing the vulnerabilities and fragilities of their global supply chains is a critical task for firms over the near-term. Their survival will depend on it.

Given the high fixed costs that come with offshoring or setting up foreign operations, global supply chains are rather "sticky" in nature. "Reshoring" can be expensive, entailing significant additional fixed costs. That said, many companies are reconsidering the nature of their supply chains. While most are reluctant to fully "reshore" back to their home markets, some are rethinking the geography of their supply chains to ensure greater reliability, and to take advantage of changing cost calculations. A major 2021 joint report by the Asian Development Bank (ADB), the WTO and other institutions has offered evidence that global supply chains are shortening and that both the United States and China's participation rates are falling, even as the integration of some European and East Asian countries in cross-border supply chains continues to rise.[5] McKinsey estimates that 15-25% of global goods trade could shift to different countries over the next five years in a scenario where value chains become more regionally oriented.[6]

Rethinking China's Role in Commercial Flows

Most Western companies are in China because they seek to expand their presence in the Chinese domestic market, not because China is a cog in their extended global supply chains. Nonetheless, about 20% of global trade in manufacturing intermediate products used in supply chains now originates in China, up from 4% in 2002.[7]

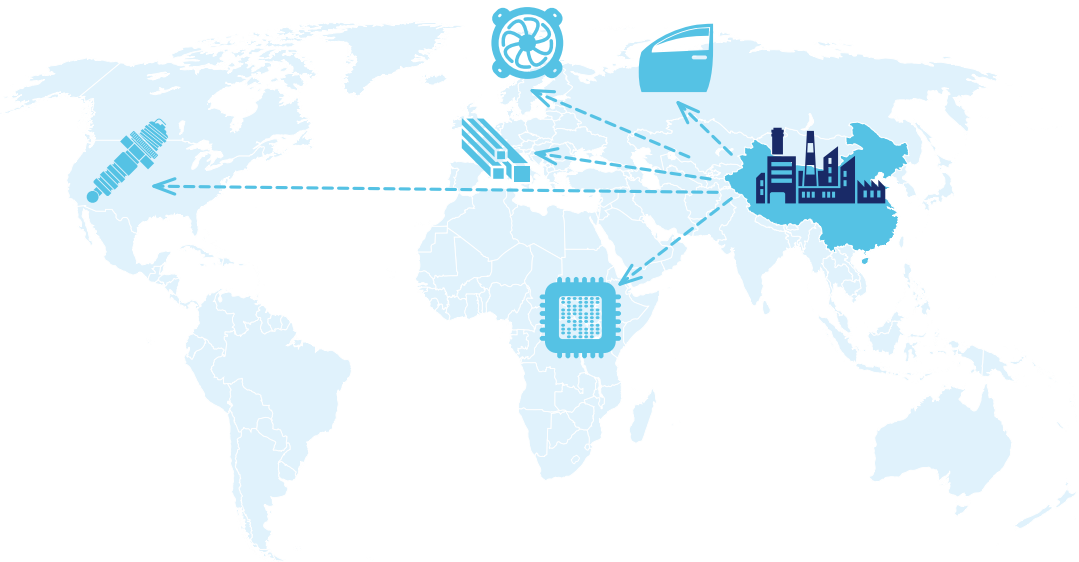
China's rise has translated into burgeoning trade in goods with the United States and Europe. U.S.-China goods trade has grown at an impressive 8.6% compound annual growth rate since 2000. EU27 goods exports to China expanded at a compounded annual rate of 12.6% between 2000 and 2020, compared to 4.3% annual growth in exports to the United States , according to data from the IMF. EU27 goods imports from China, meanwhile, rose at a 10.9% compound annual growth rate over the same time period, while goods imports from the United States expanded at a 2.4% rate.

These numbers have reinforced a fairly widespread – yet incorrect – view that China has become the top commercial partner of the United States and of Europe. Most such analysis equates international commerce only with trade in goods. Eurostat, the EU's statistical agency, reports that EU27 goods trade with China in 2021 totaled €695 billion, compared to €631 billion in EU27 goods trade with the United States.[8] That was a significant change from two years ago, when EU27 goods trade with the United States (€620 billion), exceeded EU27 goods trade with China (€562 billion). This shift was likely due to disruptions generated by the Covid-19 pandemic.

Trade between countries, however, doesn't just consist of trade in goods. It also includes trade in services, which the Eurostat report did not include. Services trade has been growing faster than goods trade. More European and American jobs depend on services than on goods, and the United States remains the EU's top services trade partner.

While final numbers for trade in services are not yet available for the full year 2021, we do have data for the first three quarters of the year. Trade in services between the EU27 and the United States during that period was €361.8 billion – 5.6 times more than the trade in services between the EU and China, which totaled €64.6 billion.[9]

20% of global trade in manufacturing intermediate products used in supply chains originates in China, up from 4% in 2002



Trade in goods and services (2021 estimate)

€ 782 bn
EU27-China

€ 1.1 tn
EU27-U.S.

If we annualize those figures to estimate total trade in goods and services of the EU for 2021, we find that EU27-China trade in goods and services likely totaled €782 billion in 2021, while EU27-U.S. trade was €1.1 trillion – 42% higher than EU27-China trade.

In short, if you look at overall trade flows and not just one kind of flow, it is clear that the largest trading partner for the EU is actually the United States, and the largest trading partner for the United States is the EU, as it has been for decades.

The Two-Lane Highway vs. the Twelve-Lane *Autobahn*

Moreover, just as trade is more than just flows of goods, international commerce is more than just trade. Reducing complex commercial ties to just trade in goods and services ignores the importance of a host of additional economic ties that bind the EU and the United States in far deeper ways than those that bind either to China.[10]

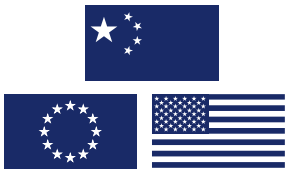
U.S. and European commercial ties with China are akin to a two-lane highway, whereas their commercial ties with each other are more like a twelve-lane *Autobahn*.

The highways to and from China are full of goods. They are busy, and they are crowded. Any type of accident on a two-lane highway can really snarl traffic – as we saw when supply chains were disrupted by the pandemic and by the U.S.-China tariff war. Alongside the highway are narrow bike lanes for services and investments.

At the end of 2020, the EU and China announced their intent to construct a new lane on their highway – an investment path that they believed could unsnarl some of that traffic and add to their overall connections. Despite the EU-China Comprehensive Agreement on Investment (CAI) inked in December 2020, however, that investment lane remains a construction site, after the EU joined the United States in sanctioning China for human rights abuses, in return for which China sanctioned a number of institutions and individuals in the EU, including leading members of the European Parliament – the body that needs to ratify the CAI. As a result, CAI is DOA – dead on arrival. While Chinese FDI in Europe rose in 2021, it did so from a very low level.[11]

The upshot is that both the EU-China and U.S.-China investment lanes face multiple roadblocks, as regulators voice security concerns about Chinese investments, as both sides tighten investment screening and export control procedures, and as each unveils bills aimed at boosting its respective competitiveness with China. China's onerous restrictions on foreign ownership, forced technology transfer rules, and opaque and politically-influenced regulatory procedures further dampen inward investment flows. Low Chinese FDI generates relatively few U.S. and European jobs.

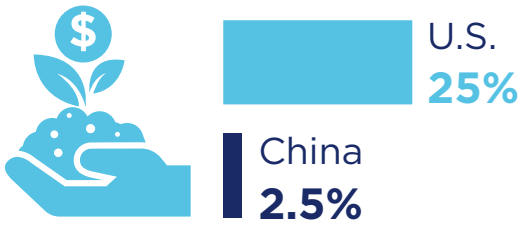
U.S-European investment lanes, in contrast, drive a huge amount of transatlantic commerce. The U.S. accounted for almost 25% of the EU27's total outward FDI position globally in 2019 – 10 times more than the



The ties that bind the EU to the United States are much thicker and far deeper than those that bind either to China

Share of the EU's total outward FDI position globally

(2019)



EU's investment position in China, which accounted for less than 2.5% of the total. Total European stock in the United States of $2.9 trillion in 2020 was more than three times the level of comparable investment from all of Asia. Germany's FDI stock in the United States totaled $411 billion in 2020. Chinese FDI stock in the United States was less than one-tenth of that total ($38 billion).

Europe's role vis-à-vis the United States is very similar. Measured on an historic cost basis, the total stock of U.S. FDI in Europe was $3.7 trillion in 2020 – almost 60% of America's total global investment position and 3.8 times U.S. investment in the Asia-Pacific region. U.S. FDI in the UK in 2020 was seven times more than such investment in China.

When flows from holding companies are removed, Europe still accounted for over half of total U.S. FDI outflows globally and more than double the share to Asia from 2009 through 2020.

In the first three quarters of 2021, U.S. companies invested $190 billion in Europe – 37 times more than what U.S. firms invested in China ($5 billion). And despite the pandemic-induced recession, U.S. companies in 2021 earned an estimated $300 billion from their operations in Europe – 23 times what they earned from operations in China.

Chinese FDI in Europe rose by 25% to $12.8 billion in 2021, while it fell by 34% in North America to just $5.8 billion.[12]

Moreover, these bustling transatlantic investment lanes are joined by innovation lanes hosting research and development flows that are the most intense between any two international partners. Jobs lanes provide employment for 16 million Europeans and Americans. And transatlantic digital lanes carry the vast majority of global digital content. In short, the commercial highway connecting Europe with the United States looks less like a two-way road than a twelve-lane *Autobahn*, with busier traffic and fewer speed limits.

Rethinking Global Supply Chains: Lies, Damn Lies, and Statistics

Conventional trade statistics also overplay China's role and underplay the role of the United States and Europe in other ways. For instance, standard metrics do not capture the value of intangibles in global value chains. Intangible assets include intellectual property, patents, trademarks, copyrights, brand names, product designs, software, databases, and certain types of business organization structures.[13] Failure to account for these intangibles in global supply chains substantially underestimates the nature and value of developed country exports and distorts trade balances between developed and emerging economies.

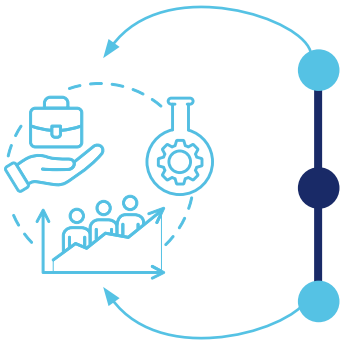
Extended supply chains have turned trade in goods into trade in tasks. Companies fragment their production processes and their services activities into a number of intermediate tasks, which are undertaken in many different places to exploit the specific comparative advantage of each location. These intermediate or indirect linkages now account for at least 70% of all global trade flows.[14]

Global supply chain tasks, in turn, can be broken down into three types: pre-production; production; and post-production. Pre-production tasks include research and development, product design, and branding. Post-production tasks include marketing, distribution, and retailing. Conventional trade measures only take into account one of these tasks: manufacturing production. They ignore both pre- and post-production, the two tasks that on average add twice as much value, and account for more jobs, than production tasks. Moreover, the firms that specialize in pre- and post-production also determine where these tasks take place – and those firms by and large tend to be in developed economies, including the United States and in Europe.[15]

The concept of trade in factor income basically adds in what is missing from conventional metrics. Doing so results in new ways of looking at global trade flows. To take an example, Apple reaps 59% of its iPhone X's value added from pre- and post-production tasks.[16] The least value-added is derived

Extended supply chains have turned trade in goods into trade in tasks

They add twice as much value and account for more jobs than production tasks



Intermediate tasks in global supply chains

Pre-production
(R&D, product development and branding)

Production

Post-production
(marketing, distribution and retailing)

from its production tasks, which are located in China. Nonetheless, when those phones are exported to the United States and Europe, they are recorded as goods exports from China, even though most of the value accrues to a U.S. company. Moreover, Apple's additional billions in sales in China do not turn up in U.S. trade statistics. The trade-in-factor-income approach adds Apple's profits from within China to U.S. exports to China, because, as a recent Asian Development Bank (ADB)/WTO report puts it, "that is the underlying economic reality, not the accounting fiction." Doing so across all U.S. companies cuts the U.S.-China goods trade deficit by one-third.[17]

This underscores the importance of intellectual property as a driver of both supply chains and investment flows. It also highlights its value as a source of income for developed economies such as the United States and Europe: 90% of the value of firms in the S&P 500 corresponds to intellectual property, which contributes twice as much to the value of trade as does physical capital.[18]

An additional lens through which we can understand the role of the United States and European companies in global supply chains is through indirect trade, which is the amount of trade conducted through intermediates instead of a simple direct exchange between two parties. According to the ADB/WTO, Germany, the United States, France and the Netherlands account for four of the top five indirect exporters (Table 3). And while conventional trade statistics portray China as the world's leading exporter, it ranks third in terms of indirect exports. Moreover, its share is falling – due to rising labor costs and the declining share of trade in China's economy. At the same time, the integration of various European and East Asian countries in cross-border supply chains is rising.

Table 3 Top 5 Economies with Major Indirect Exports ($Millions)

Economy	Gross Exports		Indirect Exports	
	2010	2019	2010	2019
Germany	1,385,309	1,810,593	631,683	949,316
United States	1,552,490	2,514,751	559,297	948,578
China	1,697,752	2,664,103	595,559	903,902
Netherlands	481,024	755,817	269,426	448,621
France	649,302	862,767	295,172	424,097

Source: Asian Development Bank, WTO et al., Global Value Chain Development Report 2021: Beyond Production, November 2021, https://www.adb.org/sites/default/files/publication/747966/global-value-chain-development-report-2021.pdf.

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4

Digital Hyperdrive

The Covid-19 pandemic has kicked the world into digital hyperdrive. By some accounts, the crisis has sped the adoption of a wide range of digital technologies by three to four years.[1] Health concerns and digital innovations have combined to change the way we live and learn, buy and sell, work and play. Many companies have thrived; others struggle to survive.

Digital tools powered an unprecedented worldwide sharing of gene sequencing data to track and treat SARS-CoV-2, the virus that causes the Covid-19 disease. The first breakthrough vaccine, based on messenger RNA (mRNA) technology, was a triumph of transatlantic collaboration between Germany's BioNTech and U.S.-based Pfizer. The speed at which the vaccine was developed and deployed was an amazing feat of science that was reliant on barrier-breaking synergies between digital and medical advances, and not possible for any previous pandemic.[2]

The digital hyperdrive ranges far beyond healthcare. The numbers are astounding. Since the onset of the virus, international internet traffic has jumped by 48%. By 2025, global data creation is projected to grow to more than 180 zettabytes – over 2 billion times the Internet's size in 1997. By 2026, monthly global data traffic is expected to surge to 780 exabytes – more than three times data usage rates in 2020.[3]

More than 5.29 billion people now use mobile phones. 4.88 billion are now online. People now spend almost as much time online as they do asleep. A million users a day joined social media in 2021, taking the global total to 4.55 billion people who will spend 10 billion hours a day on social media in 2022.[4]

Data analytics, machine learning, and artificial intelligence (AI) are transforming factory floors, farmers' fields, and hospital rooms. Between 2020 and 2023 companies are expected to spend $6.8 trillion on their digital transformation. In 2022, 65% of the world's GDP is projected to be digitized.[5] The worldwide market for 3D printing products and services, valued at around $12.6 billion in 2020, is expected to grow to well over $50 billion by the end of the decade.[6] The global market for quantum technology is expected to grow from $9.21 billion in 2021 to $31.6 billion by 2026 and as high as $300 billion by 2050.[7] The global Internet of Things (IoT) market, valued at $381.3 billion in 2021, is projected to grow to $1.85 trillion in 2028.[8]

What's more, the digital economy is blowing past connections between people and communication among machines on its way to what former Cisco Chairman John Chambers has called the Internet of Everything: pervasive connections among people, things, data, and processes like social networking, machine learning and artificial intelligence.[9]

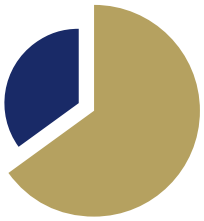
All of these areas are competitive strengths for North America and Europe. For the transatlantic economy a number of digital transformations bear watching. In last year's survey we discussed the dangers of cyberattacks and digital disruptions, as well as opportunities for small- and medium-sized enterprises and the promise of the connected factory. Each of these developments remains significant.

In particular, we noted the disruptive potential of digital money. Roller-coaster cryptocurrency markets hit an all-time high of $3 trillion in November 2021 before crashing to half that size in February 2022, amidst ongoing concerns that crypto and related aspects of what is called "decentralized finance" still need to iron out major technological kinks and risks of abuse.[10]

Despite current challenges, the prospect that decentralized finance models, big tech "stablecoins" and other digital finance innovations could gain ground is driving exploration and testing of official digital currencies by central banks. A half dozen small emerging economies have already issued official central bank digital currencies (CBDCs). The big economy most likely to join them in 2022 is China. It first ran a pilot scheme for its CBDC in December 2019. It has created millions of digital wallets to hold its new digital currency, the e-CNY, which it said was used in purchases equivalent to $315,000 a day at the Beijing Winter Olympics.[11]

Developed countries have expressed greater caution about CBDCs. Nonetheless, Sweden's Riksbank has been a first mover in exploring the possibilities, the European Central Bank is in the middle of a two-

The crisis has sped the adoption of a wide range of digital technologies by **three to four years**



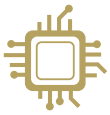
65%

of global GDP will be digitized in 2022

Digital transformations impacting the transatlantic economy

Rise of cyberattacks

Digital money and decentralized finance models


Digitization and internationalization of SMEs

Advent of the connected factory

Development of the metaverse

Web3 as a new incarnation of the digital world

year investigation into a possible digital euro, and a UK "Britcoin" is imaginable by 2025. The Bank for International Settlements has initiated a series of digital currency experiments with central banks and the private sector.[12] The U.S. Federal Reserve, while still ambivalent, has also initiated public discussion about the pros and cons of digitizing the dollar.[13]

CBDCs could reduce costs related to cross-border and domestic payments and to the printing and distribution of physical cash. They promise to be more financially inclusive and could be a check on counterfeiting and other abuses. However, privacy concerns abound, as digital currencies could become surveillance tools. And a wholesale movement to risk-free CBDC accounts away from risk-carrying commercial bank deposits would not only raise the cost of deposits and hence the cost of credit, it would disrupt the foundations of today's financial system.[14]

Other buzzwords are driving the digital discussion. One is the metaverse, a fusion of virtual gaming, social networking, and entertainment that its proponents believe can result in blended physical-virtual immersion experiences for users in interconnected spaces across a wide variety of devices.[15]

Roughly 200 companies currently consider themselves builders of the metaverse. Rivalries revolve among those seeking to become its titans. Facebook not only changed its name to Meta, it is betting a big part of its future on defining the metaverse. Microsoft says its planned $75 billion acquisition of Activision is intended to "provide building blocks for the metaverse." Microsoft co-founder Bill Gates expects the metaverse to be part of our workplaces in the next three years.[16]

For the metaverse to work, users will need to move freely between virtual domains and be able to bring content and currency with them. That's not possible today. Making it possible is much of the battle. For corporate first movers, the metaverse is a virtual-physical world that users can crisscross via proprietary entry points. Other designers suggest a far more decentralized "paraverse" of transparent, open-source, community-owned platforms that users can transverse via interoperable blockchains.[17]

Whatever its ultimate trajectory, the rapid evolution of the metaverse – as well as that of decentralized finance, blockchain innovations, non-fungible tokens and the like – is sparking discussion of a new incarnation of the digital world dubbed Web3.

Web 1.0 was the World Wide Web and the dawn of e-mail. Web 2.0 came along with a wave of interactive mobile, social, and cloud computing innovations and the rise of the platform economy, all woven together by a small core of successful digital companies. Web 2.0 has accelerated digital interactions and interconnections, but it has also generated cybercrime, amplified cancers of corruption and disinformation, and eroded trust. Web3 is a fast-growing group of technologies designed to address these failings by building on blockchain technology to shift digital power to more decentralized, transparent, and trustless models enabling users to engage across platforms and creators to keep a greater share of the value they create, moving away from reliance on walled-off proprietary platforms operated by a small number of companies – Meta for social networking, Amazon and Alibaba for e-commerce, Apple and Google for mobile app stores and mobile services, and so on. Web3 is still in its infancy. Enabling technologies still have to be developed, scaled and commercialized. Infrastructure has to be built. Standards bodies need to agree on how protocols could work. There are concerns about privacy, intellectual property, content licensing, and crypto assets. Nonetheless, the buzz is there.[18]

In so many of these areas, the digital hyperdrive is confounding traditional mores and challenging conventional disciplines. "When we thought we had all the answers," writes Mario Benedetti, "all the questions suddenly changed."[19]

The Dawning Bio-Cognitive Age

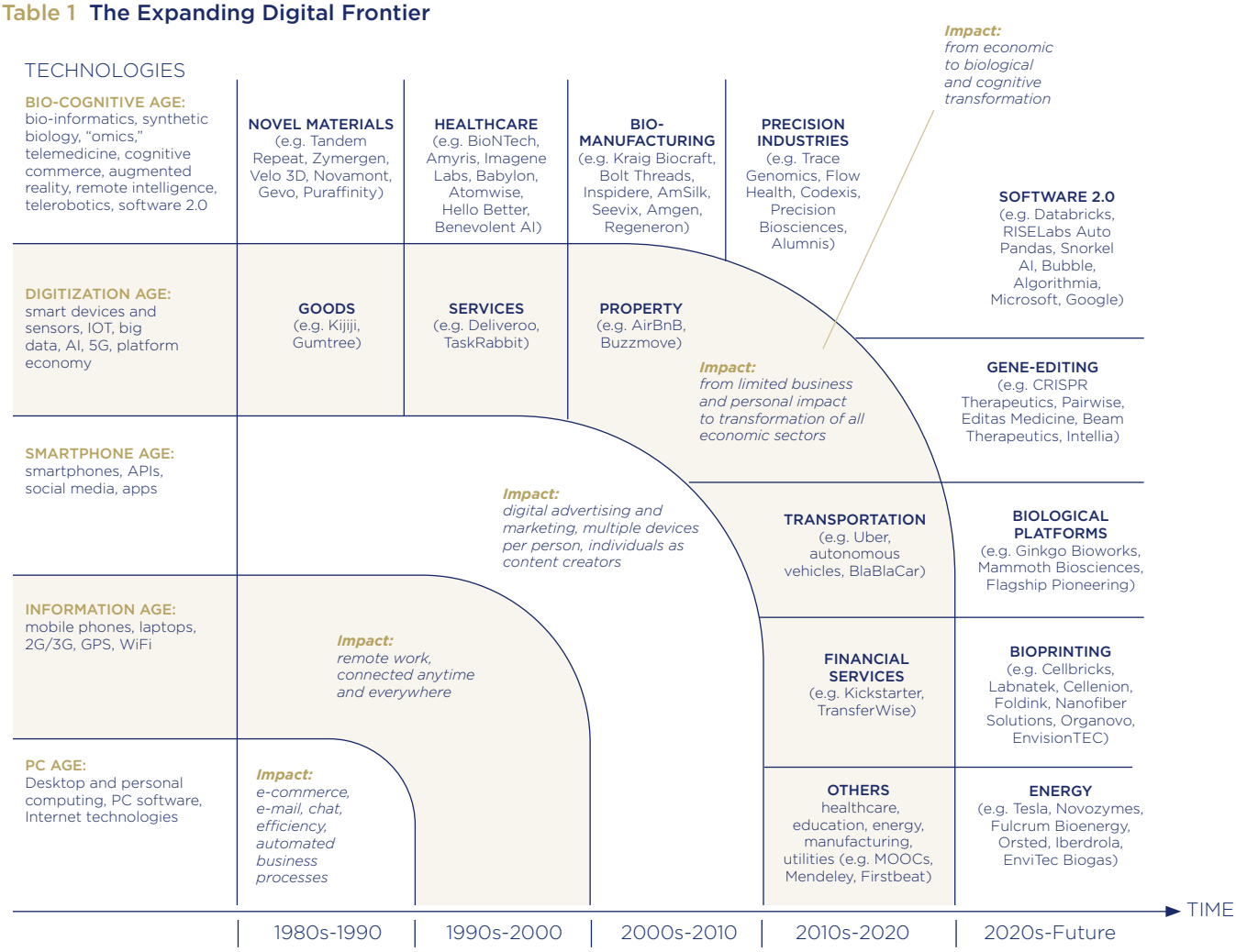
Even as we grapple with the advances and challenges of the digital age, some pathfinders are charting further revolutionary advances in quantum physics, biology, nanotechnology, behavioral and cognitive sciences and AI.[20] In previous surveys we used Table 1 to herald the possibilities. Last year we were able to give this chart greater detail, as this new age has already arrived, due to scientific breakthroughs and to the cascading changes wrought by the pandemic. This year the chart continues to evolve as new industries and applications appear, led by pioneering companies on both sides of the Atlantic.

The pandemic has been a major accelerant of the biological revolution. A decade ago, mRNA vaccines were a dream. In 2020, they changed the world. BioNTech, Moderna, and other companies are already applying mRNA technology to deal with diseases such as malaria, tuberculosis, and HIV. In the future, mRNA drugs could be used for allergies, autoimmune conditions, individualized cancer therapies, regenerative medicine, and for a wide variety of illnesses, from flu and heart disease to yellow fever and the Zika virus. BioNTech believes that in 15 years, one-third of all newly approved drugs will be based on mRNA.[21]

Beyond the pandemic, digital transformations are redefining health in all areas of life. By 2025, 40% of the global datasphere will be in health – the largest of any sector or industry. This explosion of genetic and health data – and increasing abilities to process it – holds significant potential for scientific and medical achievement worldwide, assuming the ability to transfer data across borders, subject to certain privacy and data protection standards, is not undermined. The market for goods and services related to synthetic biology is expected to reach $15 billion by 2025.[22]

Digital innovations have improved remote care and doctor-patient communication. Telemedicine, telepresence, and telesurgery are transforming medical techniques and generating greater cross-border trade in healthcare services. AI-designed drugs have entered human testing. 3D-printed bones will be ready for human transplantation in 2022. Contact tracing apps,

Table 1 The Expanding Digital Frontier



Sources: GSMA Intelligence; McKinsey Global Institute; Author's own estimates

predictive analytics, geospatial modelling of viral spread dynamics, and data sharing have supported public health surveillance and decision-making, even as concerns have grown about privacy and the online diffusion of dis- and misinformation.[23]

No less important is the cognitive revolution, led by the transformation of software. In our decades-old Software 1.0 system, humans write code for machines. In the emerging Software 2.0 system, humans coach machines to write code themselves. Software 1.0 will continue as a major approach to software development, but Software 2.0 will enable software to address more complex problems. Software 1.0 is driven by software developers and computer programmers. Software 2.0 is driven by software teachers and computer trainers.[24]

Software 2.0 is likely to unfold unevenly, as significant challenges remain. Bottlenecks in talent and the availability of labeled data hamper the development of training datasets. There are concerns about privacy, security and accuracy. Nonetheless, Software 2.0 promises to unlock new applications never previously possible, including by empowering non-technical users to do all kinds of things they couldn't do before.

Changing the Nature of Trade

Digitalization is not just changing the scale, scope and speed of trade, it is changing its very nature. Many services sectors that were once non-tradable – because they had to be delivered face-to-face – have become highly tradable – because they can now be delivered over long distances.[25]

Digitalization even blurs the distinction between trade in goods and services. Automakers are now also service providers; online retailers are now also manufacturers. 3D-printing generates products that are a mix of goods and services. Digitalization increases the importance of data flows and intellectual property. It has boosted trade in software design over trade in final products. It offers alternative means of payment and finance. It has lowered shipping and customs processing times and reduced the cost of creating, copying and accessing text, video content and music, while enhancing our ability to access goods and services without owning them.[26]

How Prepared are Europe and the United States for Digital Transformation?

The 2021 Network Readiness Index measures how prepared countries are to leverage the opportunities offered by technological innovation. It does so by looking at the state of technology infrastructure, the ability of individuals, businesses and governments to use ICT productively, how conducive the national environment is for a country's participation in the network economy, and the economic, social, and human impact of a country's participation in the network economy. Based on these metrics, Europe and North America represent 9 of the top 10 countries, and 16 of the top 20, when it comes to technology readiness and adoption (Table 2). Singapore was the lone Asian country in the top ten. The Republic of Korea ranked 12th, Australia 13th, Japan 16th, New Zealand 20th and China 29th.

Table 2 Top Ten Network-Ready Countries, 2020

Country	NRI Rank	Technology	People	Governance	Impact
Netherlands	1	3	7	2	3
Sweden	2	4	4	5	2
Denmark	3	7	2	3	7
United States	4	1	5	7	16
Finland	5	10	3	4	5
Switzerland	6	2	12	11	6
Singapore	7	8	9	12	1
Germany	8	5	8	13	10
Norway	9	13	6	1	11
United Kingdom	10	6	16	14	9

Source: Soumitra Dutta and Bruno Lanvin, eds., The Network Readiness Index 2021 (Washington, DC: Portulans Institute, 2021), https://networkreadinessindex.org/wp-content/uploads/reports/nri_2021.pdf.

Five Lenses on the Evolving Transatlantic Digital Economy

Although "digital globalization" evokes the image of a seamless global marketplace, digital connections are "thicker" between some continents and "thinner" between others – and they are "thickest" between the United States and Europe.

Given data's peculiar qualities, economists and governments have struggled to devise quality metrics to measure the digital economy.[27] Failing standard measurements, we present five ways to look at the transatlantic digital economy. These metrics are not mutually exclusive; they are better understood as different lenses through which one can better understand the importance of transatlantic digital connections.

1. Digital Services and Digitally-Enabled Services

The digital economy is dominated by services. Two metrics offer us a clearer picture of transatlantic connections in digital services. A narrow view can be had by looking at cross-border information and communications technology (ICT) services, or *digital services* as shorthand, which are services used to facilitate information processing and communication.[28] A broader view can be taken by looking at *digitally-enabled services*: services that can be, but are not necessarily, delivered remotely over ICT networks. These include digital services as well as "activities that can be specified, performed, delivered, evaluated and consumed electronically."[29] Identifying potentially ICT-enabled services does not tell us with certainty whether the services are *actually* traded digitally.[30] But the U.S. Commerce Department notes that "these service categories are the ones in which digital technologies present the most opportunity to transform the relationship between buyer and seller from the traditional in-person delivery mode to a digital one,"[31] which means a digital transaction is likely and thus can offer a rough indication of the potential for digital trade.[32]

Digital services and digitally-enabled services have proven to be resilient during the pandemic. While global services exports fell by 20% in 2020, global exports of digitally-enabled services declined only 1.8%. As a result, digitally-enabled services accounted for about 64% of global services exports.[33]

Germany was the top global importer of digital services in 2020, followed by the United States and France. Ireland was the top global exporter of digital services, followed by India and China (Table 3.)

Considering the broader class of digitally-deliverable services, the United States was the largest global exporter and importer in 2020 (Table 4). As with ICT services, most of the top 10 exporters and importers of digitally deliverable services in 2020 were developed countries, although India, China and Singapore were all top digital services traders.

Table 3 Digital Services Trade: Top Exporters and Importers, 2020

Exporters	Value($billions)	Importers	Value ($billions)
1. Ireland	151.5	1. Germany	39.7
2. India	68.0	2. United States	35.6
3. China	59.0	3. France	22.2
4. United States	49.8	4. Japan	20.1
5. Germany	32.2	5. Singapore	16.6
6. United Kingdom	22.4	6. Italy	11.9
7. Israel	19.2	7. United Kingdom	11.8
8. France	18.0	8. Belgium	10.8
9. Singapore	15.0	9. Netherlands	10.7
10. Sweden	14.9	10. India	10.5

Source: UNCTAD.

Table 4 Digitally-Deliverable Services Trade: Top Exporters and Importers, 2020

Exporters	Value($billions)	Importers	Value ($billions)
1. United States	533.1	1. United States	317.6
2. United Kingdom	286.7	2. Ireland	280.7
3. Ireland	244.2	3. Germany	183.4
4. Germany	203.7	4. United Kingdom	146.3
5. India	154.8	5. China	139.6
6. China	154.4	6. France	135.3
7. France	142.9	7. Japan	133.3
8. Netherlands	126.8	8. Netherlands	124.0
9. Singapore	122.3	9. Singapore	107.0
10. Japan	114.7	10. Switzerland	88.1

Source: UNCTAD.

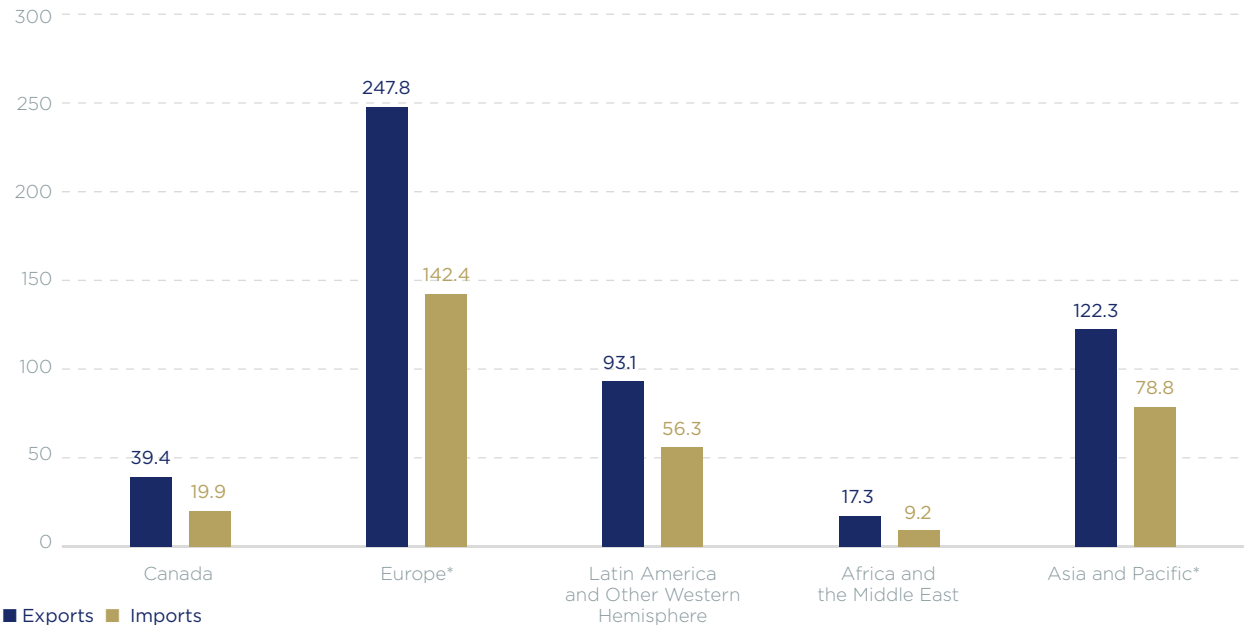
Ireland's high rankings underscore both its preferred location for many multinational companies, and its high reliance on digital trade. Its imports of digitally-deliverable services were equivalent to 67%, and its exports 58%, of its GDP.

Digitally-enabled services are not just exported directly, they are used in manufacturing and to produce goods and services for export. Over half of digitally-enabled services imported by the United States from the European Union (EU) is used to produce U.S. products for export, and vice versa, thus generating an additional value-added effect on trade that is not easily captured in standard metrics.[34]

In 2020, digitally-enabled services accounted for 73% of all U.S. services exports, 67% of all services imports, and 87% of the U.S. global surplus in trade in services (Table 9). The significant rise in the share of digitally enabled services in 2020 is primarily due to a large drop in travel (down 79% or -$36 billion) and transport (down 40% or -$13 billion) due to Covid-19.

In 2020, the United States registered a $213.6 billion trade surplus in digitally-enabled services with the world. Its main commercial partner was Europe, to which it exported $247 billion in digitally-enabled services and from which it imported $142 billion, generating a trade surplus with Europe in this area of $105 billion. U.S. exports of digitally-enabled services to Europe were about 2.7 times greater than U.S. digitally-enabled services exports to Latin America, and roughly double U.S. digitally-enabled services exports to the entire Asia-Pacific region (Table 5).

Table 5 U.S. Trade in Digitally-Enabled Services by Major Area, 2020 ($Billions)



Source: Bureau of Economic Analysis, Trade in Potentially ICT-Enabled Services Database. Data as of July 2021.

In 2020, the 27 EU member states collectively exported €1.0 trillion and imported €1.0 trillion in digitally-enabled services to countries both inside and outside the EU (See Tables 5 and 6). Excluding intra-EU trade, EU member states exported €551 billion and imported €594.5 billion in digitally-enabled services, resulting in a deficit of €43.3 billion for these services.

Digitally-enabled services represented 61% of all EU27 services exports to non-EU27 countries and 68% of all EU services imports from non-EU countries.

In 2020, the United States accounted for 22% of the EU27's digitally-enabled services exports to non-EU27 countries, and 34% of EU27 digitally-enabled services imports from non-EU27 countries.[35] The United States purchased €122.1 billion, according to Eurostat data for 2020, making it the largest country for imports of EU27 digitally-enabled services exports – ahead of even the United Kingdom (€121.1 billion). The entire region of Asia and Oceania imported just slightly more than the U.S. (€138.1 billion).

In 2020, EU member states imported just over €1.0 trillion in digitally-enabled services, according to Eurostat data. 41% originated from other EU member states (See Table 6). Another 20% (€204.7 billion) came from the United States, making it the largest supplier of these services. The EU imports of these services from the U.S. were almost double the imports from the UK (€114.2 billion).

Table 6 Destination of EU27 Exports of Digitally-Enabled Services, 2020 (€Billions)

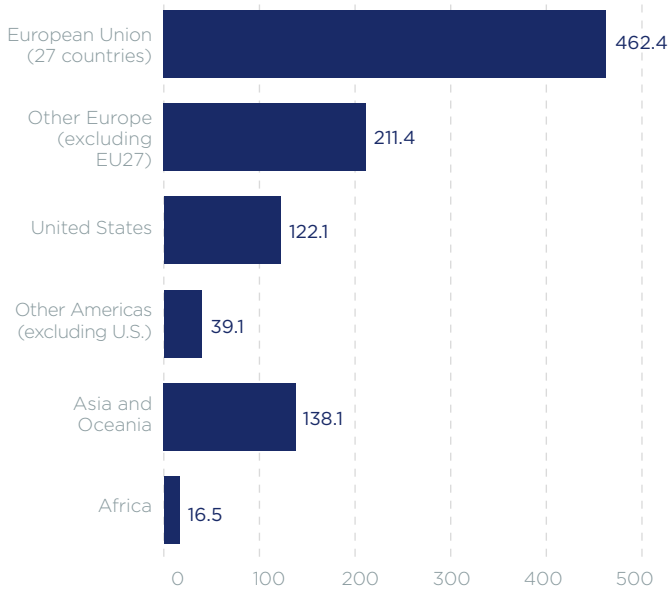
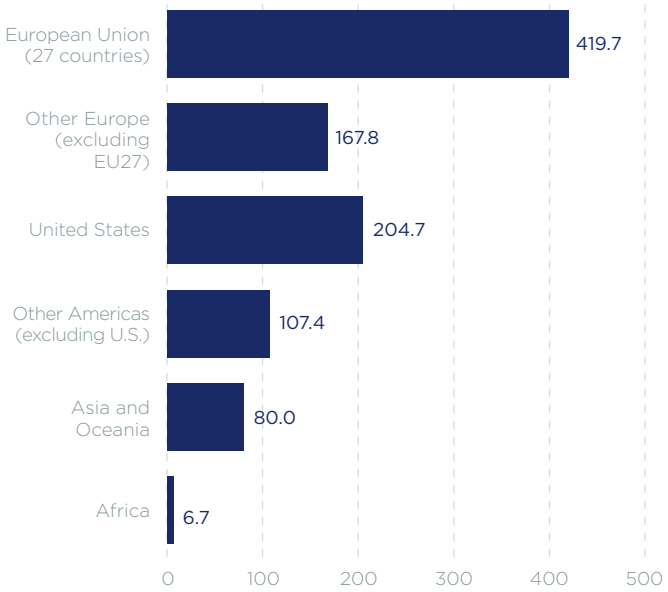


Table 7 Origin of EU27 Imports of Digitally-Enabled Services, 2020 (€Billions)



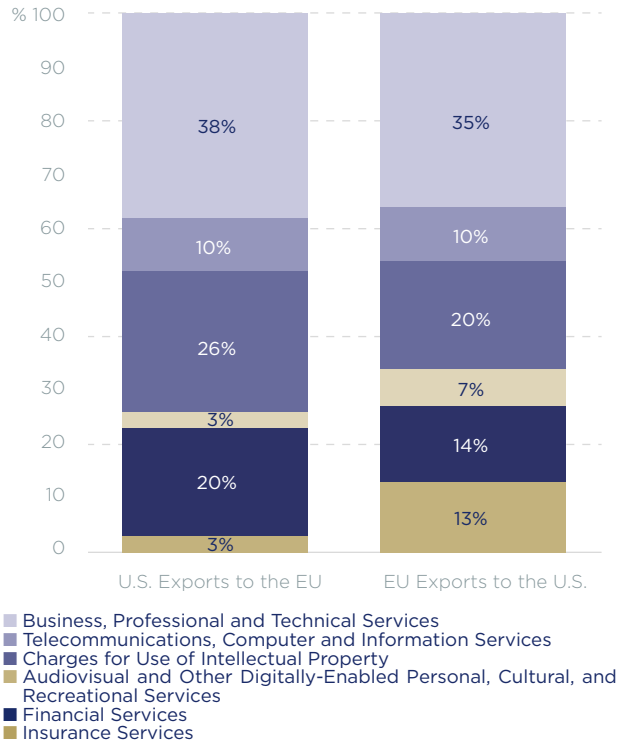
Note: Digitally-Enabled Services includes finance; insurance; IP charges; telecommunications, computer, information services; R&D services; professional and management services; architectural, engineering, scientific and other technical services; trade-related services; audiovisual services; and other personal, cultural, and recreational services. Asia includes Middle East countries. Line items for "international organizations" and "EU27 unallocated" excluded.
Source: Eurostat. Data as of January 2022.

Digitally-enabled services supplied by affiliates
(2019)

$529 billion
U.S. affiliates in Europe

$287 billion
European affiliates in the U.S.

Table 8 U.S.-EU Digitally Enabled Services Trade by Sector, 2020



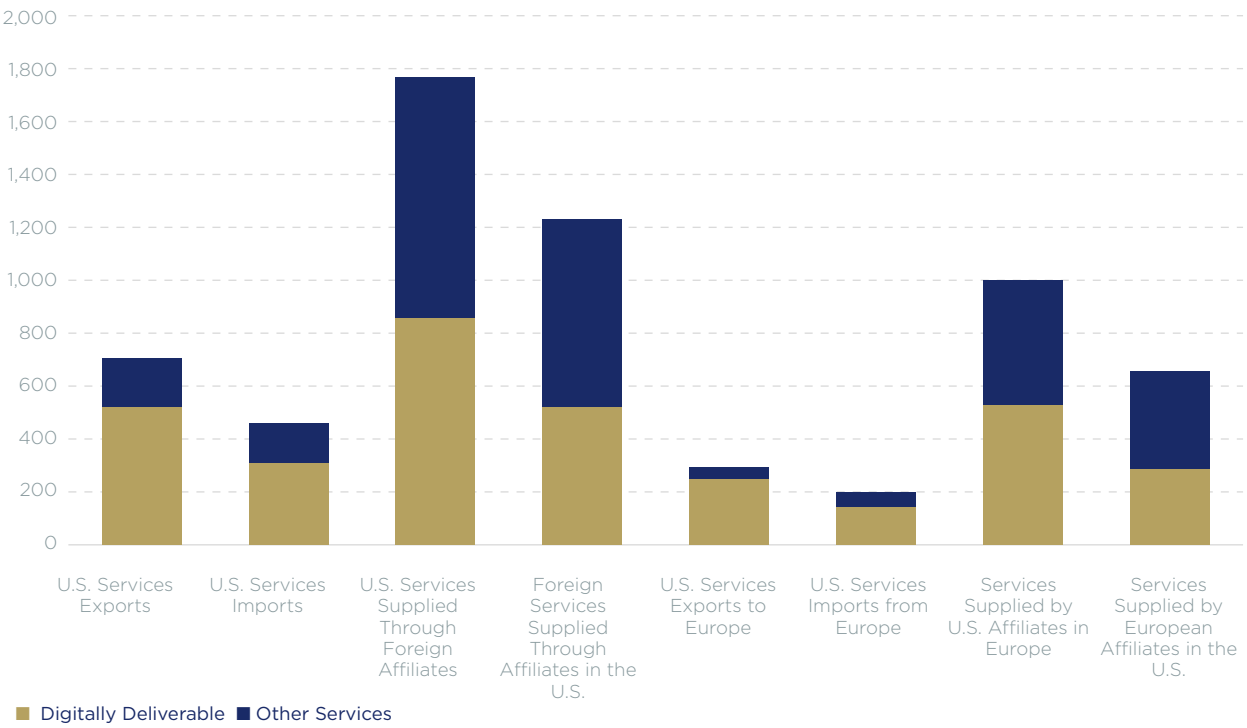
Sources: U.S. Bureau of Economic Analysis.
Data as of July 2021.

Table 8 categorizes U.S.-EU digitally-enabled services trade into six sectors. For both economies, the most important exports are represented by digitally-deliverable business, professional and technical services, which accounted for 38% of digitally-enabled services exports from the EU to the United States and 35% of digitally-enabled services exports from the United States to the EU in 2020. The second most important category consists of intellectual property. This usually comes in the form of royalties and license fees, most of which are paid on industrial processes and software, underscoring how integral such transatlantic inputs are to production processes in each economy. Financial services comprise the third largest digitally-enabled services export category.

Digitally-Enabled Services Supplied Through Foreign Affiliates

The digital economy has transformed the way trade in both goods and services is conducted across the Atlantic and around the world. Even more important, however, is the delivery of digital services by U.S. and European foreign affiliates – another indicator reinforcing the importance of foreign direct investment, rather than trade, as the major driver of transatlantic commerce. U.S. services supplied by affiliates abroad were $1.8 trillion, roughly 2.5 times U.S. global services exports of $705.6 billion. Moreover, half of all services supplied by U.S. affiliates abroad are digitally-enabled (Table 9).

Table 9 Digitally-Enabled Services Trade and Services Supplied through Affiliates* ($Billions)



**Trade data are for 2020. Affiliate data are for 2019, the latest available year.*
Source: U.S. Bureau of Economic Analysis.
Data as of October 2021.

Table 9 underscores the relative importance of digitally-enabled services supplied by affiliates of U.S. companies located in Europe and affiliates of European companies in the United States, versus U.S. and European exports of digitally-enabled services. 53% of the $998 billion in services provided in Europe by U.S. affiliates in 2019 was digitally-enabled. In 2019, U.S. affiliates in Europe supplied $529 billion in digitally-enabled services, whereas European affiliates in the United States supplied $287 billion in digitally-enabled services. Digitally-enabled services supplied by U.S. affiliates in Europe were more than double U.S. digitally-enabled exports to Europe, and digitally-enabled services supplied by European affiliates in the United States were double European digitally-enabled exports to the United States.

The significant presence of leading U.S. service and technology leaders in Europe underscores Europe's position as the major market for U.S. digital goods and services. Table 10 underscores this dynamic. In 2019, Europe accounted for 71% of the $303.8 billion in total global information services supplied abroad by U.S. multinational corporations through their majority-owned foreign affiliates. This is not surprising given the massive in-country presence of U.S. firms throughout Europe, with outward U.S. FDI stock in information overwhelmingly positioned in Europe. U.S. overseas direct investment in the "information" industry in the UK alone, for instance, was 66% more than such investment in the entire Western Hemisphere outside the United States, roughly the same as such investment in all of Asia, the Middle East and Africa combined, and 14 times such investment in China. Equivalent U.S. investment in Germany was 2.7 times more than in China.[36]

Table 10 Information Services Supplied Abroad by U.S. Multinational Corporations through their MOFAs ($Millions)

Country	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Canada	3,595	4,140	3,971	5,996	6,316	7,135	7,595	7,401	8,487	8,342	9,161	8,991	9,403	9,480
Europe	67,270	76,156	85,450	84,117	96,310	110,525	119,123	120,796	157,811	162,409	175,105	174,396	200,600	215,158
France	4,045	3,794	4,475	4,713	4,582	5,013	4,768	5,258	6,085	5,894	5,927	6,265	7,036	6,657
Germany	5,260	6,031	6,104	6,456	7,143	7,798	7,970	10,599	12,018	11,191	11,394	12,589	13,624	10,657
Netherlands	5,925	8,152	9,980	8,674	8,719	9,313	10,196	9,117	12,686	13,590	13,938	16,617	20,252	17,417
Switzerland	2,871	2,527	3,197	3,747	4,034	4,419	5,243	4,778	(D)	5,452	5,435	5,404	5,733	6,952
United Kingdom	33,512	35,711	31,479	29,906	24,941	26,446	25,996	23,876	30,228	33,512	35,854	37,684	38,426	53,550
Latin America and Other Western Hemisphere	7,255	10,845	13,165	13,798	17,578	20,943	21,887	21,751	22,457	20,672	20,320	21,698	23,822	22,755
Australia	5,722	6,365	6,369	5,961	6,852	6,960	5,531	7,735	7,045	6,266	6,431	7,018	8,349	8,334
Japan	3,447	(D)	6,224	7,856	4,575	4,828	5,204	5,807	7,796	7,821	11,252	9,856	11,416	12,534
China	n/a	n/a	n/a	1,252	1,633	1,627	1,581	1,656	3,016	2,675	2,726	3,250	3,620	3,813
Other Asia-Pacific, Middle East and African Countries	5,217	(D)	(D)	7,623	8,582	10,320	11,663	14,226	33,461	36,891	36,293	30,498	32,363	31,773
TOTAL	**92,507**	**(D)**	**(D)**	**126,603**	**141,846**	**162,338**	**172,583**	**179,372**	**240,073**	**245,076**	**261,288**	**255,707**	**289,573**	**303,847**

MOFA: Majority-owned foreign affiliate.
(D) indicates that the data in the cell have been suppressed to avoid disclosure of data of individual companies.
Source: Bureau of Economic Analysis.
Data as of October 2021.

2. E-Commerce

Electronic commerce offers a second window into transatlantic digital connections and complements our lens of digitally-enabled services. It hit the stratosphere in many retail sectors during the pandemic, even as online revenues for travel, mobility and accommodation slumped.

When exploring the importance of e-commerce for the transatlantic economy, we again we run into some definitional and data challenges. Most estimates of e-commerce do not distinguish whether such commerce is domestic or international. In addition, many metrics do not make it clear whether they cover all modes of e-commerce or only the leading indicators of business-to-business (B2B) and business-to-consumer (B2C) e-commerce. Finally, there are no official data on the value of cross-border e-commerce sales broken down by mode; official statistics on e-commerce are sparse and usually based on surveys rather than on real data.[37]

Nevertheless, we can evaluate and compare many different estimates and surveys that have been conducted. According to UNCTAD, global e-commerce was worth $26.7 trillion globally in 2019 – equivalent to 30% of global gross domestic product.[38]

When most people hear the term "e-commerce," they think of consumers buying things from businesses via websites, social networks, crowdsourcing platforms, or mobile apps. These business-to-consumer transactions (B2C), however, pale in comparison to business-to-business (B2B) e-commerce. In 2020 B2B e-commerce accounted for 82% of the total value of global e-commerce, almost five times larger than business-to-consumer (B2C) transactions. The global B2B e-commerce market is slated to expand at a compound annual growth rate (CAGR) of 18.7% from 2021 to 2028, reaching a value of $25.65 trillion.[39] Cisco projects that digital manufacturer-to-manufacturer (M2M) applications, such as smart meters, transportation, and package and asset tracking, will account for about half of the world's total devices and connections by 2023.[40]

While B2B e-commerce accounts for the bulk of global e-commerce, most B2B e-commerce does not cross a border. Most B2B e-commerce users are manufacturers or wholesalers who are dependent on physically moving goods, and often heavy freight; the lack of freight digitalization ultimately poses a barrier to cross-border B2B e-commerce. The sheer volume of B2B e-commerce, however, means it still is the most important component of cross-border e-commerce sales. By 2023 cross-border B2B commerce is expected to account for two-thirds ($1.78 trillion) and cross-border B2C commerce for one-third ($920 billion) of an overall global cross-border e-commerce market of $2.7 trillion.[41]

Including all types of e-commerce, the United States is the top market in the world; online sales there are 2.8 times higher than in Japan and 3.7 times higher than in China. North America and Europe account for six of the top 10 e-commerce countries (Table 11). China's large B2C e-commerce market reflects its billion-plus population. China is underweight, however, when it comes to B2B e-commerce.

Table 11 Top 10 Countries by E-Commerce Sales

Rank	Economy	Total ($ billion)	As % of GDP	B2B ($ billion)	% of all e-commerce	B2C ($ billion)
1	United States	9,580	45	8,319	87	1,261
2	Japan	3,416	67	3,238	95	178
3	China	2,604	18	1,065	41	1,539
4	Korea (Rep.)	1,302	79	1,187	91	115
5	United Kingdom	885	31	633	72	251
6	France	785	29	669	85	116
7	Germany	524	14	413	79	111
8	Italy	431	22	396	92	35
9	Australia	347	25	325	94	21
10	Spain	344	25	280	81	64
	Top 10 Total	*20,218*	*36*	*16,526*	*82*	*3,691*
	World	**26,673**	**30**	**21,803**		**$4,870**

Source: UNCTAD. Data for 2019, latest available. B2B: Business-to-Business. B2C: Business-to-Consumer.

Table 12 Cross-Border B2C Sales of Top Ten Merchandise Exporters

Rank	Economy	Total ($ billion)	As % of merchandise exports	% of B2C e-commerce sales
1	China	105	4.2	6.8
2	United States	90	5.5	7.1
3	United Kingdom	38	8.2	15.2
4	Hong Kong	35	6.2	94.3
5	Japan	23	3.3	13.2
6	Germany	16	1.1	14.7
7	France	12	2.2	10.6
8	Italy	5	0.9	13.9
9	Korea (Rep.)	5	0.9	4.4
10	Netherlands	1	0.2	4.3
	Top 10 Total	*332*	*3.4*	*9.0*
	World	**440**	**2.3**	**9.0**

Source: UNCTAD. Data for 2019, latest available B2C: Business-to-Consumer.

When it comes to cross-border B2C e-commerce sales, China and the United States lead in terms of total value, while the UK leads in terms of B2C e-commerce as a share of overall goods exports (Table 12).[42] Among 15 prominent European ecommerce markets, 22% of total B2C turnover for 2020 was cross-border. Cross-border turnover accounted for 50%+ of total ecommerce turnover for Finland, Austria, Ireland, Norway, Switzerland, and Sweden.[43]

Most consumers in North America and Europe turn to websites based in their own countries, in neighboring European countries, or in the United States. Yet inevitably many of the orders made via those websites are for goods that originate in China. China is the top origin market for cross-border e-commerce orders made in the United States and in 19 out of 26 European countries (Table 13).[44]

Table 13 Cross-Border (B2C) Shopping and Top Origin Markets, Selected Countries

	Value of cross-border ecommerce ($billion)	Cross-border share of total ecommerce	Online shoppers who shop across borders	Top Origin Markets
United States	106.3	8%	36%	China (49%), UK (10%), Canada (6%)
United Kingdom	40.4	16%	45%	China (45%), US (21%), Germany (6%)
France	20.1	15%	50%	China (40%), UK (13%), Germany (13%)
Germany	16.0	14%	37%	China (43%), UK (13%), US (13%)
Canada	14.0	20%	63%	US (49%), China (42%), UK (4%)
Spain	9.7	16%	61%	China (50%), UK (11%), Germany (8%)
Italy	6.6	17%	47%	China (32%), UK (20%), Germany (14%)
Netherlands	5.1	16%	54%	China (54%), Germany (15%), UK (7%)
Sweden	4.0	12%	49%	China (32%), Germany (19%), UK (15%)
Poland	1.0	4%	18%	China (53%), Germany (15%), UK (8%)

Source: The Paypers, Cross-Border Payments and Ecommerce Report 2021- 2022, December 2021.

Driven by the pandemic, online marketplaces in the EU, UK, Switzerland and Norway grew 37.5% in 2020, generating 58% ($131 billion) of overall cross-border B2C e-commerce market turnover of $226.3 billion (excluding travel) in 2020. U.S. platform companies accounted for six of the top ten European marketplaces; Amazon and eBay accounted for more than half the market. Marketplaces with European capital were led by Vinted, OLX, and Zalando (Table 14). In our 2020 report we offered examples of successful European cross-border marketplaces that show how companies can achieve success even from relatively small home economies. It is expected that in 2025, marketplaces will represent 65% of cross-border online sales in Europe.[45]

Table 14 Top Ten Cross-Border Marketplaces Operating in Europe

1.	eBay (US)
2.	AliExpress (China)
3.	Amazon (US)
4.	Etsy (US)
5.	Vinted (Lithuania)
6.	OLX (The Netherlands)
7.	Wish (US)
8.	Discogs (US)
9.	Zalando (Germany)
10.	Uber Eats (US)

Source: Cross-Border Commerce Europe, "2nd Edition of the Top 100 Cross-Border Marketplaces Europe," September 22, 2021, https://www.cbcommerce.eu/press-releases/second-edition-of-the-top-100-cross-border-marketplaces-europe-an-annual-analysis-of-the-best-global-cross-border-platforms/.

3. The Platform Economy

Platform companies that connect individuals and companies directly to each other to trade products and services continue to reshape the U.S. and European economies, as well as the commercial connections between them. Platforms have swiftly become a prominent business model in the transatlantic and global economy, both by matching supply and demand in real time and at unprecedented scale, and by connecting code and content producers to develop applications and software such as operating systems or technology standards.[46] Platform models have risen so quickly over the past two decades that by 2019, platform companies accounted for 7 of the 10 most valuable global firms.[47] The pandemic-driven digital acceleration has further boosted the size, profits and market value of the dominant platforms. By 2025, platform models are projected to expand to around $60 trillion, or nearly one-third of all global commerce.[48]

Size matters in the platform economy. The biggest are U.S. companies, which account for about two-thirds of the global platform economy. Next come Chinese companies. European platform companies on average are markedly smaller than their U.S. and Chinese counterparts, and together represent only 3% of global market value (Table 15).

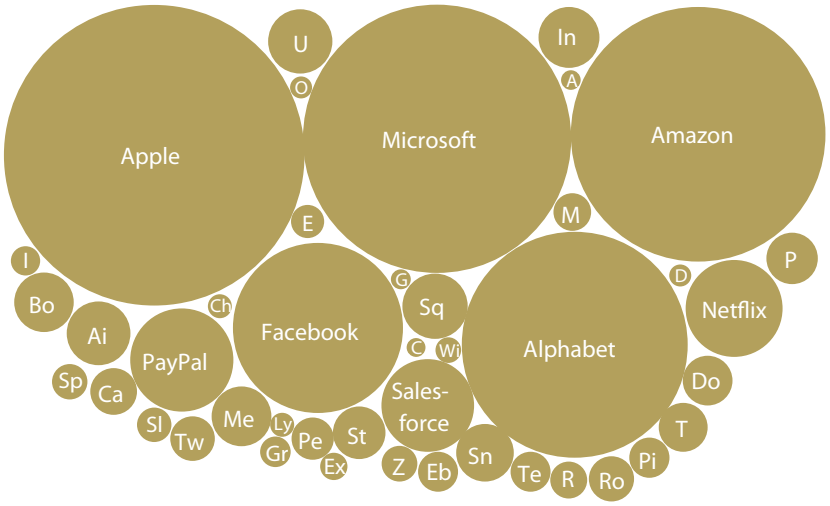
The dramatic rise of U.S. and Chinese platform companies has generated considerable concern among Europeans that they may be missing out on a major economic transformation. Europe certainly faces some challenges. However, size is not everything. Platform economics have rewarded entrepreneurship and the adoption of new business models. Those who can develop both their digital and their entrepreneurial ecosystems stand to profit greatly from the platform revolution. The Digital Platform Economy Index, which draws on 112 indicators that integrate digital and entrepreneurial ecosystems gauges, goes beyond size to offer a more differentiated view of digital platform-based ecosystem performance (Table 16).

According to this Index, North American and European countries account for 9 of the top 10, and 17 of the top 20, countries when it comes to combined digital and entrepreneurial ecosystem development. China's brand of state-driven capitalism ranks highly in terms of building digital ecosystems, but lags behind the leaders when it comes to digital entrepreneurship.[49] The leading countries not only host digital multi-sided platforms, they rank highly in terms of digital technology entrepreneurship, digital infrastructure governance, and "digital user citizenship."

This composite view illuminates useful areas of focus for those countries the authors call "followers" and "gainers."[50] Germany, for instance, ranks relatively highly in all areas save digital entrepreneurship. The German model has tended to reward innovation to existing processes rather than creation of never-seen-before products; such innovations have made Germany's *Mittelstand* companies global champions. Given Germany's strong manufacturing base, this suggests devoting greater attention to process innovation in the B2B platform economy, rather than vainly trying to copycat countries with very different entrepreneurial cultures.

Table 15 Geographical Distribution of the Top Global Platforms. Based on MarketCap/last-known venture round valuation. Overall top 100 value $12.6 trillion. (October 2020)

America

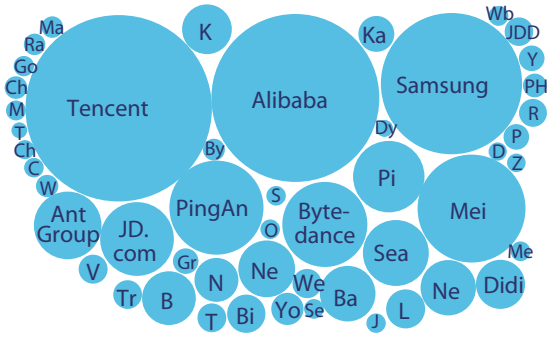


Airbnb
Alteryx
Booking
Carvana
Chegg
Doordash
Dropbox
Ebay
Etsy
Expedia
Grainger
Grubhub
Instacart
Intuit
Lyft
Match
MercadoLibre
Opendoor
Palantir
Peloton
Pinterest
Roblox
Roku
Slack
Snap
Splunk
Square
Stripe
Teladoc
Twilio
Twitter
Uber
Wish
Zillow

Europe

Adyen
Auto1
Checkout
Delivery Hero
Edenred
Hellofresh
Farfetch
Klarna
Spotify
Just Eat T.
Yandex

Asia-Pacific



Baidu
Beike
Bilibili
BYJU
Chehaoduo
Coupang
Dada Nexus
Didi Chuxing
Go-Jek
Grab
JD Digits
Kakao
Kuaishou
Lufax
Manbang
Meicai
Meituan
Mercari
Naver
Netease
Ola
OYO
Paytm
Pinduoduo
PindAn Health
Rakuten
Rea
Sea Group
Seek
Sensetime
Tokopedia
Trip.com
VipShop
WeBank
WeDoctor
Weibo
YonYou
Yuanfudao

Africa

Share in total value, by region (%)

Number of top 100 platforms, by region

Source: Holger Schmidt, available at www.netzoekonom.de/vortraege/#tab-id-1 (data as of May 2021).

Table 16 Cross-Border (B2C) Shopping and Top Origin Markets, Selected Countries

Rankings				
Overall	Multi-Sided Platforms	Digital Technology Entrepreneurship	Digital Infrastructure Governance	Digital User Citizenship
1 United States	1	1	2	6
2 United Kingdom	3	3	4	1
3 Netherlands	2	4	1	4
4 Canada	5	5	6	2
5 Sweden	4	6	5	5
6 Switzerland	9	2	8	7
7 Norway	6	12	3	3
8 Denmark	7	11	9	10
9 Australia	10	18	7	8
10 Finland	11	8	11	9
11 Ireland	14	7	17	15
12 Luxembourg	17	14	10	14
13 New Zealand	8	23	14	11
14 Germany	23	13	12	12
15 France	16	9	15	18
16 Iceland	13	10	16	22
17 Belgium	15	17	18	17
18 Estonia	22	21	19	16
19 Hong Kong	20	19	13	26
20 Austria	28	20	21	19

Source: Zoltan J. Acs, László Szerb, Abraham K. Song, Éva Komlósi, Esteban Lafuente, The Digital Platform Economy Index 2020, Global Entrepreneurship and Development Institute, December 2020, https://thegedi.org/wp-content/uploads/2020/12/DPE-2020-Report-Final.pdf.

In the end, it is Europe's larger ecosystem that is like to shape its future in the platform economy. This underscores the importance of a true European Single Market, including a more integrated Digital Single Market, that would transcend fragmentation of languages, consumer preferences, rules and regulations to facilitate cross-border research, development and commercialization that could introduce new technologies and fresh business models to reach the kind of scale that platform companies have achieved in the large continental markets of the United States or China.[51]

4. Cross-Border Data Flows

Another way to understand transatlantic digital connections is to appreciate the role of cross-border data flows, which not only contribute more to global growth than global goods trade in goods, they underpin and enable virtually every other kind of cross-border flow. By the end of this year, cross-border bandwidth is slated to be 400 times what it was in 2005. By that time, Global Internet Protocol (IP) traffic, a proxy for data flows, is projected to reach 150,700 gigabytes (GB) per second, over 3 times more than three years ago.[52]

Most cross-border data flows continue to run between North America and Europe.[53] The sheer dominance of transatlantic flows dissipating, however, as data flows diffuse and as companies face significant and growing legal uncertainty in transferring personal information out of the European Union. In July 2020, the Court of Justice of the European Union invalidated

Cross-border data flows contribute more to global growth than global trade in goods and enable every other kind of cross-border flow

the Privacy Shield framework that enabled over 5,000 mostly small- and medium-sized enterprises to transfer personal data for commercial purposes. The Court and European privacy regulators have also raised questions about the use of other data transfer tools, including standard contractual clauses, which are used by the vast majority of companies sending personal information out of Europe. This reopened transatlantic disputes over privacy protections, disrupted transatlantic data flows, and further chilled the transatlantic economy. Negotiators are currently in the final stages of negotiating a successor agreement to the Privacy Shield, which would theoretically also bolster the legal clarity around the use of other transfer tools. However, since the Court's judgment is rooted in differences in law rather than in policy, even a Privacy Shield 2.0 is likely to face legal challenges from within the EU.[54]

According to Nikkei, the Chinese mainland and Hong Kong, the telecommunications gateway to the mainland, together account for 23% of the world's data.[55] That is almost double that of the United States (Table 17). In part because of China's burgeoning mobile payments platforms and its Belt and Road infrastructure initiatives, Chinese data flows are growing substantially with other Asian countries, which accounted for more than half of data flows in and out of China in 2019. The U.S. share of data flows in and out of China fell from 45% in 2001 to 25% in 2019.

Table 17 Countries with the Most Cross-Border Data, 2001-2019

2001	Rank	2019
United States	1	China/Hong Kong
United Kingdom	2	United States
Germany	3	United Kingdom
France	4	India
Japan	5	Singapore
China/Hong Kong	6	Brazil
Brazil	7	Vietnam
Russia	8	Russia
Singapore	9	Germany
India	10	France

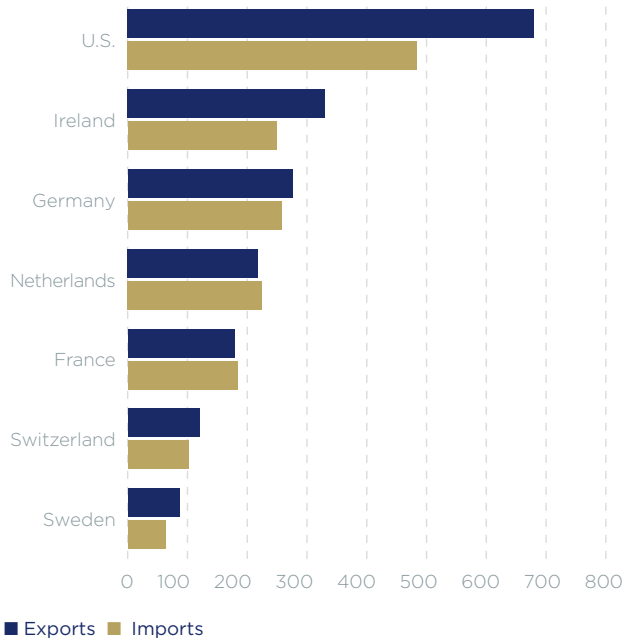
Source: Nikkei Asia, November 25, 2020, https://vdata.nikkei.com/en/newsgraphics/splinternet/.

Data is a special resource different than goods and services. UNCTAD calls cross-border data flows "a new kind of international economic flow, which lead to a new form of global interdependence."[56] Data flows are not necessarily a proxy for commercial links, since data traffic is not always related to commercial transactions.[57] Knowing the volume of data flows does not necessarily provide insight on the economic value of their content. The Bureau of Economic Analysis puts it succinctly: "Streaming a video might be of relatively little monetary value but use several gigabytes of data, while a financial transaction could be worth millions of dollars but use little data."[58]

In addition, commercial transactions do not always accompany data, and data do not always accompany commercial transactions. For instance, multinational companies often send valuable, but non-monetized, data to their affiliates.[59] User-generated content on blogs and on YouTube drives very high volumes of internet traffic both within countries and across borders, but consumers pay for very little of this content. Since it does not involve a monetary transaction, the significant value that this content generates does not show up in economic or trade statistics but instead reveals itself as "consumer surplus." McKinsey estimates that this "consumer surplus" from the United States and Europe alone is close to €250 billion ($266.4 billion) each year.[60]

In other words, data flows are commercially significant, yet their extent, as well as their commercial value, are hard to measure and are in constant flux. The OECD has devised metrics to determine the most active countries when it comes to delivering products across borders through data flows, as opposed to considering all transactions facilitated through data flows. It has determined that the United States is a major hub for international trade in products delivered through data flows, and that France, Germany, India, Ireland, the Netherlands, Switzerland, and the United Kingdom also feature heavily in trade underpinned by data, all ahead of China (Table 18).[61]

Table 18 International Trade Underpinned by Data Flows, Top Countries ($Billions)



Note: Trade underpinned by data flows includes four categories: (1) "ISIC J production", or trade in products produced by firms classified in ISIC section J (Information and Communication); (2) "ISIC J products," or trade in the products mainly associated with firms classified in ISIC section J but including production by firms classified in other sectors; (3) "Digitally deliverable services," or "potentially ICT-enabled products" per UNCTAD (2015); and (4) "Digitisable products," or products within the WTO HS commodity classification per Banga (2019). UK is not included due to differing data calculations, but OECD indicates the UK also ranks among the top traders in this category.
Source: OECD, Perpectives on the Value of Data and Data Flows, December 2020.
Data as of October 2020.

5. Digital Wiring: Land-Based Hubs and Sea-Based Spokes

The Digital Landscape: Hubs and Hyperscalers

The United States and Europe host key land-based hubs and sea-based spokes of the global digital economy. On land, the United States accounts for about 40% and Europe for an additional 35% of so-called colocation data centers. When it comes to cross-border digital connectivity, European and U.S. cities are major hubs. Europe is the global leader, with tremendous connected international capacity. Frankfurt, London, Amsterdam and Paris – together known as FLAP – substantially outpace North American and Asian cities (Table 19). Frankfurt's connected capacity, for instance, is over three times greater than that of New York and almost five times greater than that of Singapore, the Asian leader.[62] Investments in European data centers are now expanding beyond FLAP to encompass sites like Dublin, Ireland – home to many digital companies – and Marseille, France, which has become a major hub for traffic between Europe, Africa and the Middle East. Sweden, Finland, Italy, Switzerland, Portugal, Spain, Wales, and Poland are some of the fastest-growing European locations of large-scale data center development.[63]

Table 19 Highest Capacity International Internet Hub Cities

City	2020 Bandwidth (Tbps)
Frankfurt, Germany	110.6
London, UK	74.8
Amsterdam, Netherlands	71.2
Paris, France	67.9
Singapore, Singapore	56.3
Hong Kong, China	33.8
Stockholm, Sweden	32.0
Miami, U.S.	30.9
Marseille, France	28.8
Los Angeles, U.S.	25.2

Domestic routes omitted.
Source: Telegeography, The State of the Network 2021, https://www2.telegeography.com/hubfs/assets/Ebooks/state-of-the-network-2021.pdf.

The hard-wiring of the transatlantic digital landscape continues to evolve. One key development is the shift in providers of data centers and cloud-like services from European and U.S. telecoms and related data-center management companies to "hyperscalers," mainly from the United States. Traditional data centers are centralized facilities that use computing and networking systems and equipment to store data and to enable users to access those resources. Now, the opportunity to use applications that work together via the web and the cloud has given birth to more cost-effective hyperscale data centers that can store more data and scale up or down in quick response to shifting demand for computing tasks. There are now more than 700 hyperscale data centers around the world, double the amount of five years ago. Hyperscale data centers accounted for more than half of all installed data-center servers and total data center traffic in 2021.[34]

The numbers are huge. For example, as of 2021, Google had invested more than $14 billion in data centers and related infrastructure across Europe, supporting a further $18 billion of economic activity and around 13,100 jobs per year on average.[65] Similar figures can be found with Facebook, Microsoft, and AWS. Large colocation players such as Equinix, Digital

Realty, CyrusOne and Vantage Data Centers are all investing heavily in the construction of hyperscale sites. The global hyperscale data center market is set to grow by $107.60 billion between now and 2025. The Western Europe and Nordic hyperscale data center market is forecast to be generating revenues of around $29 billion by 2023.[66]

While European providers have more than doubled their cloud revenues since 2017, their market share in Europe has declined from 27% to under 16%, whereas Amazon Web Services (AWS), Microsoft Azure and Google Cloud now account for 69%.[67] This has generated concerns within Europe about U.S. dominance, which could inhibit some possible avenues for deeper transatlantic cooperation. Two other trends have the potential to mitigate such concerns, depending on how they unfold: migration to the "edge;" and the evolution of "cloud-as-a-service" to "cloud-as-a-product."

Today, most cloud computing still happens in centralized rather than decentralized data centers. By 2025, this trend will reverse: 80% of all data is expected to be processed in smart devices closer to the user, known as edge computing. This could open opportunities for European providers able to offer multi-cloud options that ensure local control over data with the amplified possibilities that come from hyperscaled connections. Cloud/edge computing is likely to be critical to the EU's ability to realize its European Green Deal, particularly in areas such as farming, mobility, buildings and manufacturing.[68]

These opportunities are likely to be influenced by the evolution of the cloud from being a platform on which a business runs, to becoming the product itself. Rather than considering hyperscalers as direct competitors, some European telecoms operators and companies in a range of other businesses now see their biggest opportunities in the cloud building on top of the basic infrastructure already rolled out by U.S. companies. For instance, Siemens is building an ambitious "industrial cloud platform" on top of the basic cloud infrastructure provided by Amazon, to enable it to become a key player in digital industrial manufacturing services. Thales, a French defense company, is forming a joint company with Google to provide a sovereign hyperscale cloud service in France. Vodaphone has also formed a partnership with Google, and AWS will soon start selling private 5G networks direct to businesses.[69]

Cloud computing means that network functions do not need to be housed in centralized data centers, but can be decentralized and dispersed to the "edge," giving customers faster response times, cheaper service tied to actual usage rather than fixed costs, and more local control over their data. Edge computing holds the promise of supporting a wider range of suppliers beyond the current oligopoly of providers.

The Digital Seascape: Wiring the Pan-Atlantic

Land-based digital hubs are connected to sea-based digital spokes – the undersea fiber optic cables that transmit 95% of all intercontinental telecommunication traffic.[70] These cables serve as an additional proxy for the ties that bind continents. Globally, the market for submarine fiber optic cables is estimated to reach $30.8 billion by 2026, growing at an annual rate of 14.3%.[71]

The transatlantic data seaway is the busiest in the world. Submarine cables in the Atlantic already carry 55% more data than transpacific routes. Telegeography estimates a compound annual growth rate of 38% in transatlantic capacity until 2025.[72]

Sines, Portugal, an old fishing town of around 14,000 people, is where the digital sea- and landscapes meet. Sines is quickly becoming a central node in Europe's digital future. Already Portugal's top port for ocean faring container ships, Sines is now Portugal's top under-the-ocean connector binding Europe to North America, South America, and Africa. It also hosts one of the world's most modern hyperscale data centers.

Sines is emblematic of how digital infrastructure expansions on land and at sea are now wiring the pan-Atlantic, turning the Iberian Peninsula into a strategic point of interconnection and convergence for data traffic between Europe, the Americas, Africa, the Middle East and Asia. The stage was set by the 6,600-kilometer (km) Marea cable, a project of Facebook, Microsoft and Telefonica connecting Virginia Beach, Virginia with Bilbao, Spain, which came online in 2018. Now countries and companies are literally branching out connect the full Atlantic Basin. A cable dubbed Firmina will run from the East Coast of the United States to Las Toninas, Argentina, with landings in Praia Grande, Brazil, and Punta del Este, Uruguay. The 9,656 km Ella Link from Sines to Fortaleza, Brazil, came online in the first half of 2021. Two Google-funded state-of-the-art subsea cables are due to come online in 2022: Grace Hopper, connecting Spain and the UK to the United States; and Equiano, linking Portugal to South Africa. An 8,700 km cable named Medusa will link Lisbon with Port Said in Egypt, with connections in France, Spain, Italy, Morocco, Tunisia, Greece and Cyprus. And a consortium of Meta, Nokia, Alcatel and other telecom operators is constructing 2Africa, the world's longest subsea cable system, extending over 45,000 km to connect 33 countries and 36%

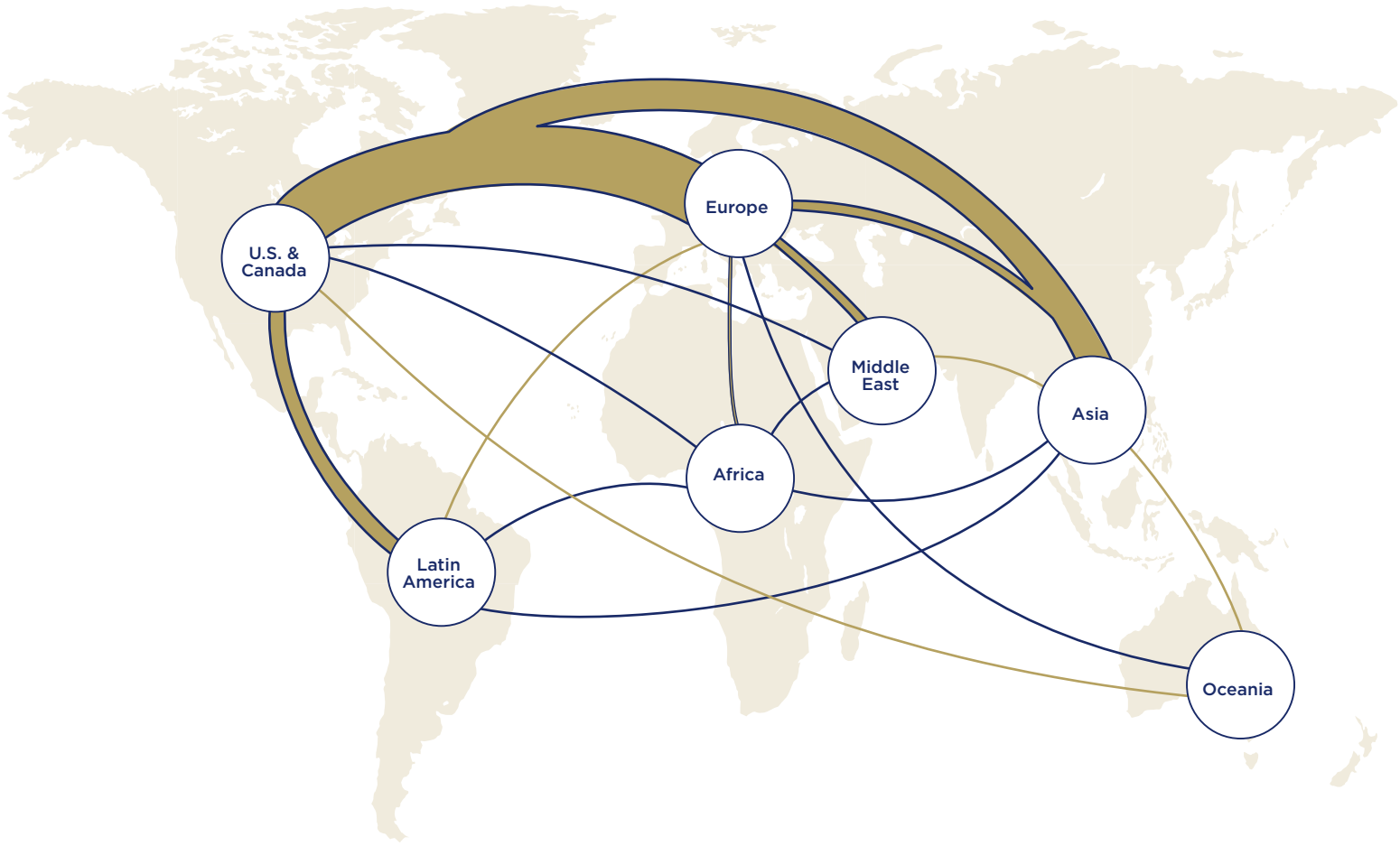
of the world's population across Europe, Africa, the Middle East and Asia.[73]

The Hyper-Providers

The new surge in transatlantic capacity is being driven by private networks, mainly providers of content and cloud services, which have displaced national telecommunication carriers as the major investors in subsea cables and the largest source of used international bandwidth. Content providers keen on getting closer to customers and achieving economies of scale are quickly pushing the digital frontier. Rather than rely on leasing arrangements with backbone providers, they see advantages in owning these cable networks themselves as they anticipate galloping demand for international bandwidth, which is slated to double every two years.[74] Their densest connections are between North America and Europe (Table 20).

Table 20 Inter-regional Capacity and the Cloud

Used inter-regional bandwidth showing content providers share



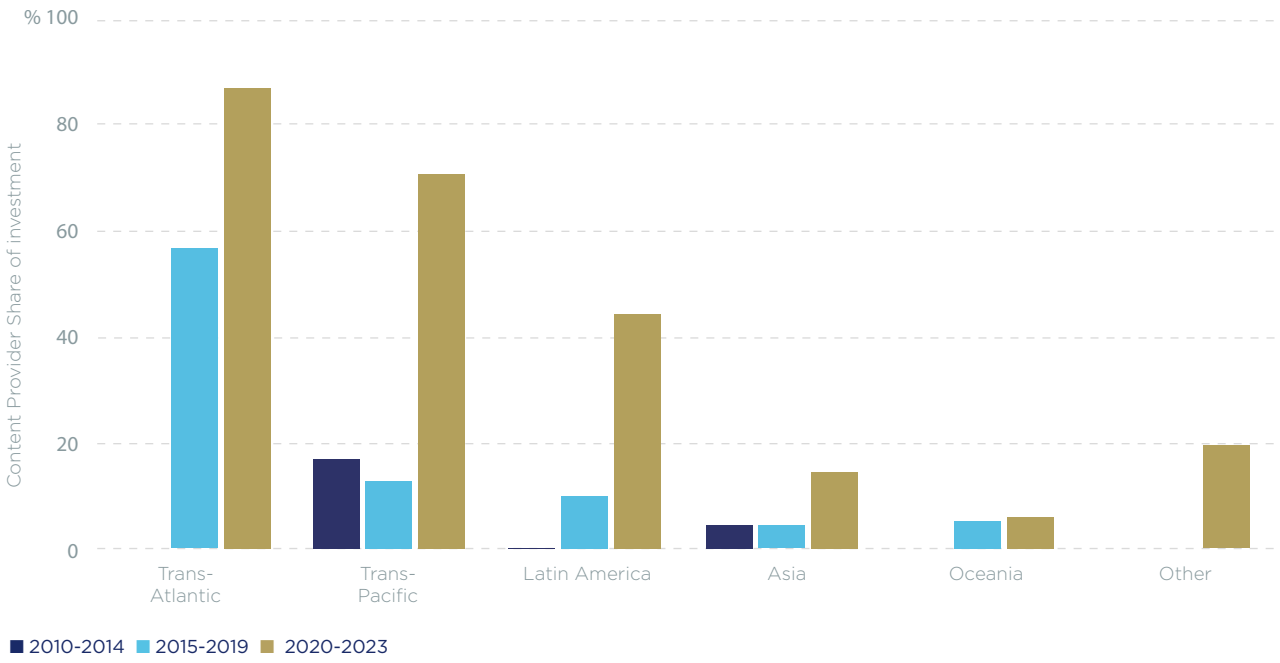
Used Inter-Regional Bandwidth (Tbps)

200 100 50 10<

Content Providers Share

Source: Telegeography.

Table 21 Content Provider Investments Share as % of CAPEX on New Submarine Cables



Source: Telegeography.

In 2006 backbone providers accounted for over 80% of international bandwidth. By 2020, content providers were accounting for 66% of used international bandwidth globally.[75] Between now and 2023, content providers are slated to account for a whopping 85% of capital investments in new transatlantic subsea cables (Table 21). Between 2020-2027, Telegeography projects 40% CAGR growth of overall global and transatlantic bandwidth, about 50% in transpacific bandwidth, and over 80% for bandwidth connecting Europe and Sub-Saharan Africa.[76]

Bypassing the Internet

The rise of private content providers as drivers of submarine cable traffic is related to yet another significant yet little understood phenomenon shaping the transatlantic digital economy: more and more companies are working to bypass the public internet as a place to do business in favor of private channels that can facilitate the direct electronic exchange of data among companies. Businesses are moving their computing from centralized data centers to more distributed locations. Analysts estimate that more than 50% of enterprise-generated data will be created and processed outside centralized data centers or cloud by 2023.[77]

This move is exponentially increasing demand for "interconnection" – direct, private digital data exchanges that bypasses the public internet – and is another fundamental driver behind the proliferation of transatlantic cable systems. Private interconnection bandwidth is not only distinct from public internet traffic, it is already 9 times larger and is slated to grow much more quickly.[78]

The public internet will remain a pervasive force in most people's lives and a key to digitally-delivered services, e-commerce and the platform economy.[79] Yet private interconnection is rising alongside the public internet as a powerful vehicle for business. And as we have shown here, its deepest links are across the Atlantic.

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5

The 50 U.S. States: European-Related Jobs, Trade and Investment

FDI inflows rebounded and rose by

114%

in the U.S. compared to 2020

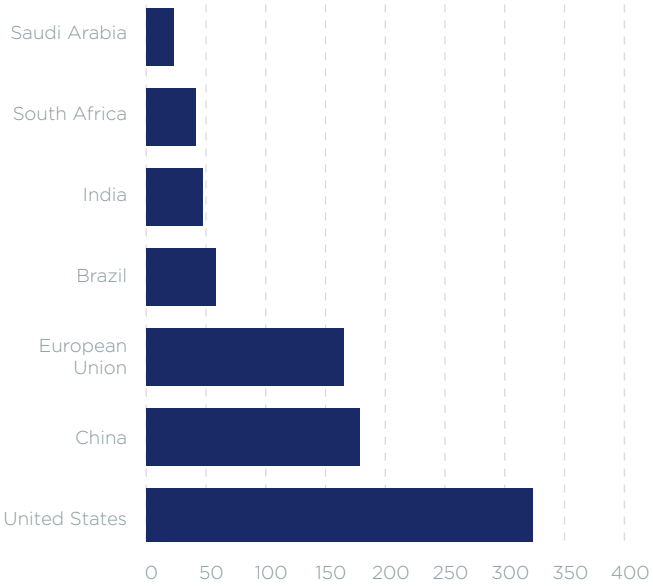
U.S. affiliates of European firms operate in one of the most dynamic and resilient economies in the world. No country produces as much output (in excess of $22 trillion in 2021) with so few people (less than 5% of the world population) than the United States. The United States is not only large, it is wealthy, with a per capita income of nearly $70,000 in 2021. According to the latest Federal Reserve *Flow of Funds* data, U.S. household net worth totaled a staggering $145 trillion at the end of the third quarter of 2021, an all time high.

Granted, the bulk of this wealth is skewed towards the upper class; income inequality remains a key challenge for America's future. The surge in wealth – owing to soaring asset prices of equities and housing, among other things – has triggered a boom in goods spending in the United States and has trickled down to the bottom line of many affiliates of European firms. And as an aside, thanks to pandemic-related federal benefits, the U.S. poverty rate fell from 16.1% in 2020 to 9.3% last year.

The U.S. economy is also extraordinarily diversified – which gives a wide breadth to European firms in terms of participating in and leveraging the U.S. market. From agriculture to aerospace, and everything in between, the United States remains a global leader and a prime market for non-U.S. firms. Energy, education, health care, life sciences, biotechnology, finance, manufacturing, steel, R&D, entertainment, transportation, social media – pick your sector, and there's a good chance there is a mature or budding firm in the United States. America's highly diversified economy – whether goods or services – combined with its wealthy consumers, sets it apart from the rest and is one key reason why the United States remains the global leader in attracting foreign capital.

To this point, according to the latest figures from the UN, foreign direct investment (FDI) inflows to the United States, after falling sharply in 2020 due to the pandemic-induced global recession, rebounded sharply in 2021. FDI inflows soared 114% from the depressed of the prior year, rising to $323 billion; most of the inflows took the form of merger and acquisition (M&A) activity, which totaled $285 billion for the year. On an aggregate basis, the United States attracted nearly one-fifth of total global foreign direct investment in 2021. In 2020, the United States attracted a similar percentage, although from a smaller global pie. China remains a prime destination for global capital, but in 2021, foreign companies invested twice as much in the United States as they did in China (Table 1). The United States has ranked number one in the world for FDI inflows for 16 consecutive years.[1]

Table 1 FDI Inflows in 2021, Selected Economies
($Billions)



Source: United Nations Conference on Trade and Development (UNCTAD).
Data are preliminary estimates as of January 2022. Economies above are the only individial economies for which UNCTAD has provided country FDI estimates for 2022.

As Table 2 depicts, no country has attracted more FDI this century than the United States, taking in $4.6 trillion cumulatively since 2000, more than the total for the next two countries (China and the UK) combined. Multiple factors underpin America's dominance in foreign investment flows. First, as we have mentioned, is America's large and wealthy consumer base, with a population of roughly 330 million and per capita income of roughly $70,000. Second, the United States boasts a hypercompetitive and dynamic economy, driven by strong institutions,

Drivers of foreign investment into the U.S.

- Large and wealthy consumer base
- Skilled workforce
- Rule of law and strong institutions
- Advanced technological readiness
- World-class universities
- Entrepreneurship culture
- Respect for intellectual property
- Stable and supportive business environment

Table 2 Cumulative Investment Inflows 2000-2020 Rankings

Rank	Economy	Cumulative Flows ($Billions)	Percent of World Total
1	United States	4,638.3	16.5%
2	China	2,132.2	7.6%
3	United Kingdom	1,694.7	6.0%
4	Hong Kong	1,506.7	5.4%
5	Singapore	986.9	3.5%
6	Brazil	939.9	3.4%
7	Germany	933.2	3.3%
8	Canada	862.8	3.1%
9	Belgium	809.5	2.9%
10	Netherlands	785.0	2.8%

Source: United Nations Conference on Trade and Development (UNCTAD).
Data as of January 2022.

advanced technological readiness, world-class universities, a strong capacity and culture of entrepreneurship, and a dense web of university-industry collaboration in research and development (R&D). The ability to attract R&D from companies abroad is important to the innovative culture of the U.S. economy. R&D performed by affiliates of foreign companies accounts for roughly 15% of total R&D conducted by all businesses in the United States.

Jobs directly supported by European companies in the U.S. (2020 estimate)
4.6 million

European companies account for two-thirds of that foreign-funded R&D in the United States.

Additionally, European companies investing in the United States gain access to a desirable pool of skilled, flexible, and productive labor. We estimate that U.S. jobs supported directly by affiliates of foreign companies totaled 8 million in 2020, or about 6% of total private industry employment in the United States. European companies accounted for 61% of that figure, or nearly 5 million jobs.

Meanwhile, transparent rule of law, sophisticated accounting, auditing, and reporting standards, secure access to credit, ease of entrepreneurship, and respect for intellectual property rights have all contributed to the stable and supportive business environment in the United States.

Europe's Stakes in the United States

European firms maintained their dominant foreign investment position in the United States in 2021. In the first three quarters of the year, FDI inflows from Europe represented over 70% of total U.S. inflows. FDI inflows surged last year off the depressed levels of 2020, rising to $177 billion in the January-September period. Annualizing data for the first nine months of last year, U.S. FDI inflows from Europe are estimated to come in at $235 billion in 2021, versus just $87 billion in 2020.

Throughout Europe, the net change in investment flows to the United States in 2021 was mixed, with some countries posting strong growth in FDI flows, while others saw a pullback. The traditional European leaders in terms of FDI inflows to the U.S. – the Netherlands, Germany, the United Kingdom, Ireland, and Italy – posted year-over-year increases last year, while investment from France lagged.

Total European FDI stock in the U.S.
$2.9 trillion
(2020)

64%
of total FDI in the U.S.

In 2022, we expect FDI inflows to the U.S. to "normalize" and trend in the range of $250-300 billion. Cross border M&A activity will drive the expansion again this year, while investments in new assets (or "greenfield projects") lag or take longer to implement.

The recovery in greenfield FDI will be more gradual. According to UNCTAD estimates, announced greenfield projects were weak again last year, and still 30% below pre-pandemic levels. FDI announcements in sectors such as autos and hotels & tourism were the most harmed by the pandemic. On the other hand, sectors such as telecommunications, semiconductors, consumer products and biotechnology saw FDI announcements increase in 2020 and again in 2021. Infrastructure spending has rebounded owing to government-backed financing. Renewable energy is another sector that should benefit from the transatlantic economic recovery (See Box 5.1).

European firms should continue to drive the FDI recovery. UK firms were the largest source of greenfield foreign investment projects in 18 U.S. states during the ten-year period from July 2011-June 2021. German companies led in 12 states, followed by Canadian companies in 9 states and Japanese companies in 7.

Europe continues to have an outsized investment presence in the United States, as reflected by its FDI position, which is a more stable metric of foreign investment in the United States. In terms of foreign capital stock in the United States, Europe again leads the way. The region accounted for 64% of the total $4.6 trillion of foreign capital sunk in the United States as of 2020. Total European investment stock in the United States of $2.9 trillion was over three times the level of comparable investment from Asia.

The United Kingdom remains the largest European investor in the United States, based on FDI on a historic cost basis, with total FDI stock in the United States totaling $487 billion in 2020. The Netherlands ranked second in Europe ($483 billion), followed by Germany ($411 billion) and Switzerland ($300 billion). Many firms from these countries are just as embedded in the U.S. economy as in their own home markets.

Whether Swiss pharmaceutical corporations, German auto manufacturers, or British services providers, European firms' commercial links to America have driven corporate sales and profits higher in recent decades. In 2020, largely due to the pandemic, European firms earned just $97 billion in the United States – one of the lowest levels in decades. However, through the first nine months of 2021, European affiliate income earned in the United States surged to $121 billion. For all of 2021, we estimated that affiliate income earned in the U.S. hit a record $162 billion. The surge in income was basically across the board by country. Taking the long view, affiliate earning levels for most European firms are significantly higher today than they were at the start of the century. As European firms have built out their U.S. operations, the payoff has been rising affiliate earnings in one of the largest markets in the world.

Table 3 highlights this connection between European investment in the United States and European affiliate earnings. The two metrics are highly correlated – the greater the earnings, the greater the likelihood of more capital investment, and the more investment, the greater the upside for potential earnings and affiliate income. The bottom line is that Europe's investment stakes in the United States have paid handsome dividends over the years, notably since the Great Recession, given the growth differential between the United States and Europe.

European affiliate earnings in the U.S.
$162 billion
(2021 estimate)

Table 3 European Foreign Direct Investment and Income Earned in the United States ($Billions)

Sources: Bureau of Economic Analysis.
Data as of January 2022.

Europe's Stakes in America's 50 States

European firms can be found in all 50 states, and in all economic sectors – manufacturing and services alike. The employment impact of European firms in the United States is quite significant. Table 4 provides a snapshot of state employment supported directly by European affiliates across the United States. It is important to note that the chart represents only those jobs that have been directly created by European investment, and thus underestimates the true impact on U.S. jobs of America's commercial ties to Europe. Jobs tied to exports and imports of goods and services are not included, nor are many other jobs created indirectly through suppliers or distribution networks and related activities.

UK firms were the largest sources of onshored jobs in 24 U.S. states. Japanese companies led in 10 states, Canadian companies in 9, Dutch companies in 3, German and French companies each led in 2 states.

Europe is by far the largest source of FDI in the manufacturing industry, with European companies representing 74% of the total inward investment position in the United States. Within the manufacturing industry, the U.S. chemicals sector was the biggest recipient of European investment ($594 billion), followed by computers and electronic products ($94 billion). In terms of European affiliate employment, the retail trade industry employed

Table 4 Ranking of Top 20 States by Jobs Supported Directly by European Investment
(Thousands of employees)

U.S. State	2017	2018	2019
California	468.6	487.0	474.2
Texas	376.2	399.5	399.0
New York	341.1	364.6	360.3
Pennsylvania	225.9	233.5	237.7
Florida	216.9	229.5	227.6
Illinois	236.5	243.1	227.4
New Jersey	199.7	205.0	202.9
Michigan	188.2	206.1	201.6
North Carolina	194.4	198.4	198.6
Ohio	166.4	172.6	172.6
Massachusetts	163.5	168.3	167.9
Georgia	153.5	164.2	161.2
Virginia	142.6	154.4	156.1
Indiana	121.5	126.8	126.6
Tennessee	108.1	112.3	113.9
South Carolina	106.9	111.3	109.6
Minnesota	92.7	93.7	97.1
Maryland	87.7	87.8	90.0
Missouri	86.6	90.1	87.1
Connecticut	83.2	87.5	86.4

Source: Bureau of Economic Analysis.
Data as of January 2022.

Top 3 states
European affiliate jobs

California Texas New York

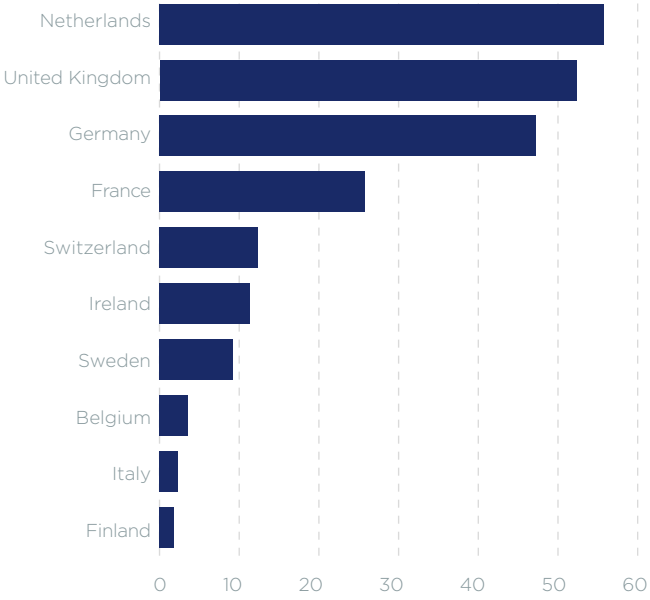
the most workers (592,000 jobs in 2019) while European companies in chemicals manufacturing, transportation equipment manufacturing, wholesale trade, administration and support, and professional, scientific, and technical services were also important contributors to U.S. jobs.

In general, the presence of European affiliates in many states and communities across the United States has helped to improve America's job picture. The more European firms embed in local communities around the nation, the more they tend to generate jobs and income for U.S. workers, increase sales for local suppliers and businesses, expand revenues for local communities, and encourage capital investment and R&D expenditures for the United States.

Deep investment ties with Europe have also boosted U.S. trade. Table 5 illustrates the export potential of European affiliates operating in the United States. As a point of reference, in any given year, foreign affiliates based in the United States and exporting from there typically account for one-fourth of total U.S. merchandise exports. The bulk of these exports are intra-firm trade, or trade between the affiliate and its parent company. In 2019, the last year of available data, U.S. exports shipped by all majority-owned foreign affiliates totaled $397 billion, with European affiliates accounting for 57% of the total. Dutch and British companies each exported more than $50 billion in exports made in the U.S.A.

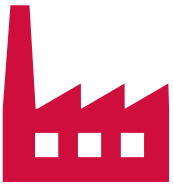
Wholesale trade, transportation equipment, and chemical manufactures represented the largest categories of exports by affiliates to markets outside the United States. In the end, the more European affiliates export from the United States, the higher the number of jobs for U.S. workers and the greater the U.S. export figures.

Table 5 U.S. Exports of Goods Shipped by European Companies Operating in the United States
($Billions)



Source: Bureau of Economic Analysis. Data for 2019.

Every U.S. state maintains cross-border ties with Europe, with various European countries serving as key export markets for many U.S. states, a dynamic that creates and generates growth in the United States. Table 6 ranks the top 20 state goods exporters to Europe in 2020. Texas ranked number one, followed by California, New York, and New Jersey. Overall exports to Europe were down 13% in 2020, due to the pandemic, but have nearly doubled in value since 2000.



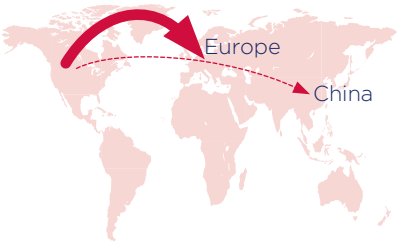
Europe accounts for **74% of total FDI in the U.S. manufacturing industry**

The presence of European affiliates in many states and communities across the United States has helped to **improve America's job picture**

Table 6 Ranking of Top 20 U.S. States Total Goods Exports to Europe, by Value ($Billions)

U.S. State	2020	2000	% Change from 2000	% Change from 2019
Texas	45.3	12.3	269%	-13%
California	34.3	27.9	23%	-12%
New York	22.6	15.3	47%	-13%
New Jersey	12.5	2.8	346%	11%
Illinois	11.9	4.7	155%	4%
Georgia	11.4	3.3	248%	1%
Utah	11.0	3.1	258%	0%
Pennsylvania	10.4	7.3	42%	-16%
South Carolina	10.3	4.0	160%	-17%
Louisiana	10.1	6.4	58%	-18%
Massachusetts	9.9	13.1	-24%	-9%
Indiana	8.9	1.3	563%	-7%
Florida	8.5	8.0	6%	-19%
Kentucky	7.9	3.9	102%	-33%
North Carolina	7.8	4.6	70%	-18%
Ohio	7.2	3.1	130%	-24%
Michigan	7.1	5.0	42%	-14%
Washington	6.9	5.0	37%	-38%
Connecticut	6.7	3.5	90%	-19%
Tennessee	6.6	2.7	145%	-3%
U.S. Total	**330.4**	**187.4**	**76%**	**-13%**

Source: Foreign Trade Division, U.S. Census Bureau.
Data as of January 2022.



45/50

states **export more goods to Europe** than to China
(2020)

Table 7 U.S. State Exports of Goods to Europe and China, 2020 ($Millions)

U.S. State	Europe	China
Alabama	4,397	3,101
Alaska	752	1,193
Arizona	3,773	874
Arkansas	1,580	278
California	34,305	15,007
Colorado	1,662	498
Connecticut	6,653	1,098
Delaware	901	509
Florida	8,473	1,216
Georgia	11,430	3,421
Hawaii	20	8
Idaho	302	162
Illinois	11,923	2,998
Indiana	8,888	2,831
Iowa	2,327	1,156
Kansas	1,965	722
Kentucky	7,873	1,538
Louisiana	10,060	10,876
Maine	394	112
Maryland	5,002	634
Massachusetts	9,860	2,671
Michigan	7,131	2,457
Minnesota	4,300	2,137
Mississippi	1,901	761
Missouri	2,436	679
Montana	222	93
Nebraska	955	433
Nevada	3,943	1,422
New Hampshire	2,274	335
New Jersey	12,459	3,220
New Mexico	308	485
New York	22,571	2,715
North Carolina	7,845	2,723
North Dakota	209	22
Ohio	7,218	3,633
Oklahoma	1,273	228
Oregon	2,541	9,516
Pennsylvania	10,390	2,767
Rhode Island	871	125
South Carolina	10,312	3,887
South Dakota	163	98
Tennessee	6,618	2,627
Texas	45,342	17,476
Utah	10,970	734
Vermont	351	217
Virginia	4,258	1,857
Washington	6,913	9,079
West Virginia	1,276	397
Wisconsin	4,198	1,552
Wyoming	40	27
Total United States	**330,395**	**124,485**

Source: U.S. Census Bureau, Foreign Trade Division.
Data as of January 2022.

U.S. merchandise exports to Europe are still more than triple U.S. exports to China, as shown in Table 7. Forty-five of the fifty U.S. states, including the largest Pacific coast state of California, exported more goods to Europe than China.

In addition, while these figures are significant, they actually underestimate Europe's importance as an export destination for U.S. states because they do not include U.S. state exports of services. This is an additional source of jobs and incomes for U.S. workers, with most U.S. jobs tied to services. Europe is by far the most important market in the world for U.S. services, and the United States consistently records a significant services trade surplus with Europe. Suffice it to say that if services exports were added to goods exports by state, the European market becomes even more important.

Appendix A highlights European-related jobs, trade, and investment for each of the 50 states.

Box 5.1 The Transatlantic Energy Economy

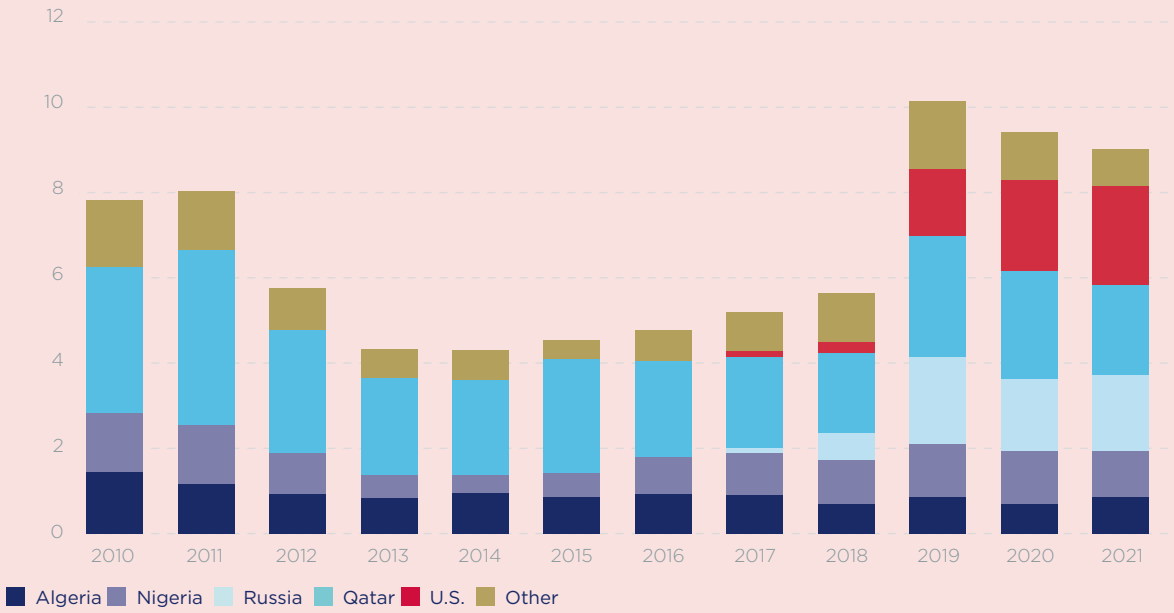
Europe's dependence on Russia for 40% of its gas and 25% of its oil has limited the full force of Western efforts to punish Moscow for Putin's war in Ukraine. Even before the invasion, Europe was experiencing its worst energy crisis since the Arab oil embargos of the 1970s, with soaring energy prices accounting for half of the continent's surge in consumer prices in 2021. While Germany halted approvals for its Nord Stream 2 natural gas pipeline, and major European energy companies stopped operations in Russia, in general Europeans were reluctant to risk the blowback to their own economies that energy sanctions on Russia would engender. And even though U.S.-Russia energy flows are minimal, Washington also sought to limit the inflationary impact that surging global energy prices would have on U.S. consumers.

Over the medium-term, however, Europeans have signaled a new-found determination to lessen their dependence on Russian energy. This is difficult but doable.[2] Much will depend on progress at home, via greater energy efficiencies, ramp-up of strategic reserves, rapid deployment of renewables and clean technologies, and better energy infrastructure connections. The nature and pace of this shift will also depend on Europe's energy and innovation ties to other countries beyond Russia – notably, the United States.

U.S. and European firms are deeply embedded in each other's traditional and renewable energy markets – through trade, foreign investment, cross-border financing, and collaboration in research and development (R&D).

Little-noticed amid the focus on Russian-European energy links is the fact that in 2021, the United States became Europe's largest supplier of liquefied natural gas (LNG), accounting for 26% of all LNG imported by EU member countries and the UK. Qatar supplied 24% of Europe's needs, and Russia accounted for an additional 20% (Table 8).[3] In January and February 2022, the United States supplied more than half of all LNG imports into Europe, shipping more to Europe than ever before. Europe accounted for about 75% of all U.S. LNG exports, far outpacing exports to Asia.[4] U.S. tankers on their way to Asia literally turned around to head for Europe. Moreover, for the first time ever, U.S. exports of liquefied natural gas to Europe exceeded Russia's overall natural gas pipeline deliveries.[5]

Table 8 Europe (EU27 and the UK) liquefied natural gas imports by source country (2010-2021)
billion cubic feet per day

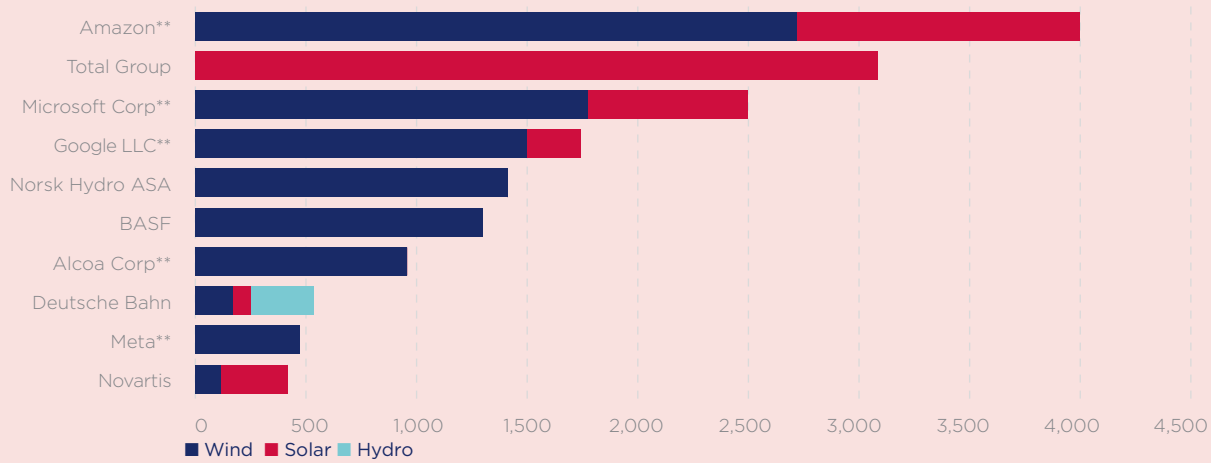


Source: Graph by the U.S. Energy Information Administration, based on data from the International Group of Liquefied Natural Gas Importers (GIIGNL) annual liquefied natural gas trade reports (2010-2020) and CEDIGAZ (2021)

While the United States will not fully replace other suppliers for energy-starved Europe, transatlantic energy connections are growing in importance, as the United States becomes the world's largest LNG supplier, and as U.S. and European companies lead the transition to competitive clean technologies. Clean tech opportunities are discussed in Chapter One.

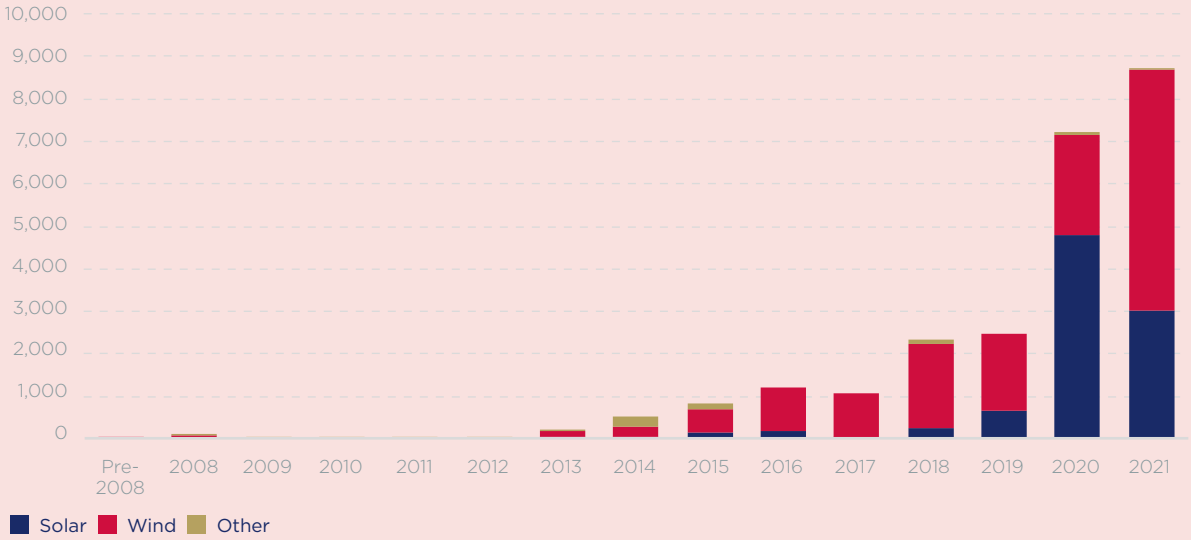
Largely unnoticed by media and politicians, U.S. companies in Europe have also become a driving force for Europe's green revolution, especially through the addition of wind and solar capacity on the continent. Since 2007, U.S. companies have been responsible for more than half of the long-term renewable energy purchase agreements in Europe. As shown by Table 9, U.S. companies account for three of the top four purchasers of solar and wind capacity, and five of the top ten purchasers of renewable energies, in Europe. Purchase agreements for wind, solar, and other renewable power sources in Europe surged in 2020 and 2021, reaching nearly 9,000 megawatts last year – or more than triple the amount from 2019 (Table 10). The United States and Europe are the top destinations for power investments – making up almost 90% of total global power purchase agreements in 2021 (Table 11).

Table 9 Top Purchasers of Renewable Energy in Europe, 2008-2021 (Megawatts)



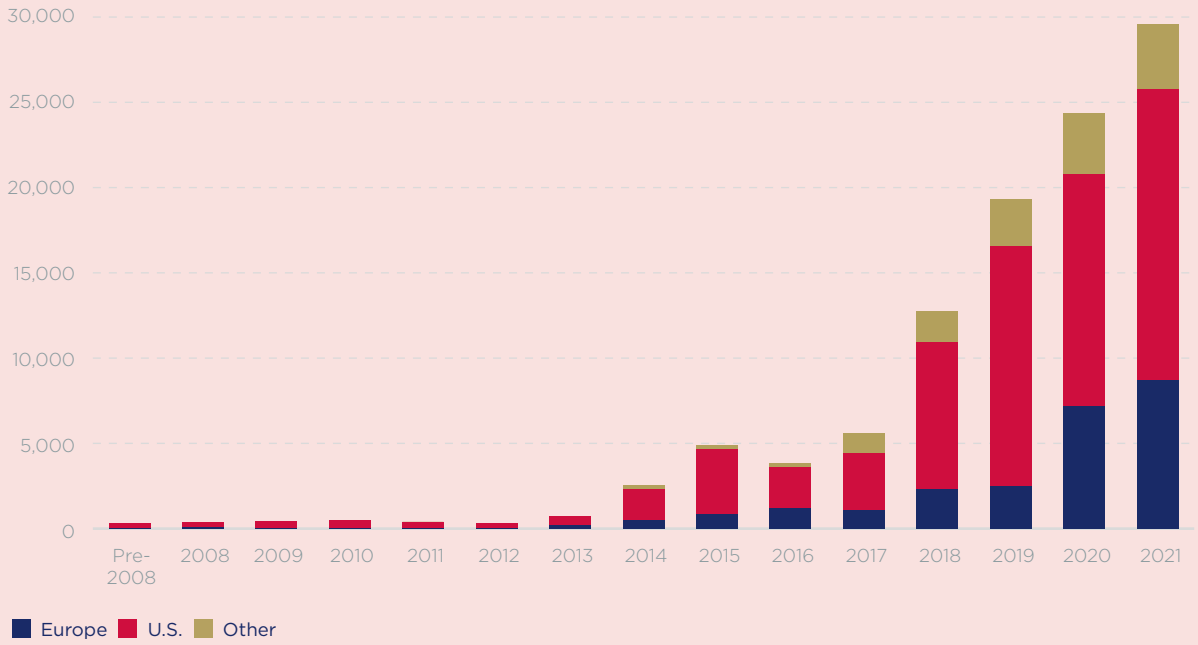
*** Companies with asterisks are U.S. companies.*
Europe is the EU plus Norway, Iceland, Switzerland and the UK.
Source: Bloomberg New Energy Finance.
Data as of February 2022.

Table 10 Power Purchase Agreements in Europe, by Power Sector (Megawatts)



Europe is the EU plus Norway, Iceland, Switzerland and the UK. Other includes small hydro, biomass and waste, geothermal and fuel cells
Source: Bloomberg New Energy Finance.
Data as of February 2022.

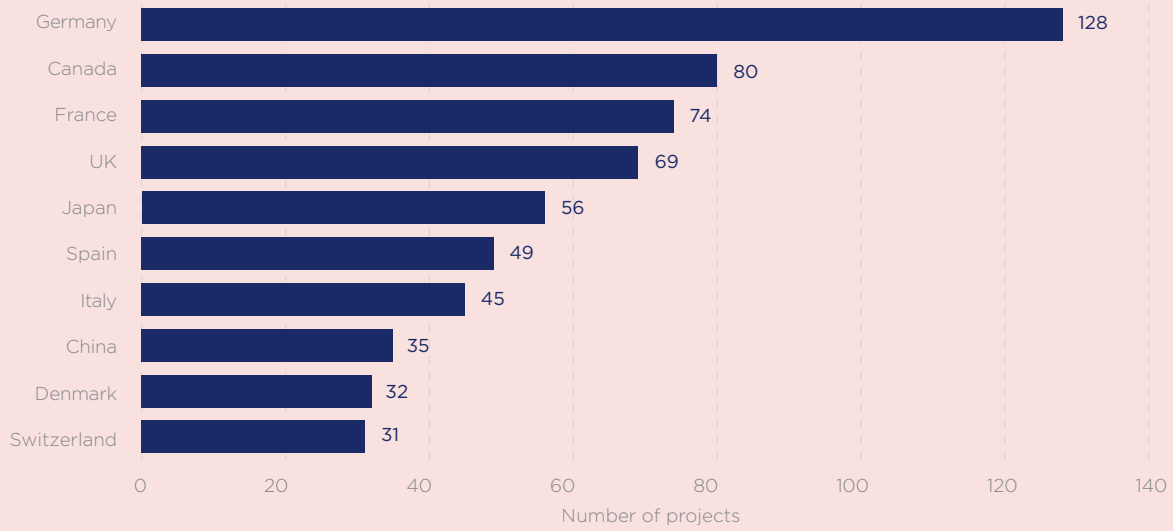
Table 11 Global Power Purchase Agreements, by Region (Megawatts)



Europe is the EU plus Norway, Iceland, Switzerland and the UK.
Source: Bloomberg New Energy Finance.
Data as of February 2022.

Transatlantic energy connections are important to the U.S. economy. European companies are the leading source of foreign direct investment (FDI) in the U.S. energy sector, with German companies leading the way. Overall, the total stock of foreign direct investment in the United States energy sector was roughly $320 billion in 2020.[6] FDI in the U.S. energy industry directly supported 179,300 U.S. jobs, contributed almost $1 billion in R&D and generated $3.9 billion in U.S. exports in 2019, the last year of available data.[7] Over the past decade, German firms were behind about 16% of the 813 greenfield investment projects in the U.S. energy sector (Table 12). Other notable European investors include France (9%), the UK (8%), and Spain (6%). In the largest auction of offshore wind sites in U.S. history in February 2022, eight of the nine winning companies were European.[8]

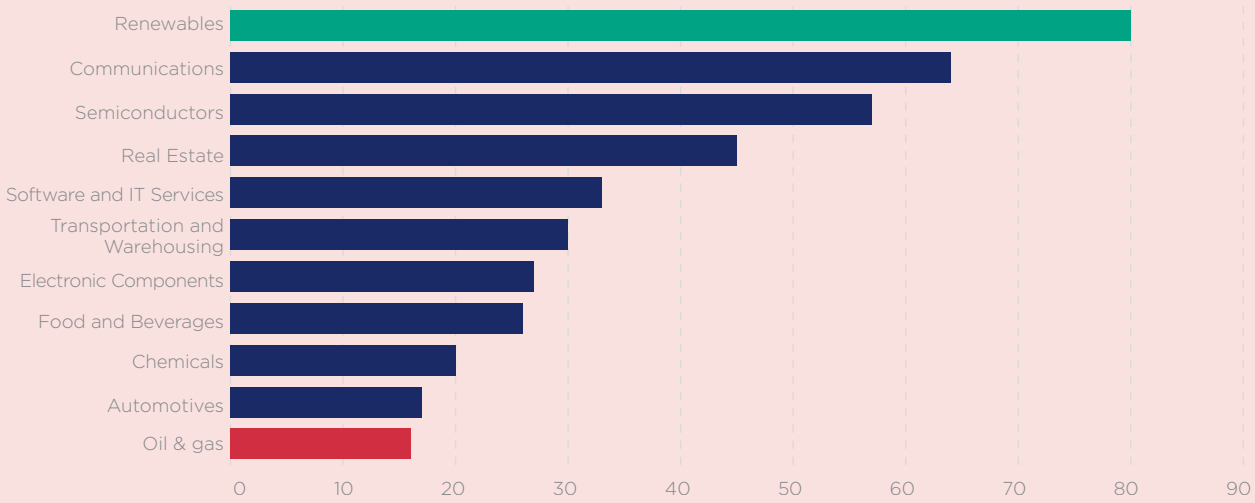
Table 12 Top Sources of Inward FDI in U.S. Energy
813 Total Announced Greenfield Projects, July 2011 - June 2021



Source: SelectUSA, U.S. Department of Commerce.
Data as of August 2021.

The renewable energy sector was the largest recipient of global FDI for the third consecutive year in 2021, with $80 billion in global investment (Table 13). Solar electric power was the greatest recipient of investment in this space, followed by other electric power generation sources such as hydrogen, wind and biomass power. On the other hand, investments in oil and gas dropped significantly – from $47.6 billion in 2020 to just $16.2 billion in 2021 – a record low for the history of the data.

Table 13 Global Foreign Direct Investment by Sector in 2021 ($Billions)



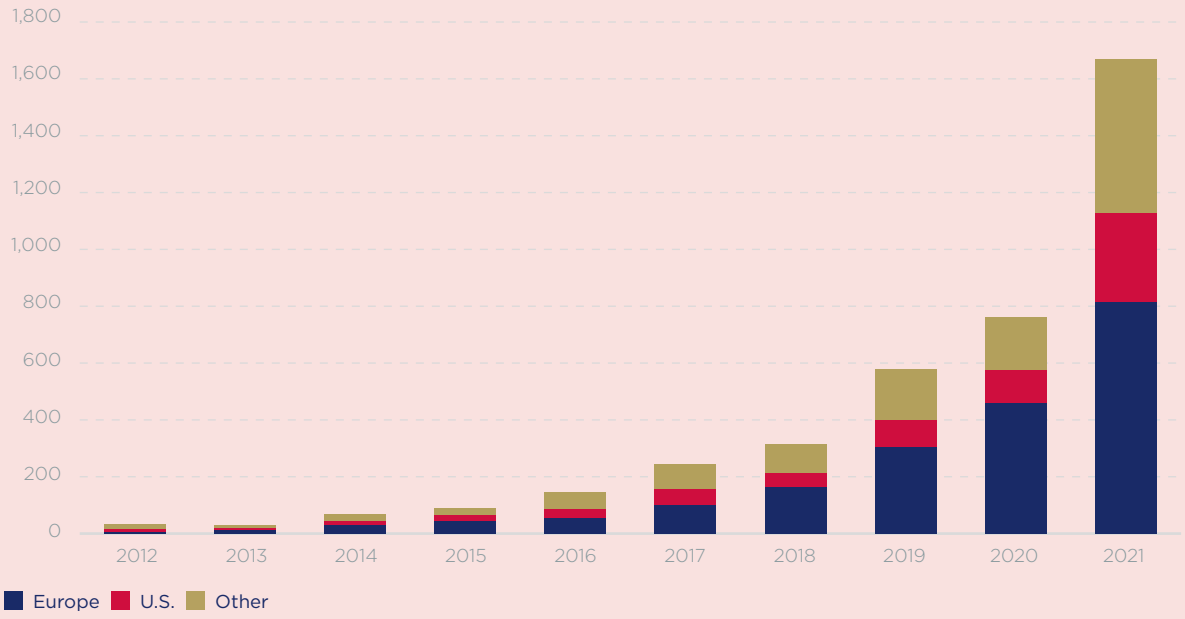
Source: Financial Times, fDi Markets.
Data as of February 2022.

Growing interest in sustainable investing has been a key area of support for the sector. According to data from Bloomberg, social, sustainability and green bond issuance doubled in 2021 to $1.7 trillion (Table 14). Europe and the United States made up 67% of all green bonds issued in 2020, and 68% of the total $1.7 trillion in green, social and sustainable debt issuance.

Supporting the discovery of future green technologies, government budgets for energy research, development, and demonstration in North America and Europe totaled $19.1 billion in 2020, according to the International Energy Agency. This was more than double the amount spent in China. Business-funded R&D has also become increasingly important in the United States and Europe. A dynamic and innovative private sector should continue to drive investments and innovations in renewable energy R&D over the coming decade.

Table 14 European and U.S. Sustainable Debt Hit Record Highs in 2021

Global Sustainable Debt Issuance ($Billions)



Data includes sales of green, social and sustainability bonds, sustainability-linked bonds, green loans, and sustainability-linked loans. Europe includes Europe supranational bonds issued by the European Union. European Bank for Reconstruction, Council of Europe Development Bank, EUROFIMA, Eurasian Development Bank and European Investment Bank.
Source: Bloomberg New Energy Finance.
Data as of February 2022.

Endnotes

1 At the time of our publication last year, the data from the UN indicated that China had surpassed the U.S. for inward FDI flows in 2020. However, after restatement of the data, the U.S. attracted slightly more investment ($156 billion) than China ($149 billion) in 2020.
2 See International Energy Agency, "Oil Market and Russian Supply," https://www.iea.org/reports/russian-supplies-to-global-energy-markets/oil-market-and-russian-supply-2; Algebris, "Europe Unplugged: Can We Give Up on Russian Gas?" https://www.algebris.com/insights/green-leaf/the-green-leaf-europe-unplugged-can-we-give-up-russian-gas/; Ben McWilliams, Giovanni Sgaravatti, Simone Tagliapietra and Georg Zachmann, "Preparing for the first winter without Russian gas," Bruegel, February 28, 2022, https://www.bruegel.org/2022/02/preparing-for-the-first-winter-without-russian-gas/.
3 U.S. Energy Information Administration, "Three countries provided almost 70% of liquefied natural gas received in Europe in 2021", February 22, 2022, https://www.eia.gov/todayinenergy/detail.php?id=51358.
4 Marcy de Luna, "Europe remains top destination for U.S. LNG for 3rd consecutive month," Reuters, March 1, 2022, https://www.reuters.com/business/energy/europe-remains-top-destination-us-lng-3rd-consecutive-month-2022-03-01/.
5 Stanley Reed, "What Happens if Russia Cuts Off Europe's Natural Gas?" *New York Times*, January 25, 2022, https://www.nytimes.com/2022/01/25/business/energy-environment/russia-europe-natural-gas-ukraine.html; Daniel Yergin, "America Takes Pole Position on Oil and Gas," *Wall Street Journal*, February 15, 2022, https://www.wsj.com/articles/america-oil-and-gas-russia-lng-exports-natural-gas-producer-rising-price-ukraine-uae-saudi-arabia-europe-energy-crisis-11644872477.
6 Source: Bureau of Economic Analysis, total inward foreign direct investment position on a historic cost basis in 2020 in petroleum and related industries, and electric power
7 SelectUSA, https://www.trade.gov/sites/default/files/2021-09/Energy%20-%20FINAL.pdf; Bureau of Economic Analysis, total inward foreign direct investment position on a historic cost basis in 2019 in petroleum and related industries, and electric power generation transmission and distribution.
8 Justin Jacobs, Derek Brower, Myles McCormick and Amanda Chu, "What the Ukraine war means for the energy sector," *Financial Times*, March 1, 2022.

6

European Countries: U.S.-Related Jobs, Trade and Investment

Total U.S. FDI stock in Europe
$3.7 trillion
(2020)

59%
of total U.S. global investment

After rebounding in 2021 from the depressed pandemic-related levels of 2020, economic activity across Europe continues to improve, although the pace of growth not only remains choppy but also disparate among countries and regions. French economic growth in 2021 was 7%, the highest for half a century. French unemployment of 8% is the lowest in 15 years. Germany's export-led economy, in contrast, continues to struggle with global supply chain backlogs, slowing growth in China, and the ripple effects of war in Ukraine. Tourist-dependent economies of southern Europe (Greece, Italy and Spain) remain in the crosshairs of the pandemic-related decline in global travel and tourism. The United Kingdom, in the aftermath of Brexit, remains at risk of rising capital outflows and reduced trade with the European Union. Rising inflationary pressures, notably from soaring energy costs, remain a key challenge. Eurozone inflation rose 5.8% in February 2022 from the prior year, one the strongest annual rises in prices in decades. Inflation is a scourge on both sides of the Atlantic.

Europe's continued economic convalescence is important to the United States for the simple reason that on a global basis, no region of the world offers more opportunities in terms of market size and wealth, and access to skilled resources than Europe. Outside the United States, no region has more sway on the bottom line of Corporate America than Europe. Europe remains the most attractive region in the world for U.S. companies investing abroad.

The latest investment figures underscore Corporate America's enduring commitment to its long-standing transatlantic partner. Measured on a historic cost basis, the total stock of U.S. foreign direct investment (FDI) in Europe was $3.7 trillion in 2020, or 59% of total U.S. investment abroad. This is almost four times the amount of comparable U.S. investment in the Asia-Pacific region ($970 billion).

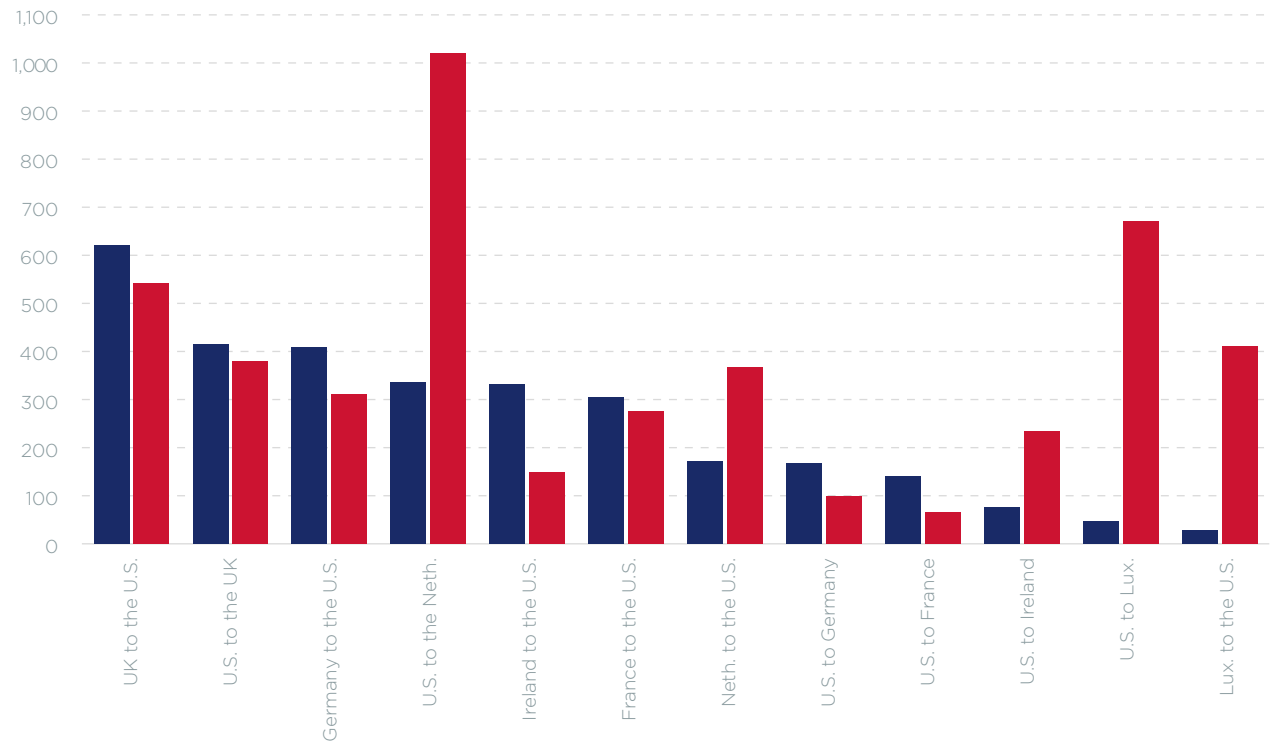
According to the latest figures from the UN, while FDI inflows to both the United States and Europe were severely affected by the global recession of 2020, flows have rebounded over the past year. Global FDI flows to Europe totaled just $20 billion in 2020, down from $392 billion in 2019.[1] These sharp swings in global FDI to Europe were driven mainly by large divestments and negative intra-company loans in the Netherlands and Switzerland. However, these drops were one-offs. Global FDI flows to Europe rebounded to an estimated $305 billion in 2021, accounting for 18.5% of total global inflows.

This overall number, while impressive, does not tell us much about the reasons for such investment or the countries where U.S. companies focus their investments. As we have stated in previous surveys, official statistics blur some important distinctions when it comes to the nature of transatlantic investment flows. Recent research, however, helps us understand better two important phenomena: "round-tripping" and "phantom FDI."

Round-Tripping

Round-tripping investments go from an original investor, for instance in the United States, to an ultimate destination in a country such as Germany, but flow first from the United States to an intermediate country such as Luxembourg, and then from Luxembourg to Germany. Official statistics record this as a U.S.-Luxembourg flow or a Luxembourg-Germany flow. While Luxembourg may derive some economic benefit from that flow emanating originally from the United States, the ultimate beneficiary is in Germany. Applying this example to 2017, the year with the most recent data, official figures from the IMF indicate that FDI in Germany from the United States was around $90 billion, whereas recent research by economists at the IMF and University of Copenhagen that takes account of these "round tripping" flows concludes that the stock of "real FDI" from the United States in Germany was actually almost $170 billion.[2] Similarly, "real FDI" links from Germany to the United States are considerably higher than official statistics might indicate. All told, they estimated that "real FDI" bilateral links from Germany to the United States in that year topped $400 billion, whereas official statistics put that figure closer to $300 billion.[3] The same is true for other important bilateral investment links. Table 1 shows "real FDI" links both from the United States to Great Britain and from Great Britain to the United States, for instance, to be higher than standard measurements indicate.

Table 1 Estimated Real U.S.-EU FDI Links ($Billions)



■ Real FDI Ultimate Investor Position (From Damgaard, Elkjaer, Johannesen study)* ■ Total FDI Position (From IMF Official CDIS statistics)*

**Total FDI: Official Statistics from IMF including investments in SPEs and unadjusted for round-tripping. Real FDI position: Captures links between ultimate investors and real investments; Damgaard, Elkjaer and Johannesen calculations. Note these figures reflect the IMF FDI methodology and may differ from the U.S. BEA statistics in Appendix B.*
Data for 2017, latest available.
Sources: IMF Coordinated Direct Investment Survey; Jannick Damgaard, Thomas Elkjaer and Niels Johannesen, "What Is Real and What Is Not in the Global FDI Network?" IMF Working Paper WP/19/274, December 2, 2019, p. 40.

"Phantom" vs. "Real" FDI

The second important phenomenon is what economists call "phantom FDI," or investments that pass through special purpose entities that have no real business activities. To understand the nature of transatlantic investment links it is important to be able to separate phantom FDI from FDI in the "real" economy. Damgaard, Elkjaer and Johannesen estimate that investment in countries such as Poland, Romania, Denmark, Austria and Spain, for instance, are mostly genuine FDI investments, while investment in countries such as Luxembourg and the Netherlands are largely comprised of investments in corporate shells used to minimize the global tax bills of multinational enterprises. They estimated that most of the world's "phantom FDI" in 2017 was in a small group of well-known offshore centers: Luxembourg ($3.8 trillion), the Netherlands ($3.3 trillion), Hong Kong ($1.1 trillion), British Virgin Islands ($0.8 trillion), Bermuda ($0.8 trillion), Singapore ($0.8 trillion) and the Cayman Islands ($0.7 trillion). These were global figures rather than investments from U.S. companies, but since U.S. companies are the preeminent foreign investors in Europe one may conclude that these distinctions roughly applied to U.S. FDI in Europe, at least at that time.

In the aggregate, and extrapolating forward, about 54% of America's total FDI position in Europe was allocated to non-bank holding companies in 2020, meaning that less than half of the $3.7 trillion was invested in "real economy" industries such as mining, manufacturing, wholesale trade, finance, and professional and information services (See Box 6.1). Excluding holding companies, total U.S. FDI stock in Europe in 2020 amounted to $1.7 trillion – a much smaller figure.

Box 6.1 FDI Outflows to Europe Adjusted for Flows of Holding Companies

U.S. holding companies have played an important role in the rise of U.S.-Europe FDI over the past few decades. As of 2020, the last year of available data, nonbank holding companies accounted for $2.9 trillion, or about 47% of the global U.S. outward FDI position of approximately $6.2 trillion, and 54% of total U.S. FDI stock in Europe.

As the U.S. Bureau of Economic Analysis (BEA) notes, "The growth in holding company affiliates reflects a variety of factors. Some holding-company affiliates are established primarily to coordinate management and administration activities – such as marketing, distribution, or financing – worldwide or in a particular geographic region. In addition, the presence of holding company affiliates in countries where the effective income tax rate faced by affiliates is relatively low suggests tax considerations may have also played a role in their growth. One consequence of the increasing use of holding companies has been a reduction in the degree to which the U.S. Direct Investment Abroad position (and related flow) estimates reflect the industries and countries in which the production of goods and services by foreign affiliates actually occurs."

Tables 2a and 2b, drawing on BEA data, reflect the significance of holding companies in the composition of U.S. FDI outflows. European markets have accounted for roughly 58% of total U.S. FDI outflows since 2009. However, when flows to nonbank holding companies are excluded from the data, the share of outflows to markets such as Europe and Other Western Hemisphere declines. In 2020, U.S. FDI flows to holding companies in Europe rebounded sharply to $62.8 billion. This represented over half of total U.S. FDI outflows to Europe. In prior years, FDI outflows to Europe were negative (-$189 billion in 2018 and -$87 billion in 2019), as U.S. companies repatriated a large amount of accumulated foreign earnings.

In the long run, when FDI related to holding companies is stripped from the numbers, the U.S. foreign direct investment position in Europe is not as large as typically reported by the BEA. Nonetheless, Europe remains the destination of choice among U.S. firms even after the figures are adjusted. Between 2009 and 2020, Europe still accounted for over half of total U.S. FDI outflows when flows from holding companies are removed from the aggregate. Europe's share was still more than double the share to Asia, underscoring the deep and integrated linkages between the United States and Europe.

Table 2a Total U.S. FDI Outflows, 2009-2020
(% of Total)

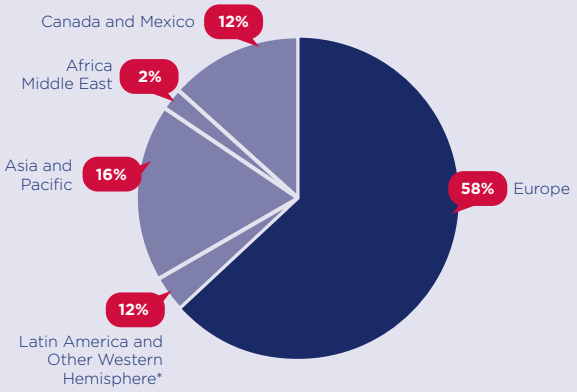
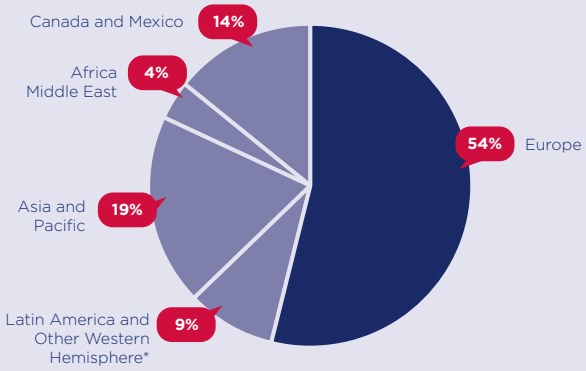


Table 2b U.S. FDI Outflows Excluding Flows to Nonbank Holding Companies, 2009-2020
(% of Total)



**Excluding Mexico.*
Source: Bureau of Economic Analysis.
Data as of January 2022.

Box 6.2 U.S. Corporate Tax Reform: Impact on FDI Outflows

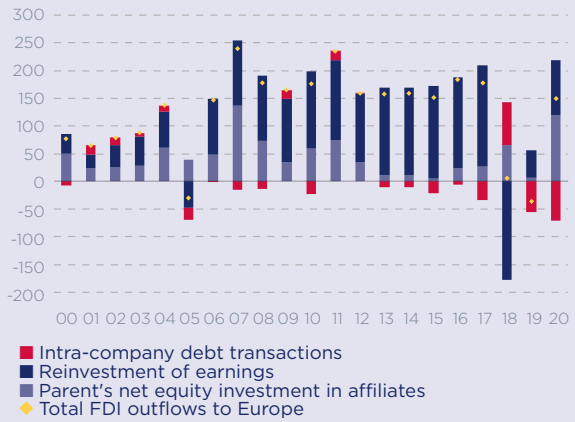
In December 2017, the United States passed the "Tax Cuts and Jobs Act," which included several changes to the U.S. taxation of international profits. An important provision of the tax reform bill, which had a material impact on U.S. international investment flows, was the reduced tax rate on U.S. firms' repatriated earnings. This repatriation tax break, which was expected, led to negative U.S. FDI outflows as companies brought home significant quantities of cash. The sweeping U.S. tax reform package also reduced the corporate tax rate from 35% to 21% and moved the United States towards a "territorial" system, under which profits earned by U.S. foreign affiliates will not be taxed.

Prior to the tax reform, U.S. multinational companies would reinvest their global earnings back into their operations abroad, deferring U.S. taxation of these foreign profits. This strategy, widely adopted by U.S. multinationals, caused reinvested earnings to become the primary source of U.S. FDI flows. Table 3a shows the breakout of U.S. FDI flows to Europe by component, with reinvested earnings making up the bulk of total U.S. investment prior to tax reform. Since the tax reform, however, equity investments abroad are the largest source of FDI outflows to Europe.

The cumulative effect of years of companies keeping profits overseas led to a large accumulation of U.S. corporate earnings abroad. When the U.S. government passed corporate tax reform, reducing the tax rate on these earnings, it incentivized companies to tap into the large pile of foreign profits by repatriating the foreign capital. When companies withdraw prior accumulated earnings, this results in negative retained earnings which has a negative overall impact on U.S. FDI outflows. A similar pattern occurred in 2005 after the U.S. Homeland Investment Act introduced a similar tax break for multinational companies.

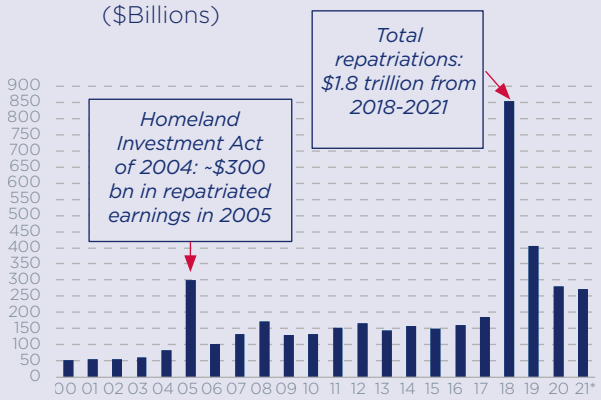
In the first four years after the change in the U.S. corporate tax code, U.S. repatriations of global earnings are estimated to have totaled approximately $1.8 trillion, or over half of the estimated $3 trillion in funds stockpiled overseas at the end of 2017 (Table 3b). While these repatriations suppressed FDI outflows from the United States to Europe in recent years, we expect the pace of repatriations to slow, and FDI to continue to recover in the years ahead. However, according to UNCTAD's January 2019 Investment Trends Monitor, in the long run the shift to a territorial tax system in the United States may lead to "structurally lower reinvested earnings by U.S. multinationals in the future."

Table 3a U.S. FDI Outflows to Europe by Component ($Billions)



Source: U.S. Bureau of Economic Analysis.
Data as of January 2022.

Table 3b U.S. Repatriations of Global Earnings ($Billions)



**2021 authors' estimate.*
Source: U.S. Bureau of Economic Analysis.
Data as of January 2022.

These figures illustrate the extremely volatile nature of U.S. FDI annual outflows. Table 4 provides a more long-term view of U.S.-European investment ties. As shown in the chart, the share of U.S. FDI in both Germany and France declined sharply this past decade, with France accounting for just 1.4% of U.S. FDI flows to Europe from 2010 through the third quarter of 2020. Germany's share is slightly higher, 4%, but still off the levels of previous decades. However, as mentioned these figures need to be interpreted very carefully, since a good deal of original investment from the United States makes its way to France and Germany via other countries, and analyses that include "round-tripping" estimates conclude that U.S. FDI that eventually ends up in France and Germany remains robust.

Ireland has become a favored destination for FDI among U.S. companies looking to take advantage of the country's flexible and skilled English-speaking labor force, low corporate tax rates, strong economic growth, membership in the European Union, and pro-business policies. Even when adjusting U.S. FDI figures to take account of flows of U.S. holding companies, Ireland still ranks as one of the most attractive places in the world for U.S. businesses.

Just as U.S. firms leverage different states across America, with certain activities sprinkled around the Northeast, Midwest, the South and West, U.S. firms deploy the same strategies across Europe, leveraging the specific attributes of each country. Economic activity across the EU is just as distinct and differentiated by country. Different growth rates, differing levels of consumption, varying degrees of wealth, labor force participation rates, financial market development, innovation capabilities, corporate tax rates – all of these factors, and more, determine where and when U.S. firms invest in Europe.

Table 4 U.S. FDI Outflows to Europe: The Long View ($Millions, (-) inflows)

	1990-1999		2000-2009		2010-3Q2021	
Country	$ Aggregate Total	% of Total Europe	$ Aggregate Total	% of Total Europe	$ Aggregate Total	% of Total Europe
Europe	465,337		1,149,810		1,711,926	
Austria	2,908	0.6%	501	0.0%	8,362	0.5%
Belgium	12,028	2.6%	40,120	3.5%	37,217	2.2%
Czech Republic	155	0.0%	1,941	0.2%	4,890	0.3%
Denmark	2,798	0.6%	5,782	0.5%	10,612	0.6%
Finland	1,485	0.3%	1,598	0.1%	2,554	0.1%
France	29,063	6.2%	42,963	3.7%	24,072	1.4%
Germany	31,817	6.8%	60,363	5.2%	68,332	4.0%
Greece	413	0.1%	943	0.1%	502	0.0%
Hungary	2,929	0.6%	1,376	0.1%	1,214	0.1%
Ireland	21,369	4.6%	115,085	10.0%	290,735	17.0%
Italy	13,825	3.0%	26,462	2.3%	19,553	1.1%
Luxembourg	15,912	3.4%	126,989	11.0%	340,522	19.9%
Netherlands	70,770	15.2%	295,889	25.7%	358,021	20.9%
Norway	4,198	0.9%	4,997	0.4%	3,946	0.2%
Poland	2,681	0.6%	4,699	0.4%	4,120	0.2%
Portugal	1,993	0.4%	2,212	0.2%	996	0.1%
Russia	1,555	0.3%	11,289	1.0%	-1,452	-0.1%
Spain	11,745	2.5%	28,371	2.5%	16,763	1.0%
Sweden	10,783	2.3%	16,974	1.5%	1,937	0.1%
Switzerland	32,485	7.0%	97,869	8.5%	132,351	7.7%
Turkey	1,741	0.4%	5,994	0.5%	8,603	0.5%
United Kingdom	175,219	37.7%	237,906	20.7%	367,942	21.5%
Other	17,465	2.6%	19,487	1.4%	10,134	0.6%

Source: Bureau of Economic Analysis.
Data as of January 2022.

A launchpad for U.S. companies
10 European countries among top 20 global export platforms

Table 5 underscores this point. The figures show U.S. affiliate sales from a given country to other destinations, or the exports of affiliates per country. Of the top twenty global export platforms for U.S. multinationals in the world, ten are located in Europe, a trend that reflects the intense cross-border trade and investment linkages of the European Union and the strategic way U.S. firms leverage their European supply chains. For U.S. companies, Ireland is the number one platform in the world from which their affiliates can reach foreign customers. Switzerland, ranked third, remains a key export platform and pan-regional distribution hub for U.S. firms.

On a standalone basis, U.S. affiliates' exports from Ireland are greater than the total export volumes of most countries. Such is the export-intensity of U.S. affiliates in Ireland and the strategic importance of Ireland to the corporate success of U.S. firms operating in Europe and around the world. Moreover,

Table 5 **Global Export Platforms for U.S. Multinationals** (U.S. Affiliate Sales From Abroad to Other Destinations*) ($Millions)

	1982		1990		2000		2019	
Rank	Country	Value	Country	Value	Country	Value	Country	Value
1	United Kingdom	33,500	United Kingdom	51,350	United Kingdom	94,712	Ireland	377,193
2	Switzerland	27,712	Canada	46,933	Canada	94,296	Singapore	280,019
3	Canada	25,169	Germany	41,853	Germany	69,522	Switzerland	275,016
4	Germany	19,117	Switzerland	38,937	Netherlands	67,852	United Kingdom	207,636
5	Netherlands	15,224	Netherlands	33,285	Singapore	56,961	Netherlands	176,132
6	Belgium	11,924	France	24,782	Switzerland	56,562	Canada	162,691
7	Singapore	11,579	Belgium	21,359	Ireland	51,139	Germany	120,788
8	France	11,255	Singapore	15,074	Mexico	37,407	Belgium	117,022
9	Indonesia	8,289	Hong Kong	9,951	France	35,797	Mexico	106,179
10	Hong Kong	4,474	Italy	9,562	Belgium	32,010	Hong Kong	100,555
11	Italy	3,993	Ireland	9,469	Hong Kong	22,470	China	75,106
12	Australia	3,710	Spain	7,179	Malaysia	16,013	France	55,579
13	Ireland	2,842	Japan	7,066	Sweden	15,736	India	37,723
14	United Arab Emirates	2,610	Australia	6,336	Italy	14,370	Australia	33,415
15	Brazil	2,325	Mexico	5,869	Spain	12,928	Brazil	31,445
16	Japan	2,248	Indonesia	5,431	Japan	11,845	Luxembourg	30,430
17	Malaysia	2,046	Brazil	3,803	Australia	9,370	Spain	29,033
18	Panama	1,662	Norway	3,565	Brazil	8,987	Japan	27,491
19	Spain	1,635	Malaysia	3,559	China	7,831	Italy	27,084
20	Mexico	1,158	Nigeria	2,641	Norway	6,238	Malaysia	25,971
	All Country Total	252,274	All Country Total	398,873	All Country Total	857,907	All Country Total	2,692,998

Source: Bureau of Economic Analysis.
Data as of January 2022.
**Destination = affiliate sales to third markets and sales to U.S. for majority-owned foreign affiliates.*

the UK's exit from the EU may further solidify Ireland's spot as the number one location for U.S. affiliate exports. When exporting from the UK, new barriers to trade, including regulatory checks and rules of origin requirements, in addition to stricter immigration rules, could cause some companies to relocate operations to Ireland in search of easier access to the EU market.

The UK still plays an important role for U.S. companies as an export platform to the rest of Europe. However, the introduction of the euro, the Single Market, EU enlargement and now Brexit have enticed more U.S. firms to invest directly in EU member states. The extension of EU production networks and commercial infrastructure throughout a larger pan-continental Single Market has shifted the center of gravity in Europe eastward within the EU, with Brussels playing an important role in shaping economic policy.

Why Europe Matters

What started out as a loosely configured market of six nations (Belgium, France, West Germany, Italy, Luxembourg and the Netherlands) in the late 1950s is now an economic behemoth joined together in a Single Market. Indeed, the sum of Europe's parts is one of the largest economic entities in the world. In nominal U.S. dollar terms, the European Union (plus the UK, Norway, Switzerland, and Iceland) accounted for an estimated 23% of world output in 2021 – slightly lower than the U.S. share (24%) but greater than that of China (18%). Based on purchasing power parity figures, Europe's share was greater than that of the United States but less than that of China in 2021.

Given its size, Europe remains a key pillar of the global economy and critical component to the corporate success of U.S. firms. As Table 6 highlights, Europe attracts more than half of U.S. aggregate FDI outflows. The region's share of total U.S. FDI during the last decade was 57.3%, which is up from the first decade of this century as well as from the level of the 1990s. We are early in this decade, but thus far, Europe's share of U.S. FDI outflows has actually increased to 62.6% of the total. Part of this dynamic reflects weakening U.S. investment flows to China.

Table 6 Cumulative U.S. FDI Outflows ($Billions)

Decade	All Countries	Europe	Europe as a % of World
1950-1959	20,363	3,997	19.6%
1960-1969	40,634	16,220	39.9%
1970-1979	122,721	57,937	47.2%
1980-1989	171,880	94,743	55.1%
1990-1999	869,489	465,337	53.5%
2000-2009	2,056,007	1,149,810	55.9%
2010-2019	2,404,739	1,378,601	57.3%
2020 - Q3 2021	542,347	339,610	62.6%

Source: Bureau of Economic Analysis.
Data as of January 2022.

Even after adjusting for FDI flows related to holding companies, Europe remains the favored destination of U.S. firms. This runs counter to the fashionable but false narrative that corporate America prefers low-cost nations in Asia, Latin America, and Africa to developed markets like Europe.

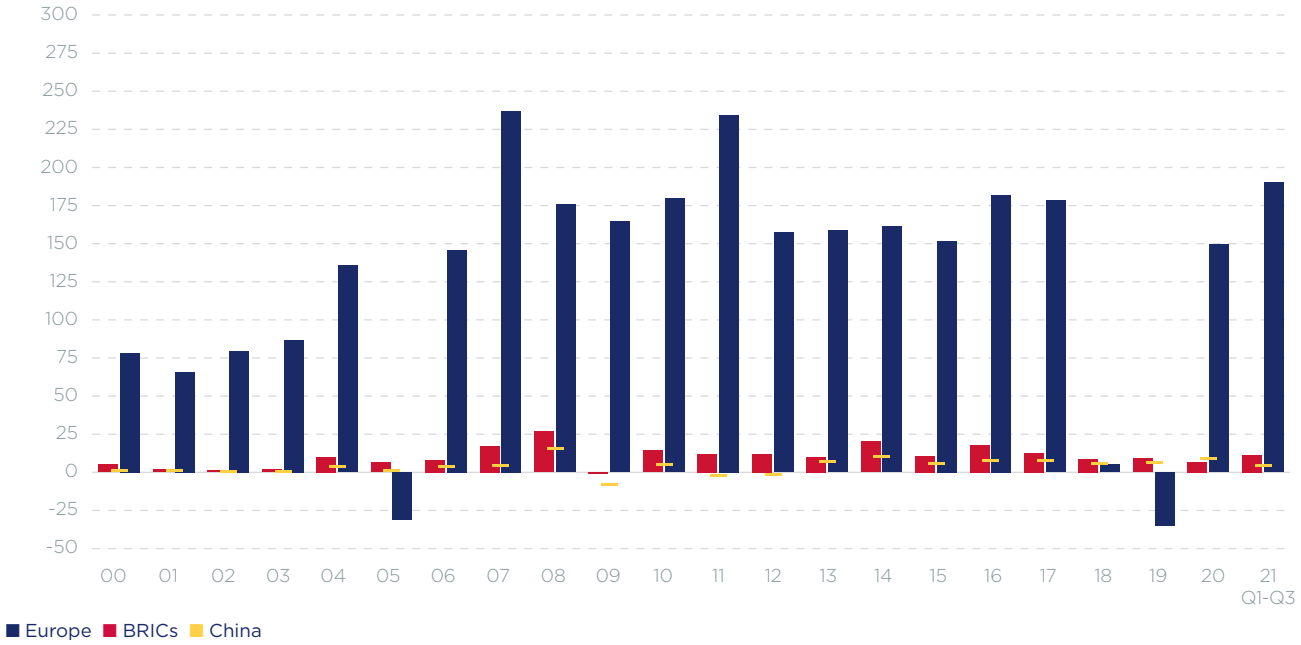
Investing in emerging markets such as China, India, and Brazil remains difficult, with indigenous barriers to growth (poor infrastructure, dearth of human capital, corruption, etc.) as well as policy headwinds (foreign exchange controls, tax preferences favoring local firms) reducing the overall attractiveness of these markets to multinationals. As shown in Table 7, there has been a wide divergence between U.S. FDI to the BRICs (Brazil, Russia, India, China) and U.S. FDI to Europe. After a drop in flows to Europe in 2019 due to U.S. domestic tax reform, investment in Europe rebounded in 2020 and continued to gather momentum in 2021. In the first three quarters of 2021, U.S. FDI outflows to Europe totaled roughly $190 billion, compared with just $5.1 billion in flows to China and $11.5 billion in flows to the BRICs.

In addition to being one of the largest economic blocs in the world, Europe is also wealthy, and wealth matters. Wealth is correlated with highly skilled labor, rising per capita incomes, innovation, and a

57.3%

Europe's share of U.S. FDI during the last decade

Table 7 U.S. Foreign Direct Investment Outflows to the BRICs vs. Europe* ($Billions)



**Europe does not include flows to Russia.*
Source: Bureau of Economic Analysis.
Data as of January 2022.

world class R&D infrastructure, among other things. In the aggregate, 15 of the 25 wealthiest nations in the world are European. Per capita income levels in Europe are significantly greater than those in India, in China, and in all of Africa. China's per capita income (in purchasing power parity terms) of just $19,100 in 2021 is well below that of Switzerland ($78,100), the Netherlands ($62,800), Germany ($58,200), Finland ($53,100), and the European Union ($48,300). Meanwhile, India's per capita GDP was just $7,300 in 2021, according to estimates from the IMF.

Wealth, in turn, drives consumption. The EU plus the UK accounted for about 20% of total global personal consumption expenditures in 2020, a slightly lower share than that of the United States but well above that of China (11%) and India (4%). Gaining access to wealthy consumers is among the primary reasons why U.S. firms invest overseas – hence the continued attractiveness of wealthy Europe to American companies.

Just as the macroeconomic backdrop influences investment decisions, so too do micro factors. Country and industry regulations can help or hamper the foreign activities of U.S. companies, and greatly influence where U.S. firms invest overseas. Think intellectual property right protections, the ability to obtain credit, regulations governing employment, the time it takes to start a business, contract enforcements, and rules and regulations concerning cross border trade and data flows. These and other metrics influence and dictate the ease of doing business, and on this basis many European countries rank as the most attractive in the world.

Finally, Europe continues to be a world leader when it comes to innovation and knowledge-based activities. According to the 2021 Global Innovation Index, 8 European economies rank among the top 15 most innovative countries in the world. The index takes into account a wide range of factors such as institutions, education quality, research & development, information & communication technologies (ICT) infrastructure, and more. On these measures, Europe is the most attractive region in the world for innovation. Another important measure of knowledge-based capabilities, also highlighted in the report, is science & technology (S&T) intensity – or the sum of the patent and scientific publication shares divided by the population. By this measure, many European and U.S. regions have more scientific output per capita than their Asian counterparts. In fact, of the top 15 science & technology clusters, ranked by S&T intensity, 7 are located in Europe, 6 in the United States, and only 2 are in Asia.

U.S. business contributes to Europe's R&D expenditures
$33 billion

Table 8 Global Innovation Index 2021

Overall Global Innovation Index	
Rank	**Country**
1	Switzerland
2	Sweden
3	United States
4	United Kingdom
5	South Korea
6	Netherlands
7	Finland
8	Singapore
9	Denmark
10	Germany
11	France
12	China
13	Japan
14	Hong Kong, China
15	Israel

Science and Technology (S&T) Intensity		
Rank	**S&T Cluster**	**Country**
1	Cambridge	UK
2	Eindhoven	Belgium/Neth.
3	Ann Arbor, MI	U.S.
4	Oxford	UK
5	San Jose-San Francisco, CA	U.S.
6	Daejeon	Korea
7	Boston-Cambridge, MA	U.S.
8	Seattle, WA	U.S.
9	San Diego, CA	U.S.
10	Raleigh, NC	U.S.
11	Lund-Malmö	Sweden
12	Kanazawa	Japan
13	Munich	Germany
14	Lausanne	Switz./France
15	Stockholm	Sweden

Source: Cornell University, INSEAD, and the World Intellectual Property Organization, Global Innovation Index 2021. Data as of 2021.

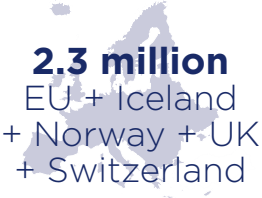
Since R&D expenditures are a key driver of value-added growth, it is interesting to note that EU- and UK-based organizations accounted for about one-fifth of total global R&D in 2019 in purchasing-power parity terms. That lagged the share of the United States and China but exceeded the share of Japan and South Korea. Over the past two decades, China has steadily advanced its R&D capabilities, and is projected to overtake the United States as the top R&D spender in the world (Table 9).

Sweden, Germany, Switzerland, and Austria rank among the top countries in terms of R&D spending as a percentage of GDP. All had R&D-to-GDP ratios above 3% in 2019, larger than that of the United States (2.8%) and China (2.1%). As shown in Table 10, a large part of the R&D funding in these countries comes from businesses.

U.S. corporate affiliates in Europe also play an important role in the R&D and innovation climate of the region. These affiliates contributed $33 billion to Europe's total expenditures on R&D.

Europe remains a leader in a number of cutting-edge industries, including life sciences, agriculture and food production, automotives, nanotechnology, energy, and information and communications. Innovation requires talent, and on this basis, Europe is holding its own relative to other parts of the world. Europe is the world leader in terms of full-time equivalent research staff. Of the world's total pool of research personnel, the EU plus the UK, Switzerland, Norway and Iceland housed an estimated 2.3 million researchers in 2019 versus 1.6 million in the United States and 2.1 million in China, according to OECD estimates.

Number of researchers hosted
(2019)



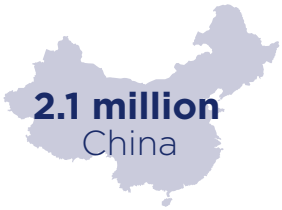
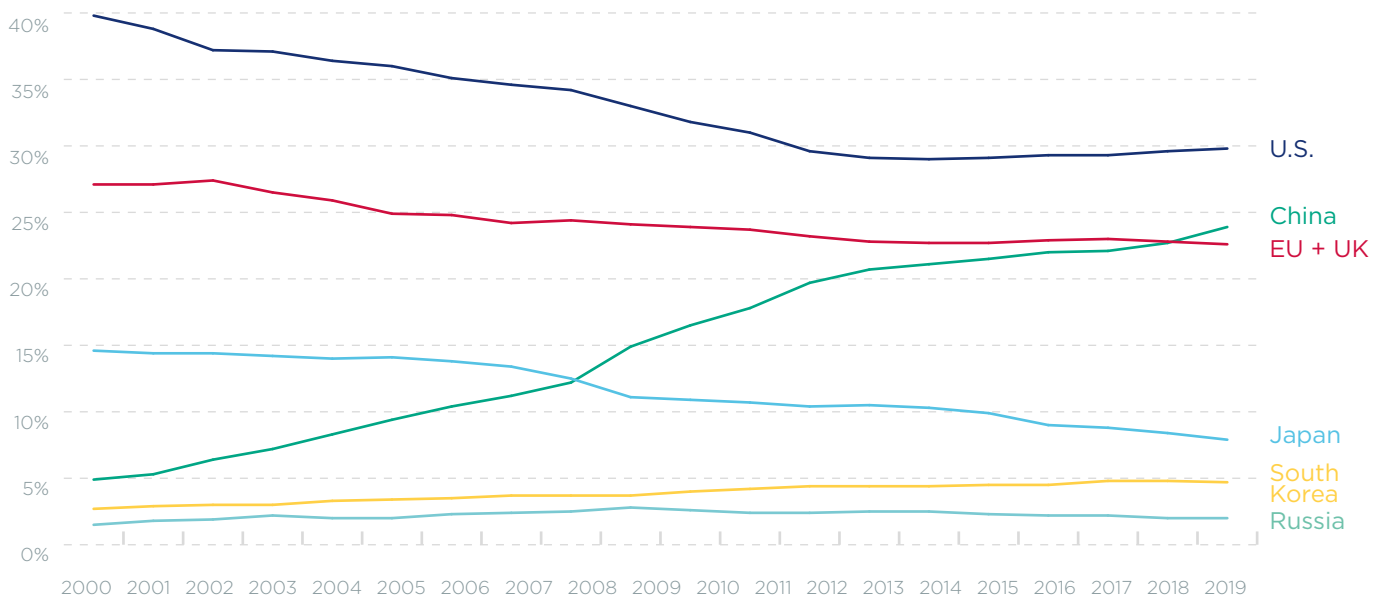


Table 9 Global R&D Expenditures and the Rise of China (% of Total)



R&D share calculated in terms of current purchasing-power parity dollars. Global R&D is a sum of the OECD countries plus Argentina, China, Russia, Singapore, South Africa, Chinese Taipei and Romania.
Source: OECD.
Data as of January 2022.

Finally, Europe is home to one of the most educated workforces in the world. In countries such as Ireland, Switzerland, Lithuania, Luxembourg, Belgium and the Netherlands, the share of the working age population with a bachelor's degree or higher exceeds 40%. The comparable figure for the U.S. is 39%. While U.S. universities remain a top destination for foreign students, the UK, Germany and France are also notable attractions. In the end, Europe remains among the most competitive regions in the world in terms of science and technology capabilities. The U.S. National Science Board has explicitly recognized EU research performance as strong and marked by pronounced intra-EU collaboration.

Adding It All Up

Given all the above, Europe remains a key destination for U.S. companies looking to expand their global footprint. The region remains large, wealthy, richly endowed, open for business, and an innovation leader in many key global industries. This, along with the easing of transatlantic tensions under the Biden Administration, positions Europe to remain a critical and indispensable geographic node in the global operations of U.S. companies. In the post-pandemic world, U.S. companies increasingly view the world through a tripolar lens – a world encompassing the Americas, Europe, and Asia, along with attendant offshoots. In this tripolar world, U.S. companies are not about to give up on or decamp from one of the main pillars of the global economy. Given America's resource constraints (notably a lack of sufficient skilled labor), Europe is more important than ever to the success of U.S. firms.

Endnotes

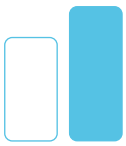
1 UNCTAD Global Investment Trends Monitor No. 40, January 2022.
2 See Jannick Damgaard, Thomas Elkjaer, and Niels Johannesen, "The Rise of Phantom Investments," IMF Finance & Development, September 2019, https://www.imf.org/external/pubs/ft/fandd/2019/09/the-rise-of-phantom-FDI-in-tax-havens-damgaard.htm; and Jannick Damgaard, Thomas Elkjaer and Niels Johannesen, "What Is Real and What Is Not in the Global FDI Network?" IMF Working Paper WP/19/274, December 2, 2019.
3 Note the dataset used by the authors for their analysis is the IMF Coordinated Direct Investment Survey, which due to differences in measurement, can vary from the figures reported by the U.S. Bureau of Economic Analysis used in the Appendix pages of this study.

Appendix A

European Commerce and the 50 U.S. States:
A State-by-State Comparison

Alabama and Europe

Jobs



60,000
Since 2012: +13,700 (+29.6%)

European companies account for
50%
of foreign affiliate jobs

Employment within Alabama, 2019

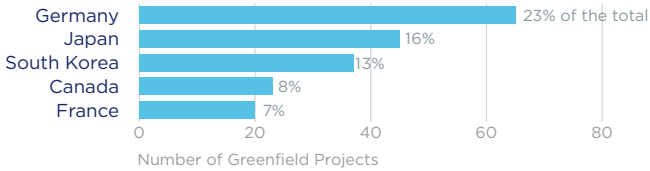
Country	Employment
Japan	20,900
Germany	15,600
Canada	15,200
United Kingdom	14,300
France	8,300

On a country basis, German companies operating in Alabama represented 13% of total foreign affiliate employment in Alabama, with German multinationals supporting approximately 4,400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



282
Greenfield Projects (July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Alabama Goods Exports to Europe, 2020

$4.4 bn

62% of total exports from Alabama to Europe were transportation equipment, reflecting the state's linkages with European auto manufacturers.

Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	2,237
Belgium	361
United Kingdom	281
Netherlands	253
France	226

Alabama Goods Imports from Europe, 2020

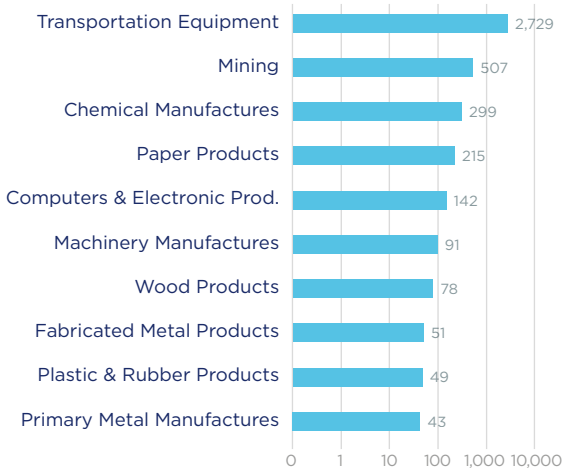
$6.2 bn

Transportation equipment and machinery manufactures were the top product imports from Europe.

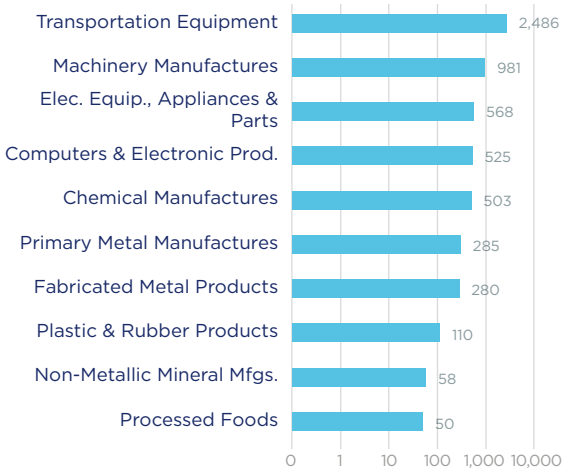
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	3,486
United Kingdom	422
France	369
Italy	271
Hungary	176

Top Ten Exports to Europe, 2020 ($ millions)



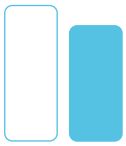
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Alaska and Europe

Jobs



5,700

Since 2012: -1,000 (-14.9%)

European companies account for **33%** of foreign affiliate jobs

Employment within Alaska, 2019

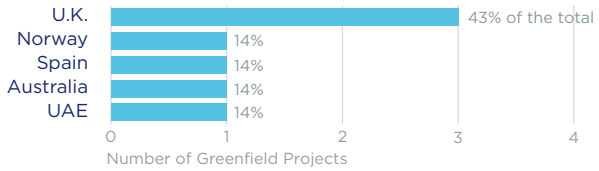
Country	Employment
Canada	6,100
United Kingdom	3,500
Japan	2,600
France	900
Germany	300

On a country basis, U.K. companies operating in Alaska represented 20% of total foreign affiliate employment in Alaska, with U.K. multinationals supporting approximately 1,200 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



7

Greenfield Projects (July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Alaska Goods Exports to Europe, 2020

$752.1 m

The bulk of the state's exports consist of primary commodities.

Alaska Goods Imports from Europe, 2020

$230.3 m

Imports of transportation equipment from Europe rose from $32 million in 2019 to $131 million in 2020.

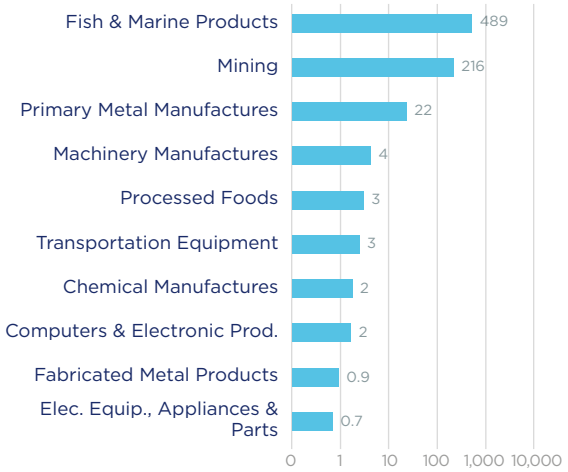
Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	275
Germany	146
France	78
Belgium	54
Spain	46

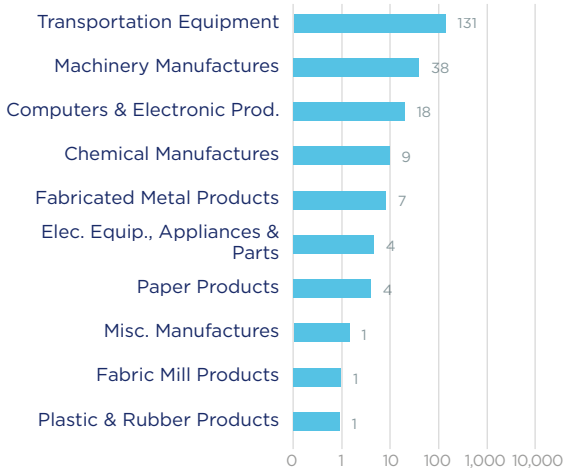
Top European Import Markets, 2020

Country	Imports ($ millions)
France	106
Germany	41
Italy	26
United Kingdom	16
Russia	9

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Arizona and Europe

Jobs

69,900
Since 2012: +19,500 (+38.7%)

European companies account for
57%
of foreign affiliate jobs

Employment within Arizona, 2019

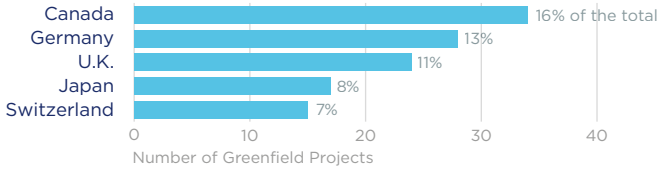
Country	Employment
Canada	21,600
United Kingdom	21,200
France	11,300
Japan	11,200
Germany	10,300

On a country basis, U.K. companies operating in Arizona represented 17% of total foreign affiliate employment in Arizona, with U.K. multinationals supporting approximately 7,500 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



214
Greenfield Projects (July 2011 - June 2021)

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Trade

Arizona Goods Exports to Europe, 2020

$3.8 bn

About one half of the state's exports to Europe consist of transportation equipment and computers & electronic products.

Arizona Goods Imports from Europe, 2020

$4.5 bn

Arizona's largest merchandise imports from Europe were transportation equipment and computers & electronic products, which combined represent about half of the state's total imports from Europe.

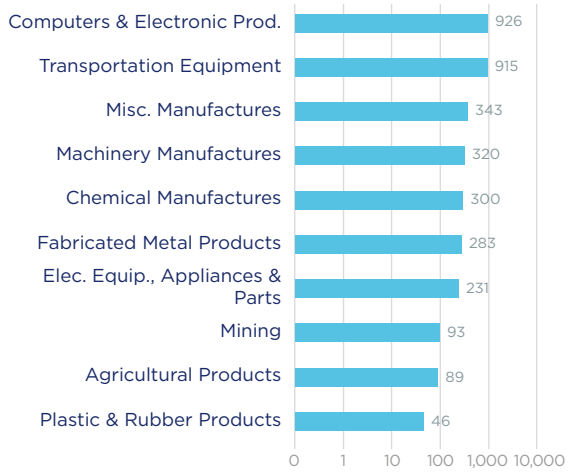
Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	689
United Kingdom	598
France	450
Germany	442
Ireland	274

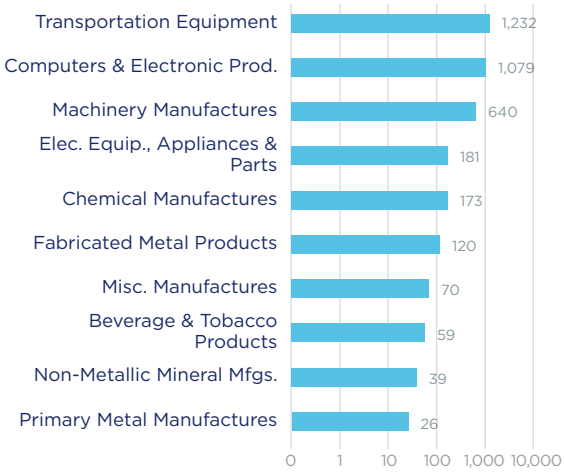
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	928
France	839
United Kingdom	621
Netherlands	400
Italy	399

Top Ten Exports to Europe, 2020 ($ millions)



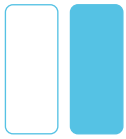
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Arkansas and Europe

Jobs



28,400
Since 2012: no change (+0.0%)

European companies account for
60%
of foreign affiliate jobs

Employment within Arkansas, 2019

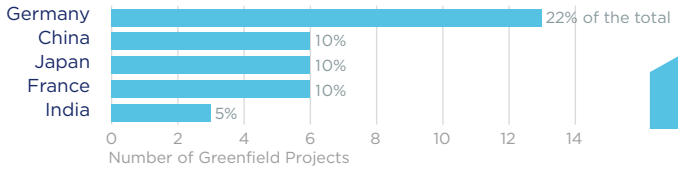
Country	Employment
United Kingdom	6,900
France	6,000
Japan	5,600
Switzerland	4,900
Canada	4,600

On a country basis, U.K. companies operating in Arkansas represented 15% of total foreign affiliate employment in Arkansas, with U.K. multinationals supporting approximately 2,200 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



59
Greenfield Projects (July 2011 - June 2021)

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Trade

Arkansas Goods Exports to Europe, 2020

$1.6 bn

Transportation equipment made up 53% of exports to Europe in 2020.

Arkansas Goods Imports from Europe, 2020

$1.8 bn

Transportation equipment is the top imported product from Europe, representing 55% of total imports.

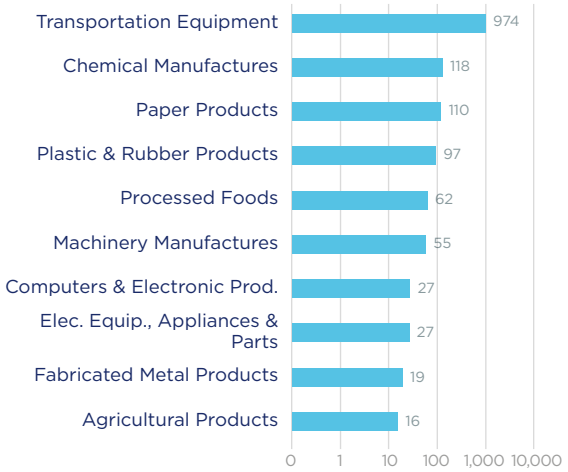
Top European Export Markets, 2020

Country	Exports ($ millions)
France	673
Netherlands	233
United Kingdom	168
Belgium	79
Germany	70

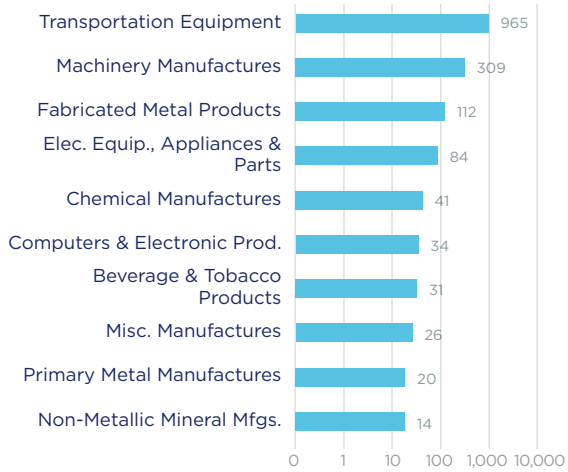
Top European Import Markets, 2020

Country	Imports ($ millions)
France	821
Germany	307
Italy	127
United Kingdom	124
Spain	52

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

California and Europe

Jobs

474,200
Since 2012: +99,200 (+26.5%)

European companies account for
56%
of foreign affiliate jobs

Employment within California, 2019

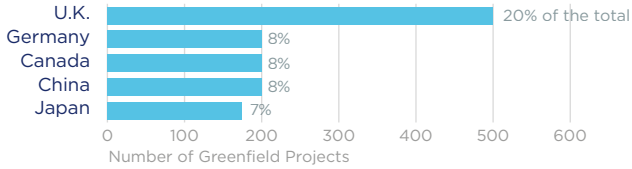
Country	Employment
United Kingdom	126,000
Japan	124,700
France	86,100
Germany	85,300
Canada	73,100

On a country basis, U.K. companies operating in California represented 15% of total foreign affiliate employment in California, with U.K. multinationals supporting approximately 34,800 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



2,502
Greenfield Projects (July 2011 - June 2021)

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Trade

California Goods Exports to Europe, 2020

$34.3 bn

21% of California's exports to Europe in 2020 consisted of high-tech goods (computers & electronic products).

California Goods Imports from Europe, 2020

$39.2 bn

Transportation equipment was the top product import, representing 30% of the state's total imports from Europe.

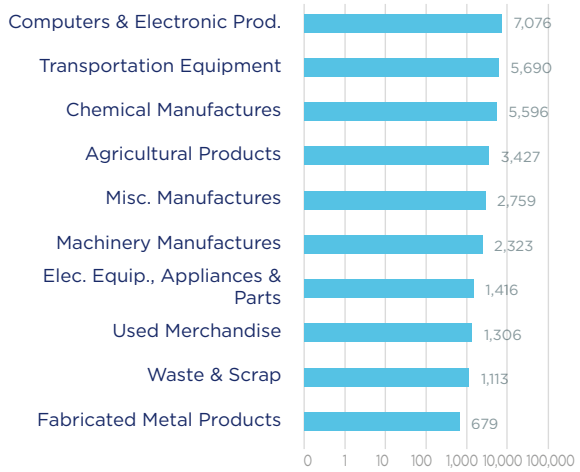
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	6,461
Netherlands	5,664
United Kingdom	4,968
Belgium	4,346
France	2,294

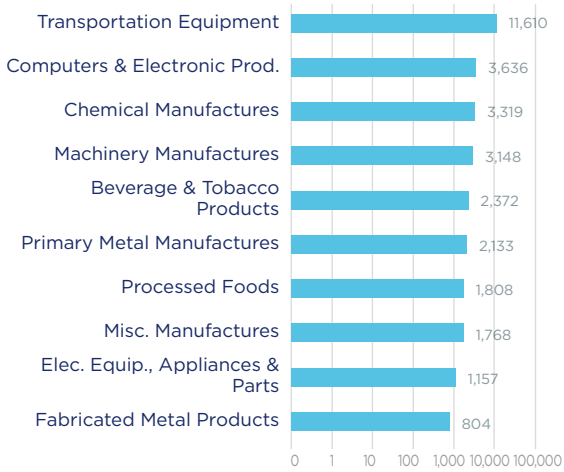
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	9,615
France	5,928
United Kingdom	3,749
Italy	3,688
Switzerland	2,708

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Colorado and Europe

Jobs

71,000
Since 2012: +21,200 (+42.6%)

European companies account for
60%
of foreign affiliate jobs

Employment within Colorado, 2019

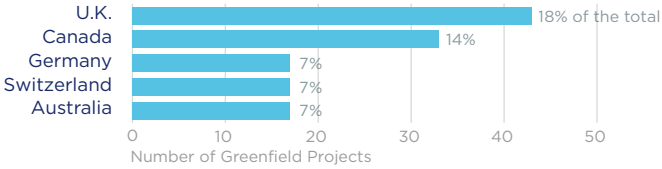
Country	Employment
United Kingdom	19,600
Canada	19,100
France	11,000
Germany	7,900
Switzerland	7,700

On a country basis, U.K. companies operating in Colorado represented 16% of total foreign affiliate employment in Colorado, with U.K. multinationals supporting approximately 6,900 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



237
Greenfield Projects (July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Colorado Goods Exports to Europe, 2020

$1.7 bn

About 24% of the state's exports to Europe consisted of high-tech goods (computers & electronic products) in 2020.

Colorado Goods Imports from Europe, 2020

$3.1 bn

Colorado's largest imports from Europe were also computers & electronic products, followed by machinery.

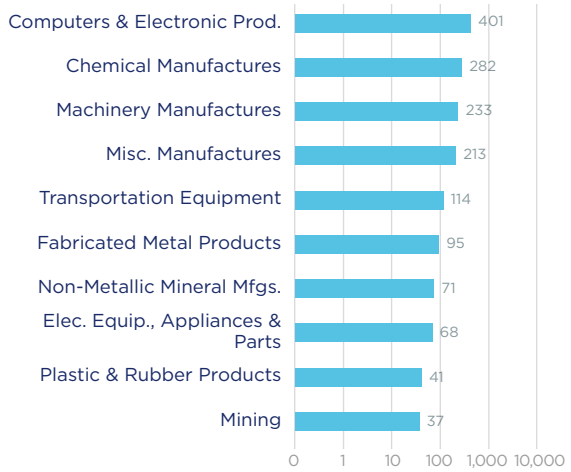
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	305
Netherlands	300
United Kingdom	202
Switzerland	183
Belgium	139

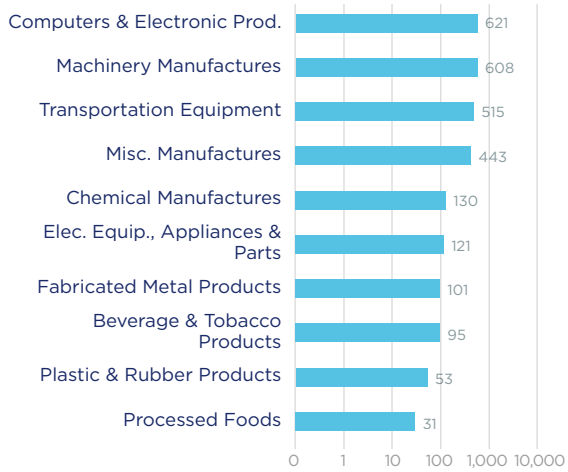
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	844
Germany	552
France	224
Italy	209
United Kingdom	190

Top Ten Exports to Europe, 2020 ($ millions)



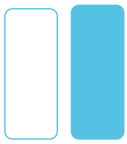
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Connecticut and Europe

Jobs



86,400
Since 2012: +2,300 (+2.7%)

European companies account for
75%
of foreign affiliate jobs

Employment within Connecticut, 2019

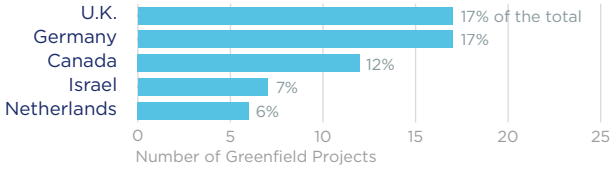
Country	Employment
United Kingdom	20,800
Netherlands	17,200
Germany	14,000
Japan	7,900
Canada	7,700

On a country basis, U.K. companies operating in Connecticut represented 18% of total foreign affiliate employment in Connecticut, with U.K. multinationals supporting approximately 1,400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



102
Greenfield Projects (July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Connecticut Goods Exports to Europe, 2020

$6.7 bn

Exports are heavily skewed towards transportation equipment, which represent almost 50% of the state's total exports to Europe.

Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	2,190
United Kingdom	1,153
France	894
Netherlands	841
Poland	232

Connecticut Goods Imports from Europe, 2020

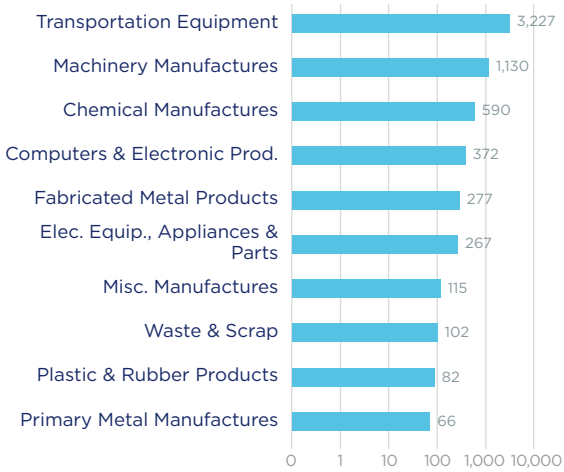
$6.0 bn

Chemicals and machinery were Connecticut's main import from Europe, representing 21% and 16% of the state's total merchandise imports from Europe, respectively.

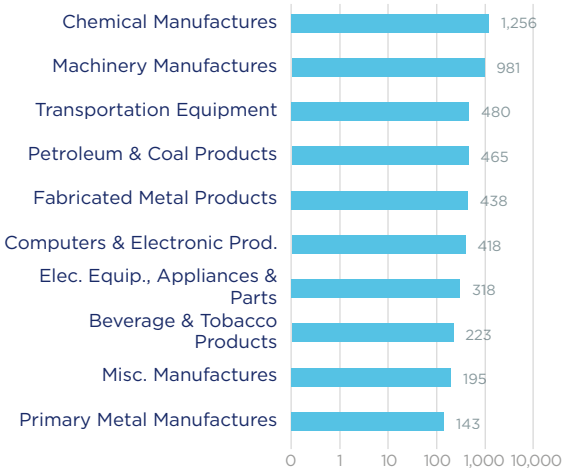
Top European Import Markets, 2020

Country	Imports ($ millions)
United Kingdom	1,499
Germany	1,150
Netherlands	709
France	579
Italy	375

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Delaware and Europe

Jobs

18,300
Since 2012: -2,000
(-9.9%)

European companies account for
74%
of foreign affiliate jobs

Employment within Delaware, 2019

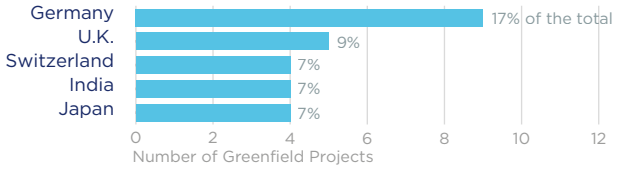
Country	Employment
United Kingdom	7,300
Germany	3,500
Netherlands	2,400
Canada	1,900
France	1,700

On a country basis, U.K. companies operating in Delaware represented 30% of total foreign affiliate employment in Delaware, with U.K. multinationals supporting approximately 1,000 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



54
Greenfield Projects
(July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Delaware Goods Exports to Europe, 2020

$900.7 m

Chemicals are Delaware's primary export to Europe, representing 30% of the state's total exports. That share is down from 50% last year, representing a diversification of state exports.

Top European Export Markets, 2020

Country	Exports ($ millions)
Switzerland	230
Germany	216
Belgium	126
United Kingdom	83
Netherlands	52

Delaware Goods Imports from Europe, 2020

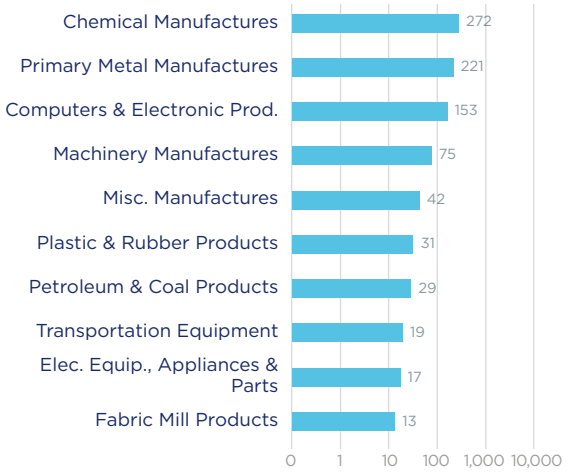
$5.4 bn

Chemicals are also Delaware's top import, also accounting for 70% of the state's total imports from Europe.

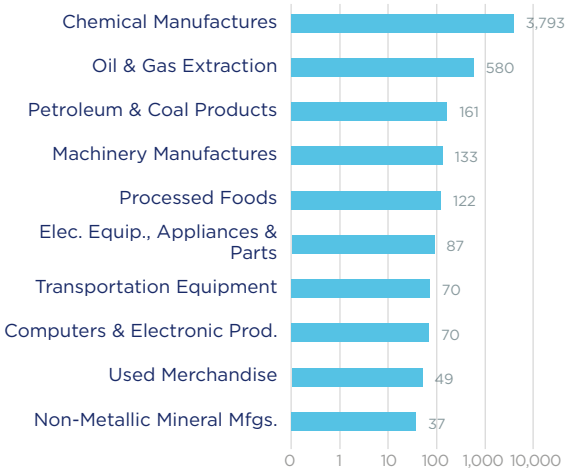
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	1,931
Belgium	622
Sweden	545
France	482
Russia	410

Top Ten Exports to Europe, 2020 ($ millions)



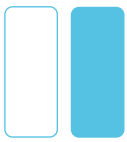
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Washington, District of Columbia (D.C.) and Europe

Jobs



19,300
Since 2012: -100
(-0.5%)

European companies account for
79%
of foreign affiliate jobs

Employment within D.C., 2019

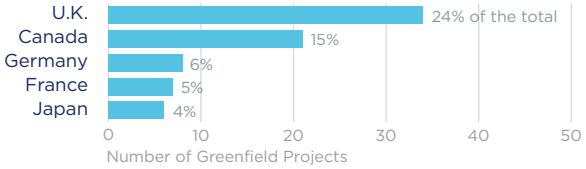
Country	Employment
United Kingdom	8,000
Canada	2,200
Switzerland	2,000
Germany	1,700
Netherlands	1,700

On a country basis, U.K. companies operating in Washington D.C. represented 33% of total foreign affiliate employment in DC, with U.K. multinationals supporting approximately 1,700 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



141
Greenfield Projects
(July 2011 - June 2021)

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Trade

Washington, D.C. Goods Exports to Europe, 2020

$742.8 m

Transportation Equipment accounts for 45% of Washington, D.C.'s total exports to Europe.

Washington, D.C. Goods Imports from Europe, 2020

$217.3 m

Washington D.C.'s top imports from Europe are used merchandise, beverage & tobacco products, and computers & electronic products.

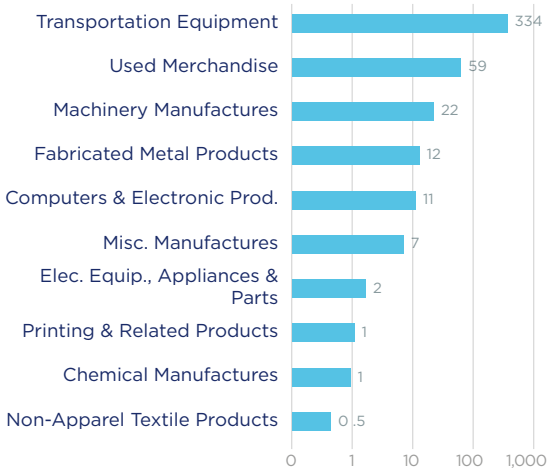
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	602
France	29
Sweden	22
Germany	17
Norway	16

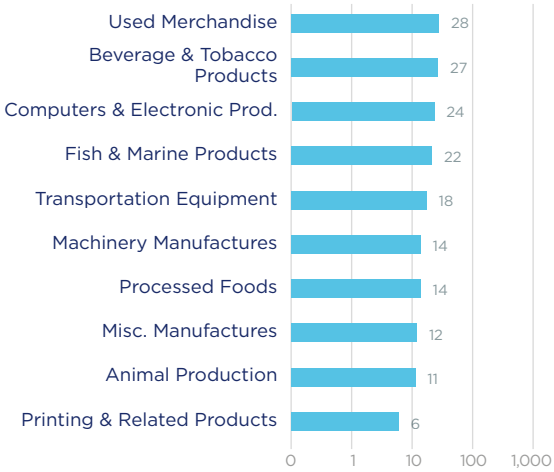
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	62
France	50
United Kingdom	29
Italy	16
Denmark	12

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



*Exports of "special classification provisions" of $292 billion excluded from chart.
Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Florida and Europe

Jobs

227,600
Since 2012: +60,700 (+36.4%)

European companies account for
62%
of foreign affiliate jobs

Employment within Florida, 2019

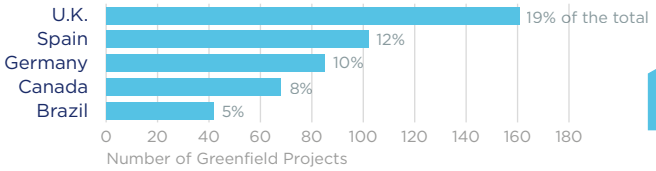
Country	Employment
United Kingdom	68,300
Canada	55,700
Germany	37,800
France	37,100
Switzerland	29,700

On a country basis, U.K. companies operating in Florida represented 19% of total foreign affiliate employment in Florida, with U.K. multinationals supporting approximately 21,800 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



848
Greenfield Projects (July 2011 - June 2021)

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Trade

Florida Goods Exports to Europe, 2020

$8.5 bn

Transportation Equipment accounts for about 27% of Florida's total exports to Europe.

Florida Goods Imports from Europe, 2020

$22.1 bn

Florida's imports from Europe are concentrated in chemicals and transportation equipment, representing a 23% and 22% share of the state's total imports from Europe, respectively.

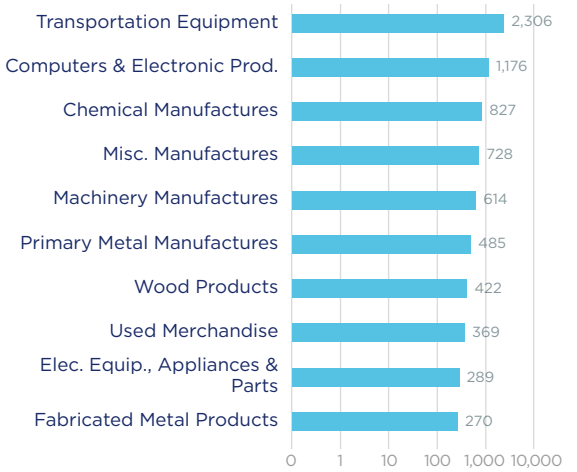
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	1,820
Germany	1,280
Netherlands	954
Italy	761
France	568

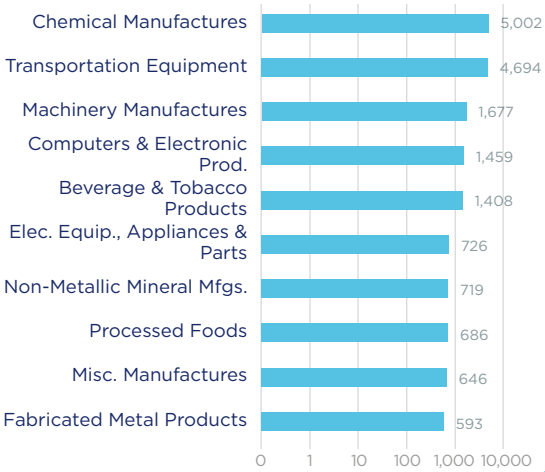
Top European Import Markets, 2020

Country	Imports ($ millions)
Ireland	4,108
Germany	3,581
France	2,772
United Kingdom	2,289
Italy	2,106

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Georgia and Europe

Jobs

161,200

Since 2012: +37,500 (+30.3%)

European companies account for

56%

of foreign affiliate jobs

Employment within Georgia, 2019

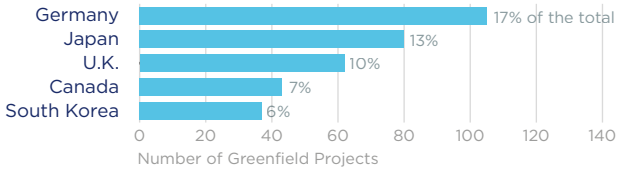
Country	Employment
Japan	38,500
United Kingdom	37,900
Canada	37,300
Germany	33,100
France	25,000

On a country basis, U.K. companies operating in Georgia represented 13% of total foreign affiliate employment in Georgia, with U.K. multinationals supporting approximately 12,200 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



619

Greenfield Projects (July 2011 - June 2021)

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Trade

Georgia Goods Exports to Europe, 2020

$11.4 bn

Almost 50% of Georgia's exports to Europe consist of transportation equipment.

Georgia Goods Imports from Europe, 2020

$24.9 bn

Transportation equipment, chemicals and machinery manufactures were the top product imports from Europe.

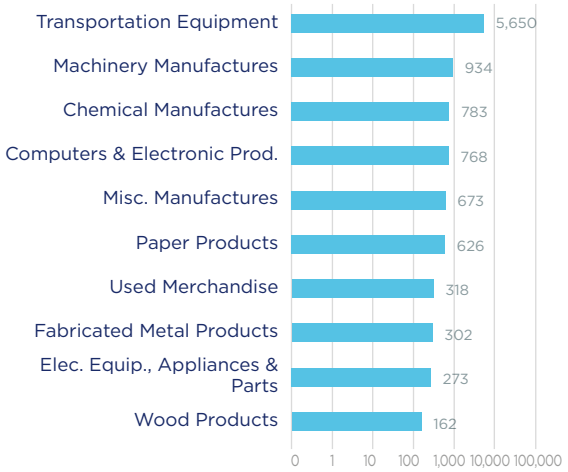
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	4,086
United Kingdom	1,138
Netherlands	1,026
Belgium	841
France	645

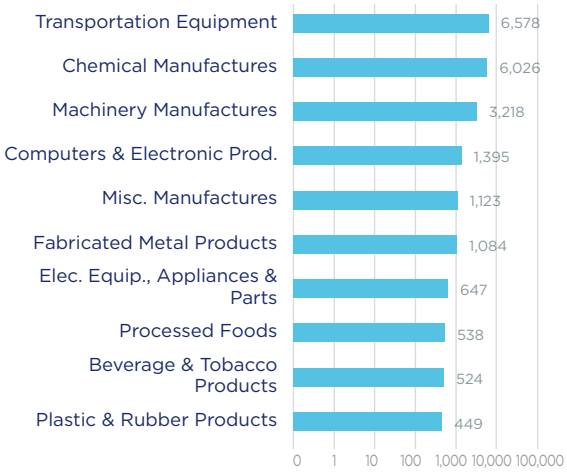
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	7,354
United Kingdom	3,446
France	1,877
Italy	1,716
Belgium	1,649

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Hawaii and Europe

Jobs

13,200
Since 2012: -1,100 (-7.7%)

European companies account for
32%
of foreign affiliate jobs

Employment within Hawaii, 2019

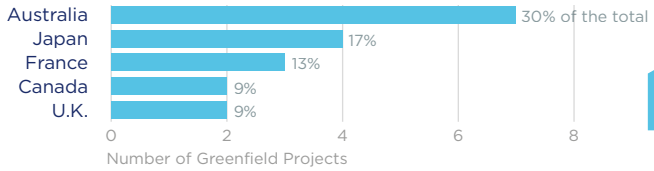
Country	Employment
Japan	21,200
France	4,200
United Kingdom	2,400
Germany	1,600
Canada	1,400

On a country basis, French companies operating in Hawaii represented 10% of total foreign affiliate employment in Hawaii, with French multinationals supporting approximately 1,800 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



23
Greenfield Projects (July 2011 - June 2021)

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Trade

Hawaii Goods Exports to Europe, 2020

$20.2 m

Transportation equipment and computer & electronic products led the way as top export categories.

Hawaii Goods Imports from Europe, 2020

$332.8 m

Hawaii's top European import category was oil & gas, which made up 57% of total imports in 2020, followed by transportation equipment.

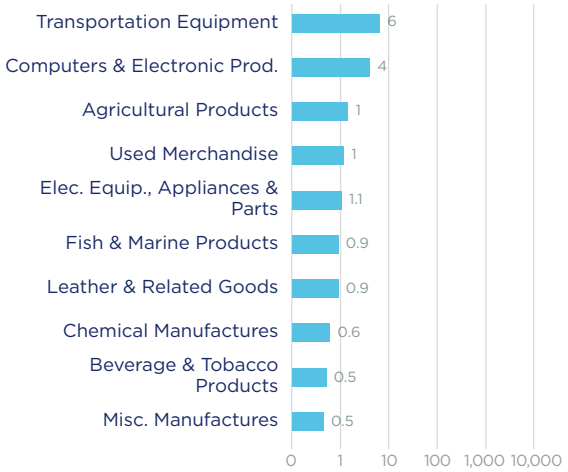
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	6
Germany	3
Netherlands	2
France	2
Switzerland	2

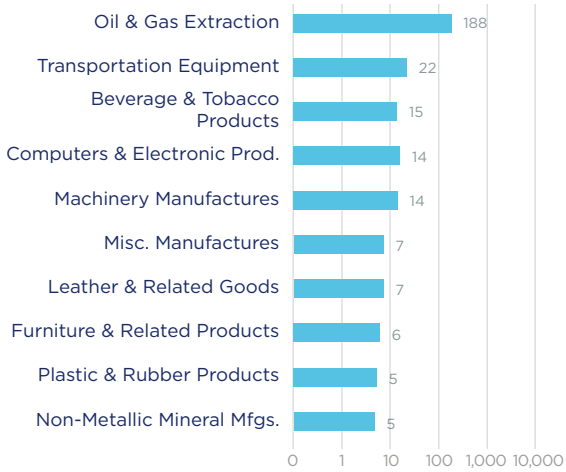
Top European Import Markets, 2020

Country	Imports ($ millions)
Russia	188
United Kingdom	39
Italy	25
Germany	20
Netherlands	15

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Idaho and Europe

Jobs

12,900
Since 2012: +1,800 (+16.2%)

European companies account for
67%
of foreign affiliate jobs

Employment within Idaho, 2019

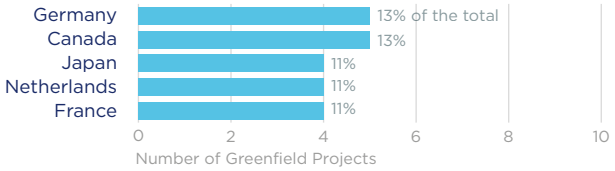
Country	Employment
Canada	3,800
France	2,800
Germany	2,800
United Kingdom	2,600
Japan	1,100

On a country basis, French companies operating in Idaho represented 15% of total foreign affiliate employment in Idaho, with French multinationals supporting approximately 300 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



38
Greenfield Projects (July 2011 - June 2021)

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Trade

Idaho Goods Exports to Europe, 2020

$301.8 m

Agricultural products, machinery and chemicals were Idaho's top export products to Europe.

Idaho Goods Imports from Europe, 2020

$491.7 m

Metals and machinery represented a combined 50% share of the state's total imports from Europe.

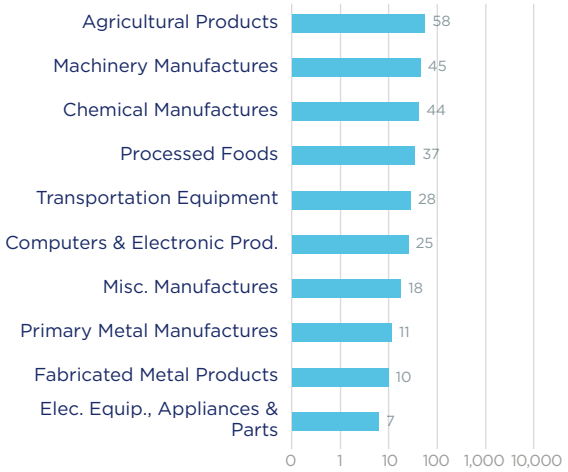
Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	100
United Kingdom	51
Germany	28
Spain	22
Ireland	15

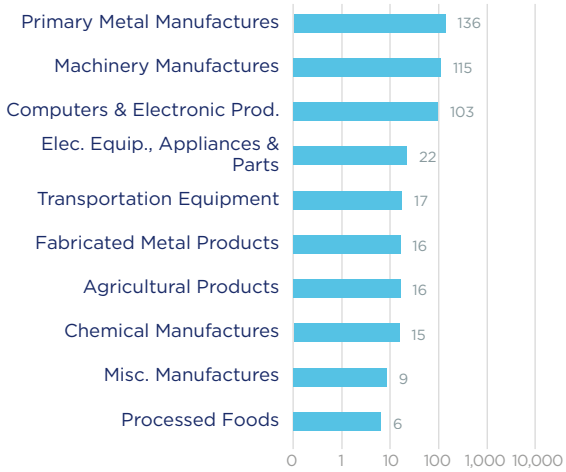
Top European Import Markets, 2020

Country	Imports ($ millions)
United Kingdom	147
Germany	76
Netherlands	46
Greece	40
Italy	29

Top Ten Exports to Europe, 2020 ($ millions)



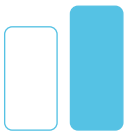
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Illinois and Europe

Jobs



227,400

Since 2012: +37,600 (+19.8%)

European companies account for

60%

of foreign affiliate jobs

Employment within Illinois, 2019

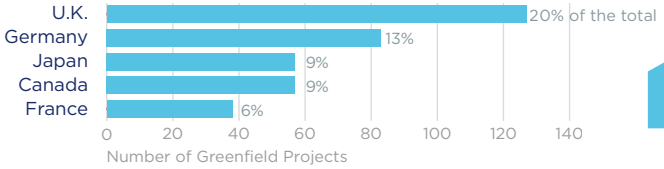
Country	Employment
United Kingdom	62,400
Japan	58,000
Germany	47,500
Canada	40,800
France	33,600

On a country basis, U.K. companies operating in Illinois represented 16% of total foreign affiliate employment in Illinois, with U.K. multinationals supporting approximately 3,900 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



635

Greenfield Projects (July 2011 - June 2021)

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Trade

Illinois Goods Exports to Europe, 2020

$11.9 bn

Chemicals and computers & electronic products are top exports, followed by machinery and transportation equipment.

Illinois Goods Imports from Europe, 2020

$30.6 bn

Chemicals, machinery and transportation equipment were the state's top imports from Europe.

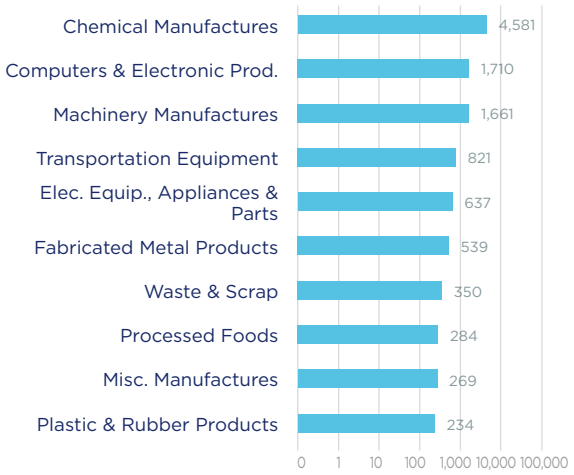
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	3,509
United Kingdom	1,612
Netherlands	1,394
Belgium	1,051
France	765

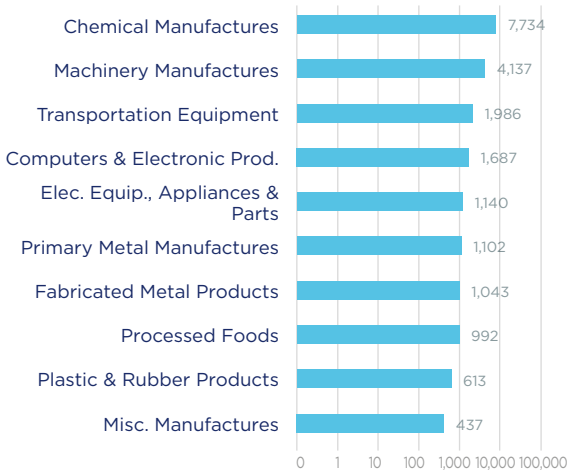
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	8,720
Netherlands	7,113
United Kingdom	2,327
Italy	2,214
Ireland	1,991

Top Ten Exports to Europe, 2020 ($ millions)



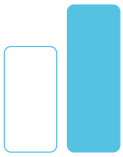
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Indiana and Europe

Jobs



126,600
Since 2012: +35,600 (+39.1%)

European companies account for
59%
of foreign affiliate jobs

Employment within Indiana, 2019

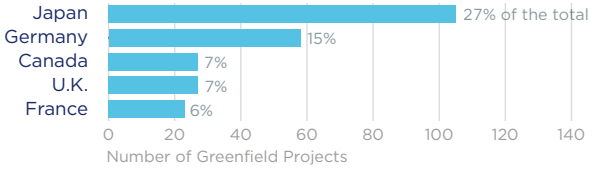
Country	Employment
Japan	56,000
United Kingdom	36,800
France	31,700
Germany	17,900
Canada	15,900

On a country basis, U.K. companies operating in Indiana represented 17% of total foreign affiliate employment in Indiana, with U.K. multinationals supporting approximately 5,400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



388
Greenfield Projects (July 2011 - June 2021)

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Trade

Indiana Goods Exports to Europe, 2020

$8.9 bn

Trade in chemicals represented 47% of total exports.

Indiana Goods Imports from Europe, 2020

$31.3 bn

Chemicals were also the state's largest import from Europe, representing 70% of total imports.

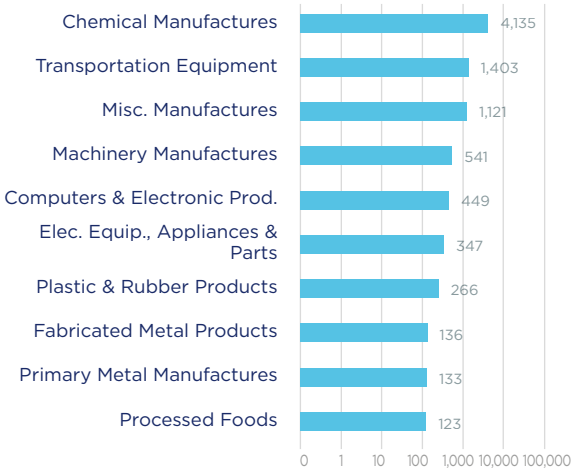
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	1,779
Netherlands	1,302
France	1,273
Italy	1,084
United Kingdom	938

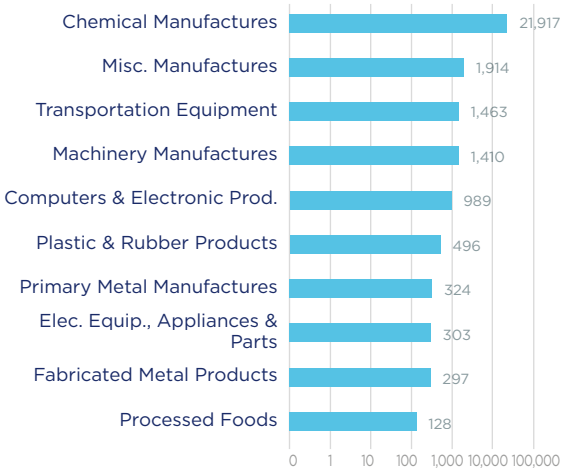
Top European Import Markets, 2020

Country	Imports ($ millions)
Ireland	11,609
Denmark	6,597
Germany	3,859
Switzerland	2,622
France	1,589

Top Ten Exports to Europe, 2020 ($ millions)



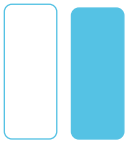
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Iowa and Europe

Jobs



34,500
Since 2012: -1,000 (-2.8%)

European companies account for
56%
of foreign affiliate jobs

Employment within Iowa, 2019

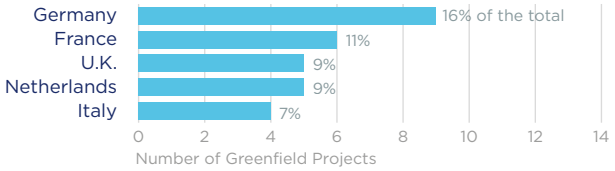
Country	Employment
United Kingdom	7,100
Germany	6,800
Netherlands	5,100
Japan	4,900
France	4,300

On a country basis, U.K. companies operating in Iowa represented 12% of total foreign affiliate employment in Iowa, with U.K. multinationals supporting approximately 3,300 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



56
Greenfield Projects (July 2011 - June 2021)

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Trade

Iowa Goods Exports to Europe, 2020

$2.3 bn

Machinery manufactures accounted for 37% of total exports, or roughly $900 million. Chemicals, the second largest export category, represented less than half of that amount.

Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	591
Netherlands	290
United Kingdom	235
France	216
Italy	130

Iowa Goods Imports from Europe, 2020

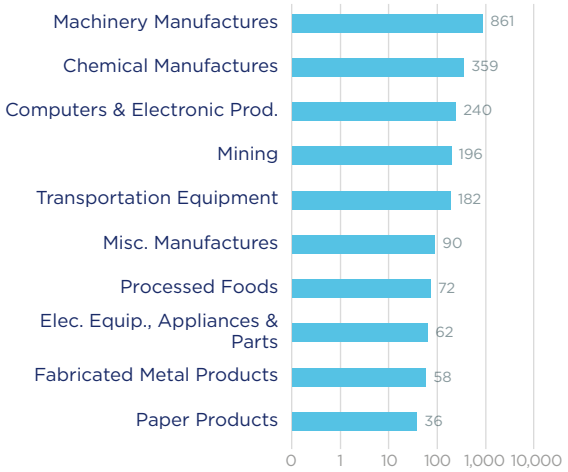
$2.2 bn

Machinery manufactures and chemicals were also the top product imports from Europe.

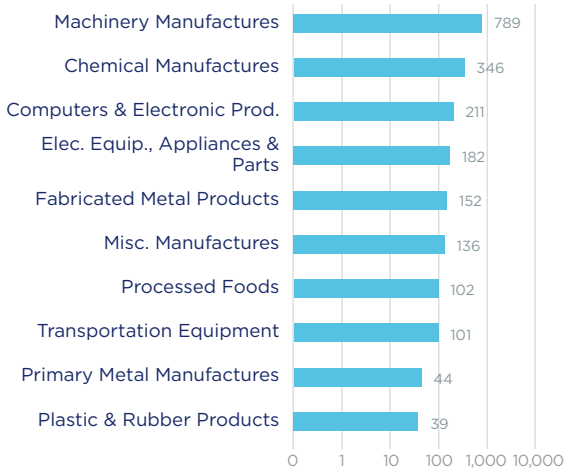
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	718
Italy	270
Netherlands	182
United Kingdom	159
France	158

Top Ten Exports to Europe, 2020 ($ millions)



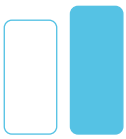
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Kansas and Europe

Jobs



38,800
Since 2012: +4,200 (+12.1%)

European companies account for
51%
of foreign affiliate jobs

Employment within Kansas, 2019

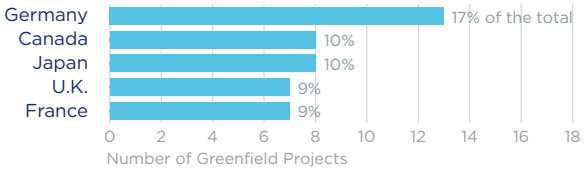
Country	Employment
Japan	11,600
Canada	9,900
United Kingdom	8,700
Switzerland	7,500
Germany	6,800

On a country basis, U.K. companies operating in Kansas represented 11% of total foreign affiliate employment in Kansas, with U.K. multinationals supporting approximately 1,000 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



77
Greenfield Projects (July 2011 - June 2021)

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Trade

Kansas Goods Exports to Europe, 2020

$2.0 bn

Almost 75% of Kansas's exports to Europe was concentrated in four main export categories: transportation equipment, computer & electronic products, chemicals and machinery.

Kansas Goods Imports from Europe, 2020

$2.5 bn

Machinery manufactures represented 21% of the state's total imports from Europe.

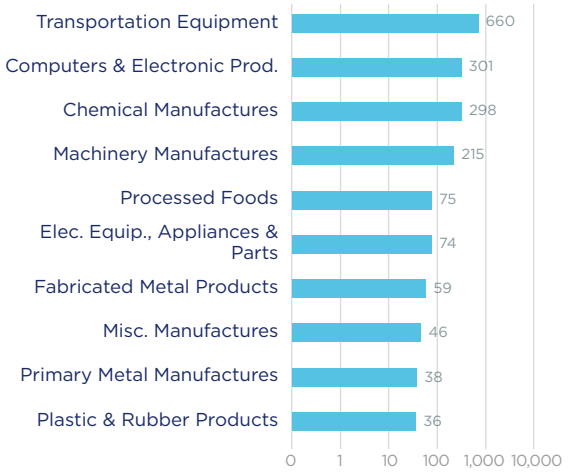
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	394
United Kingdom	376
France	156
Austria	129
Netherlands	113

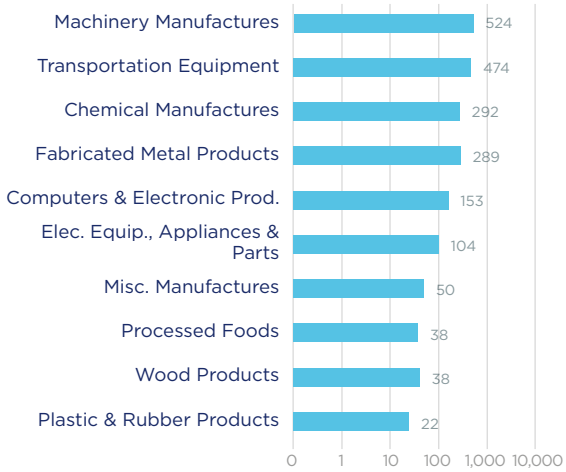
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	896
United Kingdom	343
Italy	191
France	157
Spain	120

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Kentucky and Europe

Jobs

59,200
Since 2012: +17,100 (+40.6%)

European companies account for
43%
of foreign affiliate jobs

Employment within Kentucky, 2019

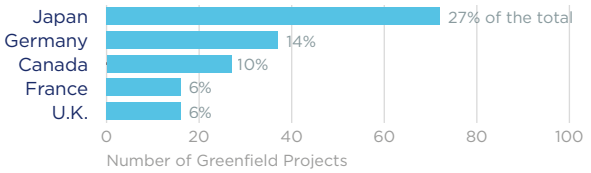
Country	Employment
Japan	44,400
Germany	15,100
France	10,400
Canada	10,400
United Kingdom	10,000

On a country basis, German companies operating in Kentucky represented 11% of total foreign affiliate employment in Kentucky, with German multinationals supporting approximately 6,200 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



266
Greenfield Projects (July 2011 - June 2021)

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Trade

Kentucky Goods Exports to Europe, 2020

$7.9 bn

Reflecting the large presence of automobile manufacturers in the state, Kentucky's top export to Europe in 2020 was transportation equipment (51% of total exports).

Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	2,487
France	1,705
Netherlands	930
Germany	840
Austria	577

Kentucky Goods Imports from Europe, 2020

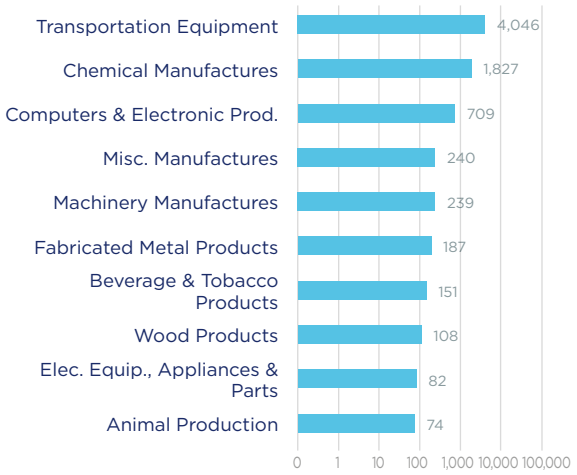
$21.6 bn

Chemical manufactures were the state's largest import, followed by transportation equipment.

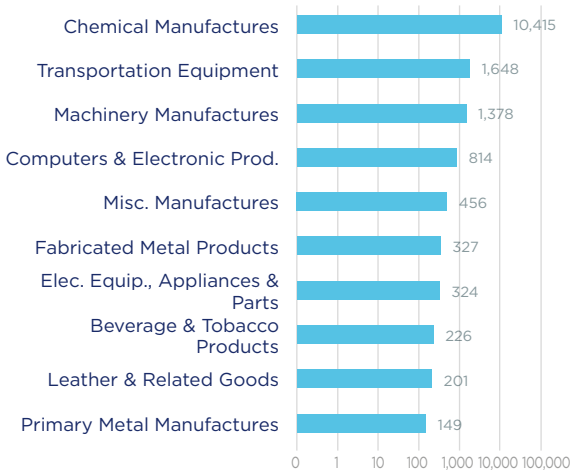
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	5,443
Ireland	3,767
Germany	2,497
Italy	2,306
Netherlands	2,085

Top Ten Exports to Europe, 2020 ($ millions)



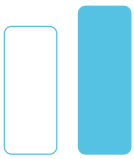
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Louisiana and Europe

Jobs



46,500
Since 2012: +6,300 (+15.7%)

European companies account for
61%
of foreign affiliate jobs

Employment within Louisiana, 2019

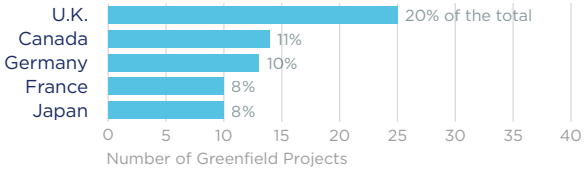
Country	Employment
United Kingdom	16,100
Canada	13,500
France	10,200
Germany	6,700
Netherlands	4,300

On a country basis, U.K. companies operating in Louisiana represented 21% of total foreign affiliate employment in Louisiana, with U.K. multinationals supporting approximately 1,600 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



127
Greenfield Projects (July 2011 - June 2021)

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Trade

Louisiana Goods Exports to Europe, 2020

$10.1 bn

The majority of the state's exports consist of energy, agricultural and chemical products.

Louisiana Goods Imports from Europe, 2020

$5.6 bn

Petroleum & coal products were Louisiana's top imported good from Europe.

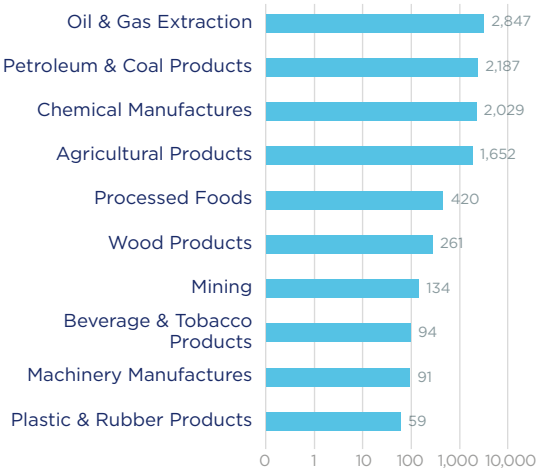
Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	2,837
United Kingdom	1,421
Spain	1,022
Belgium	991
France	874

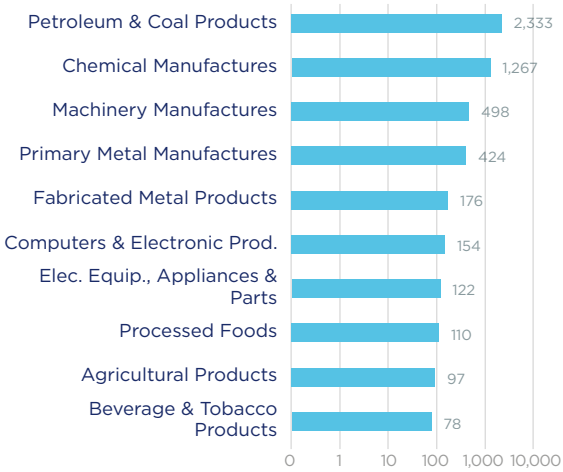
Top European Import Markets, 2020

Country	Imports ($ millions)
Russia	2,586
Germany	457
United Kingdom	355
Italy	298
France	234

Top Ten Exports to Europe, 2020 ($ millions)



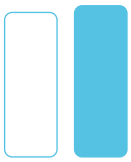
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Maine and Europe

Jobs



22,900
Since 2012: +1,000 (+4.6%)

European companies account for
64%
of foreign affiliate jobs

Employment within Maine, 2019

Country	Employment
Netherlands	17,500
Canada	8,700
Switzerland	2,500
United Kingdom	2,100
Germany	1,700

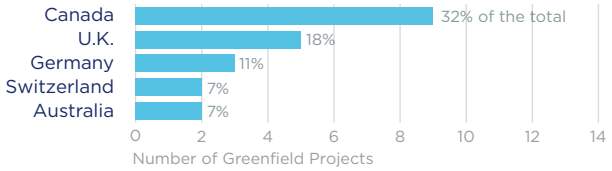
On a country basis, Dutch companies operating in Maine represented 49% of total foreign affiliate employment in Maine, with Dutch multinationals supporting approximately 17,200 more jobs in 2019 than in 2012.

*Netherlands employment data suppressed to avoid disclosure of individual company data. Range of 10,000 - 24,999 employees given.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



28
Greenfield Projects (July 2011 - June 2021)

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Trade

Maine Goods Exports to Europe, 2020

$394.4 m

Maine's exports to Europe are relatively diverse, with top products including transportation equipment, electronic products, chemicals and paper products.

Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	81
Germany	55
United Kingdom	47
Italy	39
Turkey	33

Maine Goods Imports from Europe, 2020

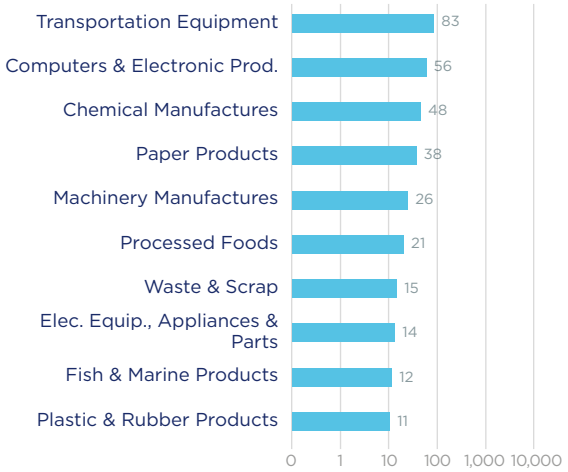
$674.5 m

Machinery manufactures represent almost 20% of Maine's total imports from Europe, followed by transportation equipment and petroleum & coal.

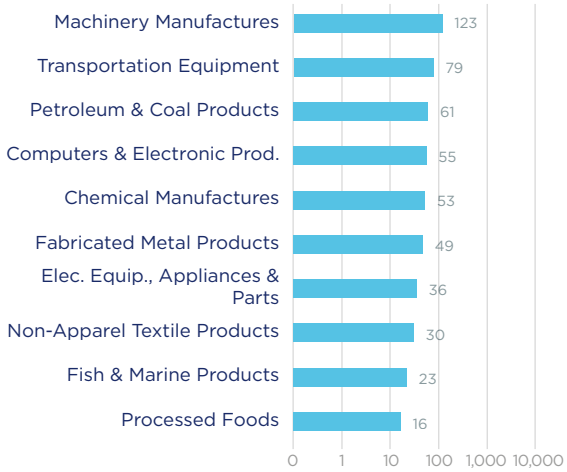
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	164
Italy	70
United Kingdom	70
Netherlands	45
Denmark	42

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Maryland and Europe

Jobs

90,000
Since 2012: +5,400 (+6.4%)

European companies account for
77%
of foreign affiliate jobs

Employment within Maryland, 2019

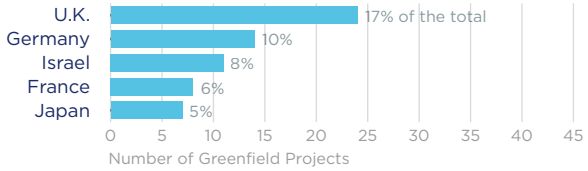
Country	Employment
United Kingdom	25,600
Netherlands	24,800
Canada	14,100
France	10,200
Germany	9,700

On a country basis, U.K. companies operating in Maryland represented 22% of total foreign affiliate employment in Maryland, with U.K. multinationals supporting approximately 7,500 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



141
Greenfield Projects (July 2011 - June 2021)

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Trade

Maryland Goods Exports to Europe, 2020

$5.0 bn

The state's top exports are chemicals, transportation equipment and oil & gas.

Maryland Goods Imports from Europe, 2020

$12.0 bn

Transportation equipment and machinery manufactures were the top product imports.

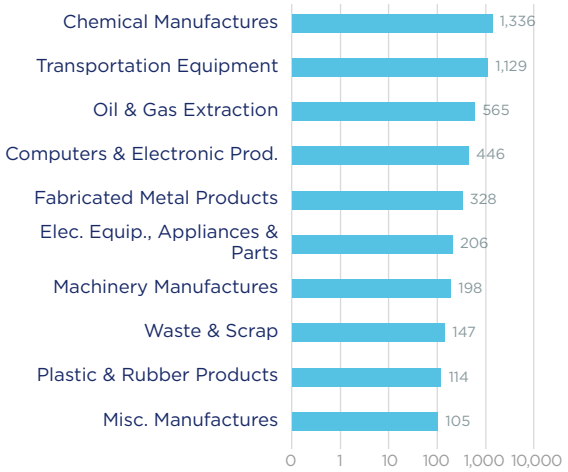
Top European Export Markets, 2020

Country	Exports ($ millions)
France	1,369
Netherlands	1,224
United Kingdom	536
Belgium	417
Germany	307

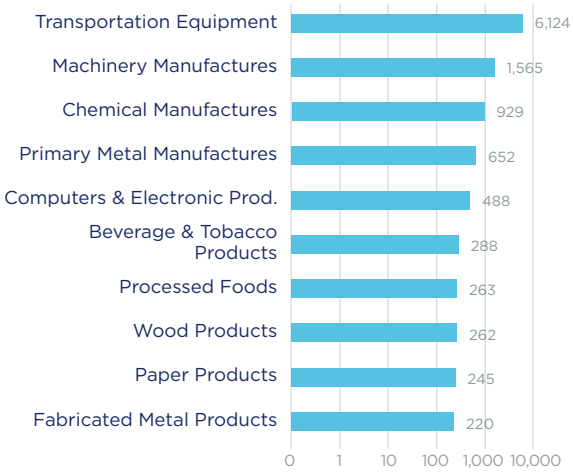
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	3,991
United Kingdom	2,116
Sweden	901
Italy	690
Austria	433

Top Ten Exports to Europe, 2020 ($ millions)



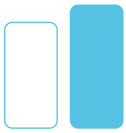
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Massachusetts and Europe

Jobs



167,900
Since 2012: +23,400 (+16.2%)

European companies account for
72%
of foreign affiliate jobs

Employment within Massachusetts, 2019

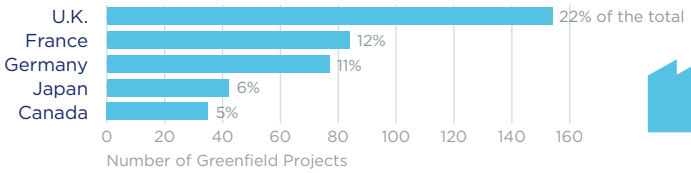
Country	Employment
United Kingdom	40,600
Netherlands	36,100
France	28,200
Japan	25,600
Canada	23,500

On a country basis, U.K. companies operating in Massachusetts represented 17% of total foreign affiliate employment in Massachusetts, with U.K. multinationals supporting approximately 2,600 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



699
Greenfield Projects (July 2011 - June 2021)

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Trade

Massachusetts Goods Exports to Europe, 2020

$9.9 bn

Electronic products and primary metal manufactures were the top exports to Europe, followed by chemicals.

Massachusetts Goods Imports from Europe, 2020

$11.8 bn

Key imports from Europe include miscellaneous manufactured products, computer & electronic products, and chemicals.

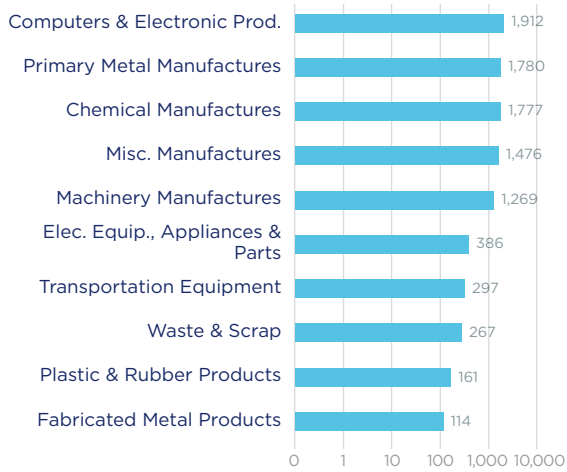
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	2,285
Germany	2,003
Netherlands	1,220
France	718
Switzerland	664

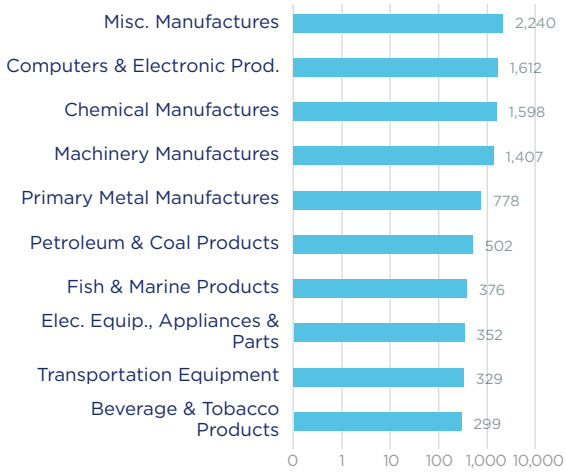
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	2,202
Ireland	1,907
United Kingdom	1,727
Switzerland	1,127
Italy	845

Top Ten Exports to Europe, 2020 ($ millions)



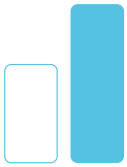
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Michigan and Europe

Jobs



201,600

Since 2012: +76,100 (+60.6%)

European companies account for

64%

of foreign affiliate jobs

Employment within Michigan, 2019

Country	Employment
Germany	52,100
United Kingdom	38,700
Netherlands	37,500
Japan	35,000
Canada	30,600

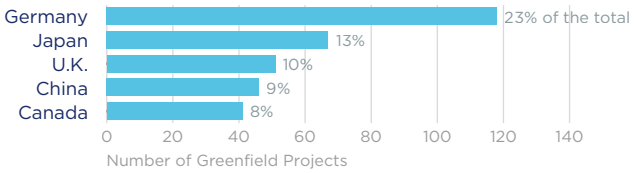
On a country basis, German companies operating in Michigan represented 16% of total foreign affiliate employment in Michigan, with German multinationals supporting approximately 22,600 more jobs in 2019 than in 2012.

*Netherlands employment data suppressed to avoid disclosure of individual company data. Range of 25,000 - 49,999 employees given.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



514

Greenfield Projects (July 2011 - June 2021)

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Trade

Michigan Goods Exports to Europe, 2020

$7.1 bn

Transportation equipment is the largest exported product, representing 32% of the state's total exports to Europe.

Michigan Goods Imports from Europe, 2020

$11.7 bn

Imports from Europe mainly consist of transportation equipment and machinery.

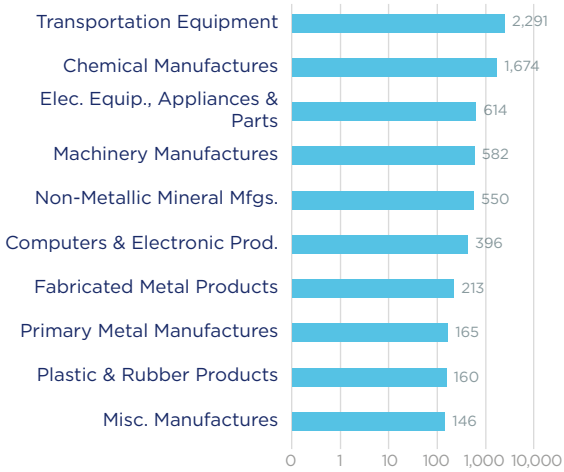
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	1,619
Italy	994
Spain	897
Belgium	750
United Kingdom	700

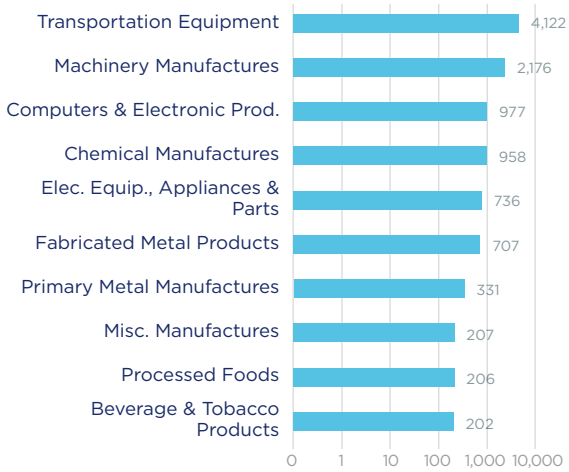
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	3,565
Italy	2,770
Spain	818
France	610
United Kingdom	607

Top Ten Exports to Europe, 2020 ($ millions)



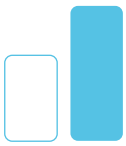
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Minnesota and Europe

Jobs



97,100
Since 2012: +35,300 (+57.1%)

European companies account for
62%
of foreign affiliate jobs

Employment within Minnesota, 2019

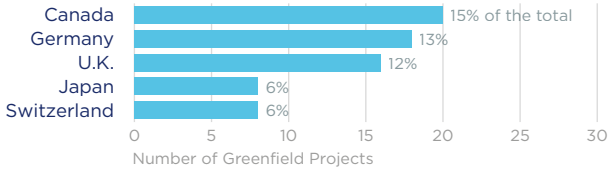
Country	Employment
Canada	27,000
Germany	22,500
United Kingdom	21,000
Japan	10,500
Switzerland	8,600

On a country basis, German companies operating in Minnesota represented 14% of total foreign affiliate employment in Minnesota, with German multinationals supporting approximately 12,400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



136
Greenfield Projects (July 2011 - June 2021)

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Trade

Minnesota Goods Exports to Europe, 2020

$4.3 bn

Computers & electronic products account for almost one-quarter of Minnesota's exports to Europe.

Minnesota Goods Imports from Europe, 2020

$4.1 bn

Computers & electronic products were also the state's top import category from Europe.

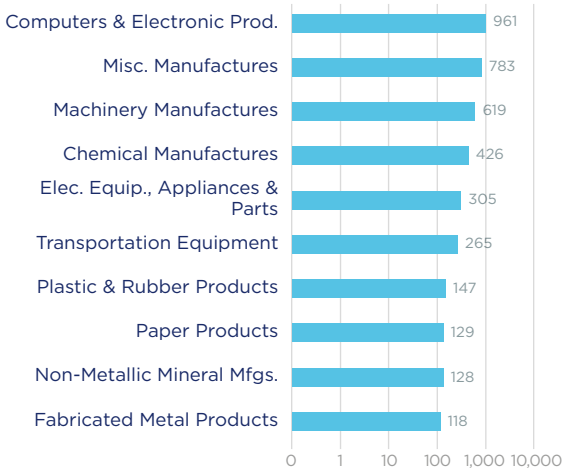
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	845
Belgium	530
United Kingdom	499
Netherlands	459
Ireland	446

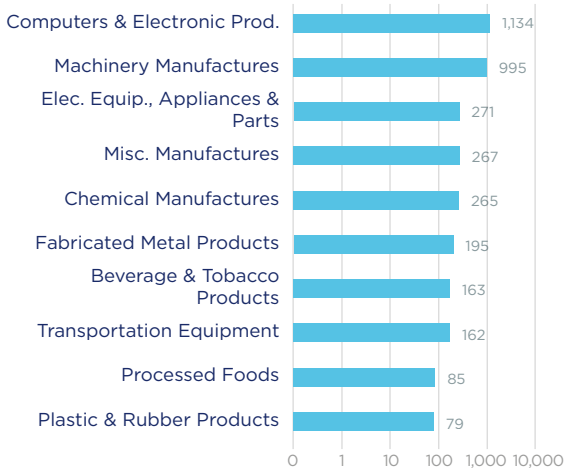
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	1,021
Ireland	767
Italy	483
United Kingdom	376
France	210

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Mississippi and Europe

Jobs

20,700
Since 2012: -200
(-1.0%)

European companies account for
45%
of foreign affiliate jobs

Employment within Mississippi, 2019

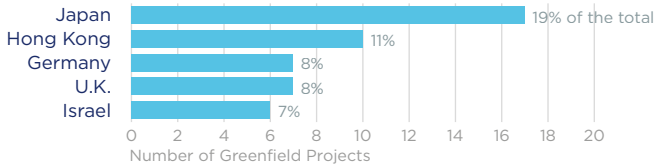
Country	Employment
Japan	9,900
Canada	6,400
United Kingdom	5,300
France	4,800
Germany	4,300

On a country basis, U.K. companies operating in Mississippi represented 12% of total foreign affiliate employment in Mississippi, with U.K. multinationals supporting approximately 600 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



89
Greenfield Projects
(July 2011 - June 2021)

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Trade

Mississippi Goods Exports to Europe, 2020

$1.9 bn

Petroleum & coal products represented about 26% of Mississippi's total exports to Europe in 2020. The next largest export category was miscellaneous manufactures, accounting for 22% of total exports.

Top European Export Markets, 2020

Country	Exports ($ millions)
Belgium	401
Netherlands	398
Germany	192
Turkey	187
United Kingdom	134

Mississippi Goods Imports from Europe, 2020

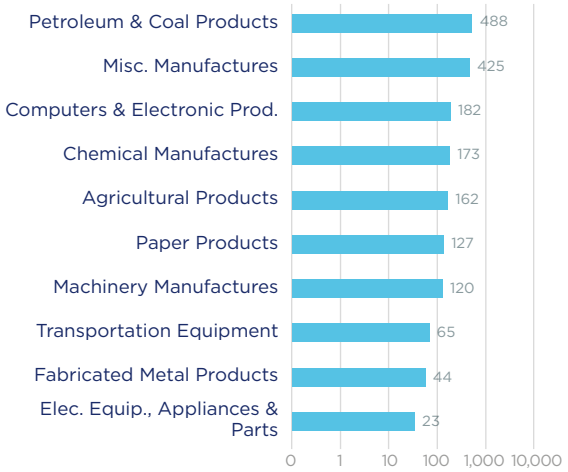
$3.8 bn

Imports from Europe were relatively diverse, with seven different product categories each accounting for over $200 million worth of European imports in 2020.

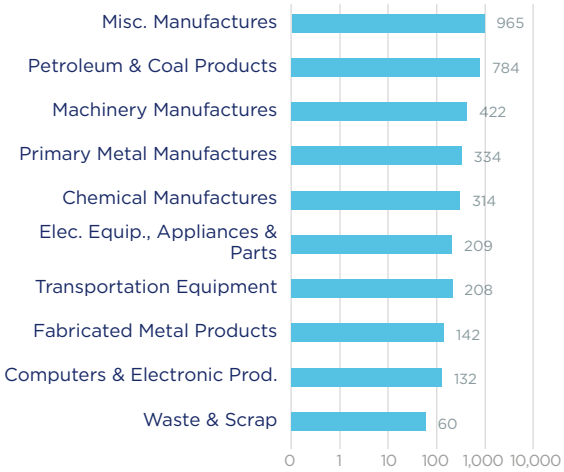
Top European Import Markets, 2020

Country	Imports ($ millions)
Russia	806
Ireland	641
Germany	623
Italy	264
France	253

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Missouri and Europe

Jobs

87,100

Since 2012: +22,600 (+35.0%)

European companies account for **64%** of foreign affiliate jobs

Employment within Missouri, 2019

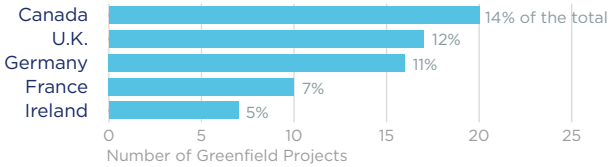
Country	Employment
United Kingdom	19,400
Germany	17,000
Japan	16,900
Canada	15,100
France	12,200

On a country basis, U.K. companies operating in Missouri represented 14% of total foreign affiliate employment in Missouri, with U.K. multinationals supporting approximately 1,400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



142

Greenfield Projects (October 2010 -September 2020)*

*Data unavailable for latest year.

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Missouri Goods Exports to Europe, 2020

$2.4 bn

The top exports to Europe from Missouri in 2020 were chemicals, machinery and computers & electronic products.

Missouri Goods Imports from Europe, 2020

$4.0 bn

Chemicals and machinery were the top imported goods from Europe.

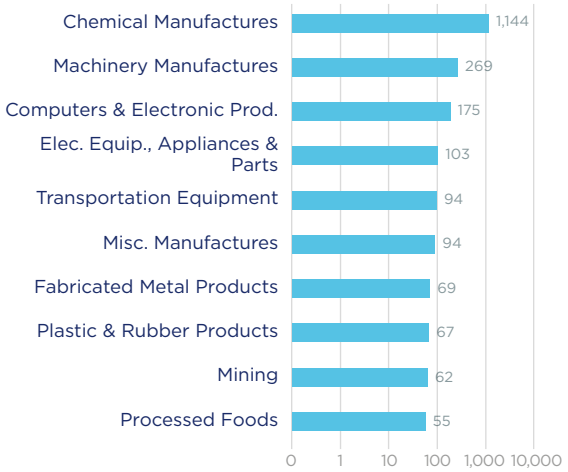
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	538
France	322
United Kingdom	313
Netherlands	273
Belgium	251

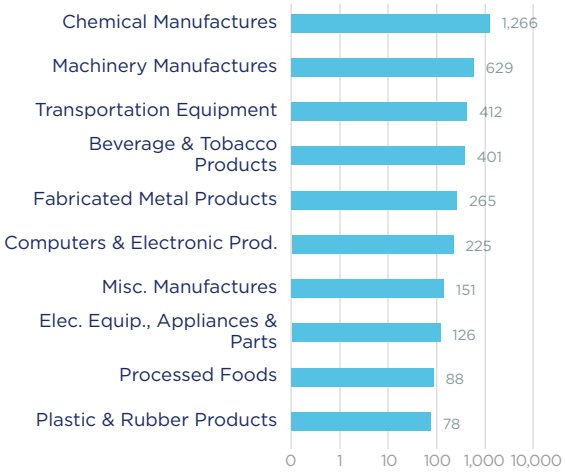
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	1,258
France	403
Belgium	363
Italy	324
United Kingdom	287

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Montana and Europe

Jobs

4,700
Since 2012: -100
(-2.1%)

European companies account for
47%
of foreign affiliate jobs

Employment within Montana, 2019

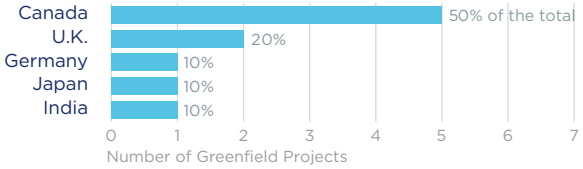
Country	Employment
United Kingdom	1,900
France	1,100
Canada	1,000
Japan	500
Switzerland	250

On a country basis, U.K. companies operating in Montana represented 20% of total foreign affiliate employment in Montana, with U.K. multinationals supporting approximately 400 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



10
Greenfield Projects
(July 2011 - June 2021)

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Trade

Montana Goods Exports to Europe, 2020

$222.0 m

Exports are relatively small and skewed towards chemicals, machinery and agricultural products.

Montana Goods Imports from Europe, 2020

$264.6 m

Montana's imports from Europe are also small and heavily concentrated in waste & scrap.

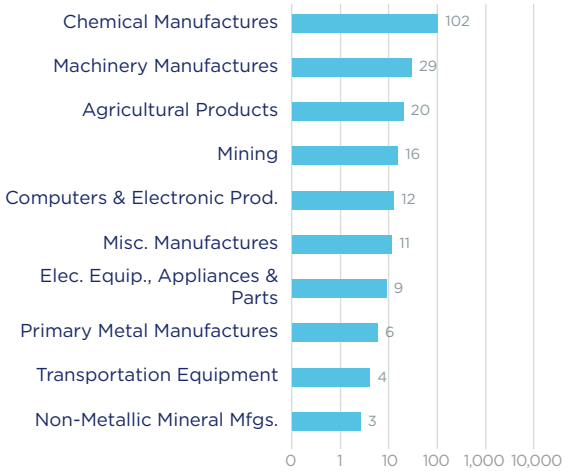
Top European Export Markets, 2020

Country	Exports ($ millions)
Belgium	68
United Kingdom	30
Germany	23
Netherlands	17
France	17

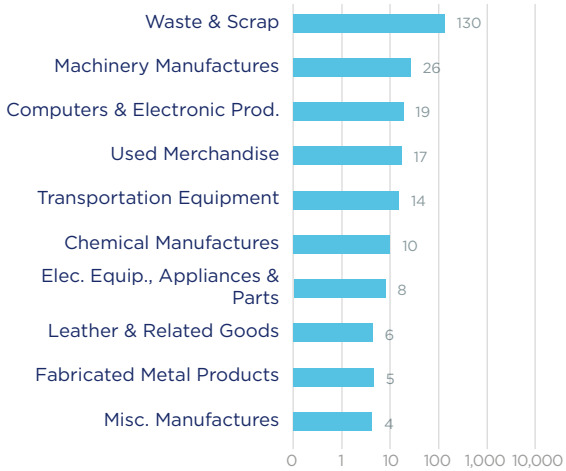
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	159
United Kingdom	33
France	21
Italy	17
Netherlands	5

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Nebraska and Europe

Jobs

17,300
Since 2012: +1,900 (+12.3%)

European companies account for
49%
of foreign affiliate jobs

Employment within Nebraska, 2019

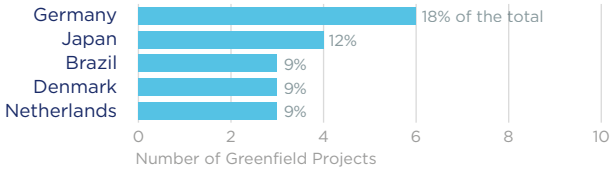
Country	Employment
Japan	6,500
United Kingdom	4,400
France	3,900
Germany	2,900
Canada	2,500

On a country basis, U.K. companies operating in Nebraska represented 12% of total foreign affiliate employment in Nebraska, with U.K. multinationals supporting approximately 100 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



33
Greenfield Projects (July 2011 - June 2021)

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Trade

Nebraska Goods Exports to Europe, 2020

$1.0 bn

The top exports to Europe consist of chemicals, machinery, and miscellaneous manufactures.

Nebraska Goods Imports from Europe, 2020

$1.2 bn

Chemicals represented over 40% of Nebraska's total imports from Europe in 2020.

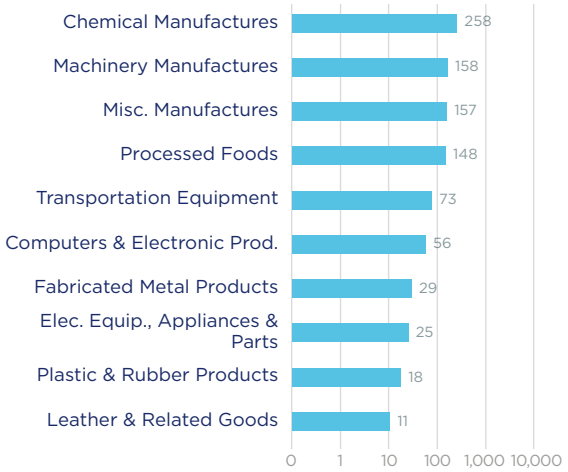
Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	150
Germany	142
France	139
Belgium	97
Spain	71

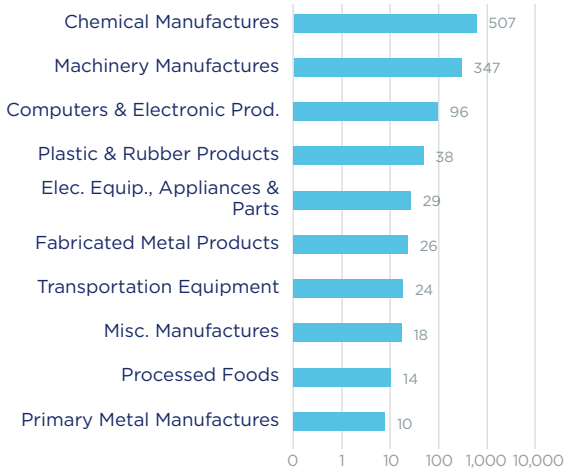
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	310
Switzerland	264
United Kingdom	208
France	100
Italy	67

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Nevada and Europe

Jobs

30,400
Since 2012: +6,200 (+25.6%)

European companies account for
53%
of foreign affiliate jobs

Employment within Nevada, 2019

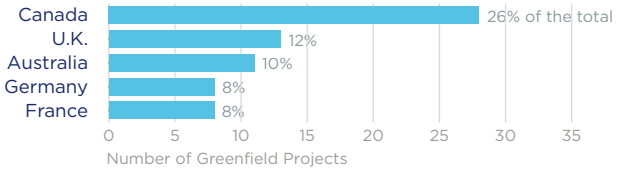
Country	Employment
Canada	10,300
United Kingdom	8,700
France	8,700
Japan	7,100
Germany	3,900

On a country basis, U.K. companies operating in Nevada represented 15% of total foreign affiliate employment in Nevada, with U.K. multinationals supporting approximately 3,200 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



106
Greenfield Projects (July 2011 - June 2021)

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Trade

Nevada Goods Exports to Europe, 2020

$3.9 bn

Primary metal manufactures account for over half of Nevada's total exports to Europe.

Nevada Goods Imports from Europe, 2020

$1.5 bn

Imports from Europe to Nevada are diverse, with top imports consisting of chemicals, transportation equipment and machinery.

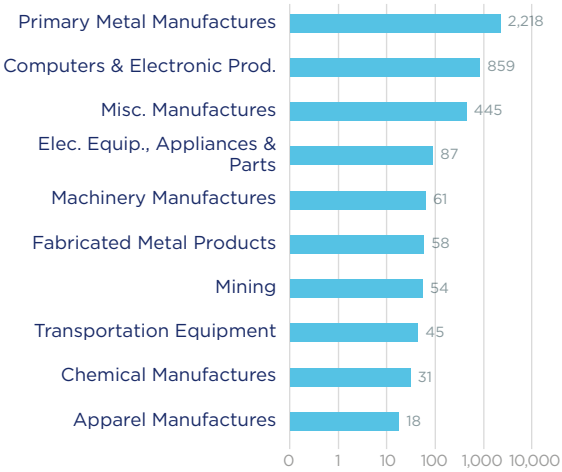
Top European Export Markets, 2020

Country	Exports ($ millions)
Switzerland	2,256
Germany	351
Netherlands	284
Hungary	280
Czech Republic	218

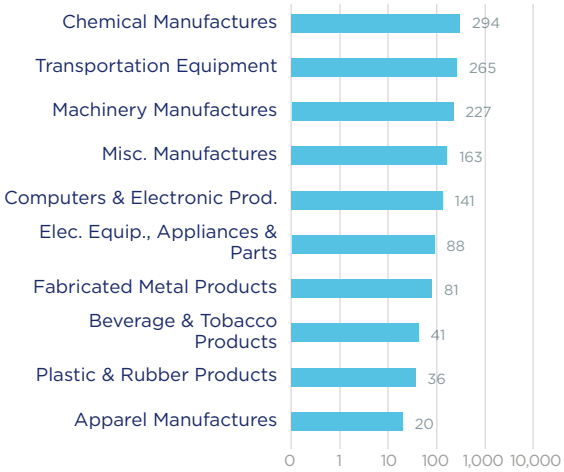
Top European Import Markets, 2020

Country	Imports ($ millions)
France	478
Germany	247
Switzerland	186
Italy	152
United Kingdom	92

Top Ten Exports to Europe, 2020 ($ millions)



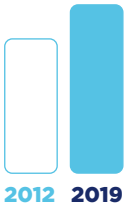
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

New Hampshire and Europe

Jobs



35,300
Since 2012: +7,100 (+25.2%)

European companies account for
71%
of foreign affiliate jobs

Employment within New Hampshire, 2019

Country	Employment
United Kingdom	13,100
Netherlands	7,500
Canada	6,500
Japan	5,100
France	4,400

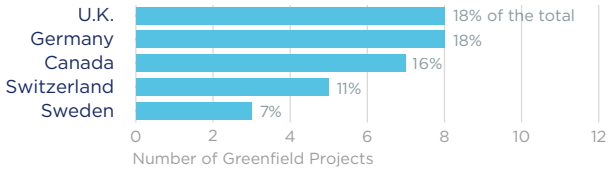
On a country basis, U.K. companies operating in New Hampshire represented 26% of total foreign affiliate employment in New Hampshire, with U.K. multinationals supporting approximately 2,800 more jobs in 2019 than in 2012.

*Netherlands employment data suppressed to avoid disclosure of individual company data. Range of 5,000 to 9,999 employees given.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



44
Greenfield Projects (July 2011 - June 2021)

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Trade

New Hampshire Goods Exports to Europe, 2020

$2.3 bn

Transportation equipment and chemicals were the top two exports to Europe from New Hampshire in 2020. Combined these two exports made up almost 55% of the state's total exports to Europe.

New Hampshire Goods Imports from Europe, 2020

$2.5 bn

Transportation equipment represented 36% of the state's total imports from Europe.

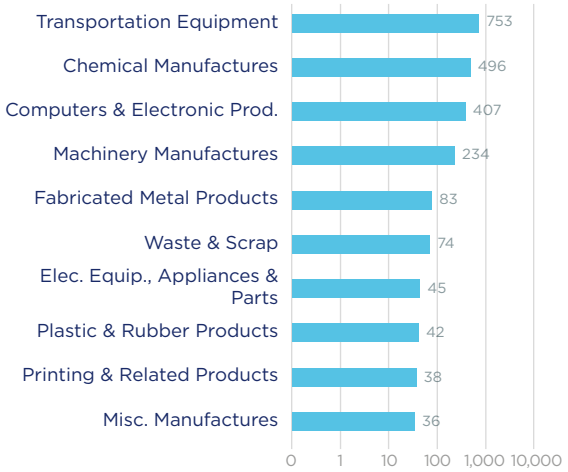
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	751
Ireland	392
Netherlands	159
Norway	139
France	137

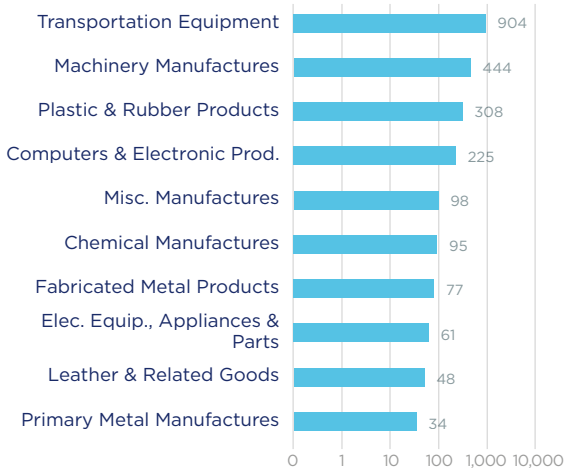
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	549
Poland	469
Ireland	203
United Kingdom	193
Italy	188

Top Ten Exports to Europe, 2020 ($ millions)



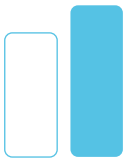
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

New Jersey and Europe

Jobs



202,900

Since 2006: +36,700 (+22.1%)

European companies account for **69%** of foreign affiliate jobs

Employment within New Jersey, 2019

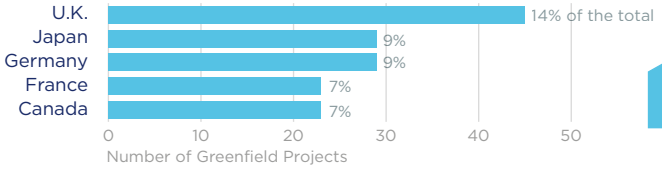
Country	Employment
France	44,500
United Kingdom	40,800
Canada	32,100
Switzerland	31,900
Germany	30,600

On a country basis, French companies operating in New Jersey represented 15% of total foreign affiliate employment in New Jersey, with French multinationals supporting approximately 14,600 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



323

Greenfield Projects (July 2011 - June 2021)

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Trade

New Jersey Goods Exports to Europe, 2020

$12.5 bn

Top exports consist of chemical manufactures and primary metal manufactures.

New Jersey Goods Imports from Europe, 2020

$50.2 bn

About one-third of New Jersey's imports from Europe in 2020 was related to the chemicals industry.

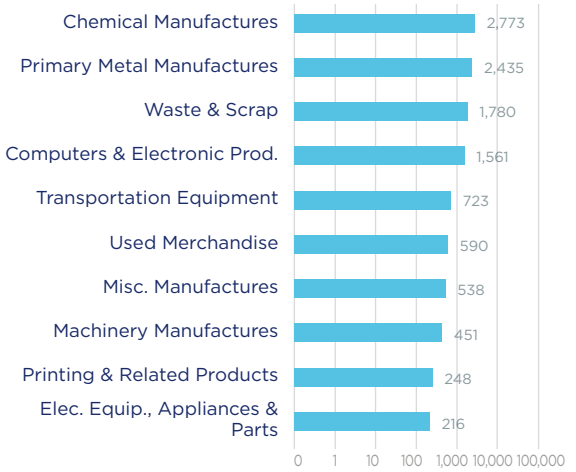
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	3,281
Germany	1,654
Italy	1,589
Netherlands	1,221
France	864

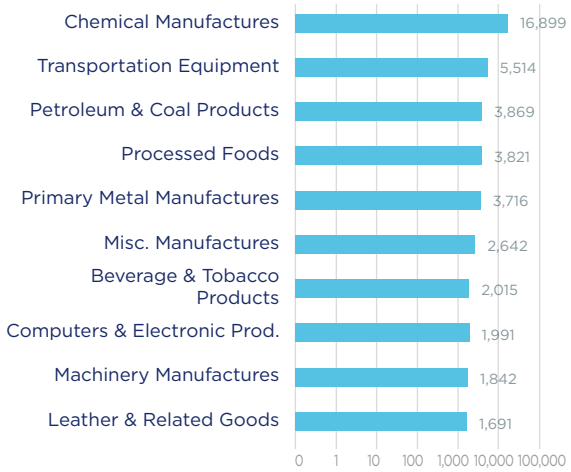
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	7,723
Italy	7,057
Germany	6,249
United Kingdom	5,458
France	3,900

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

New Mexico and Europe

Jobs

11,800
Since 2012: -600
(-4.8%)

European companies account for
63%
of foreign affiliate jobs

Employment within New Mexico, 2019

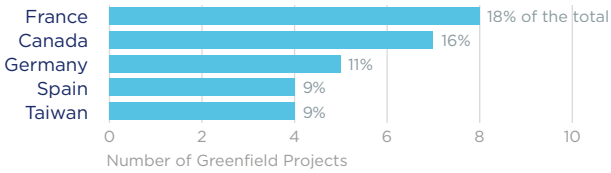
Country	Employment
United Kingdom	3,700
Canada	3,400
Germany	3,100
Japan	1,400
France	1,300

On a country basis, U.K. companies operating in New Mexico represented 20% of total foreign affiliate employment in New Mexico, with U.K. multinationals supporting approximately 300 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



44
Greenfield Projects
(July 2011 - June 2021)

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Trade

New Mexico Goods Exports to Europe, 2020

$308.0 m

Exports are relatively small, with computers & electronic products, miscellaneous manufactures, and transportation equipment the largest export categories for New Mexico.

New Mexico Goods Imports from Europe, 2020

$577.5 m

Chemicals were the largest imported good from Europe, followed by computers & electronic products.

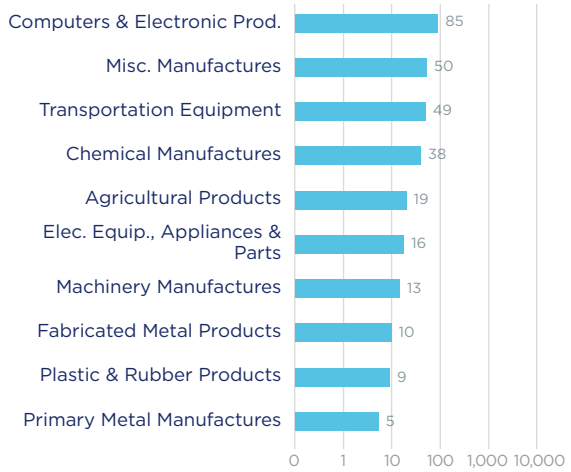
Top European Export Markets, 2020

Country	Exports ($ millions)
Belgium	73
Germany	61
Romania	33
United Kingdom	23
Spain	22

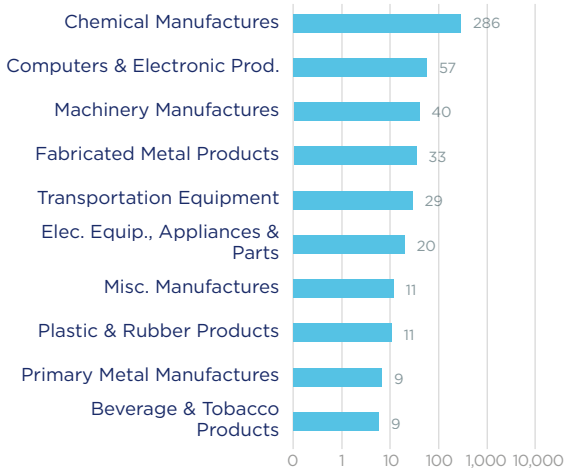
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	286
Germany	70
Spain	59
United Kingdom	44
Italy	23

Top Ten Exports to Europe, 2020 ($ millions)



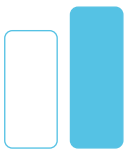
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

New York and Europe

Jobs



360,300

Since 2012: +59,900 (+19.9%)

European companies account for **68%** of foreign affiliate jobs

Employment within New York, 2019

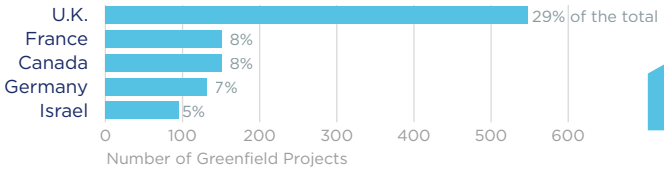
Country	Employment
United Kingdom	105,400
Canada	61,200
France	53,800
Germany	48,600
Japan	44,700

On a country basis, U.K. companies operating in New York represented 20% of total foreign affiliate employment in New York, with U.K. multinationals supporting approximately 16,500 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



1,890

Greenfield Projects (July 2011 - June 2021)

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Trade

New York Goods Exports to Europe, 2020

$22.6 bn

Primary metal manufactures and miscellaneous merchandise were the top goods exports to Europe.

New York Goods Imports from Europe, 2020

$63.6 bn

New York's imports from Europe are relatively diverse. Primary metal manufactures and chemical products were the state's top imports from Europe in 2020.

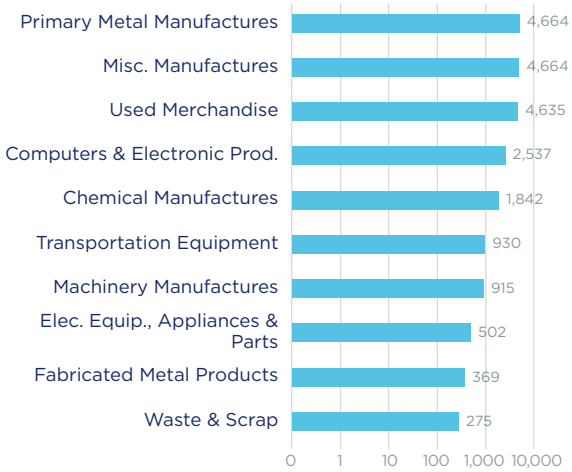
Top European Export Markets, 2020

Country	Exports ($ millions)
Switzerland	6,450
United Kingdom	4,084
Germany	3,030
Belgium	2,064
France	1,892

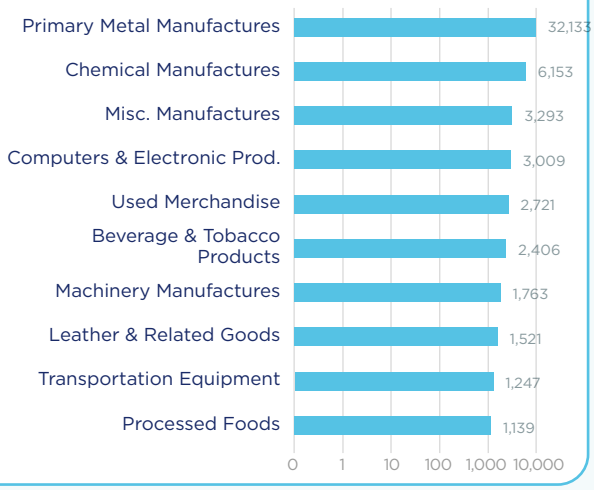
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	33,126
France	5,923
Italy	5,156
Germany	4,131
United Kingdom	4,040

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

North Carolina and Europe

Jobs

198,600

Since 2012: +41,100 (+26.1%)

European companies account for

68%

of foreign affiliate jobs

Employment within North Carolina, 2019

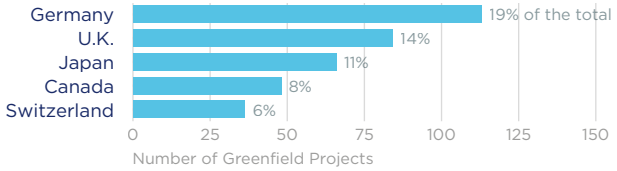
Country	Employment
Netherlands	44,400
Germany	40,800
United Kingdom	38,800
Japan	28,500
Canada	22,000

On a country basis, Dutch companies operating in North Carolina represented 15% of total foreign affiliate employment in North Carolina, with Dutch multinationals supporting approximately 35,900 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



597

Greenfield Projects (July 2011 - June 2021)

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Trade

North Carolina Goods Exports to Europe, 2020

$7.8 bn

Chemical manufactures account for over 40% of total exports to Europe.

North Carolina Goods Imports from Europe, 2020

$25.1 bn

Imports from Europe mainly consist of chemicals, machinery and transportation equipment.

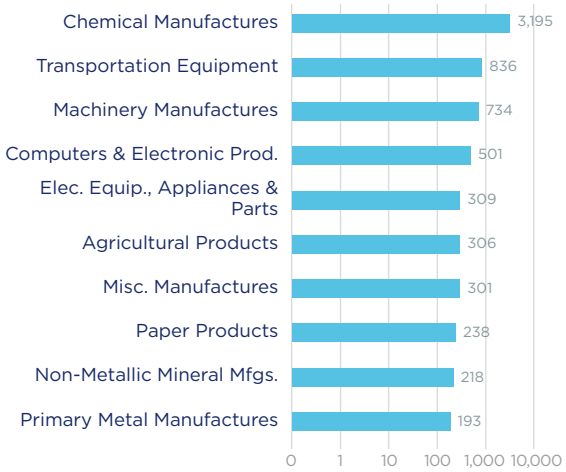
Top European Export Markets, 2020

Country	Exports ($ millions)
France	1,247
Netherlands	1,110
Germany	856
United Kingdom	737
Belgium	695

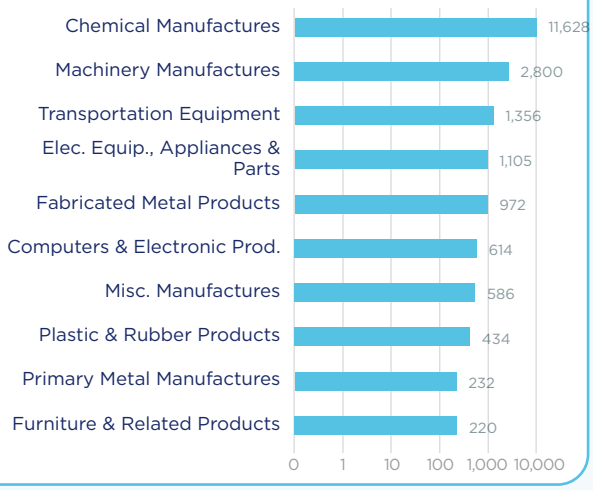
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	9,216
Ireland	5,102
Netherlands	1,563
Italy	1,519
France	1,457

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

North Dakota and Europe

Jobs

5,600

Since 2012: -1,600 (-22.2%)

European companies account for

37%

of foreign affiliate jobs

Employment within North Dakota, 2019

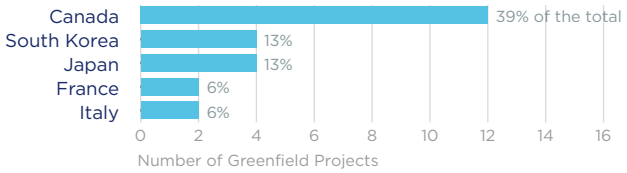
Country	Employment
Canada	2,500
United Kingdom	1,900
Netherlands	900
France	900
Japan	900

On a country basis, U.K. companies operating in North Dakota represented 13% of total foreign affiliate employment in North Dakota, with U.K. multinationals supporting approximately 400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



31

Greenfield Projects (July 2011 - June 2021)

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Trade

North Dakota Goods Exports to Europe, 2020

$209.2 m

30% of the state's exports to Europe consist of machinery manufactures.

North Dakota Goods Imports from Europe, 2020

$333.6 m

Machinery is North Dakota's primary product import from Europe, representing about 58% of total imports.

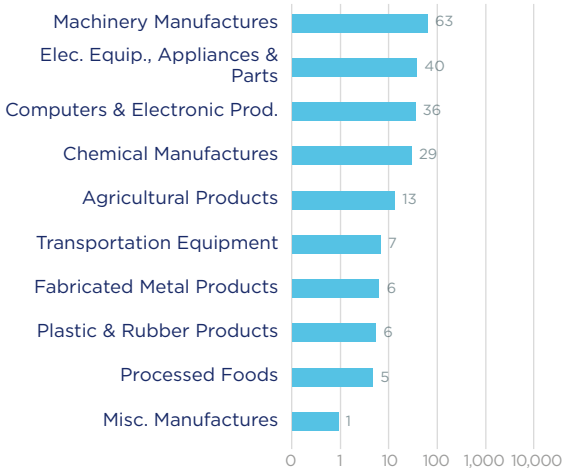
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	61
United Kingdom	17
Czech Republic	17
France	14
Russia	13

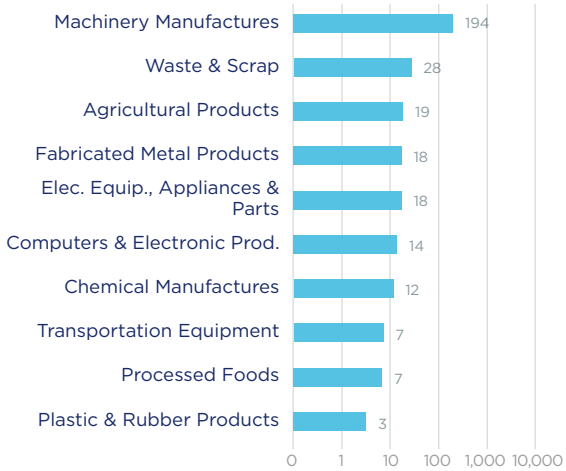
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	117
France	43
Turkey	30
Italy	22
Bulgaria	18

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Ohio and Europe

Jobs

172,600
Since 2012: +36,900 (+27.2%)

European companies account for
56%
of foreign affiliate jobs

Employment within Ohio, 2019

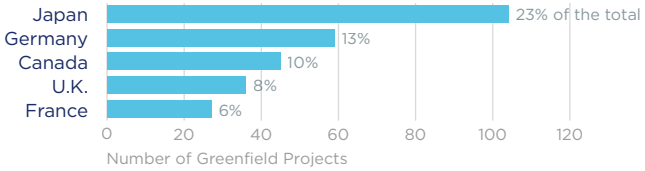
Country	Employment
Japan	71,300
United Kingdom	45,200
Germany	35,800
Canada	28,600
France	21,700

On a country basis, U.K. companies operating in Ohio represented 15% of total foreign affiliate employment in Ohio, with U.K. multinationals supporting approximately 9,000 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



452
Greenfield Projects (July 2011 - June 2021)

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Trade

Ohio Goods Exports to Europe, 2020

$7.2 bn

Transportation equipment, chemicals and machinery are the state's top exports to Europe.

Ohio Goods Imports from Europe, 2020

$17.6 bn

Chemical manufactures make up 46% of Ohio's imports from Europe.

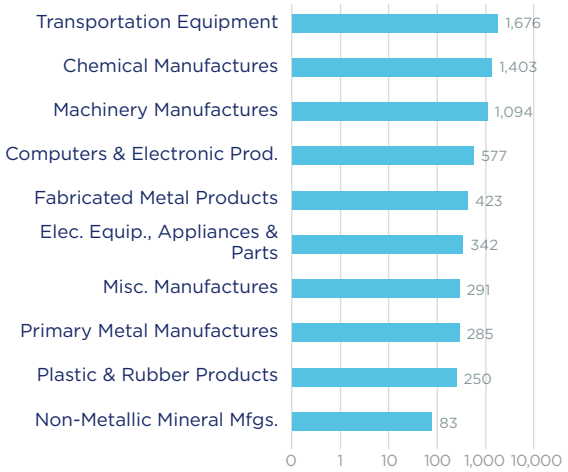
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	1,485
Germany	1,071
France	1,013
Netherlands	744
Belgium	558

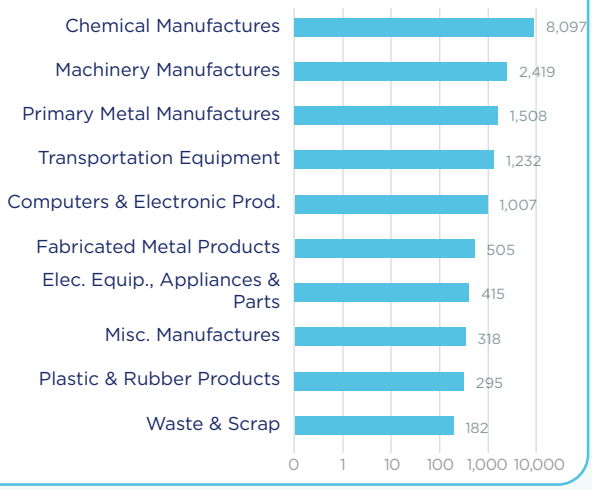
Top European Import Markets, 2020

Country	Imports ($ millions)
Ireland	4,522
Germany	4,075
Italy	2,170
United Kingdom	1,048
France	955

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Oklahoma and Europe

Jobs

37,900
Since 2012: +8,400 (+28.5%)

European companies account for
64%
of foreign affiliate jobs

Employment within Oklahoma, 2019

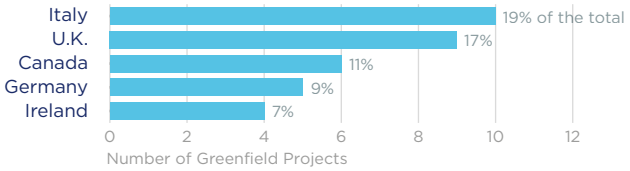
Country	Employment
United Kingdom	9,800
France	9,000
Canada	7,000
Japan	4,200
Switzerland	4,000

On a country basis, U.K. companies operating in Oklahoma represented 17% of total foreign affiliate employment in Oklahoma, with U.K. multinationals supporting approximately 1,600 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



54
Greenfield Projects (July 2011 - June 2021)

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Trade

Oklahoma Goods Exports to Europe, 2020

$1.3 bn

The top exports to Europe from Oklahoma include electronic products, transportation equipment and machinery.

Oklahoma Goods Imports from Europe, 2020

$1.5 bn

Transportation equipment and machinery manufactures are the top products imported from Europe.

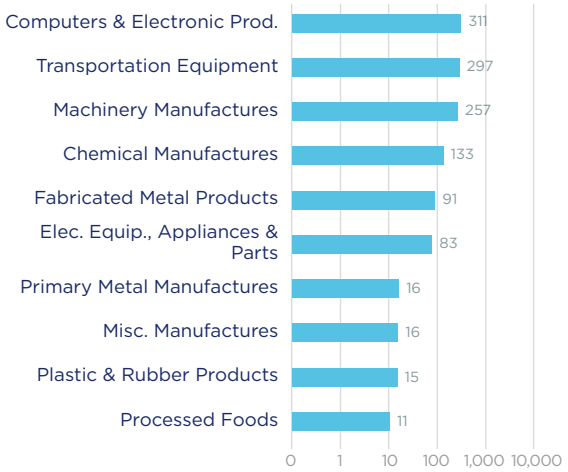
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	463
Netherlands	228
United Kingdom	127
Ireland	68
Spain	68

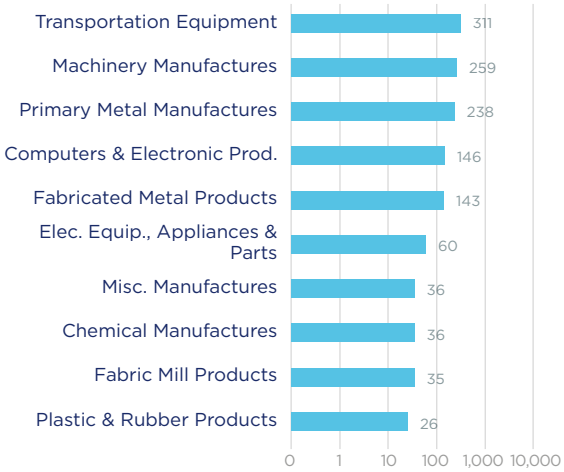
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	469
United Kingdom	206
France	154
Switzerland	129
Italy	121

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; Foreign Trade Division, U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Oregon and Europe

Jobs

48,600
Since 2012: +15,300 (+45.9%)

European companies account for
68%
of foreign affiliate jobs

Employment within Oregon, 2019

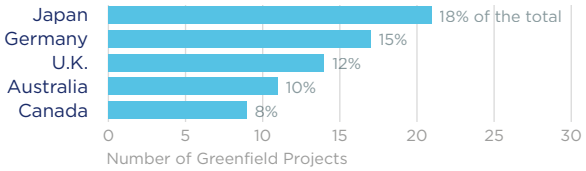
Country	Employment
United Kingdom	15,700
Germany	11,000
Japan	10,500
Switzerland	6,700
Canada	6,000

On a country basis, U.K. companies operating in Oregon represented 22% of total foreign affiliate employment in Oregon, with U.K. multinationals supporting approximately 8,100 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



114
Greenfield Projects (July 2011 - June 2021)

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Trade

Oregon Goods Exports to Europe, 2020

$2.5 bn

Roughly one-quarter of Oregon's exports to Europe consist of computers & electronic products.

Oregon Goods Imports from Europe, 2020

$3.6 bn

Machinery manufactures represented 37% of Oregon's total European imports.

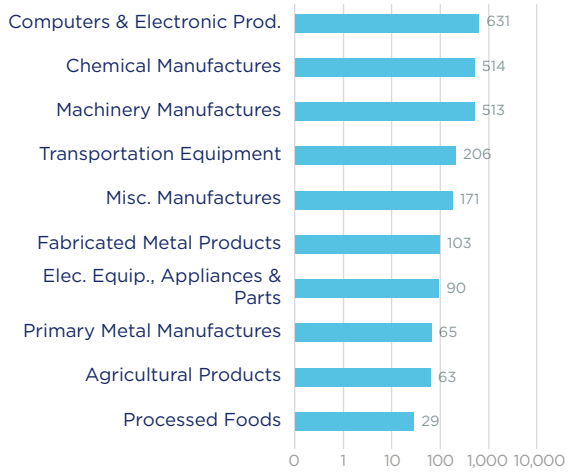
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	426
Switzerland	372
Netherlands	371
United Kingdom	238
Ireland	198

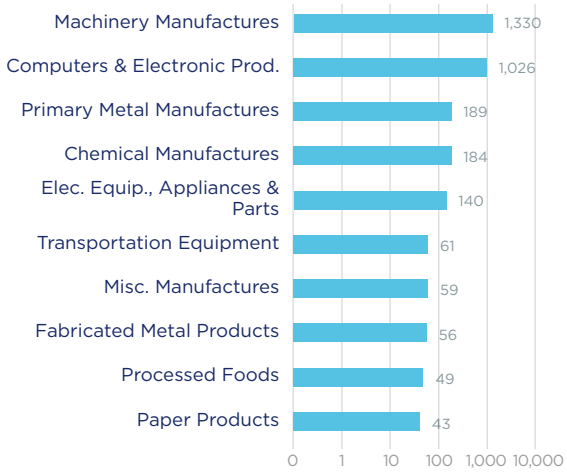
Top European Import Markets, 2020

Country	Imports ($ millions)
Netherlands	1,016
Germany	808
Ireland	626
Italy	183
Switzerland	177

Top Ten Exports to Europe, 2020 ($ millions)



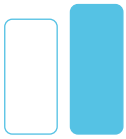
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Pennsylvania and Europe

Jobs



237,700
Since 2012: +26,800 (+12.7%)

European companies account for
72%
of foreign affiliate jobs

Employment within Pennsylvania, 2019

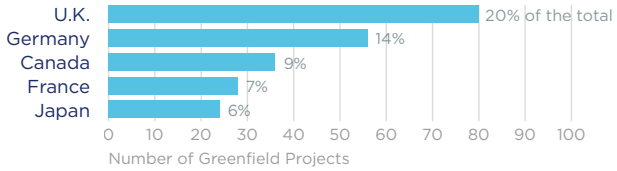
Country	Employment
United Kingdom	60,800
Netherlands	44,300
Germany	38,900
Canada	30,500
France	28,300

On a country basis, U.K. companies operating in Pennsylvania represented 18% of total foreign affiliate employment in Pennsylvania, with U.K. multinationals supporting approximately 2,600 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



401
Greenfield Projects (July 2011 - June 2021)

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Trade

Pennsylvania Goods Exports to Europe, 2020

$10.4 bn

Chemicals and primary metals were the state's largest exports to Europe.

Pennsylvania Goods Imports from Europe, 2020

$34.1 bn

Imports are heavily concentrated, with chemicals making up over 58% of the state's total imports from Europe.

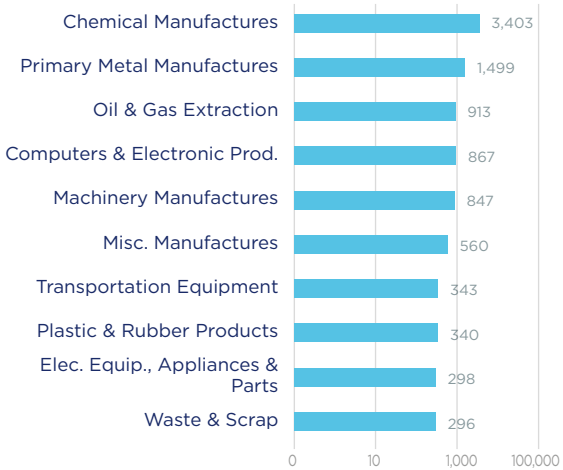
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	2,221
Germany	1,554
Netherlands	1,285
Belgium	922
Switzerland	780

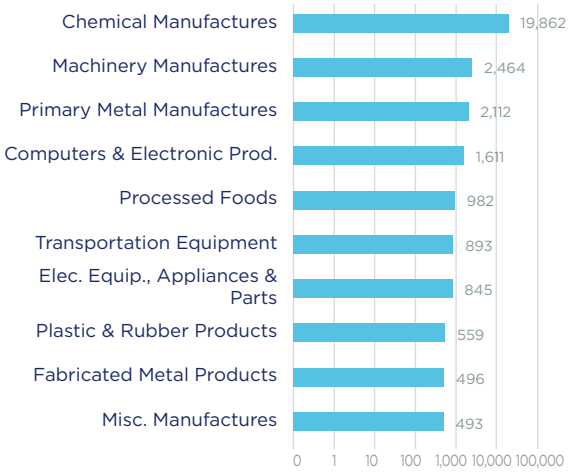
Top European Import Markets, 2020

Country	Imports ($ millions)
Switzerland	7,214
Germany	6,339
Belgium	4,796
Italy	3,300
United Kingdom	2,305

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Rhode Island and Europe

Jobs

22,100
Since 2012: -2,700 (-10.9%)

European companies account for
78%
of foreign affiliate jobs

Employment within Rhode Island, 2019

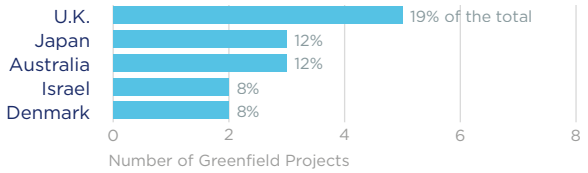
Country	Employment
France	4,800
United Kingdom	4,600
Netherlands	3,750
Canada	2,600
Japan	2,100

On a country basis, French companies operating in Rhode Island represented 17% of total foreign affiliate employment in Rhode Island, with French multinationals supporting approximately 1,900 more jobs in 2019 than in 2012.
*Netherlands employment data suppressed to avoid disclosure of individual company data. Range of 2,500 - 4,999 employees given.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



26
Greenfield Projects (July 2011 - June 2021)

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Trade

Rhode Island Goods Exports to Europe, 2020

$0.9 bn

Waste & scrap account for over 47% of exports to Europe.

Rhode Island Goods Imports from Europe, 2020

$3.7 bn

The top imported product from Europe is transportation equipment, which represents 68% of the state's total European imports.

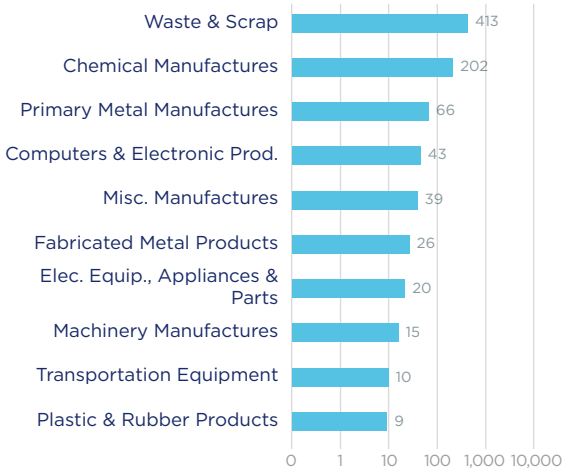
Top European Export Markets, 2020

Country	Exports ($ millions)
Italy	256
Germany	154
Ireland	109
Turkey	88
United Kingdom	78

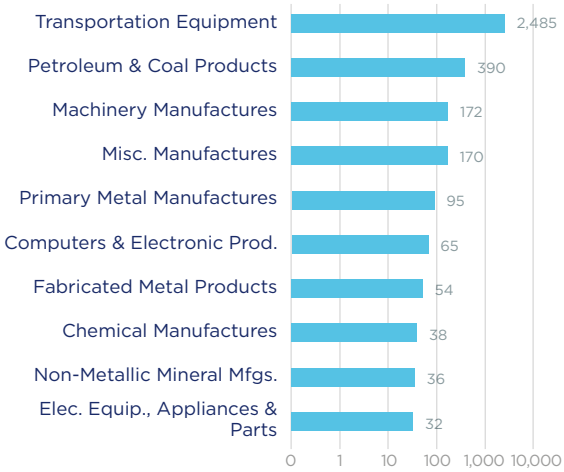
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	1,524
Slovakia	749
United Kingdom	244
Hungary	221
Netherlands	219

Top Ten Exports to Europe, 2020 ($ millions)



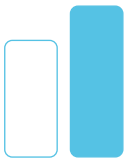
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

South Carolina and Europe

Jobs



109,600
Since 2012: +24,800 (+29.2%)

European companies account for
67%
of foreign affiliate jobs

Employment within South Carolina, 2019

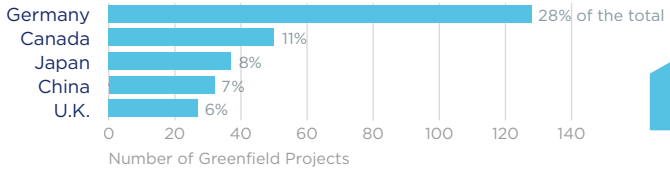
Country	Employment
Germany	36,000
France	23,300
Canada	20,300
Japan	16,000
United Kingdom	12,400

On a country basis, German companies operating in South Carolina represented 22% of total foreign affiliate employment in South Carolina, with German multinationals supporting approximately 13,800 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



458
Greenfield Projects (July 2011 - June 2021)

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Trade

South Carolina Goods Exports to Europe, 2020

$10.3 bn

68% of the state's exports consist of transportation equipment, reflecting the state's deep linkages with European auto manufacturers.

Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	4,081
Belgium	1,414
United Kingdom	1,372
Spain	757
France	575

South Carolina Goods Imports from Europe, 2020

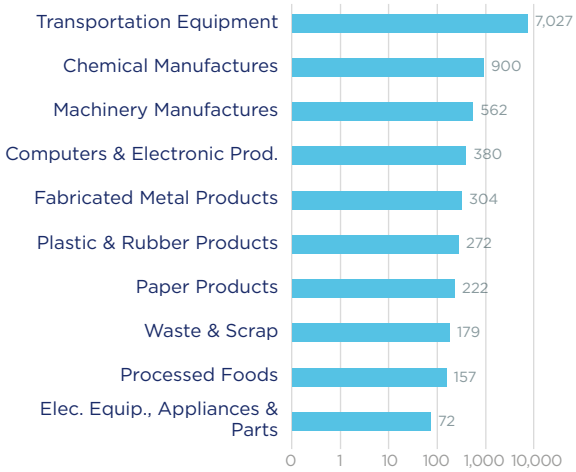
$16.0 bn

Transportation equipment was also the top imported product from Europe, making up 24% of the state's total European imports.

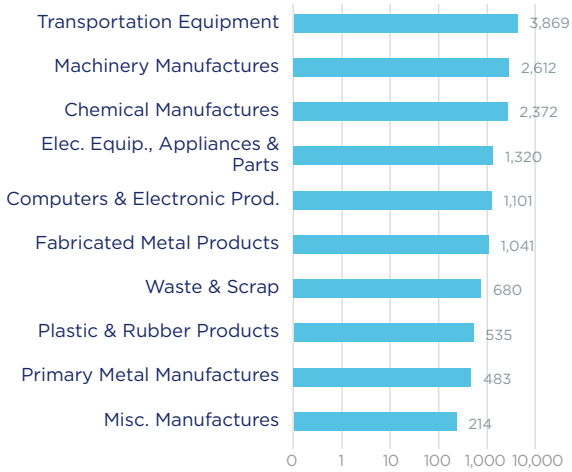
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	6,219
United Kingdom	1,546
Austria	938
France	736
Hungary	688

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

South Dakota and Europe

Jobs

5,400
Since 2012: -700
(-11.5%)

European companies account for
38%
of foreign affiliate jobs

Employment within South Dakota, 2019

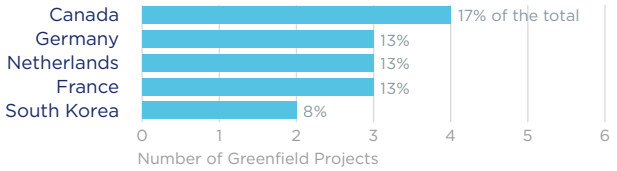
Country	Employment
Canada	3,100
United Kingdom	1,600
France	1,400
Germany	1,300
Japan	400

On a country basis, U.K. companies operating in South Dakota represented 11% of total foreign affiliate employment in South Dakota, with U.K. multinationals supporting approximately 400 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



24
Greenfield Projects
(July 2011 - June 2021)

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Trade

South Dakota Goods Exports to Europe, 2020

$163.1 m

Machinery manufactures are the state's top export to Europe.

South Dakota Goods Imports from Europe, 2020

$218.9 m

Imports are heavily concentrated, with machinery making up almost 50% of the state's total imports from Europe. The next largest import category was wood products.

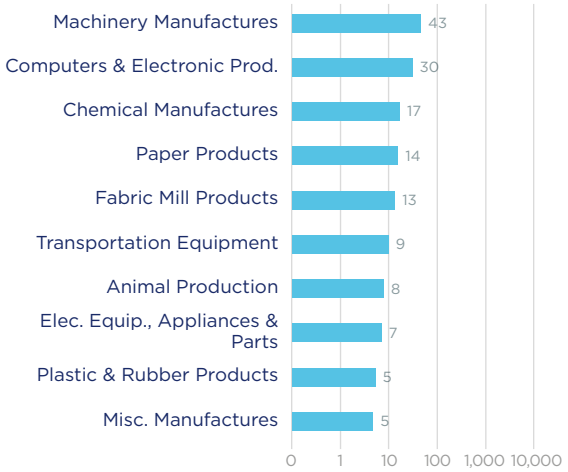
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	39
Belgium	34
United Kingdom	21
Netherlands	15
Ireland	9

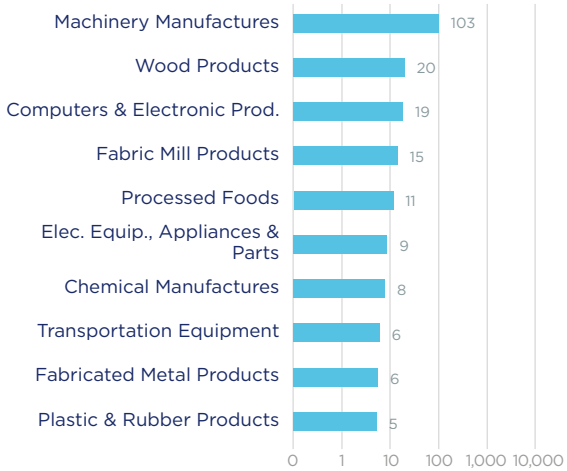
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	58
Spain	33
Netherlands	19
Estonia	19
Italy	17

Top Ten Exports to Europe, 2020 ($ millions)



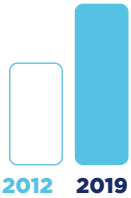
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Tennessee and Europe

Jobs



113,900
Since 2012: +41,600 (+57.5%)

European companies account for
56%
of foreign affiliate jobs

Employment within Tennessee, 2019

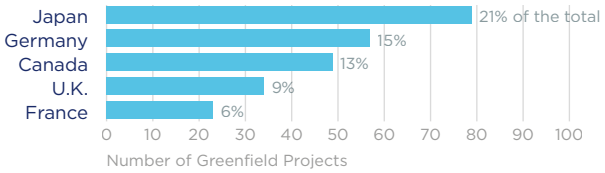
Country	Employment
Japan	47,500
United Kingdom	25,400
Germany	21,800
France	19,500
Canada	16,600

On a country basis, U.K. companies operating in Tennessee represented 12% of total foreign affiliate employment in Tennessee, with U.K. multinationals supporting approximately 8,100 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



377
Greenfield Projects (July 2011 - June 2021)

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Trade

Tennessee Goods Exports to Europe, 2020

$6.6 bn

Miscellaneous manufactured goods and chemicals are the largest export categories to Europe.

Tennessee Goods Imports from Europe, 2020

$21.3 bn

Chemicals are the top imported good, comprising over 60% of the state's total imports from Europe.

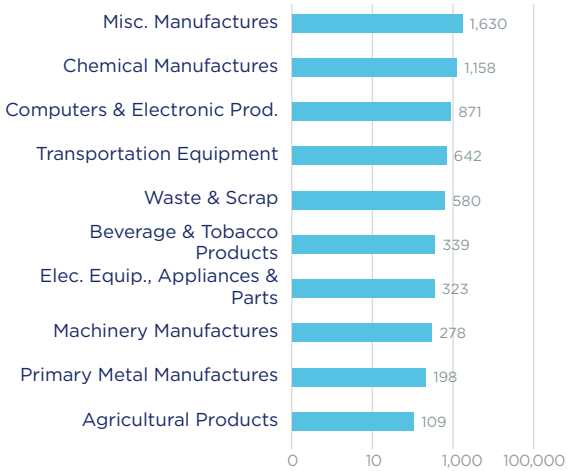
Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	1,515
Germany	1,274
Belgium	982
United Kingdom	611
Italy	604

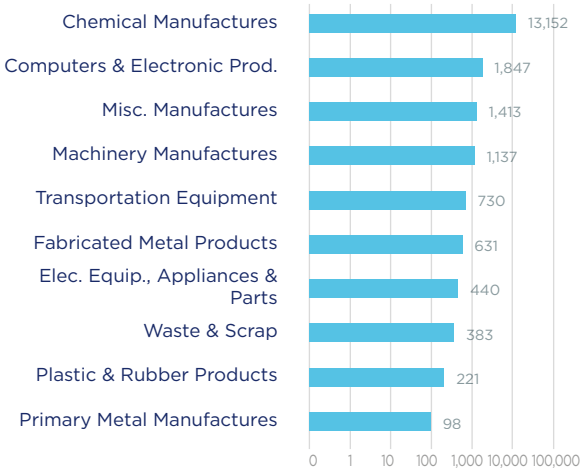
Top European Import Markets, 2020

Country	Imports ($ millions)
Ireland	7,687
Germany	3,655
United Kingdom	2,946
Italy	1,524
Switzerland	1,213

Top Ten Exports to Europe, 2020 ($ millions)



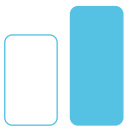
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Texas and Europe

Jobs



399,000
Since 2012: +94,900 (+31.2%)

European companies account for
59%
of foreign affiliate jobs

Employment within Texas, 2019

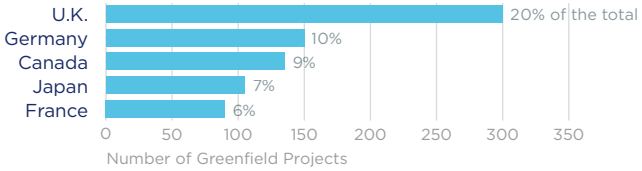
Country	Employment
United Kingdom	118,300
Japan	75,100
France	63,900
Canada	61,600
Germany	60,200

On a country basis, U.K. companies operating in Texas represented 17% of total foreign affiliate employment in Texas, with U.K. multinationals supporting approximately 22,500 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



1,502
Greenfield Projects (July 2011 - June 2021)

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Trade

Texas Goods Exports to Europe, 2020

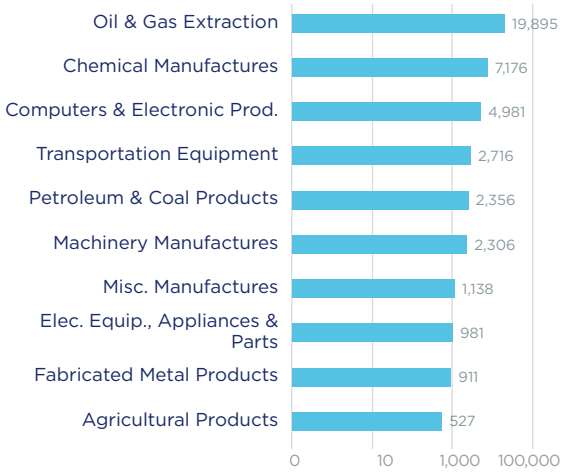
$45.3 bn

Oil and gas exports to Europe have soared in recent years, due to the shale revolution in the Permian Basin and the opening up of U.S. export markets.

Top European Export Markets, 2020

Country	Exports ($ millions)
Netherlands	8,919
United Kingdom	7,428
Germany	5,034
Belgium	4,010
France	3,551

Top Ten Exports to Europe, 2020 ($ millions)



Texas Goods Imports from Europe, 2020

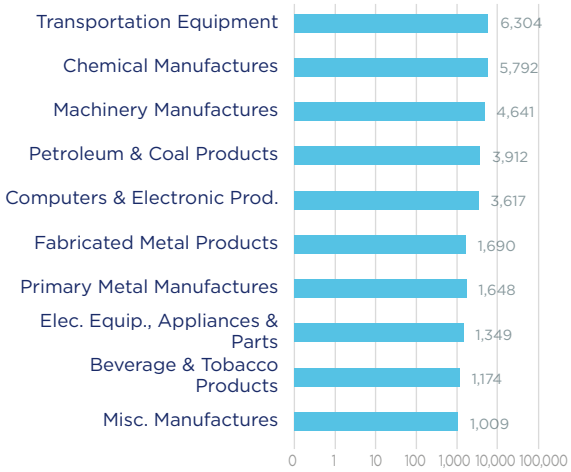
$35.8 bn

Transportation equipment and chemicals are the top product imports, though total imports are relatively diverse with machinery and petroleum & coal also key imports.

Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	6,276
United Kingdom	3,865
Russia	3,494
Italy	3,407
Ireland	2,915

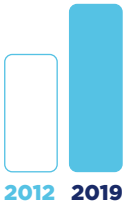
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Utah and Europe

Jobs



35,600

Since 2012: +10,600 (+42.4%)

European companies account for

65%

of foreign affiliate jobs

Employment within Utah, 2019

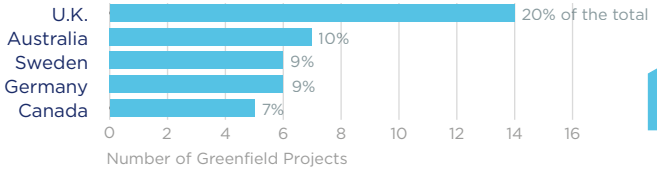
Country	Employment
United Kingdom	10,400
France	6,800
Germany	6,100
Switzerland	3,900
Canada	3,400

On a country basis, U.K. companies operating in Utah represented 19% of total foreign affiliate employment in Utah, with U.K. multinationals supporting approximately 3,200 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



69

Greenfield Projects (July 2011 - June 2021)

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Trade

Utah Goods Exports to Europe, 2020

$11.0 bn

Primary metals dominate the state's exports to Europe, representing over 80% of Utah's total exports.

Utah Goods Imports from Europe, 2020

$1.4 bn

Imports are much more diversified than exports. Machinery, chemicals and computers & electronic products are the state's top imports from Europe.

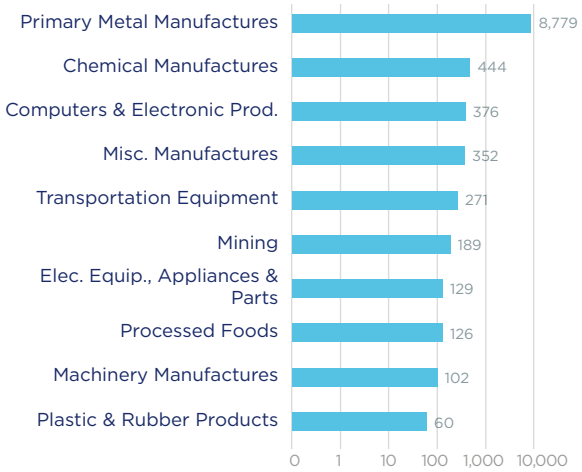
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	8,906
Netherlands	517
Germany	370
France	221
Belgium	198

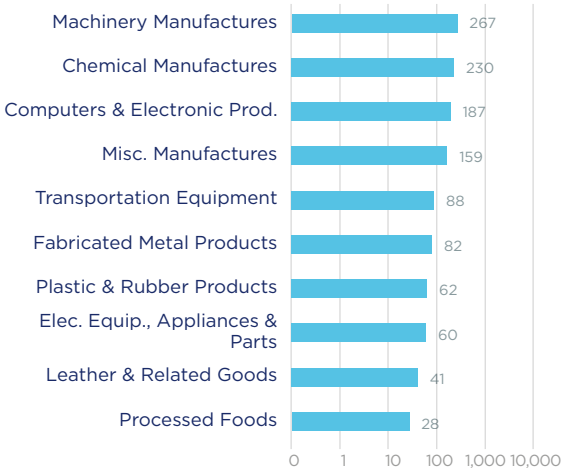
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	289
France	142
United Kingdom	127
Netherlands	117
Italy	107

Top Ten Exports to Europe, 2020 ($ millions)



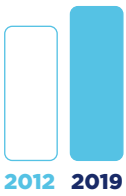
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Vermont and Europe

Jobs



9,400

Since 2012: +1,200 (+14.6%)

European companies account for

62%

of foreign affiliate jobs

Employment within Vermont, 2019

Country	Employment
Netherlands	3,750
France	2,200
United Kingdom	1,750
Canada	1,700
Switzerland	800

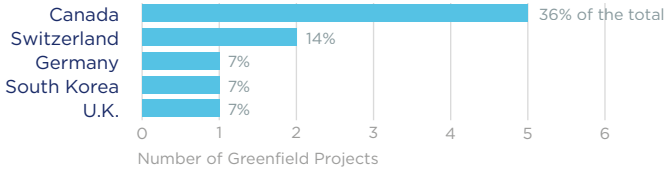
On a country basis, Dutch companies operating in Vermont represented 25% of total foreign affiliate employment in Vermont, with Dutch multinationals supporting approximately 2,950 more jobs in 2019 than in 2012.

*Netherlands and U.K. employment data suppressed to avoid disclosure of individual company data. Range of 2,500 - 4,999 employees given for the Netherlands; 500-999 employees for the U.K.)

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



14

Greenfield Projects (July 2011 - June 2021)

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Trade

Vermont Goods Exports to Europe, 2020

$351.1 m

Over 30% of exports consist of computers & electronic products.

Vermont Goods Imports from Europe, 2020

$369.5 m

Fabricated metal products are the state's the top import from Europe, representing roughly 23% of the total goods imported.

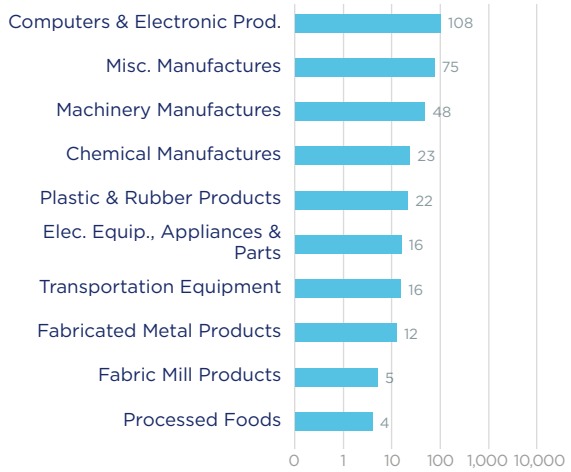
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	80
United Kingdom	60
Netherlands	54
France	37
Belgium	22

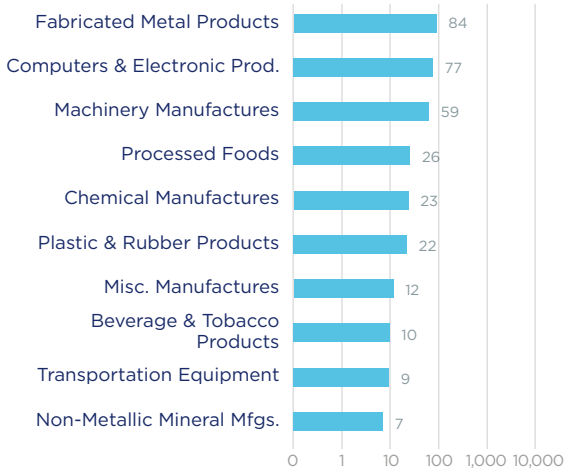
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	61
France	54
Turkey	46
Russia	33
United Kingdom	33

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Virginia and Europe

Jobs

156,100

Since 2012: +36,700 (+30.7%)

European companies account for

74%

of foreign affiliate jobs

Employment within Virginia, 2019

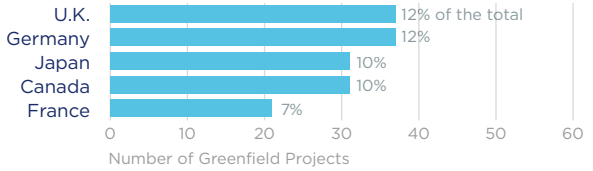
Country	Employment
United Kingdom	39,600
Netherlands	31,400
Germany	23,100
France	20,100
Canada	16,800

On a country basis, U.K. companies operating in Virginia represented 19% of total foreign affiliate employment in Virginia, with U.K. multinationals supporting approximately 15,500 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



306

Greenfield Projects (July 2011 - June 2021)

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Trade

Virginia Goods Exports to Europe, 2020

$4.3 bn

Top exports include minerals & ores, chemicals, and transportation equipment.

Virginia Goods Imports from Europe, 2020

$8.3 bn

Machinery is the largest import from Europe, followed by transportation equipment, chemicals, and computers.

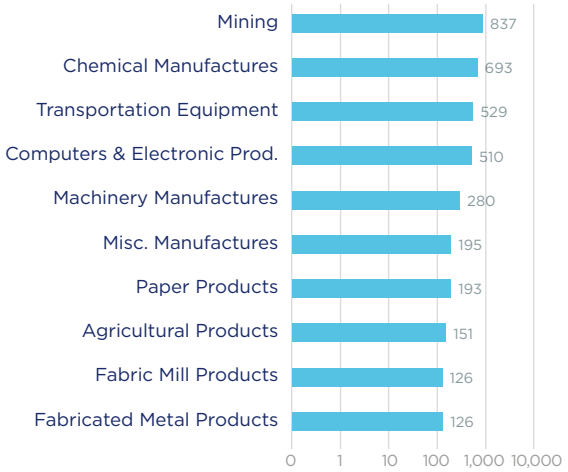
Top European Export Markets, 2020

Country	Exports ($ millions)
United Kingdom	697
Germany	632
Netherlands	517
Belgium	512
France	353

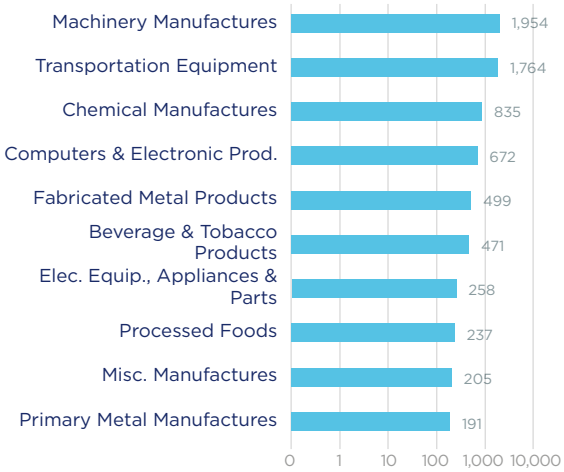
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	2,178
United Kingdom	987
France	914
Italy	788
Austria	729

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Washington and Europe

Jobs

83,100
Since 2012: +24,800 (+42.5%)

European companies account for
58%
of foreign affiliate jobs

Employment within Washington, 2019

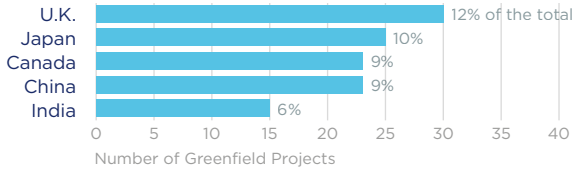
Country	Employment
Canada	27,500
United Kingdom	22,300
Germany	20,500
Japan	14,400
France	11,000

On a country basis, U.K. companies operating in Washington represented 16% of total foreign affiliate employment in Washington, with U.K. multinationals supporting approximately 7,400 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



253
Greenfield Projects (July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Washington Goods Exports to Europe, 2020

$6.9 bn

Transportation equipment dominates Washington's exports to Europe, making up over 50% of total exports.

Washington Goods Imports from Europe, 2020

$4.8 bn

Imports from Europe are less concentrated than exports. The state's top import, machinery, makes up only 14% of total goods imports from Europe.

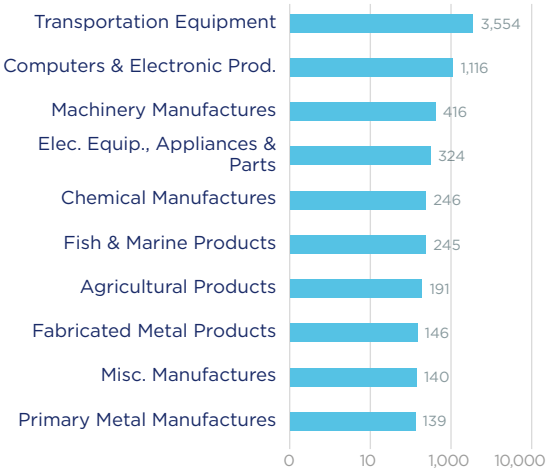
Top European Export Markets, 2020

Country	Exports ($ millions)
Turkey	1,622
United Kingdom	1,480
Germany	1,418
Netherlands	763
France	319

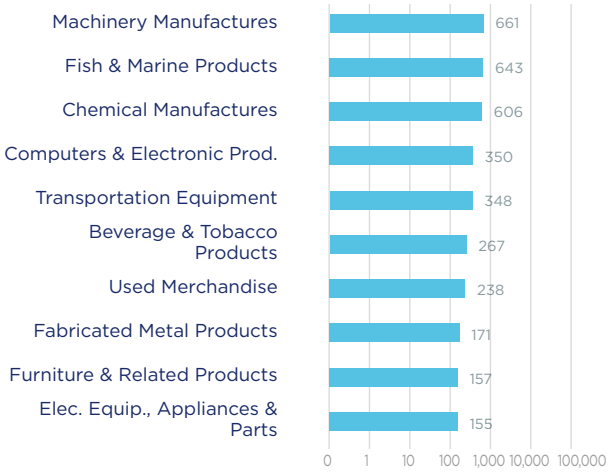
Top European Import Markets, 2020

Country	Imports ($ millions)
Russia	891
Germany	852
France	501
United Kingdom	495
Italy	479

Top Ten Exports to Europe, 2020 ($ millions)



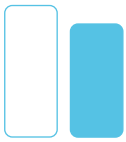
Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

West Virginia and Europe

Jobs



14,800
Since 2012: -2,400
(-14.0%)

European companies account for
51%
of foreign affiliate jobs

Employment within West Virginia, 2019

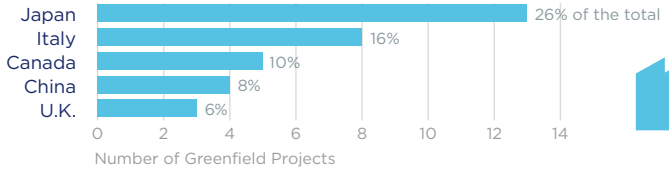
Country	Employment
Canada	5,100
Japan	3,900
France	3,200
United Kingdom	3,100
Netherlands	2,000

On a country basis, French companies operating in West Virginia represented 11% of total foreign affiliate employment in West Virginia, with French multinationals supporting approximately 1,800 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



50
Greenfield Projects
(July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

West Virginia Goods Exports to Europe, 2020

$1.3 bn

Mining products such as minerals and ores accounted for 48% of exports to Europe in 2020.

West Virginia Goods Imports from Europe, 2020

$0.6 bn

Chemicals, transportation equipment and machinery are West Virginia's top imports from Europe.

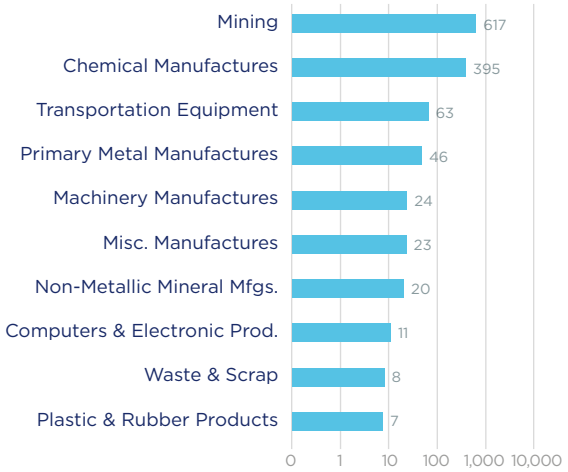
Top European Export Markets, 2020

Country	Exports ($ millions)
Ukraine	329
Netherlands	240
Belgium	191
Germany	160
Italy	78

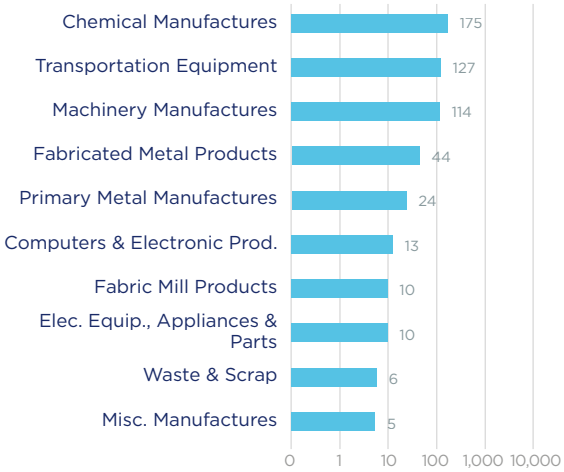
Top European Import Markets, 2020

Country	Imports ($ millions)
Germany	178
France	61
Belgium	52
Poland	48
Italy	44

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Wisconsin and Europe

Jobs

86,400
Since 2012: +34,900 (+67.8%)

European companies account for
68%
of foreign affiliate jobs

Employment within Wisconsin, 2019

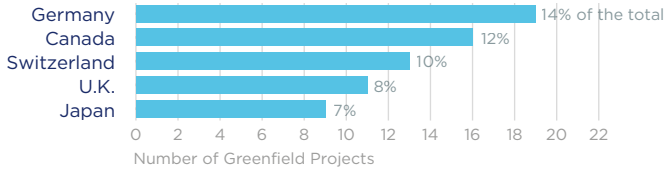
Country	Employment
United Kingdom	22,500
Canada	17,500
Germany	14,300
France	10,300
Switzerland	10,200

On a country basis, U.K. companies operating in Wisconsin represented 18% of total foreign affiliate employment in Wisconsin, with U.K. multinationals supporting approximately 10,800 more jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



134
Greenfield Projects (July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Wisconsin Goods Exports to Europe, 2020

$4.2 bn

Machinery and computers & electronic products are the state's top exports to Europe.

Wisconsin Goods Imports from Europe, 2020

$8.2 bn

Chemicals and machinery accounted for 40% and 24% of total imports from Europe, respectively.

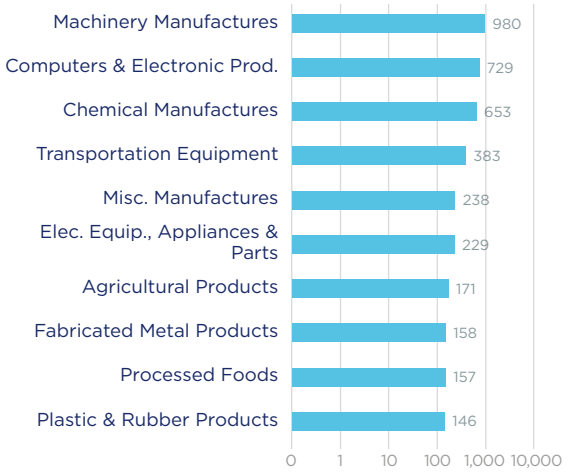
Top European Export Markets, 2020

Country	Exports ($ millions)
Germany	721
United Kingdom	626
Netherlands	428
Belgium	381
France	371

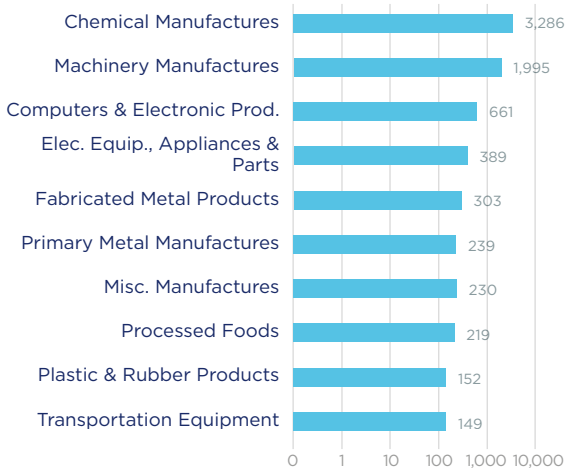
Top European Import Markets, 2020

Country	Imports ($ millions)
Belgium	2,350
Germany	1,843
Italy	728
France	437
United Kingdom	378

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Wyoming and Europe

Jobs

4,700
Since 2012: -500
(-9.6%)

European companies account for
61%
of foreign affiliate jobs

Employment within Wyoming, 2019

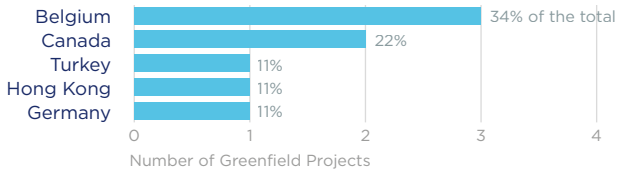
Country	Employment
United Kingdom	2,000
France	900
Canada	800
Switzerland	300
Germany	100

On a country basis, U.K. companies operating in Wyoming represented 26% of total foreign affiliate employment in Wyoming, with U.K. multinationals supporting approximately 300 fewer jobs in 2019 than in 2012.

Jobs directly supported by European investment. Total European-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

Sources of Greenfield Foreign Direct Investment (FDI)



10
Greenfield Projects
(July 2011 - June 2021)

Number of projects does not directly translate to value of projects or jobs added. Greenfield FDI is investment in new assets. Greenfield projects listed on the right hand side are Greenfield projects in the state from all countries.

Trade

Wyoming Goods Exports to Europe, 2020

$40.3 m

Chemicals accounted for over 50% of Wyoming's exports to Europe in 2020.

Wyoming Goods Imports from Europe, 2020

$123.8 m

Machinery, electronics and fabricated metal products are Wyoming's top imports from Europe.

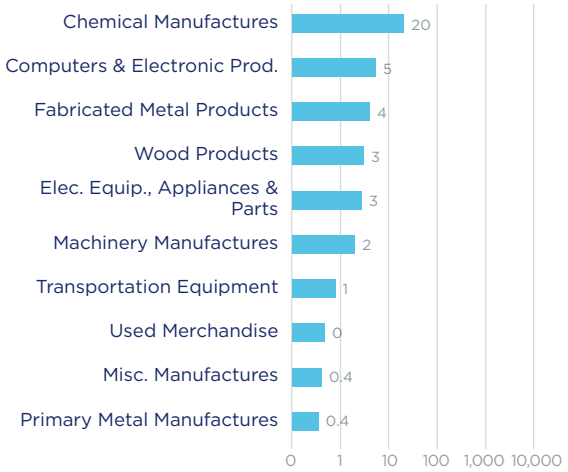
Top European Export Markets, 2020

Country	Exports ($ millions)
Belgium	11
Netherlands	8
Germany	4
Ireland	3
United Kingdom	3

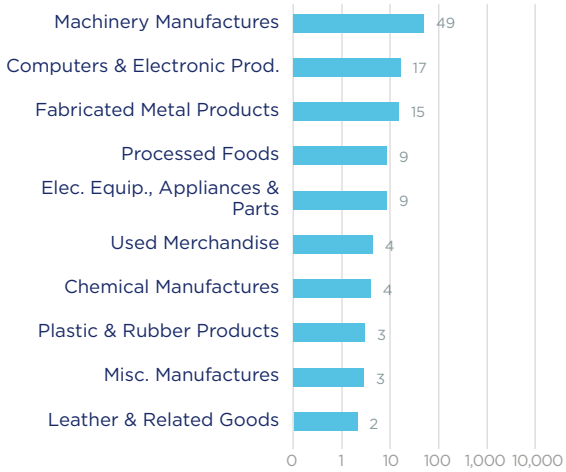
Top European Import Markets, 2020

Country	Imports ($ millions)
Denmark	29
Turkey	20
Germany	20
Italy	14
Sweden	11

Top Ten Exports to Europe, 2020 ($ millions)



Top Ten Imports from Europe, 2020 ($ millions)



Sources: Bureau of Economic Analysis; U.S. Census Bureau; U.S. Department of Commerce; SelectUSA.

Appendix B

U.S. Commerce and Europe:
A Country-by-Country Comparison

Europe & the United States

Jobs

United States in Europe	Europe in the United States
4,800,693	**4,598,733**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$3.7 tn

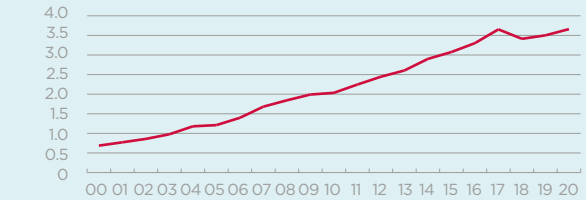
Foreign Direct Investment (FDI), 2020

$2.9 tn

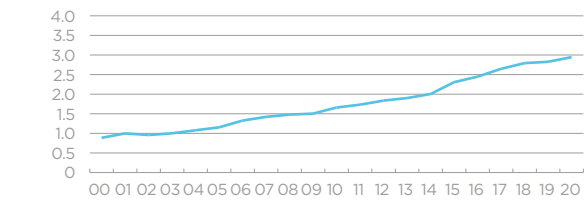
Foreign Direct Investment (FDI), 2020

In terms of the U.S.-Europe investment balance, the U.S. had a larger net cross-border impact in 2020. U.S. foreign direct investment in Europe increased slightly in 2020 to $3.7 trillion. The pace of FDI growth in recent years has slowed due to U.S. corporations' repatriation of foreign earnings after the 2017 U.S. Tax Cuts and Jobs Act. Meanwhile, Europe's foreign direct investment in the U.S. rose to almost $3 trillion. According to estimates for 2020, U.S. affiliates employed over 4.8 million workers in Europe while European affiliates employed about 4.6 million Americans. These figures represent a pullback from 2019, due to the COVID-19 recession.

U.S. FDI Position in Europe



Europe FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$330.4 bn

U.S. Goods Exports to Europe, 2020

5.1% The U.S. supplied 5.1% of the Europe's total imports...

17.5% ...but the U.S. share increases to 17.5% when intra-Europe trade is excluded from the total.

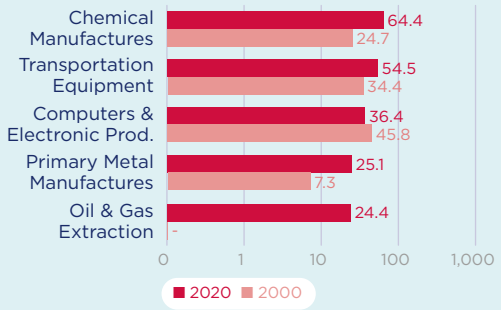
$577.1 bn

U.S. Goods Imports from Europe, 2020

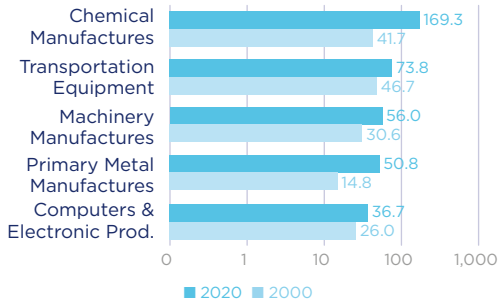
8.1% The U.S. received 8.1% of the total goods Europe exported to the world...

27.2% ...but the U.S. share increases to 27.2% when intra-Europe trade is excluded from the total.

Top Five U.S. Goods Exports to Europe ($ billions)



Top Five U.S. Goods Imports from Europe ($ billions)



Top State Exporters of Goods to Europe ($ billions)

1	2	3	4	5
45.3	34.3	22.6	12.5	11.9
Texas	California	New York	New Jersey	Illinois

Top State Importers of Goods from Europe ($ billions)

1	2	3	4	5
63.6	50.2	39.2	35.8	34.1
New York	New Jersey	California	Texas	Pennsyl-vania

Trade in Services

$291.4 bn

U.S. Services Exports to Europe, 2020

$197.0 bn

U.S. Services Imports from Europe, 2020

"Europe" refers to all 27 members of the European Union in 2020 plus Albania, Andorra, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Gibraltar, Greenland, Iceland, Kazakhstan, Kosovo, Kyrgyzstan, North Macedonia, Malta, Moldova, Monaco, Montenegro, Norway, Russia, Serbia, San Marino, Switzerland, Turkey, Tajikistan, Turkmenistan, Ukraine, United Kingdom, Uzbekistan, Vatican.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

The EU 28 (including U.K.) & the United States

Jobs

United States in the EU	The EU in the United States
4,334,099	**4,117,363**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$3.4 tn

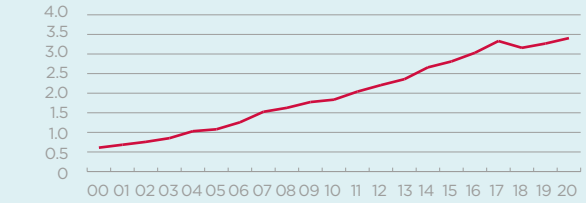
Foreign Direct Investment (FDI), 2020

$2.6 tn

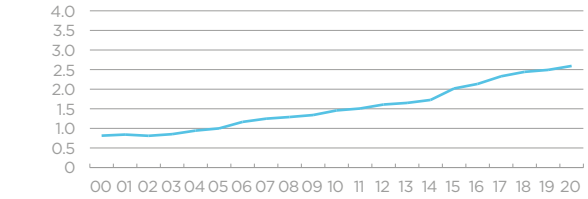
Foreign Direct Investment (FDI), 2020

In terms of the U.S.-EU investment balance, the U.S. had a larger net cross-border impact in 2020. U.S. foreign direct investment in the EU totaled a record $3.4 trillion in 2019, and the EU's foreign direct investment in the U.S. rose to $2.6 trillion. According to estimates for 2020, U.S. affiliates employed over 4.3 million workers in the EU while EU affiliates employed roughly 4.1 million Americans. These figures represent a pullback from 2019, due to the COVID-19 recession.

U.S. FDI Position in the EU and the UK



The EU and UK FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
*The EU FDI trend charts show an increasing number of member countries overtime. The U.K. is included in all years 2000-2019. Prior to 2013 the EU excludes Croatia. Prior to 2007, it also excludes Bulgaria and Romania. Prior to 2004, it also excludes Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

Trade in Goods

$289.7 bn

U.S. Goods Exports to the EU, 2020

5.0% The U.S. supplied 5.0% of the EU's total imports...

13.7% ...but the U.S. share increases to 13.7% when intra-EU trade is excluded from the total.

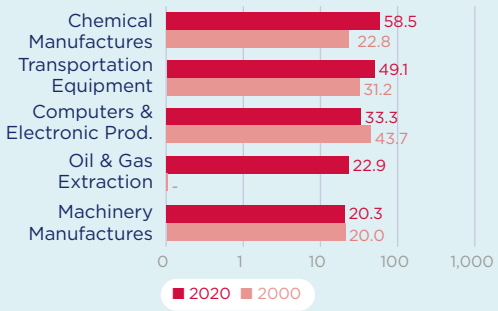
$465.8 bn

U.S. Goods Imports from the EU, 2020

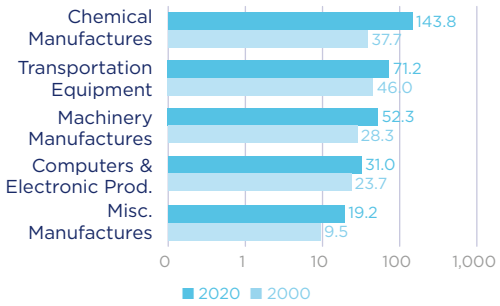
7.9% The U.S. received 7.9% of the total goods the EU exported to the world...

21.8% ...but the U.S. share increases to 21.8% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to the EU ($ billions)



Top Five U.S. Goods Imports from the EU ($ billions)



Top State Exporters of Goods to the EU ($ billions)

1	2	3	4	5
41.2	30.9	14.9	10.8	10.7
Texas	California	New York	Utah	New Jersey

Top State Importers of Goods from the EU ($ billions)

1	2	3	4	5
37.5	30.2	26.9	25.9	25.4
New Jersey	California	Texas	Indiana	Illinois

Trade in Services

$235.5 bn

U.S. Services Exports to the EU, 2020

$163.8 bn

U.S. Services Imports from the EU, 2020

"EU 28" refers to all 28 members of the European Union as of 2019 (including the UK). Prior to 2013 it excludes Croatia. Prior to 2007, it also excludes Bulgaria and Romania. Prior to 2004, it also excludes Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

The EU 27 (excluding U.K.) & The United States

Jobs

United States in the EU (ex. UK)	The EU (ex. UK) in the United States
2,869,896	**2,942,706**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$2.5 tn

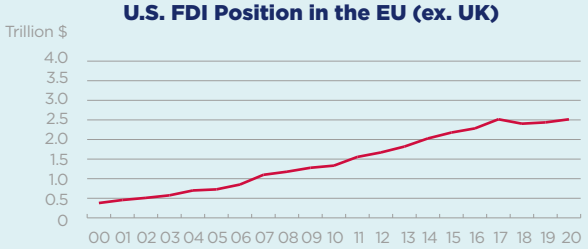
Foreign Direct Investment (FDI), 2020

$2.1 tn

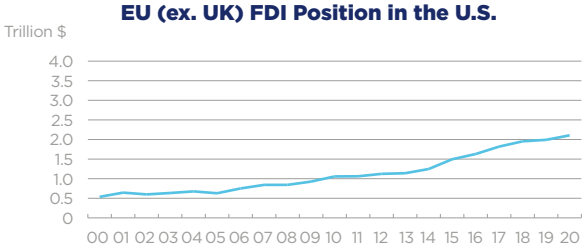
Foreign Direct Investment (FDI), 2020

When the UK is excluded from the EU data, U.S. outward investment is about 25% lower than the EU28 figure. U.S. outward FDI to the EU27 (which excludes the U.K.) in 2020 was $2.5 trillion, supporting 2.87 million jobs. Inward FDI from the 27 EU member states to the U.S. was a bit lower, $2.1 trillion, but supported more jobs (2.94 million), according to estimates.

U.S. FDI Position in the EU (ex. UK)



EU (ex. UK) FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
*The EU (ex. UK) FDI trend excludes the UK from EU data from 2000-2019. Prior to 2013 it also excludes Croatia. Prior to 2007, it also excludes Bulgaria and Romania. Prior to 2004, it also excludes Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

Trade in Goods

$231.2 bn

U.S. Goods Exports to the EU (ex. UK), 2020

4.5% The U.S. supplied 4.5% of the EU's (ex. UK) total imports...

11.8% ...but the U.S. share increases to 11.8% when intra-EU (ex. UK) trade is excluded from the total.

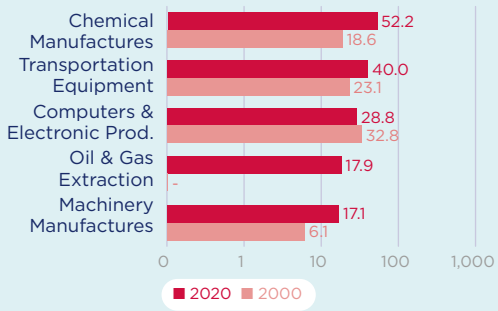
$415.5 bn

U.S. Goods Imports from the EU (ex. UK), 2020

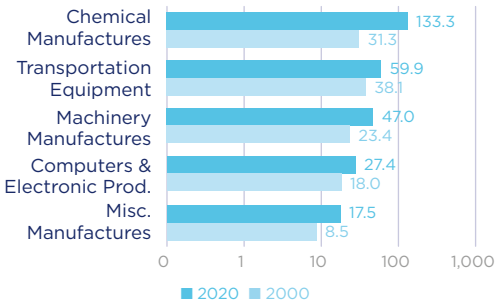
7.4% The U.S. received 7.4% of the total goods the EU (ex. UK) exported to the world...

18.2% ...but the U.S. share increases to 18.2% when intra-EU (ex. UK) trade is excluded from the total.

Top Five U.S. Goods Exports to the EU (ex. UK) ($ billions)



Top Five U.S. Goods Imports from the EU (ex. UK) ($ billions)



Top State Exporters of Goods to the EU (ex. UK) ($ billions)

1	2	3	4	5
33.8	26.0	10.8	9.1	8.8
Texas	California	New York	Georgia	Illinois

Top State Importers of Goods from the EU (ex. UK) ($ billions)

1	2	3	4	5
32.1	30.2	26.9	25.9	25.4
New Jersey	California	Indiana	Illinois	Texas

Trade in Services

$172.8 bn

U.S. Services Exports to the EU (ex. UK), 2020

$111.3 bn

U.S. Services Imports from the EU (ex. UK), 2020

"The EU 27 (ex. UK)" refers to the 27 members of the European Union as of January 31, 2020 (without the United Kingdom).
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Austria and the United States

Jobs

United States in Austria	Austria in the United States
43,242	**31,423**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$4.9 bn

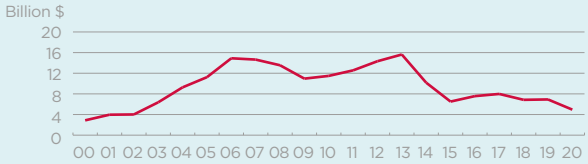
Foreign Direct Investment (FDI), 2020

$15.7 bn

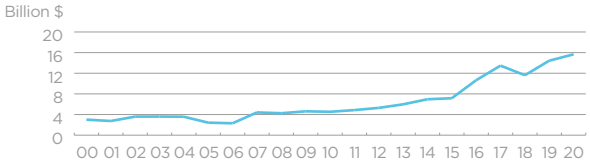
Foreign Direct Investment (FDI), 2020

America's direct investment position in Austria has declined since hitting a peak in 2013. Austria's investment stake in the U.S. now exceeds America's investment in Austria. However, American affiliates employed 1.4 times as many workers in Austria than Austrian firms employed in the U.S. in 2020.

U.S. FDI Position in Austria



Austria FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

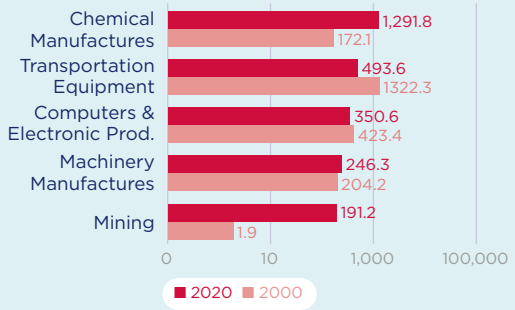
$3.4 bn

U.S. Goods Exports to Austria, 2020

2.0% The U.S. supplied 2.0% of Austria's total imports...

9.5% ...but the U.S. share increases to 9.5% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Austria ($ millions)



Top State Exporters of Goods to Austria ($ millions)

1	2	3	4	5
576.6	350.6	268.2	221.5	214.3
Kentucky	North Carolina	California	Georgia	Alabama

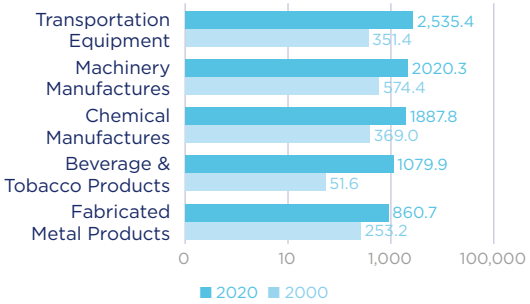
$11.6 bn

U.S. Goods Imports from Austria, 2020

6.1% The U.S. received 6.1% of the total goods Austria exported to the world...

21.5% ...but the U.S. share increases to 21.5% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Imports from Austria ($ millions)



Top State Importers of Goods from Austria ($ millions)

1	2	3	4	5
1,208.2	1,186.7	938.5	818.1	780.9
California	Georgia	South Carolina	Texas	New Jersey

Trade in Services

$1.1 bn

U.S. Services Exports to Austria, 2020

$0.8 bn

U.S. Services Imports from Austria, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Belgium and the United States

Jobs

United States in Belgium	Belgium in the United States
122,534	**65,660**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$69.5 bn

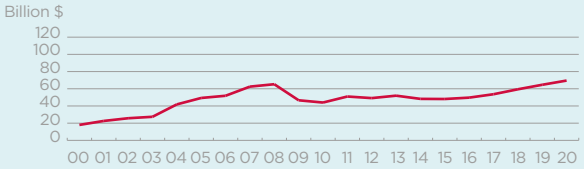
Foreign Direct Investment (FDI), 2020

$74.6 bn

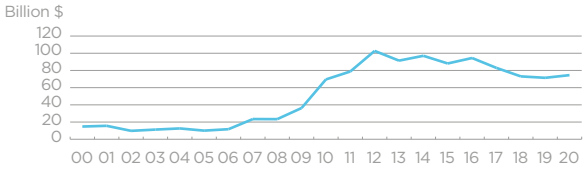
Foreign Direct Investment (FDI), 2020

U.S. direct investments in Belgium are heavily concentrated in the manufacturing sector, which makes up 62% of U.S. FDI in Belgium. Meanwhile, the manufacturing sector accounts for 81% of Belgium's FDI stock in the U.S. Foreign affiliate employment by U.S. companies in Belgium was almost double Belgian companies' employment in the U.S. Value added by U.S. affiliates in Belgium was an estimated $25 billion in 2020, about 70% higher than value added of Belgian affiliates in the U.S.

U.S. FDI Position in Belgium



Belgium FDI Position in the U.S.



FDI position based on a historic-cost basis, 2000-2020.

Trade in Goods

$27.6 bn

U.S. Goods Exports to Belgium, 2020

7.0% The U.S. supplied 7.0% of Belgium's total imports...

20.1% ...but the U.S. share increases to 20.1% when intra-EU trade is excluded from the total.

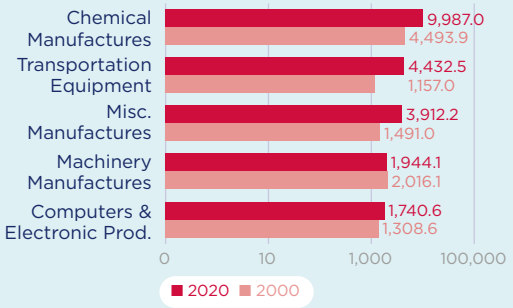
$20.8 bn

U.S. Goods Imports from Belgium, 2020

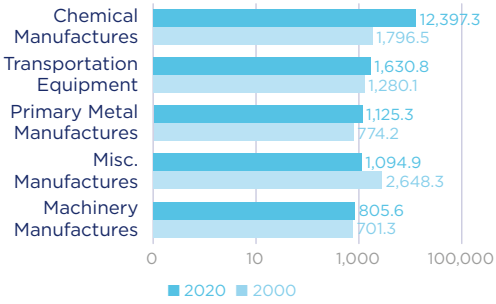
7.0% The U.S. received 7.0% of the total goods Belgium exported to the world...

25.3% ...but the U.S. share increases to 25.3% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Belgium ($ millions)



Top Five U.S. Goods Imports from Belgium ($ millions)



Top State Exporters of Goods to Belgium ($ millions)

1	2	3	4	5
4,346.0	4,010.0	2,063.7	1,413.8	1,051.2
California	Texas	New York	South Carolina	Illinois

Top State Importers of Goods from Belgium ($ millions)

1	2	3	4	5
4,795.7	2,462.7	2,349.8	1,648.6	1,434.0
Pennsylvania	New York	Wisconsin	Georgia	New Jersey

Trade in Services

$5.8 bn

U.S. Services Exports to Belgium, 2020

$4.1 bn

U.S. Services Imports from Belgium, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Bulgaria and the United States

Jobs

United States in Bulgaria	Bulgaria in the United States
9,653	**281**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$608 m

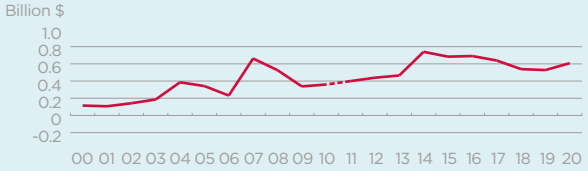
Foreign Direct Investment (FDI), 2020

$48 m

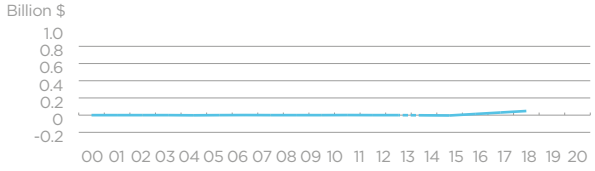
Foreign Direct Investment (FDI), 2017*

America's investment base in Bulgaria is relatively small, and foreign affiliate sales totaled just $2.2 billion in 2020, according to estimates. U.S. affiliates in Bulgaria employed almost 10,000 workers in 2020, significantly more than Bulgarian firms employed in the U.S.

U.S. FDI Position in Bulgaria



Bulgaria FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Latest year of available data.

Trade in Goods

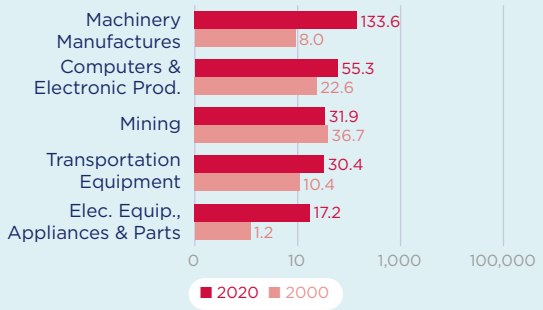
$375 m

U.S. Goods Exports to Bulgaria, 2020

1.3% The U.S. supplied 1.3% of Bulgaria's total imports...

3.4% ...but the U.S. share increases to 3.4% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Bulgaria ($ millions)



Top State Exporters of Goods to Bulgaria ($ millions)

1	2	3	4	5
93.2	57.3	20.4	18.5	18.5
California	Texas	New York	Iowa	Nevada

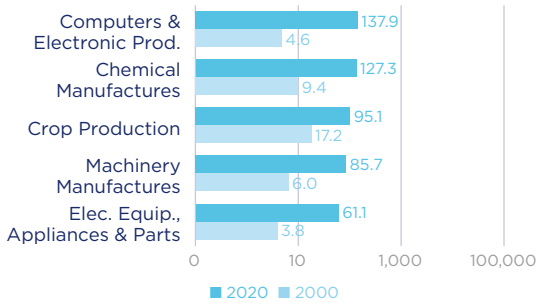
$848 m

U.S. Goods Imports from Bulgaria, 2020

2.0% The U.S. received 2.0% of the total goods Bulgaria exported to the world...

6.2% ...but the U.S. share increases to 6.2% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Imports from Bulgaria ($ millions)



Top State Importers of Goods from Bulgaria ($ millions)

1	2	3	4	5
70.7	66.5	65.0	63.2	48.4
California	Missouri	New York	North Carolina	New Jersey

Trade in Services

$362 m

U.S. Services Exports to Bulgaria, 2020

$396 m

U.S. Services Imports from Bulgaria, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Croatia and the United States

Jobs

United States in Croatia	Croatia in the United States
2,561	< 50

Jobs directly supported by majority-owned affiliates. Estimates for 2018. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$192 m

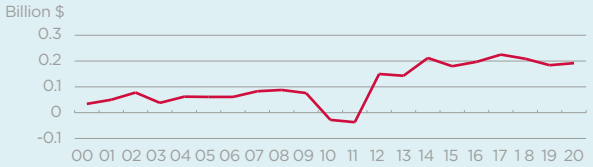
Foreign Direct Investment (FDI), 2020

$19 m

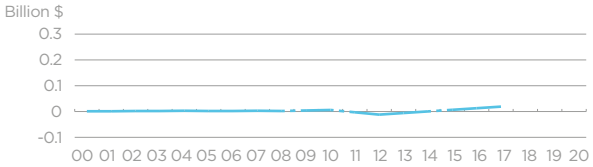
Foreign Direct Investment (FDI), 2017*

U.S. direct investment in Croatia has fluctuated in recent years around $200 million. Meanwhile, Croatia's direct investment position in the U.S. is much lower, around $19 million in 2017, the latest year of available data. U.S. foreign affiliates in Croatia employed over 2,500 workers in 2020, while Croatian foreign direct investment in the U.S. directly supported fewer than 50 jobs.

U.S. FDI Position in Croatia



Croatia FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data. Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.
*Latest year of available data

Trade in Goods

$316 m

U.S. Goods Exports to Croatia, 2020

0.7% The U.S. supplied 0.7% of Croatia's total imports...

3.4% ...but the U.S. share increases to 3.4% when intra-EU trade is excluded from the total.

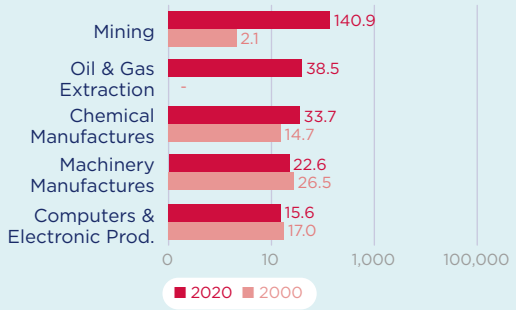
$601 m

U.S. Goods Imports from Croatia, 2020

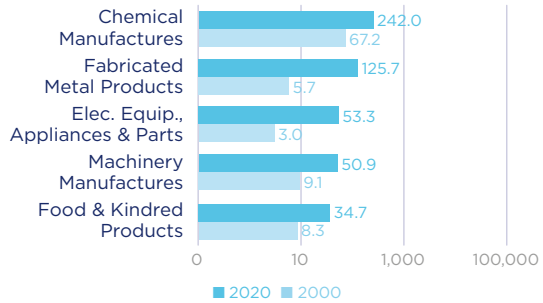
3.0% The U.S. received 3.0% of the total goods Croatia exported to the world...

9.8% ...but the U.S. share increases to 9.8% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Croatia ($ millions)



Top Five U.S. Goods Imports from Croatia ($ millions)



Top State Exporters of Goods to Croatia ($ millions)

1	2	3	4	5
126.0	43.9	22.3	21.9	18.0
Virginia	Texas	Illinois	California	West Virginia

Top State Importers of Goods from Croatia ($ millions)

1	2	3	4	5
173.3	116.4	35.2	32.5	23.8
Pennsylva-nia	Illinois	Tennessee	North Carolina	New York

Trade in Services

$178 m

U.S. Services Exports to Croatia, 2020

$108 m

U.S. Services Imports from Croatia, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis; United Nations.

Cyprus and the United States

Jobs

United States in Cyprus	Cyprus in the United States
1,379	2,908

Jobs directly supported by majority-owned affiliates. Estimates for 2019. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$4.9 bn

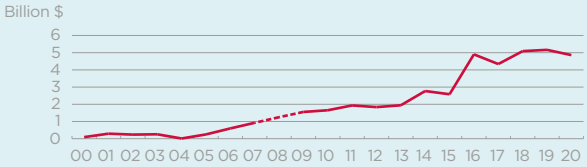
Foreign Direct Investment (FDI), 2020

$0.2 bn

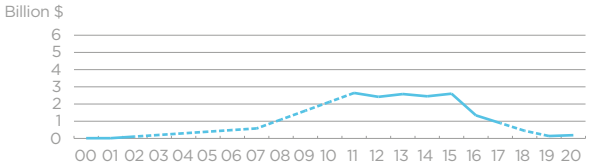
Foreign Direct Investment (FDI), 2020

U.S. investment in Cyprus has risen over the past decade, in part due to the country's relatively low corporate tax rate. In recent years, FDI has declined slightly to $4.9 billion. Cyprus's FDI in the U.S., meanwhile, has declined over the decade and is near the lowest levels in 20 years. However, Cyprus-based companies continued to support roughly more jobs in the U.S. than American corporations supported in Cyprus.

U.S. FDI Position in Cyprus



Cyprus FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data. Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.

Trade in Goods

$103 m

U.S. Goods Exports to Cyprus, 2020

0.8% The U.S. supplied 0.8% of Cyprus's total imports...

2.2% ...but the U.S. share increases to 2.2% when intra-EU trade is excluded from the total.

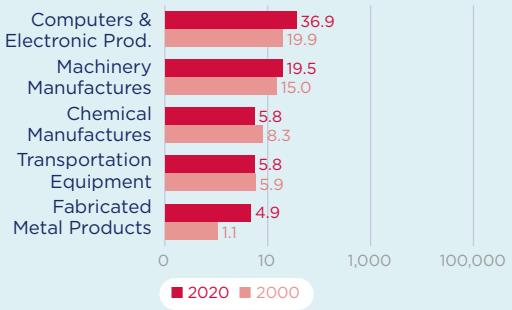
$59 m

U.S. Goods Imports from Cyprus, 2020

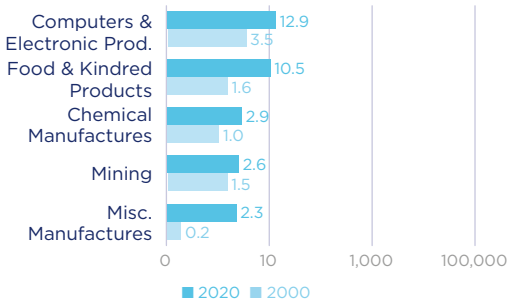
2.9% The U.S. received 2.9% of the total goods Cyprus exported to the world...

4.7% ...but the U.S. share increases to 4.7% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Cyprus ($ millions)



Top Five U.S. Goods Imports from Cyprus ($ millions)



Top State Exporters of Goods to Cyprus ($ millions)

1	2	3	4	5
25.6	14.4	12.1	8.4	3.9
Texas	California	Alabama	New Jersey	Florida

Top State Importers of Goods from Cyprus ($ millions)

1	2	3	4	5
17.1	10.7	7.6	6.3	4.1
Texas	Idaho	Florida	New York	California

Trade in Services

$1,100 m

U.S. Services Exports to Cyprus, 2020

$1,142 m

U.S. Services Imports from Cyprus, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Czech Republic and the United States

Jobs

United States in Czech Republic	Czech Republic in the United States
71,807	**94**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$5.6 bn

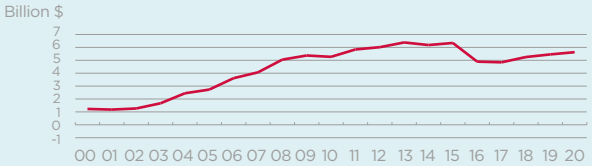
Foreign Direct Investment (FDI), 2020

$0.2 bn

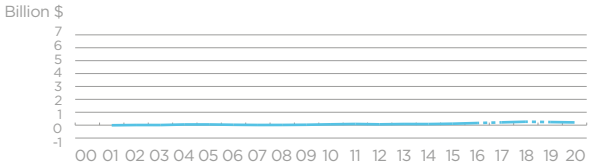
Foreign Direct Investment (FDI), 2020

America's investment base in the Czech Republic has rebounded in recent years from a relative trough of $4.8 billion in 2017 to $ 5.6 billion in 2020. Czech Republic FDI in the U.S. amounted to just $212 million. Similarly, affiliate employment by U.S. multinationals in the Czech Republic was much larger than that of Czech firms in the U.S. Meanwhile, total sales of U.S. foreign affiliates in the Czech Republic were an estimated $14.3 billion in 2020, while sales by Czech firms in the U.S. were just $48 million.

U.S. FDI Position in Czech Republic



Czech Republic FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$3.0 bn

U.S. Goods Exports to Czech Republic, 2020

2.1% The U.S. supplied 2.1% of Czech Republic's total imports...

8.1% ...but the U.S. share increases to 8.1% when intra-EU trade is excluded from the total.

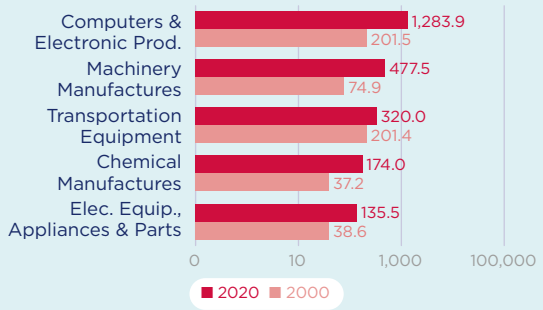
$5.5 bn

U.S. Goods Imports from Czech Republic, 2020

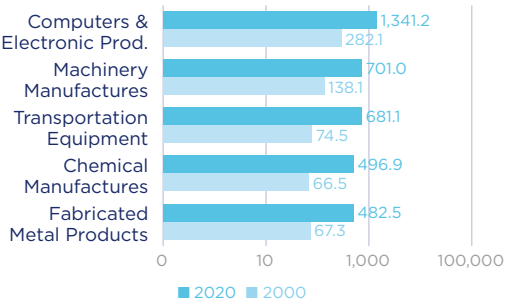
2.3% The U.S. received 2.3% of the total goods Czech Republic exported to the world...

14.2% ...but the U.S. share increases to 14.2% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Czech Republic ($ millions)



Top Five U.S. Goods Imports from Czech Republic ($ millions)



Top State Exporters of Goods to Czech Republic ($ millions)

1	2	3	4	5
567.0	421.0	218.2	181.8	141.8
Texas	California	Nevada	Wisconsin	New York

Top State Importers of Goods from Czech Republic ($ millions)

1	2	3	4	5
909.7	463.4	446.8	319.7	296.5
Texas	South Carolina	Pennsyl-vania	Ohio	California

Trade in Services

$1.2 bn

U.S. Services Exports to Czech Republic, 2020

$0.8 bn

U.S. Services Imports from Czech Republic, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Denmark and the United States

Jobs

United States in Denmark	Denmark in the United States
40,484	**37,520**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$9.9 bn

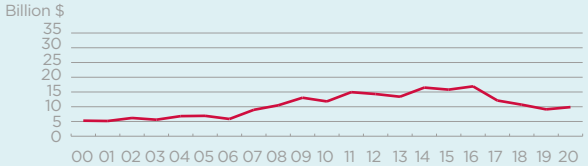
Foreign Direct Investment (FDI), 2020

$30.7 bn

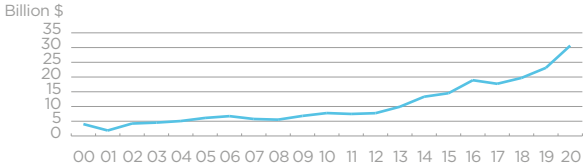
Foreign Direct Investment (FDI), 2020

Bilateral investment between the U.S. and Denmark was relatively equal in 2016, with Denmark investing only $1 billion more in the U.S. than what the U.S. invested in Denmark. Thereafter, the investment gap widened as U.S. investment in Denmark declined while Denmark's investment in the U.S. expanded. In 2020, Danish firms' affiliate sales in the U.S. market were an estimated $27 billion while U.S. foreign affiliate sales in Denmark were $20 billion. The affiliate employment balance favors Denmark slightly, with U.S. affiliates in Denmark employing roughly 3,000 more people than Danish affiliates employ in the U.S., according to 2020 estimates.

U.S. FDI Position in Denmark



Denmark FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$2.9 bn

U.S. Goods Exports to Denmark, 2020

3.0% The U.S. supplied 3.0% of Denmark's total imports...

11.0% ...but the U.S. share increases to 11.0% when intra-EU trade is excluded from the total.

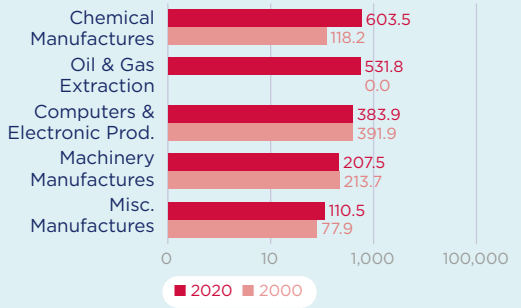
$11.6 bn

U.S. Goods Imports from Denmark, 2020

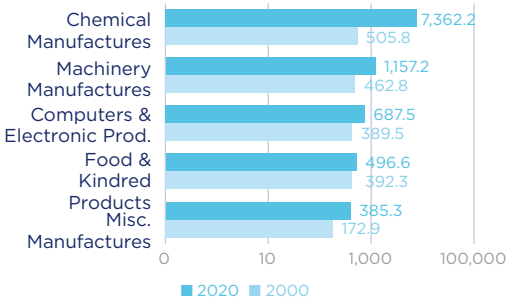
10.9% The U.S. received 10.9% of the total goods Denmark exported to the world...

25.2% ...but the U.S. share increases to 25.2% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Denmark ($ millions)



Top Five U.S. Goods Imports from Denmark ($ millions)



Top State Exporters of Goods to Denmark ($ millions)

1	2	3	4	5
678.0	332.2	238.2	136.0	103.3
Texas	California	North Carolina	Louisiana	New York

Top State Importers of Goods from Denmark ($ millions)

1	2	3	4	5
6,597.1	543.7	401.0	395.5	373.2
Indiana	Texas	North Carolina	Illinois	California

Trade in Services

$6.7 bn

U.S. Services Exports to Denmark, 2020

$6.8 bn

U.S. Services Imports from Denmark, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Estonia and the United States

Jobs

United States in Estonia	Estonia in the United States
3,054	< 50

Jobs directly supported by majority-owned affiliates. Estimates for 2019. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$74 m

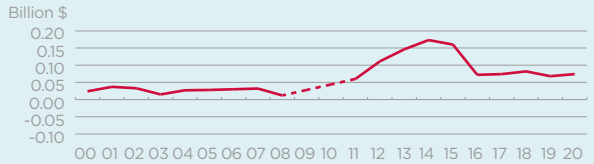
Foreign Direct Investment (FDI), 2020

-$6 m

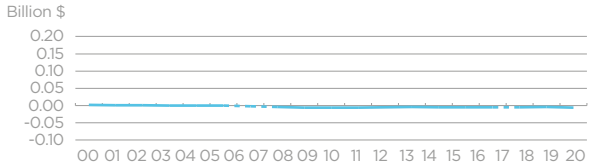
Foreign Direct Investment (FDI), 2018*

America's direct investment base in Estonia is one of the smallest of the European Union. U.S. affiliates employed around 3,050 people in Estonia in 2020, while Estonian firms' provided less than 50 jobs in the U.S., according to estimates. Business conditions are favorable for foreign companies in Estonia, with Estonia's advanced digital economy providing an attractive environment for U.S. companies.

U.S. FDI Position in Estonia



Estonia FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Last year of available data. Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.

Trade in Goods

$0.3 bn

U.S. Goods Exports to Estonia, 2020

1.4% The U.S. supplied 1.4% of Estonia's total imports...

6.1% ...but the U.S. share increases to 6.1% when intra-EU trade is excluded from the total.

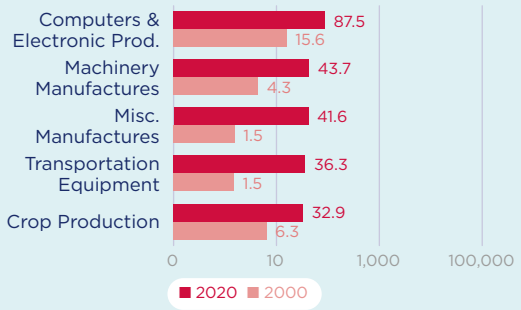
$1.1 bn

U.S. Goods Imports from Estonia, 2020

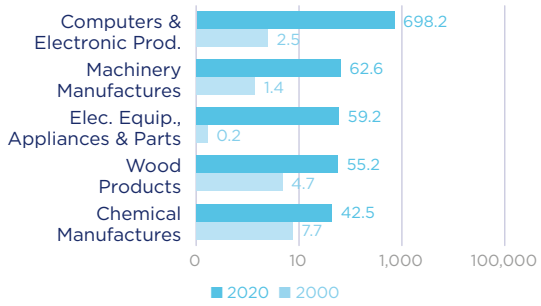
8.0% The U.S. received 8.0% of the total goods Estonia exported to the world...

24.8% ...but the U.S. share increases to 24.8% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Estonia ($ millions)



Top Five U.S. Goods Imports from Estonia ($ millions)



Top State Exporters of Goods to Estonia ($ millions)

1	2	3	4	5
78.2	35.8	26.9	16.3	16.1
California	Nevada	Texas	Iowa	New York

Top State Importers of Goods from Estonia ($ millions)

1	2	3	4	5
641.0	48.9	36.3	35.8	23.2
Texas	New Hamp-shire	Ohio	California	Minnesota

Trade in Services

$116 m

U.S. Services Exports to Estonia, 2020

$63 m

U.S. Services Imports from Estonia, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Finland and the United States

Jobs

United States in Finland	Finland in the United States
20,784	**34,800**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$5.3 bn

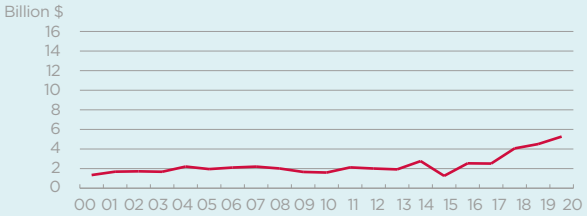
Foreign Direct Investment (FDI), 2020

$15.1 bn

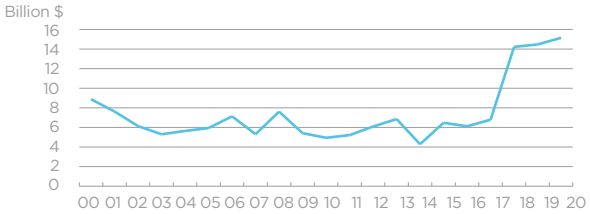
Foreign Direct Investment (FDI), 2020

The direct investment balance favors the United States, with Finnish investment in the U.S. rising again in 2020 to over $15 billion. Total employment by Finnish companies in the U.S. have also risen substantially over the past few years from 23,000 in 2015 to over 34,000 in 2020. Finnish direct investment in the U.S. is heavily concentrated in the wholesale trade and manufacturing industries, representing 15% and 74% of total FDI, respectively.

U.S. FDI Position in Finland



Finland FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

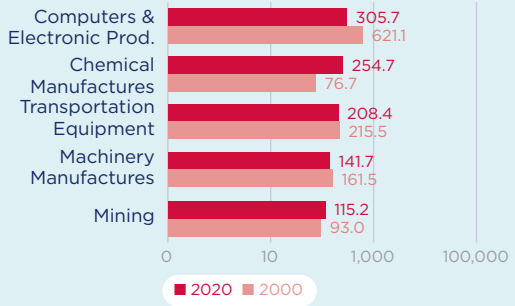
$1.6 bn

U.S. Goods Exports to Finland, 2020

1.9% The U.S. supplied 1.9% of Finland's total imports...

7.4% ...but the U.S. share increases to 7.4% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Finland ($ millions)



Top State Exporters of Goods to Finland ($ millions)

1	2	3	4	5
249.4	157.7	124.3	85.7	77.0
Texas	California	Georgia	Florida	Alabama

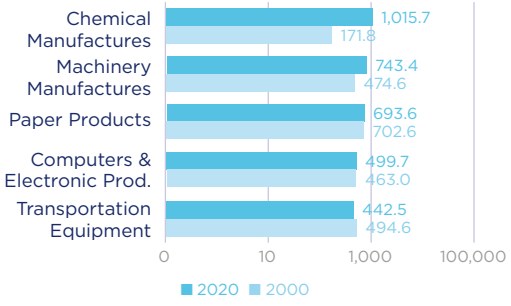
$4.9 bn

U.S. Goods Imports from Finland, 2020

8.7% The U.S. received 8.7% of the total goods Finland exported to the world...

20.7% ...but the U.S. share increases to 20.7% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Imports from Finland ($ millions)



Top State Importers of Goods from Finland ($ millions)

1	2	3	4	5
963.3	356.0	298.7	298.5	292.3
Pennsylvania	Illinois	New Jersey	Texas	California

Trade in Services

$1.5 bn

U.S. Services Exports to Finland, 2020

$1.3 bn

U.S. Services Imports from Finland, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

France and the United States

Jobs

United States in France	France in the United States
494,175	**717,664**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$91.2 bn

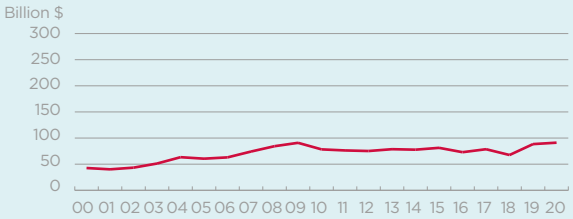
Foreign Direct Investment (FDI), 2020

$285.1 bn

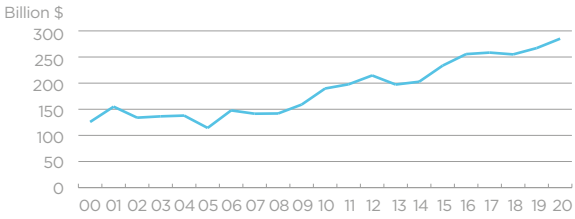
Foreign Direct Investment (FDI), 2020

The direct investment balance favors the U.S., with U.S. investment in France just one-third of the total value of French investment in the U.S. in 2020. The U.S. is a significant market for French firms, with U.S. affiliates of French firms recording an estimated $306 billion in sales during 2020. The manufacturing sector makes up about 48% of French FDI in the U.S, followed by financial institutions and information services. In terms of jobs, U.S. and French affiliates combined employed an estimated 1.2 million workers in 2020, slightly lower than the previous year due to the COVID-19 recession.

U.S. FDI Position in France



France FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$27.3 bn

U.S. Goods Exports to France, 2020

4.8% The U.S. supplied 4.8% of France's total imports...

16.0% ...but the U.S. share increases to 16.0% when intra-EU trade is excluded from the total.

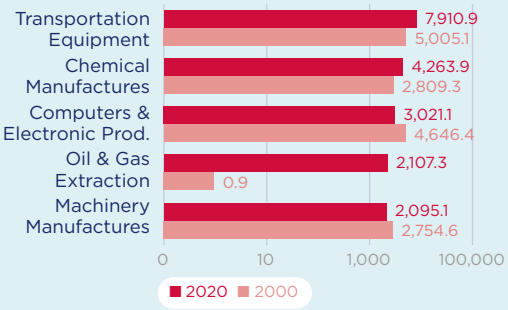
$42.9 bn

U.S. Goods Imports from France, 2020

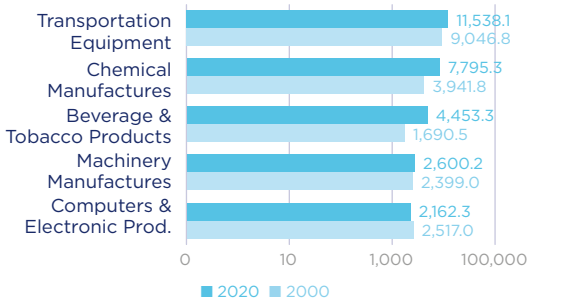
7.7% The U.S. received 7.7% of the total goods France exported to the world...

19.1% ...but the U.S. share increases to 19.1% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to France ($ millions)



Top Five U.S. Goods Imports from France ($ millions)



Top State Exporters of Goods to France ($ millions)

1	2	3	4	5
3,551.0	2,294.0	1,891.7	1,705.2	1,369.0
Texas	California	New York	Kentucky	Maryland

Top State Importers of Goods from France ($ millions)

1	2	3	4	5
5,927.9	5,923.0	3,900.2	2,771.8	2,618.8
California	New York	New Jersey	Florida	Texas

Trade in Services

$15.5 bn

U.S. Services Exports to France, 2020

$13.3 bn

U.S. Services Imports from France, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Germany and the United States

Jobs

United States in Germany	Germany in the United States
671,869	**806,586**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$162.4 bn

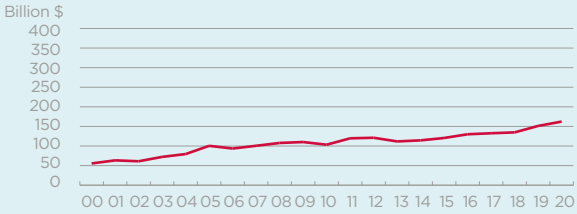
Foreign Direct Investment (FDI), 2020

$411.3 bn

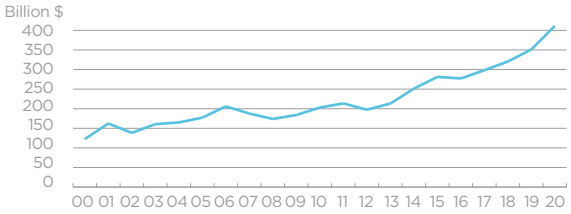
Foreign Direct Investment (FDI), 2020

The investment balance favors the U.S., with Germany's investment in the U.S. more than 2.5 times the size of U.S. investment in Germany. Wholesale trade, finance and insurance, and transportation equipment manufacturing are the largest industries when it comes to German stock of FDI in the U.S. The value added by German affiliates in the United States ($129 billion) was higher than that of U.S. affiliates operating in Germany ($77 billion), according to 2020 estimates. The employment picture is relatively balanced, with affiliates of both countries employing a combined workforce of almost 1.5 million employees.

U.S. FDI Position in Germany



Germany FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$57.4 bn

U.S. Goods Exports to Germany, 2020

4.9% The U.S. supplied 4.9% of Germany's total imports...

14.9% ...but the U.S. share increases to 14.9% when intra-EU trade is excluded from the total.

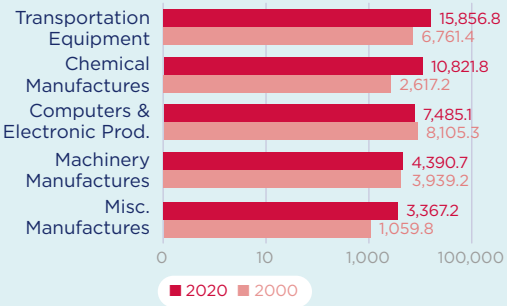
$115.1 bn

U.S. Goods Imports from Germany, 2020

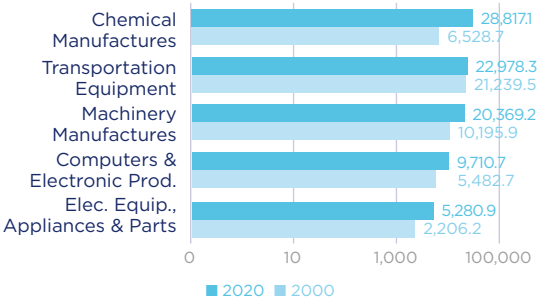
8.6% The U.S. received 8.6% of the total goods Germany exported to the world...

20.5% ...but the U.S. share increases to 20.5% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Germany ($ millions)



Top Five U.S. Goods Imports from Germany ($ millions)



Top State Exporters of Goods to Germany ($ millions)

1	2	3	4	5
6,461.1	**5,033.6**	**4,086.4**	**4,081.5**	**3,508.5**
California	Texas	Georgia	South Carolina	Illinois

Top State Importers of Goods from Germany ($ millions)

1	2	3	4	5
9,614.6	**9,216.4**	**8,719.5**	**7,353.7**	**6,338.7**
California	North Carolina	Illinois	Georgia	Pennsyl-vania

Trade in Services

$29.6 bn

U.S. Services Exports to Germany, 2020

$31.6 bn

U.S. Services Imports from Germany, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Greece and the United States

Jobs

United States in Greece	Greece in the United States
14,578	**3,471**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$0.1 bn

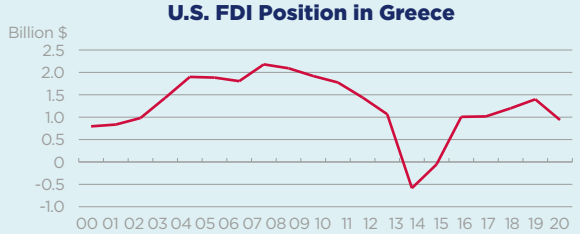
Foreign Direct Investment (FDI), 2020

$0.6 bn

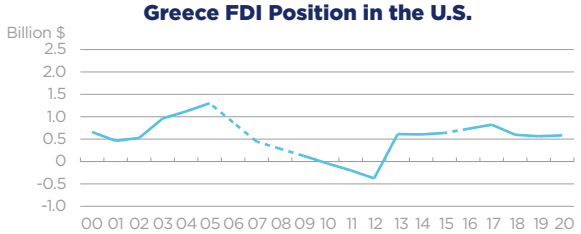
Foreign Direct Investment (FDI), 2020

Greece's investment ties with the U.S. have declined in recent years after rebounding temporarily following the global financial crisis. In 2020, America's foreign direct investment position in Greece dipped was just $74 million, down from a recent peak of $1.2 billion in 2017. Meanwhile, Greece's FDI position in the U.S. has been relatively stable in recent years at $0.6 billion. Estimated U.S. affiliate sales in Greece of $5.4 billion were three times greater than sales of Greek affiliates in the U.S. ($1.7 billion)

U.S. FDI Position in Greece



Greece FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.

Trade in Goods

$1.4 bn

U.S. Goods Exports to Greece, 2020

2.0% The U.S. supplied 2.0% of Greece's total imports...

4.9% ...but the U.S. share increases to 4.9% when intra-EU trade is excluded from the total.

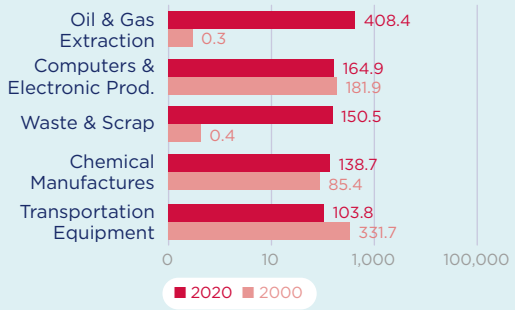
$1.3 bn

U.S. Goods Imports from Greece, 2020

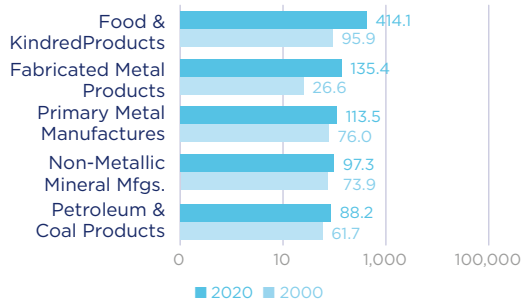
3.7% The U.S. received 3.7% of the total goods Greece exported to the world...

9.6% ...but the U.S. share increases to 9.6% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Greece ($ millions)



Top Five U.S. Goods Imports from Greece ($ millions)



Top State Exporters of Goods to Greece ($ millions)

1	2	3	4	5
283.1	**163.1**	**141.2**	**113.2**	**93.7**
Texas	Louisiana	California	Maryland	Pennsylvania

Top State Importers of Goods from Greece ($ millions)

1	2	3	4	5
145.5	**139.8**	**126.5**	**109.5**	**106.1**
New Jersey	New York	California	Texas	North Carolina

Trade in Services

$1.2 bn

U.S. Services Exports to Greece, 2020

$1.9 bn

U.S. Services Imports from Greece, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Hungary and the United States

Jobs

United States in Hungary	Hungary in the United States
65,601	**188**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$13.3 bn

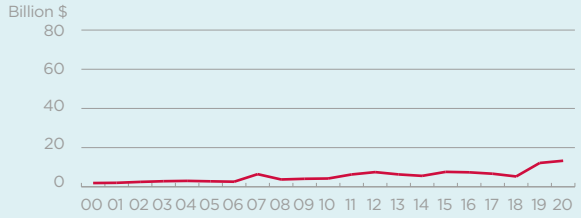
Foreign Direct Investment (FDI), 2020

$45.5 bn

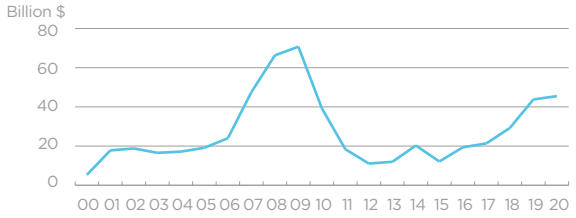
Foreign Direct Investment (FDI), 2020

America's investment base in Hungary increased to $13.3 billion in 2020, and U.S. affiliate employment in Hungary ranked fourth among EU13 countries. Value added by U.S.-owned affiliates totaled $4.1 billion in 2020, according to estimates. Meanwhile, Hungarian investment in the U.S. increased slightly in 2020 to over $45 billion, though total investment remains below its peak of $70.7 billion in 2009.

U.S. FDI Position in Hungary



Hungary FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$2.1 bn

U.S. Goods Exports to Hungary, 2020

1.7% The U.S. supplied 1.7% of Hungary's total imports...

5.9% ...but the U.S. share increases to 5.9% when intra-EU trade is excluded from the total.

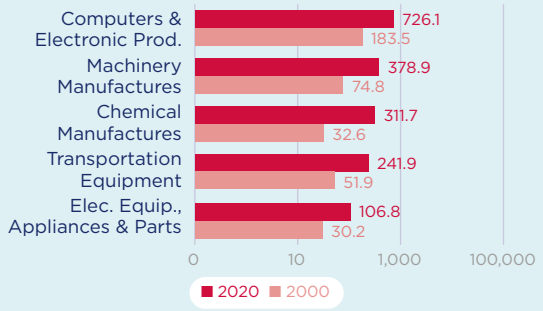
$5.3 bn

U.S. Goods Imports from Hungary, 2020

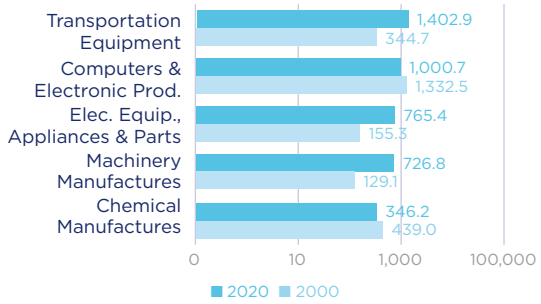
2.7% The U.S. received 2.7% of the total goods Hungary exported to the world...

14.6% ...but the U.S. share increases to 14.6% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Hungary ($ millions)



Top Five U.S. Goods Imports from Hungary ($ millions)



Top State Exporters of Goods to Hungary ($ millions)

1	2	3	4	5
293.0	279.7	186.8	132.2	131.0
Texas	Nevada	Florida	Indiana	California

Top State Importers of Goods from Hungary ($ millions)

1	2	3	4	5
687.7	529.6	500.2	439.8	299.4
South Carolina	Texas	Michigan	California	Georgia

Trade in Services

$0.9 bn

U.S. Services Exports to Hungary, 2020

$0.4 bn

U.S. Services Imports from Hungary, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Ireland and the United States

Jobs

United States in Ireland	Ireland in the United States
148,735	**316,763**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$390.3 bn

Foreign Direct Investment (FDI), 2020

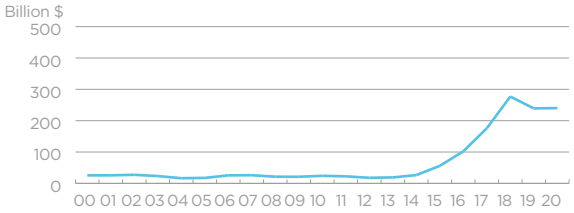
$240.1 bn

Foreign Direct Investment (FDI), 2020

The investment balance favors Ireland, with U.S. investment in Ireland totaling some $390 billion in 2020 versus $240 billion of Irish investment in the U.S. Total U.S. FDI in Ireland fell again in 2020, as American companies continued to repatriate foreign profits after U.S. tax reform. Value added by U.S. affiliates in Ireland totaled an estimated $117 billion in 2020, which is double the gross product of Irish affiliates operating in the U.S. By contrast, affiliate employment favored the United States, with Ireland's affiliates employing roughly 170,000 more Americans than U.S. affiliates employed in Ireland.

U.S. FDI Position in Ireland

Ireland FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$9.6 bn

U.S. Goods Exports to Ireland, 2020

13.6% The U.S. supplied 13.6% of Ireland's total imports...

38.3% ...but the U.S. share increases to 38.3% when intra-EU trade is excluded from the total.

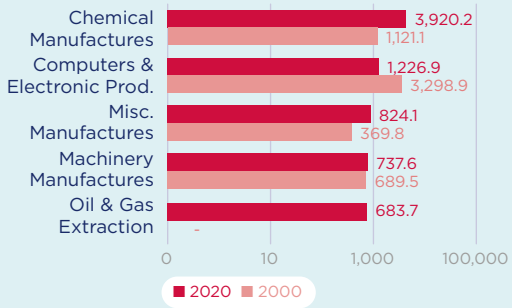
$66.0 bn

U.S. Goods Imports from Ireland, 2020

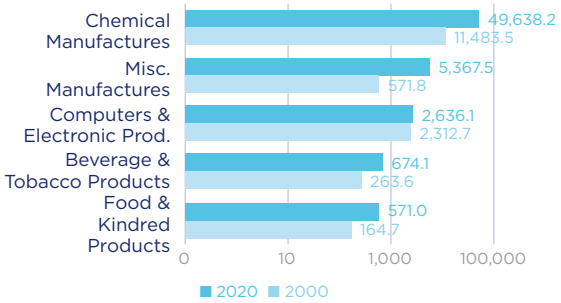
30.3% The U.S. received 30.3% of the total goods Ireland exported to the world...

60.2% ...but the U.S. share increases to 60.2% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Ireland ($ millions)



Top Five U.S. Goods Imports from Ireland ($ millions)



Top State Exporters of Goods to Ireland ($ millions)

1	2	3	4	5
1,169.8	1,096.7	662.9	583.4	466.4
Texas	California	Massachu-setts	Illinois	North Carolina

Top State Importers of Goods from Ireland ($ millions)

1	2	3	4	5
11,608.8	7,686.8	5,101.7	4,522.3	4,108.0
Indiana	Tennessee	North Carolina	Ohio	Florida

Trade in Services

$61.9 bn

U.S. Services Exports to Ireland, 2020

$18.9 bn

U.S. Services Imports from Ireland, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis

Italy and the United States

Jobs

United States in Italy	Italy in the United States
251,471	**92,768**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$31.1 bn

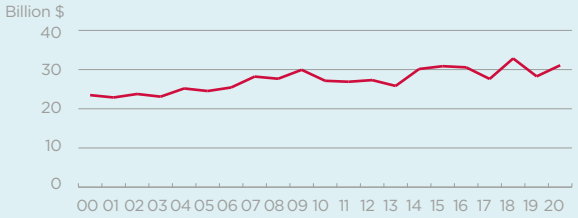
Foreign Direct Investment (FDI), 2020

$31.6 bn

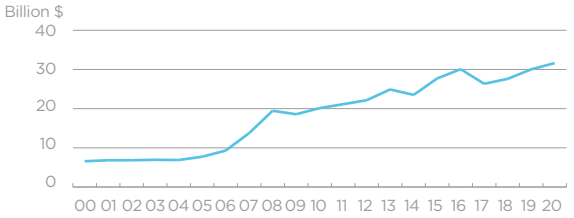
Foreign Direct Investment (FDI), 2020

America's FDI position has been relatively flat over the past two decades, while Italian investment in the U.S. has risen steadily, up almost 400% since 2000. In 2020, Italy benefited more with regards to affiliate sales, value added and employment. For example, value added by U.S. affiliates in Italy was three times the value added of Italian companies in the U.S. Also, affiliates of U.S.-owned companies supported about 160,000 more jobs in Italy than Italian multinationals supported in the U.S., according to 2020 estimates.

U.S. FDI Position in Italy



Italy FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$19.9 bn

U.S. Goods Exports to Italy, 2020

3.9% The U.S. supplied 3.9% of Italy's total imports...

10.0% ...but the U.S. share increases to 10.0% when intra-EU trade is excluded from the total.

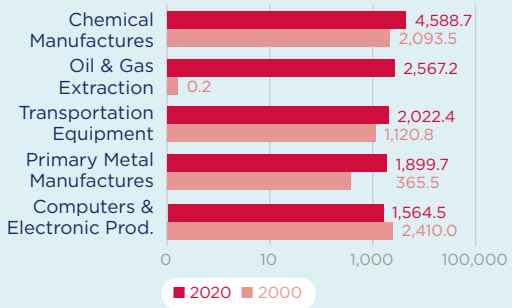
$49.4 bn

U.S. Goods Imports from Italy, 2020

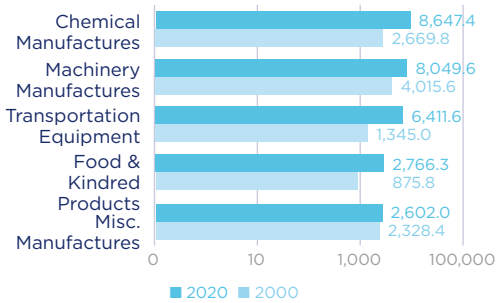
9.7% The U.S. received 9.7% of the total goods Italy exported to the world...

22.3% ...but the U.S. share increases to 22.3% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Italy ($ millions)



Top Five U.S. Goods Imports from Italy ($ millions)



Top State Exporters of Goods to Italy ($ millions)

1	2	3	4	5
3,482.9	1,619.4	1,589.5	1,084.1	993.7
Texas	California	New Jersey	Indiana	Michigan

Top State Importers of Goods from Italy ($ millions)

1	2	3	4	5
7,057.1	5,156.4	3,687.6	3,407.0	3,299.5
New Jersey	New York	California	Texas	Pennsylvania

Trade in Services

$5.8 bn

U.S. Services Exports to Italy, 2020

$4.5 bn

U.S. Services Imports from Italy, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Latvia and the United States

Jobs

United States in Latvia	Latvia in the United States
1,675	< 50

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$37 m

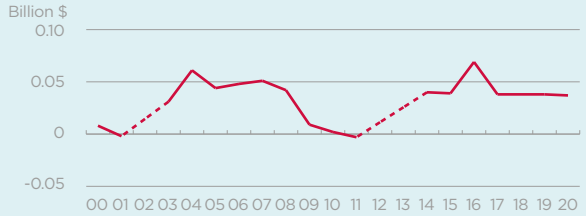
Foreign Direct Investment (FDI), 2020

$0 m

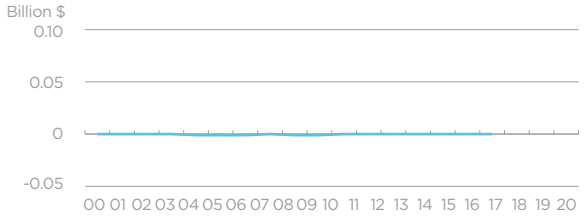
Foreign Direct Investment (FDI), 2016*

The small country of roughly two million people has yet to attract significant foreign direct investment from the United States. U.S. FDI in Latvia has stalled since 2016, along with U.S. affiliate employment which is the second lowest in the EU, ahead of Cyprus. Foreign sales by U.S. firms in Latvia were an estimated $388 billion in 2020, after rising almost 50% in 2019. By contrast, sales by Latvian firms in the U.S. were just $4 million.

U.S. FDI Position in Latvia



Latvia FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Latest year of available data. Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.

Trade in Goods

$306 m

U.S. Goods Exports to Latvia, 2020

0.9% The U.S. supplied 0.9% of Latvia's total imports...

4.5% ...but the U.S. share increases to 4.5% when intra-EU trade is excluded from the total.

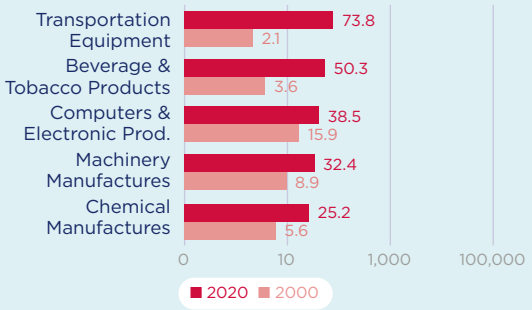
$520 m

U.S. Goods Imports from Latvia, 2020

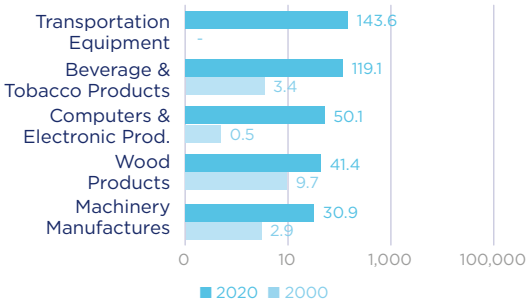
1.8% The U.S. received 1.8% of the total goods Latvia exported to the world...

5.3% ...but the U.S. share increases to 5.3% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Latvia ($ millions)



Top Five U.S. Goods Imports from Latvia ($ millions)



Top State Exporters of Goods to Latvia ($ millions)

1	2	3	4	5
44.5	40.3	38.4	16.0	13.9
Tennessee	Alabama	California	Georgia	New York

Top State Importers of Goods from Latvia ($ millions)

1	2	3	4	5
170.6	49.2	42.2	37.2	30.3
Texas	California	Maryland	Florida	New York

Trade in Services

$109 m

U.S. Services Exports to Latvia, 2020

$59 m

U.S. Services Imports from Latvia, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Lithuania and the United States

Jobs

United States in Lithuania	Lithuania in the United States
5,122	**0**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$182 m

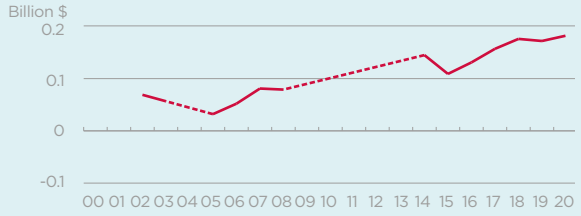
Foreign Direct Investment (FDI), 2020

$19 m

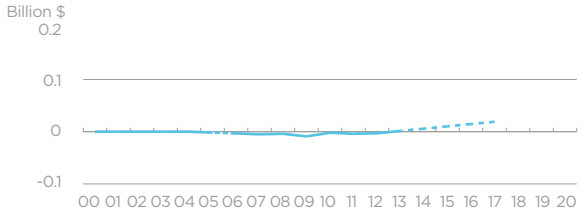
Foreign Direct Investment (FDI), 2017*

The U.S. FDI position in Lithuania remains small, but has more than doubled since the start of the century. U.S. affiliate employment in Lithuania has also been rising, with jobs increasing from 2,200 in 2016 to an estimated 5,122 in 2020. U.S. foreign affiliate sales in Lithuania amounted to $598 billion in 2020, with real value added by U.S. affiliates coming in at $395 billion, according to estimates.

U.S. FDI Position in Lithuania



Lithuania FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Latest year of available data. Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.

Trade in Goods

$1.0 bn

U.S. Goods Exports to Lithuania, 2020

1.7% The U.S. supplied 1.7% of Lithuania's total imports...

6.3% ...but the U.S. share increases to 6.3% when intra-EU trade is excluded from the total.

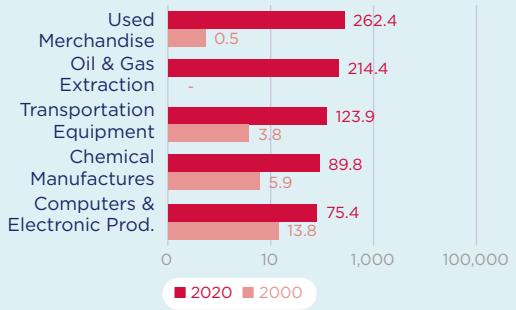
$1.3 bn

U.S. Goods Imports from Lithuania, 2020

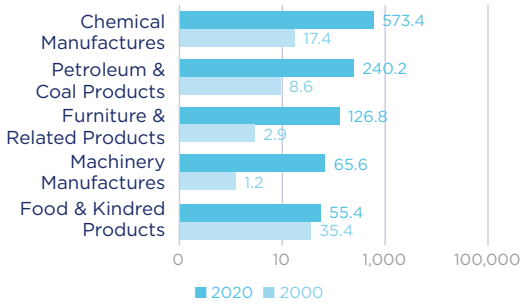
4.4% The U.S. received 4.4% of the total goods Lithuania exported to the world...

11.1% ...but the U.S. share increases to 11.1% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Lithuania ($ millions)



Top Five U.S. Goods Imports from Lithuania ($ millions)



Top State Exporters of Goods to Lithuania ($ millions)

1	2	3	4	5
176.3	137.5	104.1	93.6	72.4
Texas	California	New York	Louisiana	New Jersey

Top State Importers of Goods from Lithuania ($ millions)

1	2	3	4	5
296.0	227.5	97.1	87.7	62.7
Maryland	California	New Jersey	Texas	Massa-chusetts

Trade in Services

$132 m

U.S. Services Exports to Lithuania, 2020

$185 m

U.S. Services Imports from Lithuania, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis; United Nations.

Luxembourg and the United States

Jobs

United States in Luxembourg	Luxembourg in the United States
23,640	**21,668**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$759.4 bn

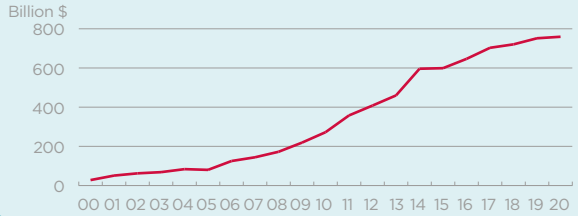
Foreign Direct Investment (FDI), 2020

$316.8 bn

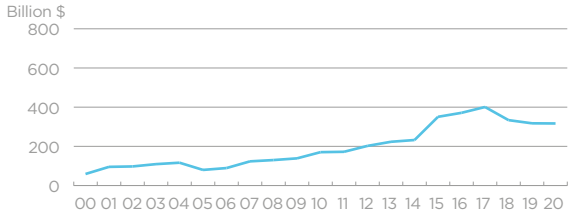
Foreign Direct Investment (FDI), 2020

Investment between the U.S. and Luxembourg is skewed in favor of Luxembourg. Estimated U.S. foreign affiliate sales in Luxembourg were about seven times greater than sales of Luxembourg affiliates in the U.S. Foreign direct investment and employment by Luxembourg firms in the U.S. have fluctuated over the past decade. In 2010 employment was at a peak of 38,300 workers, then fell to as low as 5,200 workers in 2016, and has since recovered to an estimated 21,700 workers in 2020.

U.S. FDI Position in Luxembourg



Luxembourg FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$1.4 bn

U.S. Goods Exports to Luxembourg, 2020

2.9% The U.S. supplied 2.9% of Luxembourg's total imports...

30.3% ...but the U.S. share increases to 30.3% when intra-EU trade is excluded from the total.

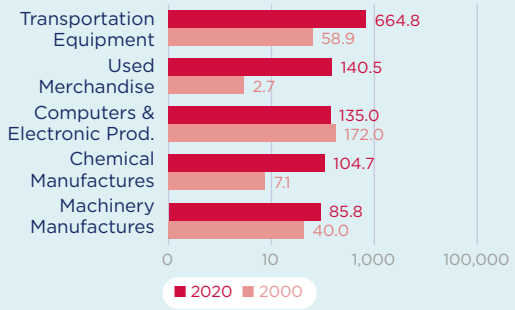
$0.5 bn

U.S. Goods Imports from Luxembourg, 2020

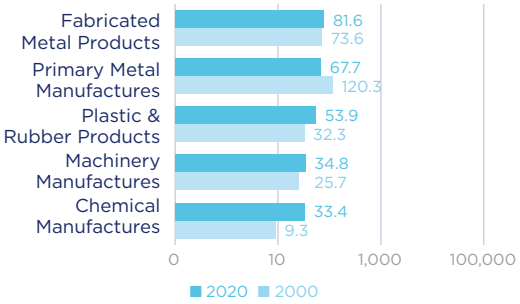
2.3% The U.S. received 2.3% of the total goods Luxembourg exported to the world...

13.7% ...but the U.S. share increases to 13.7% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Luxembourg ($ millions)



Top Five U.S. Goods Imports from Luxembourg ($ millions)



Top State Exporters of Goods to Luxembourg ($ millions)

1	2	3	4	5
301.8	131.3	131.0	123.6	110.7
Georgia	California	New York	Virginia	Florida

Top State Importers of Goods from Luxembourg ($ millions)

1	2	3	4	5
74.9	49.1	46.3	39.4	25.9
New York	Virginia	Illinois	New Jersey	Texas

Trade in Services

$7.1 bn

U.S. Services Exports to Luxembourg, 2020

$2.1 bn

U.S. Services Imports from Luxembourg, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Malta and the United States

Jobs

United States in Malta	Malta in the United States
1,773	**844**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$1.5 bn

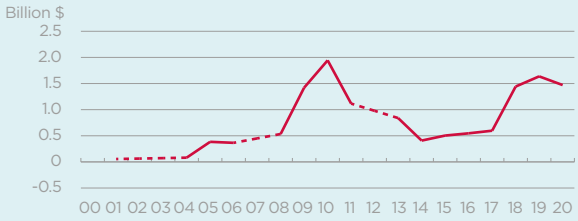
Foreign Direct Investment (FDI), 2020

$2.2 bn

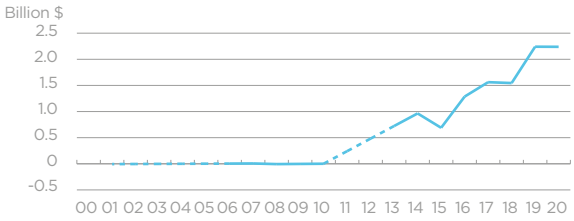
Foreign Direct Investment (FDI), 2020

Despite the country's tiny population (just 525,000 people), Malta has attracted a relatively large amount of foreign direct investment from the U.S. The investment position of the U.S. in Malta amounted to $1.5 billion in 2020. In addition, American investment directly supported jobs for roughly 1,800 workers in Malta, according to 2020 estimates. Meanwhile, Malta's direct investment position in the U.S. was $2.2 billion in 2020, which is markedly higher from its near-zero levels of investment prior to 2010.

U.S. FDI Position in Malta



Malta FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.

Trade in Goods

$138 m

U.S. Goods Exports to Malta, 2020

2.3% The U.S. supplied 2.3% of Malta's total imports...

6.6% ...but the U.S. share increases to 6.6% when intra-EU trade is excluded from the total.

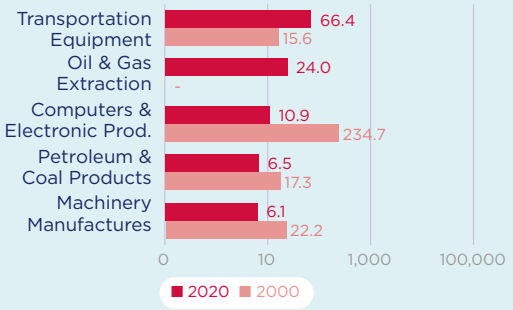
$172 m

U.S. Goods Imports from Malta, 2020

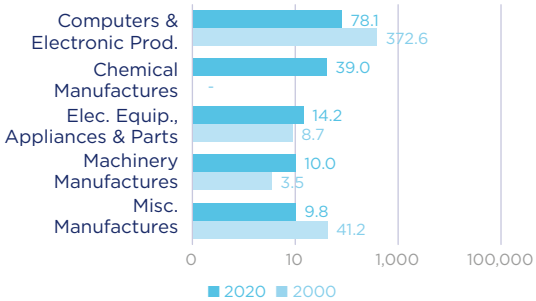
4.9% The U.S. received 4.9% of the total goods Malta exported to the world...

9.8% ...but the U.S. share increases to 9.8% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Malta ($ millions)



Top Five U.S. Goods Imports from Malta ($ millions)



Top State Exporters of Goods to Malta ($ millions)

1	2	3	4	5
59.0	18.2	13.8	6.5	5.0
Georgia	Louisiana	Maryland	Texas	California

Top State Importers of Goods from Malta ($ millions)

1	2	3	4	5
64.9	24.8	8.6	7.1	6.7
Illinois	California	Ohio	Michigan	Tennessee

Trade in Services

$0.5 bn

U.S. Services Exports to Malta, 2020

$0.6 bn

U.S. Services Imports from Malta, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Netherlands and the United States

Jobs

United States in Netherlands	Netherlands in the United States
255,509	**509,240**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$844.0 bn

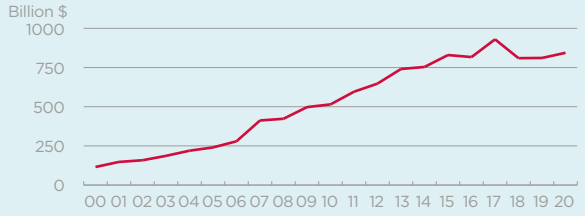
Foreign Direct Investment (FDI), 2020

$484.0 bn

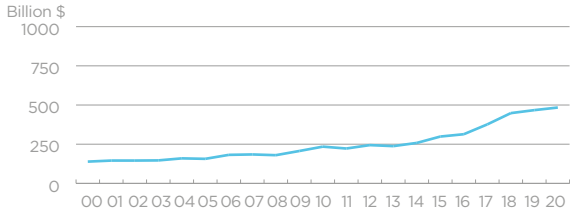
Foreign Direct Investment (FDI), 2020

America's investment stake in the Netherlands is almost double the amount of Dutch investment in the U.S. Still, the U.S. is a prime foreign destination for Dutch firms, which recorded an estimated $355 billion in affiliate sales in the U.S. during 2020, according to estimates. The employment balance clearly favors the U.S. with a large amount of jobs supported by Dutch firms in the U.S. Amsterdam was ranked by fDi Markets in 2020 as the 2nd most attractive city in Europe in terms of connectivity.

U.S. FDI Position in Netherlands



Netherlands FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$45.3 bn

U.S. Goods Exports to Netherlands, 2020

7.6% The U.S. supplied 7.6% of Netherlands's total imports...

14.0% ...but the U.S. share increases to 14.0% when intra-EU trade is excluded from the total.

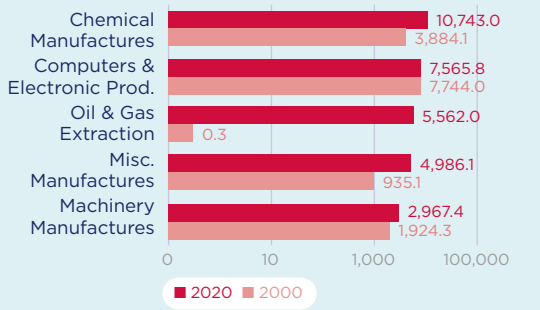
$27.4 bn

U.S. Goods Imports from Netherlands, 2020

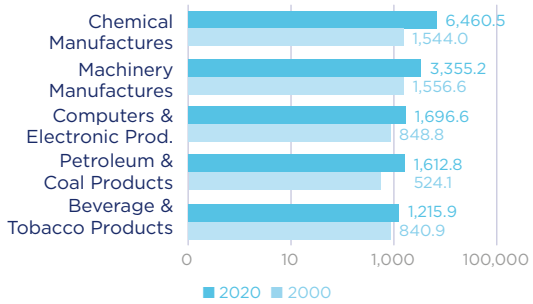
4.5% The U.S. received 4.5% of the total goods Netherlands exported to the world...

16.6% ...but the U.S. share increases to 16.6% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Netherlands ($ millions)



Top Five U.S. Goods Imports from Netherlands ($ millions)



Top State Exporters of Goods to Netherlands ($ millions)

1	2	3	4	5
8,918.5	5,663.8	2,837.2	1,515.5	1,436.8
Texas	California	Louisiana	Tennessee	New York

Top State Importers of Goods from Netherlands ($ millions)

1	2	3	4	5
7,112.8	2,084.9	2,003.6	1,639.4	1,563.5
Illinois	Kentucky	New Jersey	California	North Carolina

Trade in Services

$18.1 bn

U.S. Services Exports to Netherlands, 2020

$12.6 bn

U.S. Services Imports from Netherlands, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Norway and the United States

Jobs

United States in Norway	Norway in the United States
42,060	**6,847**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$21.5 bn

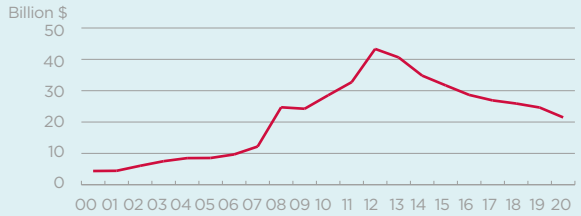
Foreign Direct Investment (FDI), 2020

$30.4 bn

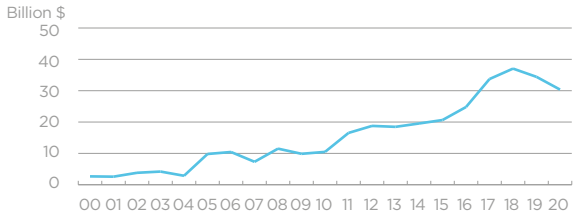
Foreign Direct Investment (FDI), 2020

U.S. FDI in Norway continued to decline in 2020, and is currently below Norway's FDI position in the U.S. The employment balance, however, is heavily skewed in favor of Norway, with U.S. foreign affiliates employing roughly 42,000 Norwegian workers, according to 2020 estimates. Meanwhile Norwegian companies employed just under 7,000 workers in the U.S.

U.S. FDI Position in Norway



Norway FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$2.8 bn

U.S. Goods Exports to Norway, 2020

6.8% The U.S. supplied 6.8% of Norway's total imports...

15.0% ...but the U.S. share increases to 15.0% when trade with the EU and U.K. is excluded from the total.

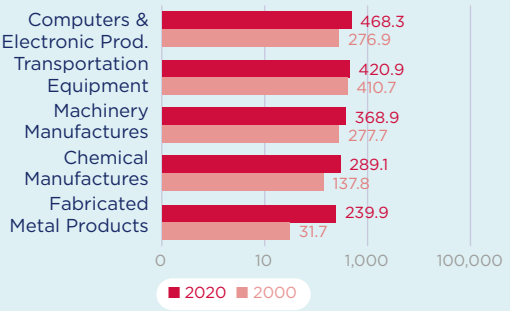
$3.9 bn

U.S. Goods Imports from Norway, 2020

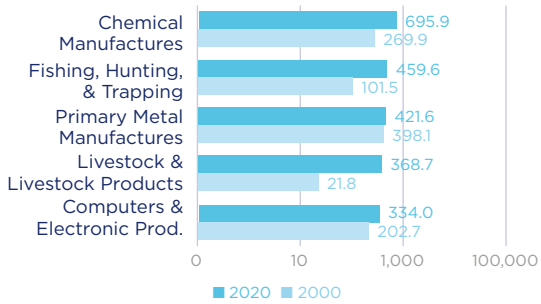
3.8% The U.S. received 3.8% of the total goods Norway exported to the world...

14.5% ...but the U.S. share increases to 14.5% when trade with the EU and U.K. is excluded from the total.

Top Five U.S. Goods Exports to Norway ($ millions)



Top Five U.S. Goods Imports from Norway ($ millions)



Top State Exporters of Goods to Norway ($ millions)

1	2	3	4	5
677.4	256.0	187.2	179.5	162.0
Texas	California	Louisiana	Connecticut	Pennsylvania

Top State Importers of Goods from Norway ($ millions)

1	2	3	4	5
524.7	511.2	451.3	414.7	240.5
New Jersey	Massachusetts	California	Texas	Illinois

Trade in Services

$1.8 bn

U.S. Services Exports to Norway, 2020

$1.7 bn

U.S. Services Imports from Norway, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Poland and the United States

Jobs

United States in Poland	Poland in the United States
214,238	**950**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$11.1 bn

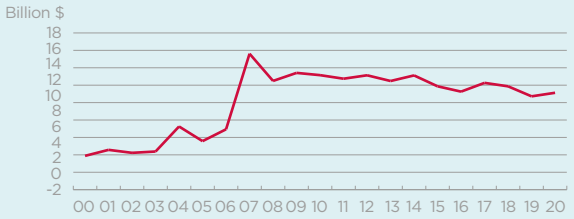
Foreign Direct Investment (FDI), 2020

$1.5 bn

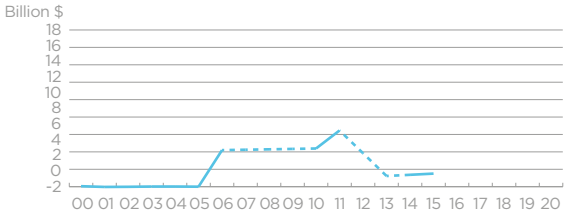
Foreign Direct Investment (FDI), 2015*

As one of the largest markets in central Europe, Poland has attracted significant sums of U.S. foreign direct investment. The estimated U.S. affiliate workforce of roughly 200,000 workers in Poland ranks number one among EU13 countries by a wide margin. Meanwhile, Polish companies have yet to make significant investments in the U.S., with less than 1,000 jobs supported by Polish firms in the U.S., and just $1.5 billion investment in 2015, the latest year with available data.

U.S. FDI Position in Poland



Poland FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Latest year of available data.

Trade in Goods

$5.0 bn

U.S. Goods Exports to Poland, 2020

1.8% The U.S. supplied 1.8% of Poland's total imports...

6.0% ...but the U.S. share increases to 6.0% when intra-EU trade is excluded from the total.

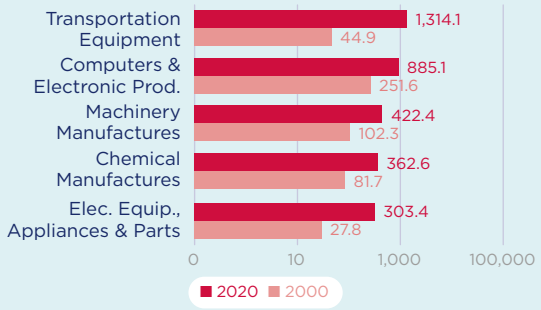
$8.6 bn

U.S. Goods Imports from Poland, 2020

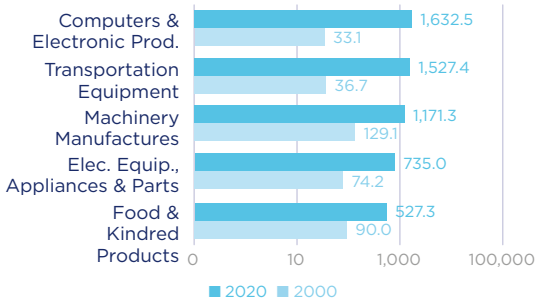
2.8% The U.S. received 2.8% of the total goods Poland exported to the world...

13.8% ...but the U.S. share increases to 13.8% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Poland ($ millions)



Top Five U.S. Goods Imports from Poland ($ millions)



Top State Exporters of Goods to Poland ($ millions)

1	2	3	4	5
722.3	353.7	323.4	232.5	206.2
Texas	Georgia	California	Connecticut	Michigan

Top State Importers of Goods from Poland ($ millions)

1	2	3	4	5
889.0	640.6	571.9	569.5	545.9
New Jersey	New York	Texas	Illinois	Tennessee

Trade in Services

$1.8 bn

U.S. Services Exports to Poland, 2020

$1.8 bn

U.S. Services Imports from Poland, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Portugal and the United States

Jobs

United States in Portugal	Portugal in the United States
32,210	**938**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$2.5 bn

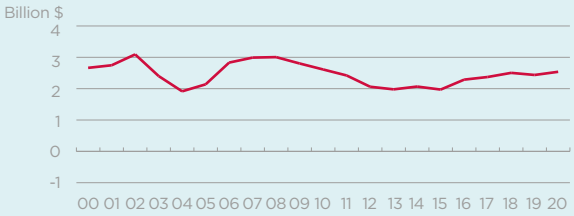
Foreign Direct Investment (FDI), 2020

$1.2 bn

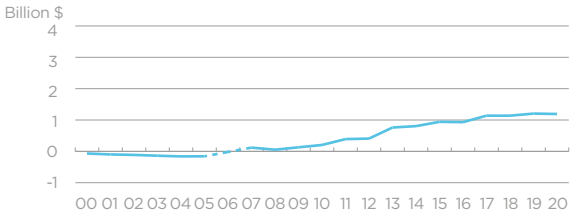
Foreign Direct Investment (FDI), 2020

The investment balance favors Portugal, with U.S. direct investment in Portugal totaled almost double Portugal's FDI in the U.S. By industry, FDI by Portuguese firms in the U.S. is largely concentrated in manufacturing, wholesale trade, and professional services. U.S. affiliates employed an estimated 32,000 Portuguese workers in 2020 compared to Portuguese affiliate employment of just over 900 Americans.

U.S. FDI Position in Portugal



Portugal FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.

Trade in Goods

$1.7 bn

U.S. Goods Exports to Portugal, 2020

1.8% The U.S. supplied 1.8% of Portugal's total imports...

8.1% ...but the U.S. share increases to 8.1% when intra-EU trade is excluded from the total.

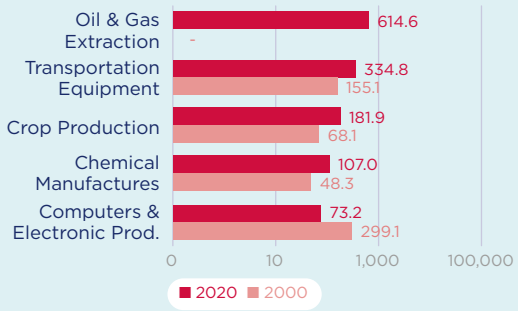
$3.8 bn

U.S. Goods Imports from Portugal, 2020

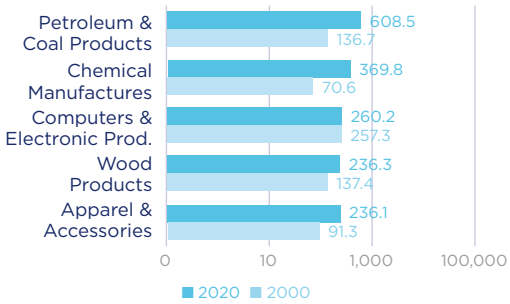
5.0% The U.S. received 5.0% of the total goods Portugal exported to the world...

21.2% ...but the U.S. share increases to 21.2% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Portugal ($ millions)



Top Five U.S. Goods Imports from Portugal ($ millions)



Top State Exporters of Goods to Portugal ($ millions)

1	2	3	4	5
666.6	**116.3**	**104.0**	**75.9**	**69.1**
Texas	Pennsylvania	Louisiana	California	Indiana

Top State Importers of Goods from Portugal ($ millions)

1	2	3	4	5
766.7	**432.7**	**331.2**	**260.1**	**227.4**
New Jersey	California	South Carolina	New York	Texas

Trade in Services

$0.7 bn

U.S. Services Exports to Portugal, 2020

$0.5 bn

U.S. Services Imports from Portugal, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Romania and the United States

Jobs

United States in Romania	Romania in the United States
80,475	**< 50**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$3.9 bn

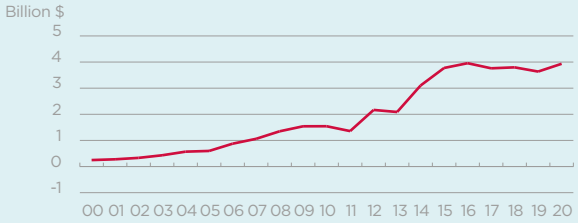
Foreign Direct Investment (FDI), 2020

$0.0 bn

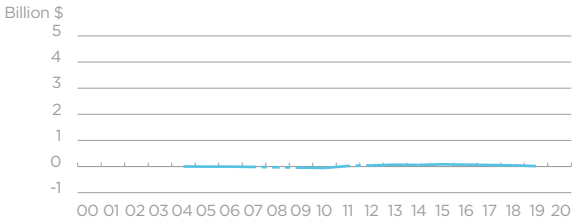
Foreign Direct Investment (FDI), 2019*

While America's investment in Romania is small relative to other EU members, U.S. investment ties with Romania have deepened over the decade. U.S. affiliates have added roughly 40,000 Romanian workers to their payrolls since 2009, placing Romania 2nd among the EU13 countries in terms of jobs supported. Meanwhile, Romania's investment in the U.S. is relatively small. Romanian multinationals employed fewer than 50 employees in the U.S. in 2020.

U.S. FDI Position in Romania



Romania FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Latest year of available data.

Trade in Goods

$0.9 bn

U.S. Goods Exports to Romania, 2020

1.1% The U.S. supplied 1.1% of Romania's total imports...

4.5% ...but the U.S. share increases to 4.5% when intra-EU trade is excluded from the total.

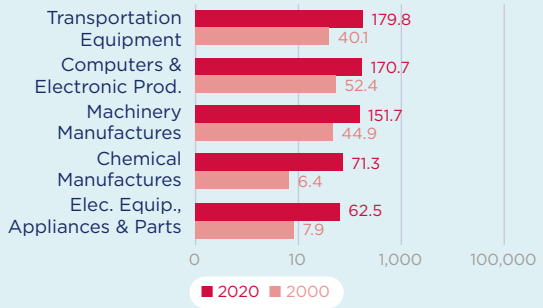
$2.1 bn

U.S. Goods Imports from Romania, 2020

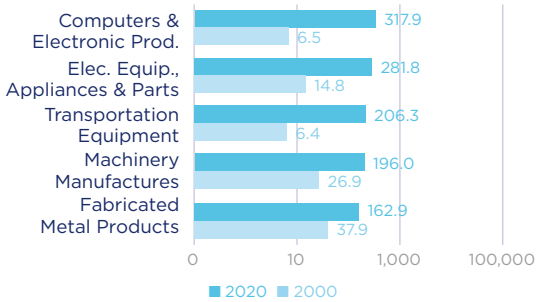
1.7% The U.S. received 1.7% of the total goods Romania exported to the world...

7.5% ...but the U.S. share increases to 7.5% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Romania ($ millions)



Top Five U.S. Goods Imports from Romania ($ millions)



Top State Exporters of Goods to Romania ($ millions)

1	2	3	4	5
92.5	81.9	54.7	53.6	48.1
California	Texas	Arkansas	North Carolina	New York

Top State Importers of Goods from Romania ($ millions)

1	2	3	4	5
286.5	267.4	120.1	116.1	115.5
Texas	South Carolina	North Carolina	New York	Georgia

Trade in Services

$522 m

U.S. Services Exports to Romania, 2020

$489 m

U.S. Services Imports from Romania, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Slovakia and the United States

Jobs

United States in Slovakia	Slovakia in the United States
42,158	**< 50**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$778 m

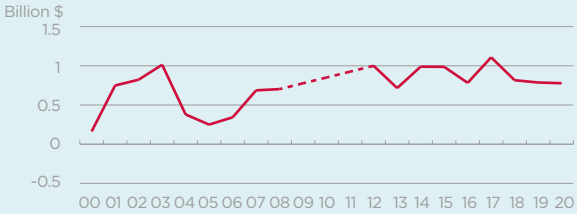
Foreign Direct Investment (FDI), 2020

$0.0 m

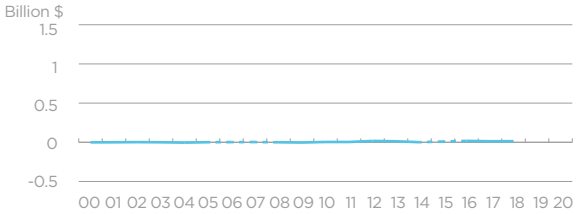
Foreign Direct Investment (FDI), 2018*

America's investment stock in Slovakia is relatively small, but foreign affiliate sales were $7.3 billion in 2020, according to estimates. Located in the heart of central Europe, Slovakia is well positioned to capture U.S. investment in areas such as distribution, transportation, wholesale trade and other service activities. U.S. foreign affiliates in Slovakia employed an estimated 42,000 workers overall, the 5th largest among the EU13 countries. Meanwhile, Slovakia's direct investment position in the U.S. was relatively small in 2018 (the latest year with available data) and affiliate employment amounted to fewer than 50 workers.

U.S. FDI Position in Slovakia



Slovakia FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.
*Latest year of available data. Negative FDI positions can occur when the loans from the affiliate to the parent company exceed the equity and debt investments from the parent to the affiliate, or if a foreign affiliate incurs sufficiently large losses.

Trade in Goods

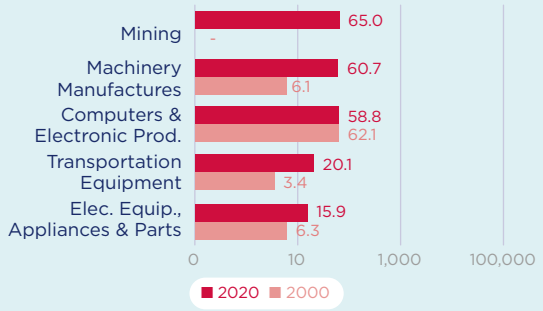
$0.3 bn

U.S. Goods Exports to Slovakia, 2020

0.6% The U.S. supplied 0.6% of Slovakia's total imports...

3.5% ...but the U.S. share increases to 3.5% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Slovakia ($ millions)



Top State Exporters of Goods to Slovakia ($ millions)

1	2	3	4	5
64.3	27.3	22.9	22.5	19.6
Minnesota	California	Illinois	Pennsylvania	New York

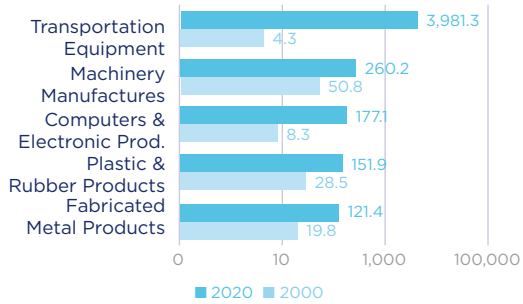
$5.0 bn

U.S. Goods Imports from Slovakia, 2020

3.7% The U.S. received 3.7% of the total goods Slovakia exported to the world...

22.5% ...but the U.S. share increases to 22.5% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Imports from Slovakia ($ millions)



Top State Importers of Goods from Slovakia ($ millions)

1	2	3	4	5
842.5	822.7	749.3	653.3	543.2
Texas	California	Rhode Island	Florida	New Jersey

Trade in Services

$246 m

U.S. Services Exports to Slovakia, 2020

$197 m

U.S. Services Imports from Slovakia, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Slovenia and the United States

Jobs

United States in Slovenia	Slovenia in the United States
4,827	<50

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$265 m

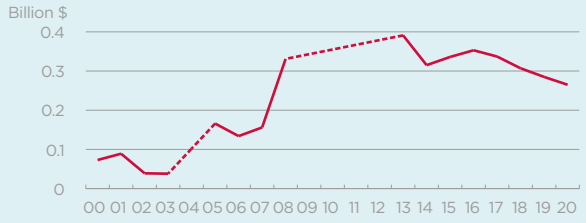
Foreign Direct Investment (FDI), 2020

$0.0 m

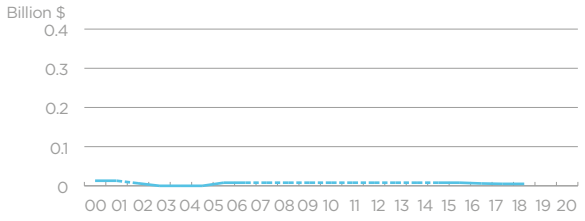
Foreign Direct Investment (FDI), 2018*

U.S. foreign direct investment in Slovenia continued to decline in 2020, and remains relatively low compared to other EU countries. Meanwhile, Slovenia's outward FDI stock in the U.S. was just $5 million, with affiliates supporting fewer than 50 jobs. U.S. direct investment in Slovenia supported about 4,800 jobs in 2020, but has been relatively flat since 2004. Estimated U.S. foreign affiliate sales in Slovenia were $800 million in 2020, compared with near-zero foreign affiliate sales earned by Slovenian firms in the U.S.

U.S. FDI Position in Slovenia



Slovenia FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.

Trade in Goods

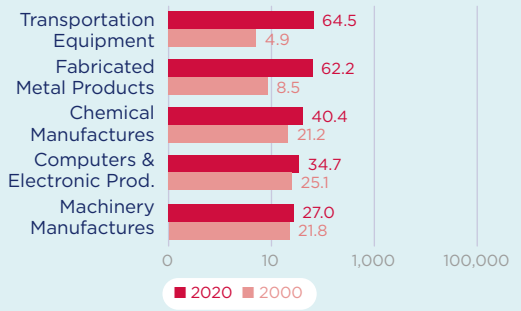
$0.3 bn

U.S. Goods Exports to Slovenia, 2020

0.7% The U.S. supplied 0.7% of Slovenia's total imports...

1.7% ...but the U.S. share increases to 1.7% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Slovenia ($ millions)



Top State Exporters of Goods to Slovenia ($ millions)

1	2	3	4	5
55.0	53.5	26.7	22.4	15.4
Florida	South Carolina	Texas	California	New York

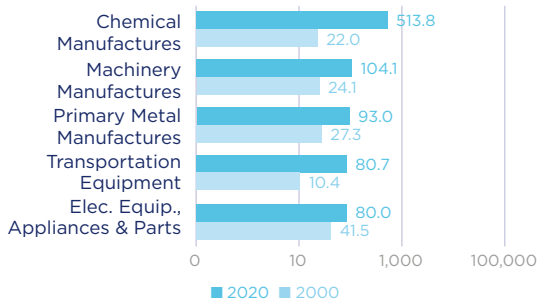
$1.2 bn

U.S. Goods Imports from Slovenia, 2020

1.6% The U.S. received 1.6% of the total goods Slovenia exported to the world...

5.0% ...but the U.S. share increases to 5.0% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Imports from Slovenia ($ millions)



Top State Importers of Goods from Slovenia ($ millions)

1	2	3	4	5
343.3	242.6	64.7	62.9	50.3
Pennsylvania	New Jersey	Illinois	South Carolina	Georgia

Trade in Services

$114 m

U.S. Services Exports to Slovenia, 2020

$42 m

U.S. Services Imports from Slovenia, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis; United Nations.

Spain and the United States

Jobs

United States in Spain	Spain in the United States
177,891	**86,296**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$38.5 bn

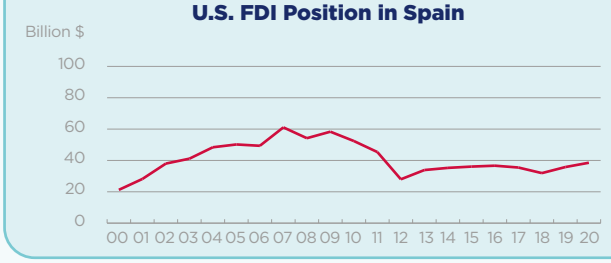
Foreign Direct Investment (FDI), 2020

$88.4 bn

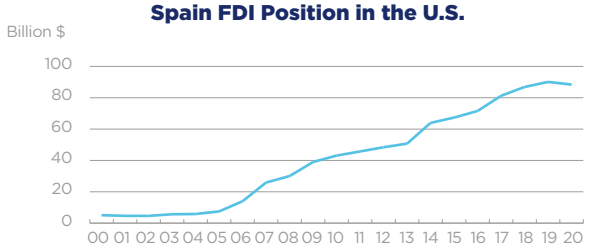
Foreign Direct Investment (FDI), 2020

Since 2011, the investment balance shifted in favor of the U.S., as Spain's economy was squeezed by a severe recession and resulting austerity measures. Since then, U.S. direct investment in Spain has slightly recovered, totaling $38 billion in 2020. Meanwhile, the U.S. has seen its inward FDI stock from Spain rise by almost 125% since 2009. Prior to the 2020 COVID-19 recession, Spanish investment in the U.S. had increased every year since 2002. U.S. affiliates based in Spain employ about twice as many workers as Spanish affiliates employ in the U.S., according to 2020 estimates.

U.S. FDI Position in Spain



Spain FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$12.9 bn

U.S. Goods Exports to Spain, 2020

4.1% The U.S. supplied 4.1% of Spain's total imports...

10.4% ...but the U.S. share increases to 10.4% when intra-EU trade is excluded from the total.

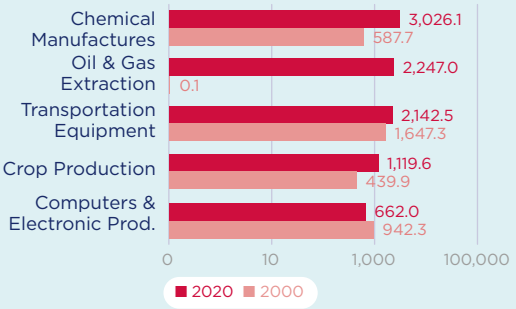
$15.3 bn

U.S. Goods Imports from Spain, 2020

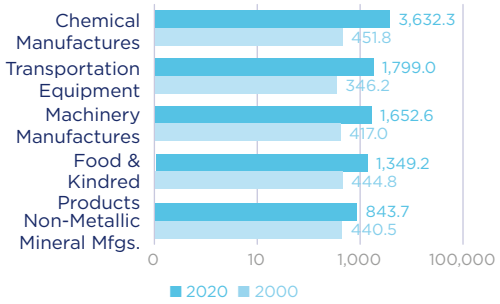
4.5% The U.S. received 4.5% of the total goods Spain exported to the world...

13.8% ...but the U.S. share increases to 13.8% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Spain ($ millions)



Top Five U.S. Goods Imports from Spain ($ millions)



Top State Exporters of Goods to Spain ($ millions)

1	2	3	4	5
2,614.8	**1,398.9**	**1,022.2**	**896.7**	**757.3**
Texas	California	Louisiana	Michigan	South Carolina

Top State Importers of Goods from Spain ($ millions)

1	2	3	4	5
2,564.5	**1,423.0**	**1,209.2**	**957.9**	**896.9**
New Jersey	Texas	Florida	California	New York

Trade in Services

$5.0 bn

U.S. Services Exports to Spain, 2020

$3.6 bn

U.S. Services Imports from Spain, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Sweden and the United States

Jobs

United States in Sweden	Sweden in the United States
68,458	**212,645**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$63.8 bn

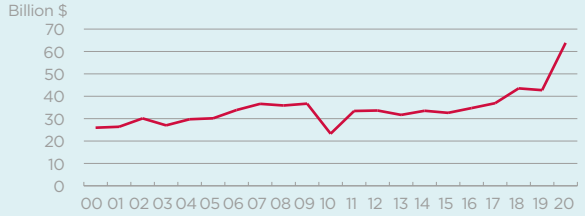
Foreign Direct Investment (FDI), 2020

$55.4 bn

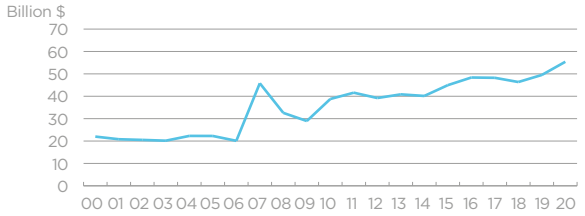
Foreign Direct Investment (FDI), 2020

U.S. FDI in Sweden rose sharply in 2020 to over $60 billion. Meanwhile, U.S. investment stock in Sweden continued its steady rise, and the investment balance is now relatively balanced. However, the value added of Swedish affiliates in the U.S. ($19 billion) exceeds that of U.S. foreign affiliates in Sweden ($8.5 billion). The employment balance is heavily skewed in favor of the United States, with Swedish firms estimated to have employed over triple the amount of workers that U.S. firms employ in Sweden.

U.S. FDI Position in Sweden



Sweden FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$4.8 bn

U.S. Goods Exports to Sweden, 2020

2.9% The U.S. supplied 2.9% of Sweden's total imports...

10.2% ...but the U.S. share increases to 10.2% when intra-EU trade is excluded from the total.

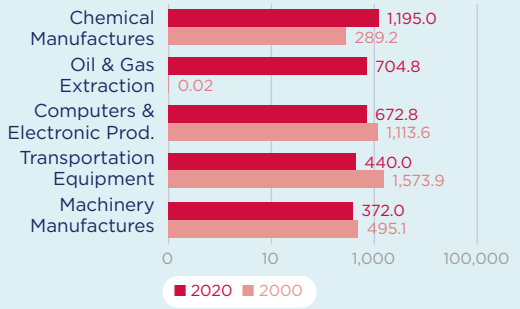
$12.4 bn

U.S. Goods Imports from Sweden, 2020

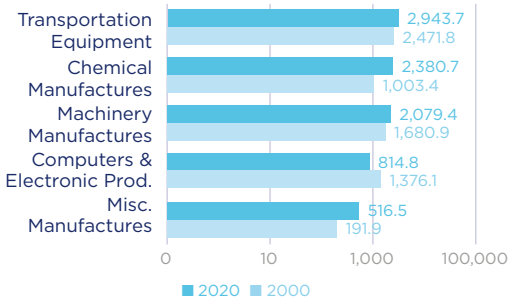
8.4% The U.S. received 8.4% of the total goods Sweden exported to the world...

19.7% ...but the U.S. share increases to 19.7% when intra-EU trade is excluded from the total.

Top Five U.S. Goods Exports to Sweden ($ millions)



Top Five U.S. Goods Imports from Sweden ($ millions)



Top State Exporters of Goods to Sweden ($ millions)

1	2	3	4	5
900.5	**582.9**	**288.3**	**192.6**	**192.6**
Texas	California	North Carolina	Indiana	Ohio

Top State Importers of Goods from Sweden ($ millions)

1	2	3	4	5
1,874.7	**901.4**	**816.4**	**814.2**	**808.8**
New Jersey	Maryland	Georgia	Pennsylvania	Kentucky

Trade in Services

$5.0 bn

U.S. Services Exports to Sweden, 2020

$3.0 bn

U.S. Services Imports from Sweden, 2020

Note: U.K. included in EU for purposes of calculating intra-EU trade.
Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Switzerland and the United States

Jobs

United States in Switzerland	Switzerland in the United States
97,515	**460,183**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$211.9 bn

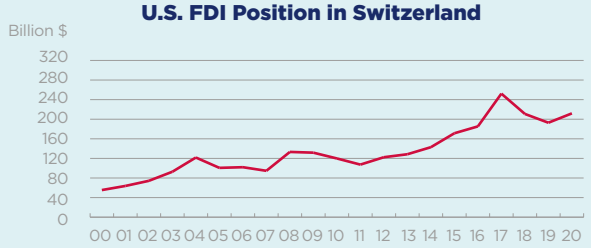
Foreign Direct Investment (FDI), 2020

$300.3 bn

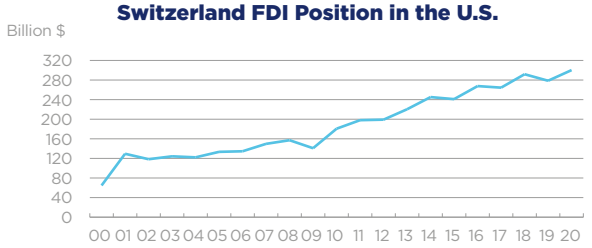
Foreign Direct Investment (FDI), 2020

The investment balance favors the U.S.— Swiss direct investment stock in the U.S. exceeded U.S. investment in Switzerland by about $90 billion. The largest industries for U.S.-Switzerland bi-lateral investment were finance and insurance, chemicals manufacturing and non-bank holding companies. Estimates show the employment balance significantly favors the United States.

U.S. FDI Position in Switzerland



Switzerland FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$18.1 bn

U.S. Goods Exports to Switzerland, 2020

7.2% The U.S. supplied 7.2% of Switzerland's total imports...

16.1% ...but the U.S. share increases to 16.1% when trade with the EU and U.K. is excluded from the total.

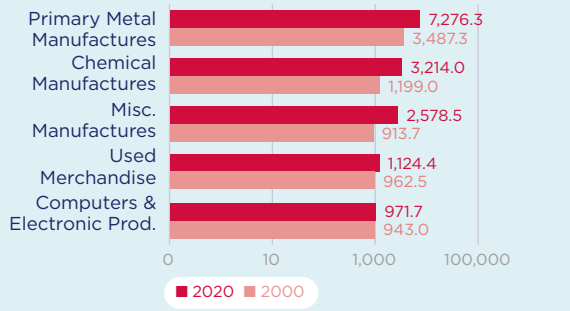
$74.8 bn

U.S. Goods Imports from Switzerland, 2020

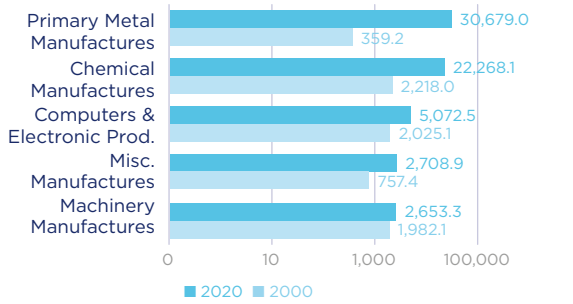
21.8% The U.S. received 21.8% of the total goods Switzerland exported to the world...

40.5% ...but the U.S. share increases to 40.5% when trade with the EU and U.K. is excluded from the total.

Top Five U.S. Goods Exports to Switzerland ($ millions)



Top Five U.S. Goods Imports from Switzerland ($ millions)



Top State Exporters of Goods to Switzerland ($ millions)

1	2	3	4	5
6,450.5	2,256.0	1,507.3	815.4	779.5
New York	Nevada	California	New Jersey	Pennsylvania

Top State Importers of Goods from Switzerland ($ millions)

1	2	3	4	5
33,125.8	7,723.5	7,213.9	5,443.0	2,708.2
New York	New Jersey	Pennsylvania	Kentucky	California

Trade in Services

$42.0 bn

U.S. Services Exports to Switzerland, 2020

$24.9 bn

U.S. Services Imports from Switzerland, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Turkey and the United States

Jobs

United States in Turkey	Turkey in the United States
58,115	**4,784**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$5.8 bn

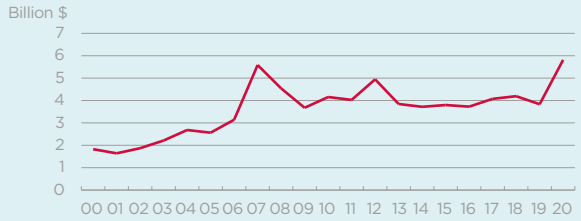
Foreign Direct Investment (FDI), 2020

$2.6 bn

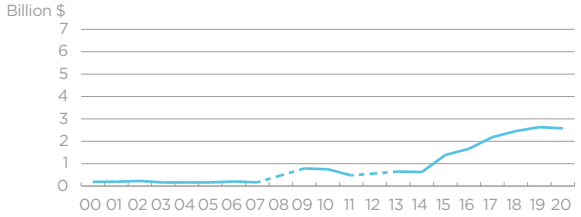
Foreign Direct Investment (FDI), 2020

The investment balance favors Turkey — the U.S. had $5.8 billion of foreign direct investment in Turkey in 2020 versus Turkey's $2.6 billion of investment in the U.S. According to 2020 estimates, affiliates of U.S. multinationals had sales of $24 billion in Turkey compared to Turkey's affiliate sales in the U.S. of only $1.3 billion. U.S. affiliate employment in Turkey remains near all-time highs, despite a slight COVID-19 related pullback in 2020.

U.S. FDI Position in Turkey



Turkey FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.
Note: Dotted line indicates that data has been suppressed for a particular year to avoid disclosure of individual company data.

Trade in Goods

$10.0 bn

U.S. Goods Exports to Turkey, 2020

5.3% The U.S. supplied 5.3% of Turkey's total imports...

8.2% ...but the U.S. share increases to 8.2% when trade with the EU and U.K. is excluded from the total.

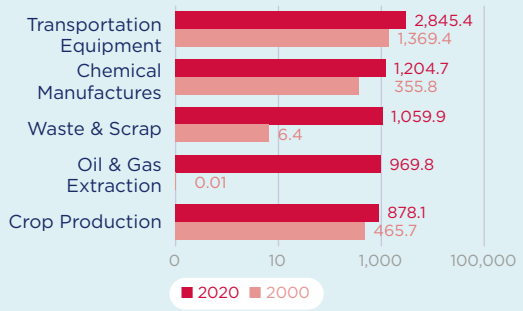
$11.0 bn

U.S. Goods Imports from Turkey, 2020

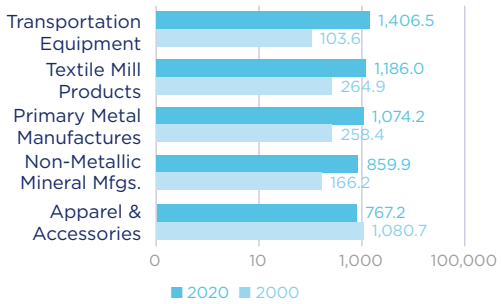
6.0% The U.S. received 6.0% of the total goods Turkey exported to the world...

11.5% ...but the U.S. share increases to 11.5% when trade with the EU and U.K. is excluded from the total.

Top Five U.S. Goods Exports to Turkey ($ millions)



Top Five U.S. Goods Imports from Turkey ($ millions)



Top State Exporters of Goods to Turkey ($ millions)

1	2	3	4	5
1,622.1	1,558.3	725.6	612.1	598.8
Washington	Texas	California	New York	Louisiana

Top State Importers of Goods from Turkey ($ millions)

1	2	3	4	5
1,345.0	1,340.0	1,293.3	854.4	755.4
New York	New Jersey	Texas	California	Georgia

Trade in Services

$2.8 bn

U.S. Services Exports to Turkey, 2020

$1.4 bn

U.S. Services Imports from Turkey, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

United Kingdom and the United States

Jobs

United States in United Kingdom: **1,464,203**

United Kingdom in the United States: **1,174,657**

Jobs directly supported by majority-owned affiliates. Estimates for 2020. Total U.S.-related jobs are likely to be higher, because these figures do not include jobs created by trade flows, indirect employment effects through distributors or suppliers, or via non-equity arrangements such as strategic alliances, joint ventures, or other deals.

Investment

$890.1 bn

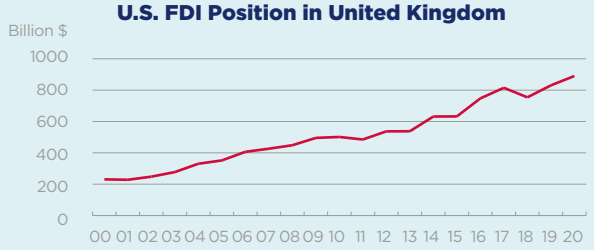
Foreign Direct Investment (FDI), 2020

$486.9 bn

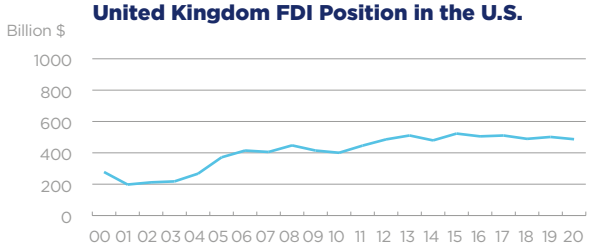
Foreign Direct Investment (FDI), 2020

In terms of the U.S.-U.K. investment balance, the U.S. had a larger cross-border impact in 2020. U.S. foreign direct investment in the United Kingdom totaled a record $890 billion in 2020, and the U.K.'s foreign direct investment in the U.S. remained flat at roughly $500 billion. Estimated sales of American and British affiliates in each other's markets were a combined $1.3 trillion in 2020. According to estimates for 2020, U.S. affiliates employed roughly 1.5 million workers in the U.K. while U.K. affiliates employed about 1.2 million Americans.

U.S. FDI Position in United Kingdom



United Kingdom FDI Position in the U.S.



Foreign direct investment position, historic-cost basis, 2000-2020.

Trade in Goods

$58.4 bn

U.S. Goods Exports to United Kingdom, 2020

9.3% The U.S. supplied 9.3% of United Kingdom's total imports...

17.2% ...but the U.S. share increases to 17.2% when trade with the EU is excluded from the total.

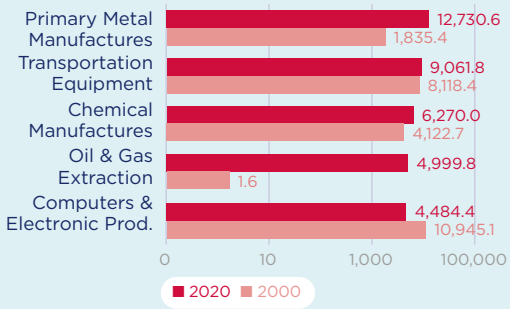
$50.3 bn

U.S. Goods Imports from United Kingdom, 2020

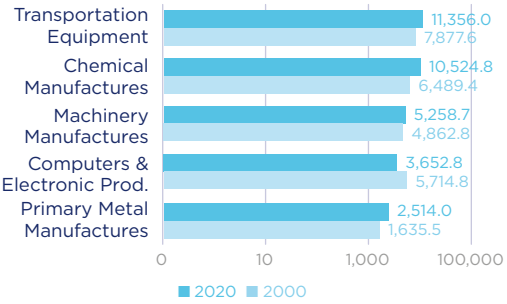
14.5% The U.S. received 14.5% of the total goods United Kingdom exported to the world...

26.7% ...but the U.S. share increases to 26.7% when trade with the EU is excluded from the total.

Top Five U.S. Goods Exports to United Kingdom ($ millions)



Top Five U.S. Goods Imports from United Kingdom ($ millions)



Top State Exporters of Goods United Kingdom ($ millions)

1	2	3	4	5
8,906.3	7,428.0	4,968.0	4,084.3	3,281.3
Utah	Texas	California	New York	New Jersey

Top State Importers of Goods from United Kingdom ($ millions)

1	2	3	4	5
5,457.7	4,039.9	3,864.9	3,748.8	3,445.5
New Jersey	New York	Texas	California	Georgia

Trade in Services

$62.7 bn

U.S. Services Exports to United Kingdom, 2020

$52.5 bn

U.S. Services Imports from United Kingdom, 2020

Sources: Bureau of Economic Analysis; U.S. Commerce Department; International Monetary Fund; Office of Trade and Economic Analysis.

Notes on Terms, Data and Sources

Employment, Investment, and Trade Linkages for the 50 U.S. States and Europe

Jobs data are from the U.S. Commerce Department's Bureau of Economic Analysis (BEA). BEA employment by state is only available for Canada, France, Germany, Japan, the Netherlands, Switzerland, and the United Kingdom; for this reason, other countries may not be listed in this jobs section. Data on investment is from SelectUSA, a program led by the U.S. Department of Commerce, using data from fDi Markets. The data show number of Greenfield FDI projects announced over the span of ten years; this does not directly translate to the value of projects or jobs added. Trade data comes from the U.S. Census Bureau's USA Trade Online database as well as the International Trade Administration at the U.S. Commerce Department. Europe includes Albania, Andorra, Armenia, Austria, Azerbaijan, Belarus, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Faroe Islands, Finland, France, Georgia, Germany, Gibraltar, Greece, Hungary, Iceland, Ireland, Italy, Kazakhstan, Kosovo, Kyrgyzstan, Latvia, Liechtenstein, Lithuania, Luxembourg, North Macedonia, Malta, Moldova, Monaco, Montenegro, Netherlands, Norway, Poland, Portugal, Romania, Russia, San Marino, Serbia, Slovakia, Slovenia, Spain, Svalbard, Sweden, Switzerland, Tajikistan, Turkey, Turkmenistan, Ukraine, United Kingdom, Uzbekistan, Vatican City. The top ten exports and imports bar charts employ a logarithmic scale to facilitate cross-state comparisons.

Investment and Trade for the EU 27, UK, Norway, Switzerland, Turkey and the U.S.

Investment and jobs data are from the Bureau of Economic Analysis, with employment figures representing author estimates for 2019. Dotted lines on the FDI trend for certain countries indicate that data was unavailable for that time period. Data on exports and imports of goods and services are from the U.S. Commerce Department. The bar charts employ logarithmic scales to facilitate cross-country comparisons. Data on trade exports and imports by state were extracted from the U.S. Census Bureau's USA Trade Online database. The data representing the United States' share of imports and exports were constructed using data from the International Monetary Fund's Direction of Trade Statistics database.

Foreign direct investment (FDI) measures the direct investment position between foreign affiliates and their parent companies. These statistics specifically measure the U.S. or European parent's share, or interest, in its foreign affiliate rather than overall size or level of operations of the foreign affiliate. The U.S. direct investment position abroad is equal to the value of U.S. par¬ents' equity in, and net outstanding loans to, their foreign affiliates at historical cost.

Total assets, employment, sales, research & development, and value-added statistics are sourced from the BEA's Survey of Activities of Multinational Enterprises. These statistics on the activities of majority-owned foreign affiliates are not adjusted for the ownership share of the parent company. Thus, for example, the employment statistics include all the employees of each affiliate, including affiliates in which the U.S. parent's ownership share is less than 100 percent. Total assets on a majority-owned foreign affiliate's balance sheet measures the affiliate's total assets, including the share of assets not owned by the U.S. parent.

Majority-owned foreign affiliates are affiliates that are more than 50 percent owned by their U.S. parent. Majority-owned U.S. affiliates are affiliates that are more than 50 percent owned by the European parent company.

Digital Services

Information and communications technology (ICT) services, or *digital services*, are services used to facilitate information processing and communication. The U.S. Bureau of Economic Analysis (BEA) defines digital services as including three categories of international trade in services: telecommunications services, computer services, and charges for the use of intellectual property associated with computer software. *Digitally enabled services, or potentially ICT-enabled services*, are services that can be, but not necessarily are, delivered remotely over ICT networks. These include insurance services; financial services; charges for the use of intellectual property; telecommunications, computer, and information services; research and development services; professional and management consulting services; architectural, engineering, scientific, and other technical services; trade-related services; and certain other services included in personal, cultural, and recreational services (audiovisual services and other personal, cultural, and recreational services). Potentially ICT-enabled services include ICT services. The definition of digitally enabled services supplied abroad by foreign affiliates includes the following industries: information, finance and insurance, and professional, scientific, and technical services.

E-Commerce

Most estimates of e-commerce do not distinguish whether such commerce is domestic or international. In addition, many metrics do not make it clear whether they cover all modes of e-commerce or only the leading indicators of business-to-business (B2B) and business-to-consumer (B2C) e-commerce. Finally, there are no official data on the value of cross-border e-commerce sales broken down by mode; official statistics on e-commerce are sparse and usually based on surveys rather than on real data. The U.S. International Trade Commission (ITC) defines global e-commerce as the sale of goods and services over the internet.

Terms

Throughout this report, the terms "EU," "EU27" or "EU (excluding UK)" refers to all 27 member states of the European Union, excluding the United Kingdom. The terms "EU28" or "EU (including UK)" includes all 27 member states of the European Union plus the United Kingdom. The term EU15 refers to older EU member states: United Kingdom, Ireland, Belgium, Luxembourg, the Netherlands, Austria, Spain, Italy, Greece, France, Germany, Portugal, Sweden, Finland, and Denmark. The term EU13 refers to newer EU member states: Estonia, Latvia, Lithuania, Poland, the Czech Republic, Slovakia, Hungary, Slovenia, Malta, Cyprus, Romania and Bulgaria, and Croatia. The "euro area" includes those EU member states that have adopted the euro as their currency: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovakia, Slovenia, and Spain.

In addition to the above, the term "Europe" in this report refers to the following: all 27 members of the European Union plus Albania, Andorra, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Georgia, Gibraltar, Greenland, Iceland, Kazakhstan, Kosovo, Kyrgyzstan, Macedonia, Malta, Moldova, Monaco, Montenegro, Norway, Russia, Serbia, San Marino, Switzerland, Turkey, Tajikistan, Turkmenistan, Ukraine, the United Kingdom, Uzbekistan, and Vatican City.

About the Authors

Daniel S. Hamilton and **Joseph P. Quinlan** have been producing *The Transatlantic Economy annual survey* since 2004. They have authored and edited a series of award-winning books and articles on the modern transatlantic economy, including *Atlantic Rising: Changing Commercial Dynamics in the Atlantic Basin; Germany and Globalization; France and Globalization; Globalization and Europe: Prospering in a New Whirled Order; Sleeping Giant: Awakening the Transatlantic Services Economy; Protecting Our Prosperity: Ensuring Both National Security and the Benefits of Foreign Investment in the United States; Deep Integration: How Transatlantic Markets are Leading Globalization;* and *Partners in Prosperity: The Changing Geography of the Transatlantic Economy.* Together they were recipients of the 2007 Transatlantic Leadership Award by the European-American Business Council and the 2006 Transatlantic Business Award by the American Chamber of Commerce to the European Union.

Daniel S. Hamilton is Senior non-resident Fellow at the Brookings Institution and co-leads "The United States, Europe, and World Order" postdoctoral program at Johns Hopkins University's Paul H. Nitze School of Advanced International Studies, where he has served as Austrian Marshall Plan Foundation Fellow and Richard von Weizsäcker Professor. During the 2020-2021 academic year he directed the Global Europe Program at the Woodrow Wilson Center. He was the Founding Director of the SAIS Center for Transatlantic Relations and for 15 years served as Executive Director of the American Consortium on EU Studies. He is President of the Transatlantic Leadership Network, and has been a consultant for Microsoft and an advisor to the U.S. Business Roundtable, the Transatlantic Business Dialogue, and the European-American Business Council. Recent books include *Paradigm Lost? The European Union and the Challenges of a New World, edited with Gregor Kirchhof and Andreas Rödder; The Arctic* and *World Order; Exiting the Cold War, Entering a New World; and Open Door: NATO and Euro-Atlantic Security After the Cold War*, the latter three edited with Kristina Spohr; *Europe Whole and Free: Vision and Reality; Turkey in the North Atlantic Marketplace: Creating a North Atlantic Marketplace: Three Paths, One Detour, A U-Turn and the Road to Nowhere; The Transatlantic Digital Economy 2017; Rule-Makers or Rule-Takers? Exploring the Transatlantic Trade and Investment Partnership,* edited with Jacques Pelkmans; and *The Geopolitics of TTIP*. He has served as U.S. Deputy Assistant Secretary of State and Associate Director of the Policy Planning Staff for two U.S. Secretaries of State.

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THE TRANSATLANTIC ECONOMY 2022

Annual Survey of Jobs, Trade and Investment between the United States and Europe

Daniel S. Hamilton and Joseph P. Quinlan

The Transatlantic Economy 2022 annual survey offers the most up-to-date set of facts and figures describing the deep economic integration binding Europe and the United States. It documents European-sourced jobs, trade and investment in each of the 50 U.S. states, and U.S.-sourced jobs, trade and investment in each member state of the European Union and other European countries. It reviews key headline trends and helps readers understand the distinctive nature of transatlantic economic relations.

Key sectors of the transatlantic economy are integrating as never before, underpinning a multi-trillion-dollar economy that generates millions of jobs on both sides of the Atlantic and is registering heightened growth opportunities, despite a whirlwind of political uncertainty about the direction of U.S., EU and UK policies.

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- what trade spats, supply-chain logjams, COVID-19 and Brexit mean for the transatlantic economy
- how U.S.-European commercial relations compare with those each has with China and other rising powers
- how the digital economy is powering economic relations
- the rise of the transatlantic energy economy, and
- how decision-makers and business leaders can address current opportunities and challenges.

The Transatlantic Economy 2022 provides key insights about the United States and Europe in the global economy, with often counterintuitive connections with important implications for policymakers, business leaders, and local officials.

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ISBN 978-1-947661-14-1
53000>
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Design by inextremis.be - Illustrations: inextremis.be - stock.adobe.com